

ECLAS CONFERENCE TARTU 2015. LANDSCAPES IN FLUX. 20.–23.09

BOOK OF PROCEEDINGS

Edited by Gloria Niin & Himansu Sekhar Mishra

Landscapes in FLUX

**PEER REVIEWED PROCEEDINGS
ECLAS 2015 CONFERENCE
LANDSCAPES IN FLUX**

**21 to 23 September
Department of Landscape Architecture
Estonian University of Life Sciences
Tartu Estonia**

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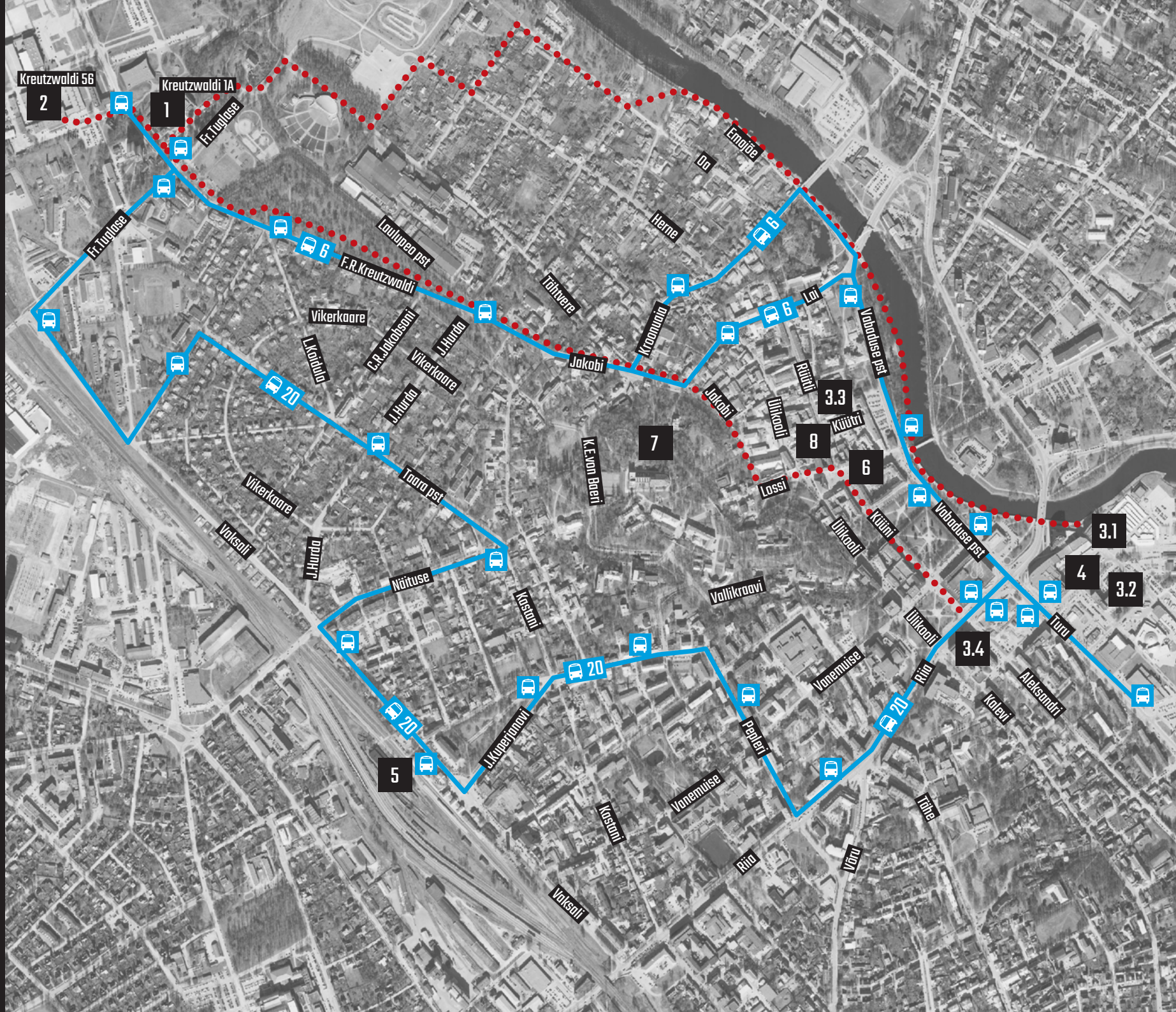
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ECLAS CONFERENCE TARTU 2015. LANDSCAPES IN FLUX. 20.-23.09

- 1 Venue location
Estonian University
of Life Sciences,
main building,
Kreutzwaldi 1A
- 2 Department of Landscape
Architecture,
Kreutzwaldi 56
- 3 Hotels
 - 3.1 Dorpat
 - 3.2 Tartu
 - 3.3 London
 - 3.4 Pallas
- 4 Bus station
- 5 Train station
- 6 Town Square
- 7 Toome Hill
- 8 Rüütli and Küütri street
(restaurants, bars and pubs)
-  Bus 6 and 20



Welcome to Tartu and the Estonian University of Life Sciences. We at the Department of Landscape Architecture are very honoured to be able to host the premier landscape education and research event in Europe in 2015. We hope that those of you who have not yet visited this corner of Europe – a small country on the borders of the EU, at the point where East meets west – literally since the country contains one of the dividing points between Orthodox Christianity and Lutheran Protestantism and has been a disputed territory between competing empires for most of its history. Estonia is now an advanced country well-known for its innovation, its connectivity, its wifi, as the birthplace of Skype and the home to a thriving creative community in art and design, music and fashion, architecture, furniture, interior design and – of course – landscape architecture.

Estonia has four capitals: Tallinn (political) Pärnu (summer) Otepää (winter) and Tartu (academic). It is also a country steeped in history. Tartu is an old Hanseatic city, as is Tallinn. Tartu was fortified by the Swedes and is home to the second oldest university in Sweden (!). Estonia is a largely rural country with a low population density, rich in forests, lakes and wetlands. It also contains many signs from the Soviet times when it was integrated into the Soviet Union. Tartu was a closed city with a large military airfield and many remains from those times are present in the landscape. The coastal zone was also a no-go area and became, through neglect, a fascinating rich wildlife reserve at the same time as a border zone. In the north-east of Estonia is a region dominated by Russian speakers, close to the Russian border, with many industrial activities and remains. We will visit some of these on the post-conference field trips.

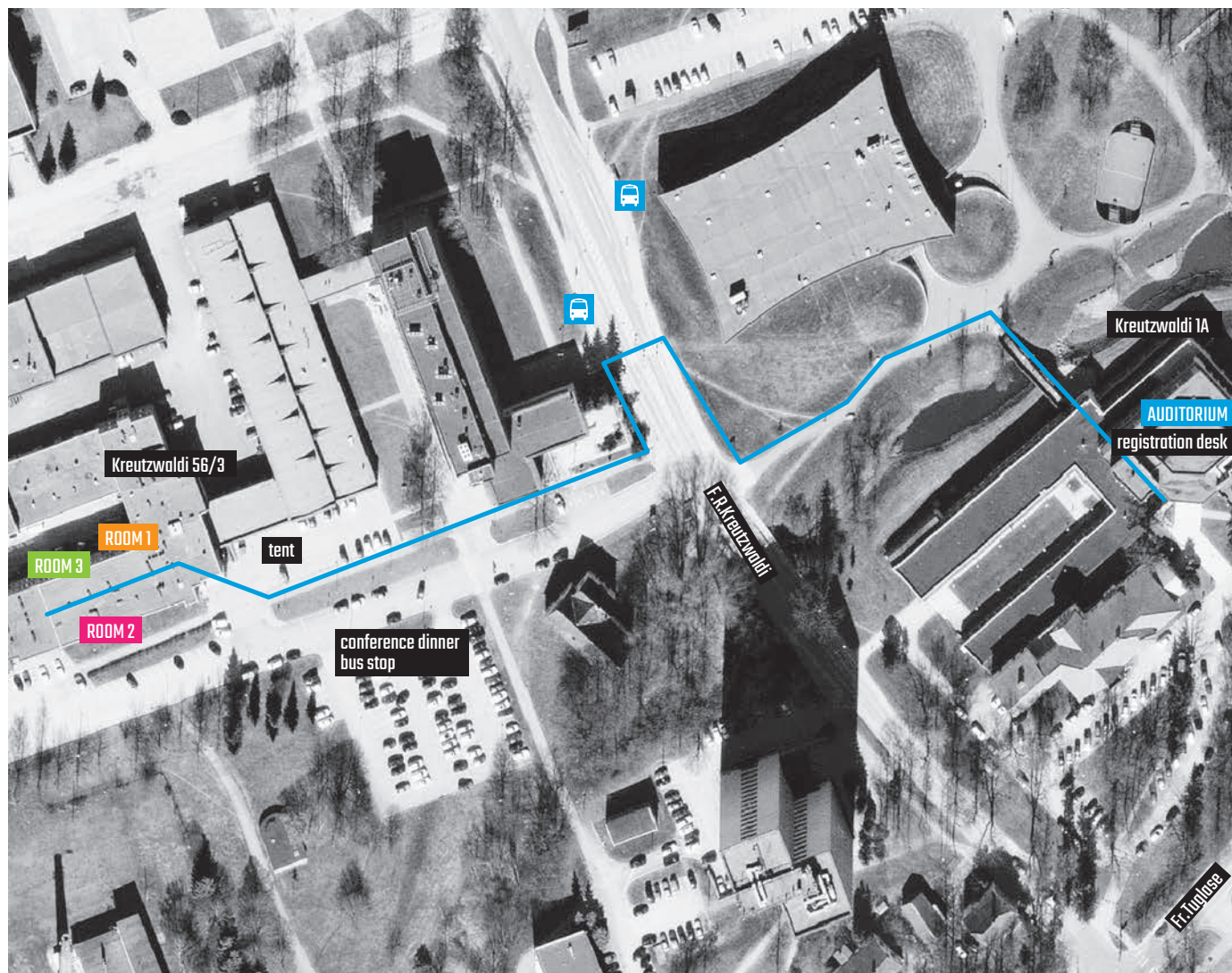
Estonia, together with its neighbouring Baltic states of Latvia and Lithuania has seen many economic, political and social upheavals since 1989-1991 when Communism collapsed. The landscape as well as society has been in constant flux. A depression followed the re-establishment of independence in 1991 but since the country joined the EU and NATO it has thrived. A boom-bust period in 2006-2008 reflected the rest of the world but the country has recovered and now has high growth rates. We think that this constant state of flux makes it an interesting place to focus on such a theme at the ECLAS 2015 conference.

We have always lived in times of change – this is the only constant in anything – although we often yearn for stability. In recent decades as a result of political upheavals, economic crises, accelerating urbanisation, social transformations, mass migration and environmental pressures the world and the landscape seem to be changing every more quickly. However, there often seems to be no direction to the change – it is more of a state of constant flux – a continuous flow or movement – rather than a perceived transformation from one specific state to another. No one can predict where these changes lead – even with the most sophisticated computer models. Chaos and complexity are the order of the day.

The landscape, as a reflection of the many processes at work, is also in a corresponding state of flux. In some regions, such as the border areas of the former Soviet Union, many economic, social and political transformations have been taking place and the landscape itself has been in a state of flux for some time. Hosting the ECLAS conference in Tartu, Estonia, enables delegates to experience such a region and to discuss many aspects of this and other landscapes in flux.

As an organisation made up primarily of educational institutions we are also used to constant changes or fluxes in the teaching and research environment and we also wish to explore these aspects too, in the conference.

The pre-conference and post conference field trips will allow delegates to see landscapes in flux at first hand and to find out more of the legacies of the Soviet period still exerting their influence on the landscape of the region.







Keynote 1

MARCO CASAGRANDE

Marco Casagrande (born 1971) is a Finnish architect, environmental artist and social theorist. From the early stages of his career Marco started to mix architecture with other disciplines of art and science, which led to a series of ecologically conscious architectural installations around the world. "There is no other reality than nature" he says. He views architects as design shamans merely interpreting what the bigger nature of the shared mind is transmitting. Marco views cities as complex energy organisms in which different overlapping layers of energy flows are determining the actions of the citizens as well as the development of the city. By mixing environmentalism and urban design Casagrande is developing methods of Urban Acupuncture in order to create an ecologically sustainable urban development towards the so-called Third Generation City. Marco has won many prizes in international competitions culminating in the UNESCO Global Award for Sustainable Architecture 2015.

PARACITY – URBAN ACUPUNCTURE

Urban Acupuncture is a biourban theory, which combines sociology and urban design with the traditional Chinese medical theory of acupuncture. As a design methodology, it is focused on tactical, small scale interventions on the urban fabric, aiming in ripple effects and transformation on the larger urban organism. Through the acupuncture points, Urban Acupuncture seeks to be in contact with the site-specific Local Knowledge. By its nature, Urban Acupuncture is pliant, organic and relieves stress and industrial tension in the urban environment – thus directing the city towards the organic: urban nature as part of nature. Urban Acupuncture produces small-scale, but ecologically and socially catalytic development on the built human environment. Urban Acupuncture builds connections between modern man and nature, composting the industrial reality to become organic. The Third Generation City is the organic ruin of the industrial city. Ruin is when man-made has become part of nature. The spontaneous community gardens and illegal urban farms of Taipei City are performing urban acupuncture to the centrally governed industrial-mechanical city, thus tuning it towards an organic machine. Urban acupuncture is local knowledge penetrating through the thin layers of asphalt and concrete. Third Generation City is local knowledge based landscape urbanism in flux. The case-study Paracity is a self-organized and modular biourban structure, which can grow organically on un-wanted or un-developed areas of existing cities. The wooden (CLT cross-laminated timber) primary structure is designed to support local knowledge which will grow on it. People will build their own

homes, gardens, farms and communities on this three-dimensional spatial grid. These communities will be supported by modular environmental technology inner organs for basic water and energy circulation. Paracity refines its water from the polluted rivers and it harvests waste and pollution from the surrounding host-city as an urban parasite, healing the city and helping it in its biourban transformation towards the Third Generation.



Keynote 2

CATHARINE WARD THOMPSON

Professor of Landscape Architecture, University of Edinburgh

Catharine Ward Thompson is Professor of Landscape Architecture at the University of Edinburgh and directs OPENspace the research centre for inclusive access to outdoor environments based at the University of Edinburgh and Heriot-Watt University (<http://www.openspace.eca.ac.uk>). She is a qualified landscape architect and a fellow of the Landscape Institute. She has led several multidisciplinary research collaborations investigating relationships between environment and health, including I'DGO (Inclusive Design for Getting Outdoors), which focused on access outdoors and quality of life for older people. She was a member of the Scottish Government's Good Place, Better Health Evaluation Group and the working group that developed Scotland's National Walking Strategy. Current research includes a study of the effects of Forestry Commission Scotland woodland interventions on mental wellbeing in deprived urban communities in Scotland, and work with older people – Mobility, Mood and Place – to explore how urban environments can make active and healthy living easy and enjoyable for older people. Catharine received the 2014 ECLAS Award for Outstanding Research.

CONSTANCY AND CHANGE IN LANDSCAPES FOR LIFE

This paper focuses on the kinds of research needed to inform policy makers and planners about landscape architecture for human wellbeing in the 21st century. It considers evidence of certain constants in the way humans interact with the outdoor environment, as well as changes that happen over different timescales, from centuries of urban development to the lifespan of one person or the first few seconds of walking into a new landscape.

Firstly, it considers mental wellbeing and the stress associated with our increasingly urbanized world, and how it may be moderated by access to different kinds of environment (Ward Thompson, 2011). It draws on studies of deprived urban communities across the UK and the experience of unemployed adults (Ward Thompson et al., 2012; Roe et al., 2013) and older people, in particular (Sugiyama et al., 2009). It also considers the value of understanding experiences of different landscapes over the life course.

Secondly it considers physical activity and the opportunities offered by changing residential streets and local woodlands to increase the health of communities, where evidence is more mixed on the influence of environment to directly effect behaviour change (Ward Thompson et al., 2014; Curl et al, 2015; Ward Thompson et al., 2013).

Finally it considers innovative research (including recent findings on pregnancy outcomes associated with access to green space (Dadvand et al., 2012; Agay-Shay et al., 2014)) and new methods that offer opportunities to understand responses to different environments using EEG to measure brain activity while walking outdoors (Aspinall et al., 2013).

The presentation draws on research undertaken by my research centre, OPENspace, setting it in the context of new demands world-wide for evidence-based policy and practice. It shows the importance of nearby green space and the complexities and challenges involved in undertaking good evaluations of landscape design interventions.



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Keynote 3

ROBERT GERALD HENRY BUNCE

Moderator Toomas Muru

Bob Bunce did his first degree in pure botany at the University College of North Wales, Bangor between 1959 and 1962 and then completed his PhD on the ecology of a Mountain Cliff in Snowdonia (Wales) in 1965. In 1966 he started work at Merlewood, then the Woodlands Research Station of the Nature Conservancy. For the first decade he worked on various aspects of forest ecology and was responsible for the first national survey of a habitat, woodlands, using statistical objective methods. He then developed the application of environmental classifications as a basis for strategic ecological survey culminating in the setting up of the Countryside Survey of GB in 1978 which reports on the state of British landscapes and biodiversity at successive intervals. For the last 15 years he has been working with European colleagues to extend the methodology, first in The Netherlands and now in Estonia. A principal part of this work has been the development of a consistent methodology for habitat mapping throughout Europe which has been used in various EU projects on biodiversity. He is now continuing to work on similar topics but now especially in Estonia and the potential impacts of climate change. Bob wrote the chapter on the relationship between landscape ecology and landscape architecture in the ECLAS book "Exploring the boundaries of Landscape Architecture".

ENVIRONMENTAL STRATIFICATION AS A FRAMEWORK FOR SURVEILLANCE AND MONITORING OF BIODIVERSITY AND THE ASSESSMENT OF LANDSCAPE FLUXES

Over the last 40 years environmental classification as a basis for strategic ecological survey and monitoring, has progressively been developed.¹ The Countryside Survey of GB started in 1978 and reports regularly on the state of British landscapes and biodiversity at regular intervals.² In the last 15 years the methodology has been extended to Europe.³ A principal part of this work has been the development of a consistent methodology for habitat mapping which can be linked to Annexe 1 habitats and used to correlate in situ survey with remote sensed images.⁴ The classes have been used for monitoring vegetation, habitats, birds, mammals, freshwater biota and socio-economic parameters. They can also be used for modelling potential land use change and as a framework for landscape appreciation. An example of the application of the approach at the European level is a study of the potential impacts of changes in ecological networks, land use and climate change on Eurasian cranes.⁵ Work is now in progress to apply the approach in Estonia.

1 Sheail & Bunce (2003) *Environ. Cons.* 30:147-59

2 Firbank et al (2003) *J. Environ. Manage.* 67:207-28

3 Metzger et al (2005) *J. Ecol. & Biogeog.* 14: 549-63

4 Bunce et al (2008) *Landscape Ecology* 23: 11-25.

5 Leito et al (2015) *Landscape Ecology*. 30: 887-904.



Keynote 4

KATRIN PAADAM

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Katrin Paadam is a Professor of Sociology at the Tallinn University of Technology (TUT). Her academic and expert activities together with her team of urban and residential studies, which include partnerships in several Nordic and EU research and teaching projects have broadly been conducted in quest of the meaning of a cultural turn of cities as it reflects on self-perceptions and daily life of individuals (<https://www.etis.ee/portaal/isikuCV.aspx?PersonVID=44549&lang=en>). Qualitative and multi-method research in an interdisciplinary perspective on interconnectivities between cultural, social, economic and spatial processes has been the team's key approach towards understanding multiple realities represented in a transforming urban experience. Critical reflections on some complex cross-disciplinary issues such as accessibility of public spaces, liveable neighbourhoods and quality housing for different citizen groups were present at the recent Nordic conference (NSBB) on urban renewal hosted by the team in Tallinn (www.ttu/nsbb2014).

TRANSFORMING URBAN SPACES, DIVERSIFYING WAYS OF RESIDING AND IDENTITIES

In search of understanding the nature of the making and transforming of urban spaces the talk explores a complex dual relationship between the material and the social; agency and structures; the ways space as a reflection of urban cultural realities is perceived, acted upon and (re)created. It especially attempts to view individual citizens with distinct capacities and dispositions becoming co-participants of professionals of various profile in the production of spatial qualities, accentuated in the interplay of meanings and symbolic value attributed to architecture and spatial solutions and the construction of identities.

Conceiving of urban space in an integrity of its different scales – from the privacy of residence, through semi-shared spaces to public arenas – with insights into the subjectivity of the perception, use and creation of socio-physical relations in the reciprocity of all spatial scales is believed to be captured in the introduced concept of ways of residing. As a significant dimension of lifestyle and an indication of multiple urban and residential cultures the study of ways of residing supports cognizing interconnectivities between institutional strategies, processes of spatial structural, functional and aesthetic diversification and individuals' experience-based reflexive demands for well-being. It is also argued that regardless of individuals' social positioning the contemporary quest is driven by the desire for distinctness. Developing this conceptual approach has initially been inspired by the seminal works of Bourdieu (theory of practice) and Kemeny (sociology of residence),

to some extent on cross-disciplinary talks by Baudrillard and Nouvel, and taken further upon observations from the author's conversations with architects and citizens along series of qualitative studies conducted in residential and public contexts in Tallinn and Paris.

FULL PAPERS & PECHA KUCHA PAPERS



LANDSCAPE STUDIO TEACHING FOR CONDITIONS OF UNCERTAINTY

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KEYWORDS

Landscape, Teaching, Resilience, Cities

ABSTRACT

Training the next generation of landscape architects to face the increasingly complex urban problems presented by climate change is an urgent task for our profession. As a critique of existing teaching practices, which often focus on end-state solutions for predictable conditions, the fourth-term core studio in the University of Toronto's master's degree programme in landscape architecture has emphasized the need to confront and address problems of ecological integrity, public space and aesthetic quality under contemporary conditions of extreme uncertainty. The studio was conceived to address urban and metropolitan landscapes as a series of integrated systems, at multiple scales and over intervals of time, and it grounded design proposals in substantial, rigorous research on environmental challenges, new technologies and policy frameworks. Source examples ranged across North America, from the Atlantic seaboard to the Great Lakes and the Gulf Coast. Teaching methods emphasized the close relationship between rigorous documentary work and defensible proposals. Design projects preceded by one-week field exercises were developed for two urban landscapes that have seen catastrophic flooding because of climate change: Toronto, a city with a long history of thoughtful, well-executed green infrastructure planning, and New Orleans, a city with no history of sustainable urban planning or design. Required to demonstrate how their proposals met criteria for hydrological performance, community value, political feasibility and aesthetic quality, students established and defined targets for resilience given reasonable scenarios for everyday and extreme environmental demands now and according to predictions for climate change in the coming decades. After six years of teaching the studio and evaluating its outcomes, we conclude that, though such endeavours may produce less formally polished projects, students' work takes on greater relevance to the fluctuating realities – physical and political – of design practice in an era of climate change.

INTRODUCTION

Training the next generation of landscape architects to face the increasingly complex – and increasingly uncertain – urban problems presented by climate change is an urgent task for our profession (Sheppard 2012). Climate change and the extreme weather events it produces are already creating crises in urban landscapes across North America. Catastrophes engendered by Hurricane Katrina, Superstorm Sandy, and the flooding of urban rivers in Toronto, Winnipeg and Calgary, have attracted significant attention in the short term but then faded from awareness, explained away as natural disasters with a low chance of recurrence. However, each of these crises has revealed previously existing, chronic water management problems – often below the level that attracts general awareness – that are not being adequately handled by North America's static, engineered infrastructure. These problems, extreme and everyday, demonstrate the need for adaptive, resilient infrastructure strategies embedded in urban landscape design. This means that ecology needs to be understood as central to studio design training (Johnson and Hill, 2002).

Addressing these issues demands the simultaneous and integrated consideration of many facets of landscape architecture. Infrastructural landscapes must demonstrate ecological performance to protect public safety and to be justified in an era of budget cuts and limited spending. They must provide social benefit and high-quality urban amenity to gain public support and political traction. They must be able to adapt to a range of uncertain conditions, both environmental (like climate change) and social (like the vicissitudes of the economy). However, at least in North America, professional education in landscape architecture tends either toward an emphasis on form, culture, public amenity and static solutions in the design of individual sites like parks, gardens, neighbourhoods or toward an emphasis on environmental planning, ecology and ecosystem services in the

design of larger areas like regions and metropolitan landscapes. Given the increasing range of challenges to urban landscapes, this division in the educational system is not serving the profession or the public well.

TEACHING FOR DYNAMIC SYSTEMS

As a critique of these existing tendencies in education (Imbert 2012), the fourth-term core studio in the University of Toronto's master's degree programme in landscape architecture has emphasized the need to confront and address problems of ecological integrity, public space and aesthetic quality under contemporary conditions of extreme uncertainty. The studio, the last in the core sequence, precedes elective studios and thesis research and design projects. Focussed on dynamic landscape infrastructure and its ability to mediate ubiquitous problems that often escape attention, the studio was conceived to address urban and metropolitan landscapes as a series of integrated systems, at multiple scales and over intervals of time. It grounded design proposals in substantial, rigorous research on environmental challenges, new technologies and policy frameworks.

The studio aimed to address the role of design in complex urban circumstances, where some dilemmas are within the bailiwick of landscape architects and others are not. It asked what assumptions were reasonable and what futures could be seen as possible. It raised questions about what can be designed, what can be steered and what must be left to other forces. It argued that although landscapes are in constant flux, their development can be guided through predictable systems. It advocated for public amenity as an essential component of landscapes with ecological and infrastructural programmes, and vice versa. It insisted that technical problems exist in social, political and economic contexts. By connecting the studio to practitioners, policy makers, activists and community members in real situations, it called on students to position their work in a public dialogue.



Figure 1: Catastrophic flooding in Toronto's Don River valley in 2013 and in post-Katrina New Orleans in 2005. Sources: Toronto photograph: <http://glodimethoughtnuggets.blogspot.ca/2010/09/human-disasters.html> <8 June 2015>; New Orleans photograph by Jocelyn Augustino http://www.photolibary.fema.gov/photolibary/photo_details.do?id=19230 <8 June 2015>

The work of this studio took place over six years in two primary locations, Toronto, which serves as a consistent subject of study in our programme, and New Orleans, where we were asked to participate in a grassroots endeavour to mobilize consciousness about water in the urban landscape. The two cities represent opposite ends of the North American spectrum with respect to thought, information, planning, policy, structures for management and governance related to landscapes. Toronto has had a long history of careful, well-executed green infrastructure planning and management developed in the aftermath of a devastating hurricane in 1954; the same forces created a structure for regional watershed management with political teeth (Palassio and Reeves 2008). New Orleans, despite its intensive drainage infrastructure, has not had a culture of integrated water management or planning (Wolff 2014). However, despite these historical differences, both

cities found themselves subject to unexpected disaster because of climate change and extreme weather events: Toronto suffered catastrophic flooding in the Don River valley in 2006 and 2013, and New Orleans was devastated by Hurricane Katrina in 2005. (Figure 1)

The course began with the study of policy responses to climate change; existing and possible physical interventions in both cities; and the role of designers in each context. The studio's point of departure was a set of policy guidelines related to landscape infrastructure and water management being put into place in each city: the Wet Weather Flow Master Plan (WWFMP) in Toronto and the Water Management Strategy (WMS) in New Orleans. (Figure 2) While each plan plays a different role in its city, both require everyday landscapes to manage water and establish quantitative guidelines for design and performance. In addition, students worked

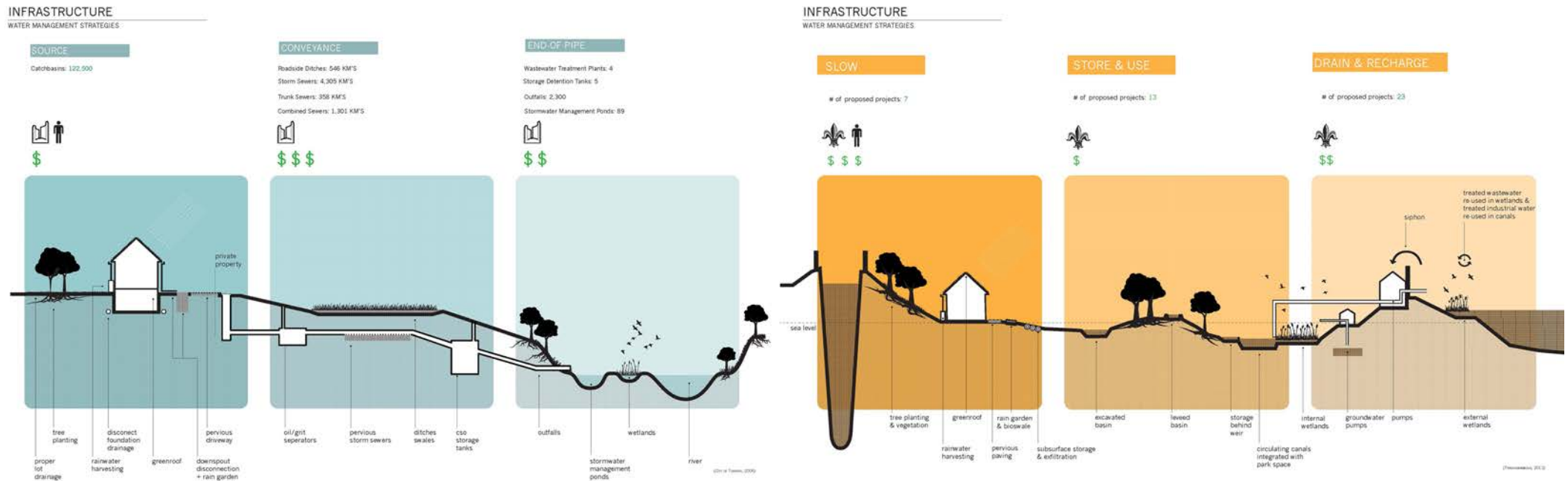


Figure 2: Student analysis of the Wet Weather Flow Master Plan (WWFMP) in Toronto and the Water Management Strategy (WMS) in New Orleans. Source: University of Toronto, Studio 4 (LAN 2014), winter 2014.

Figure 3: Students conducting fieldwork in Toronto and New Orleans. Sources: Sarah Whitehouse (2014), Elise Shelley (2012).



to understand the historical evolution of the urban landscapes of Toronto and New Orleans with respect to water management. Teaching methods enforced a close relationship between rigorous documentary work and defensible proposals. Library research was followed by one-week field exercises in which students questioned, tested and verified their initial findings. (Figure 3)

Documentary work in the first half of the course shaped design work in the second half. Based on library research and fieldwork, each student developed a critique of ecological function and public amenity in an existing condition or site. The development of skills related to the framing and definition of a design brief was important because this course is the last core studio before students take on more independent work. Drawn as extensions of research documents, these critiques led directly to the framing of documents that articulated individual design problems. Because the point of departure was so thoroughly grounded

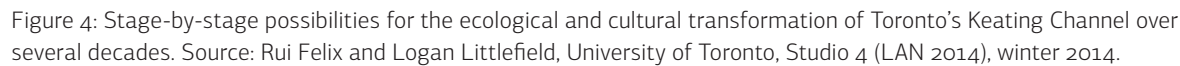
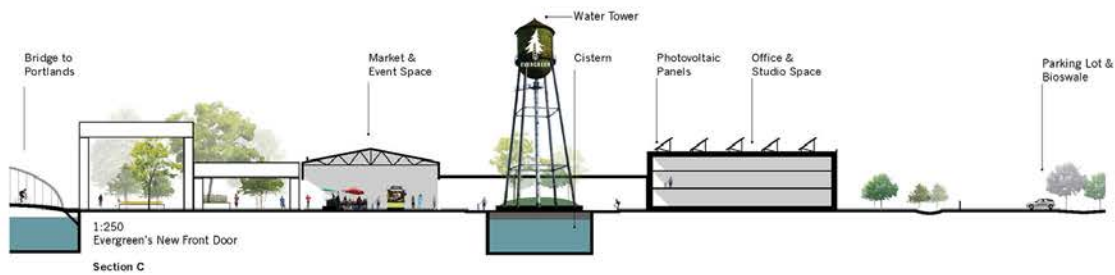


Figure 4: Stage-by-stage possibilities for the ecological and cultural transformation of Toronto's Keating Channel over several decades. Source: Rui Felix and Logan Littlefield, University of Toronto, Studio 4 (LAN 2014), winter 2014.

phytoremediation + public space

Evergreen's New Front Door



Youth Culture (Rock Climbing / Basketball)

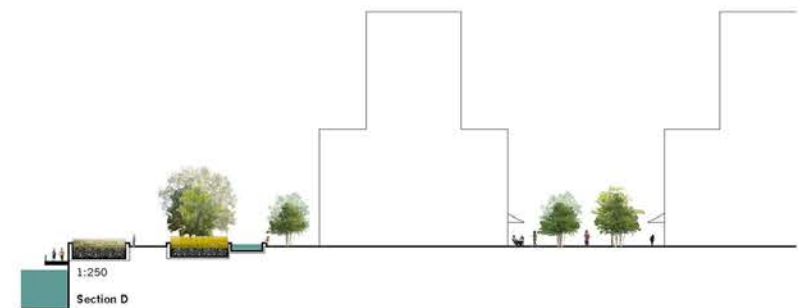
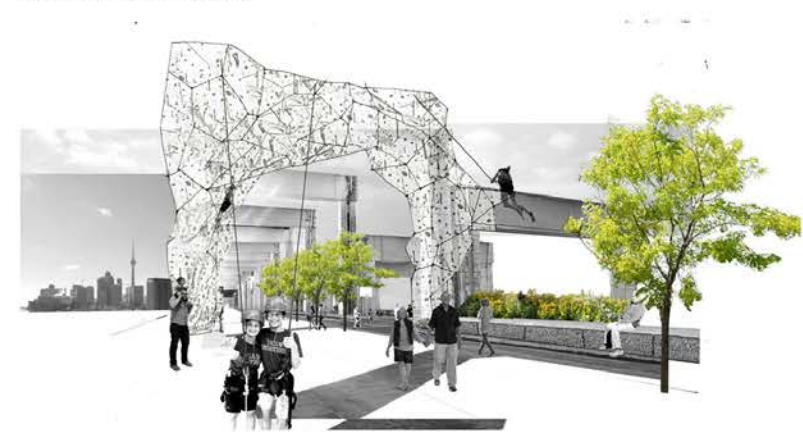


Figure 5: The project emphasized public access through all stages of transformation and formalized connections to existing parks and recreation networks along the Don River and the Lake Ontario shoreline.
Source: Rui Felix and Logan Littlefield, University of Toronto, Studio 4 (LAN 2014), winter 2014.

in existing policy and physical conditions, students had a clear enough sense of actual circumstances to imagine plausible endeavours for design. The design briefs they proposed had to address actual physical and policy constraints, and they were required to operate within the arena of believable fiction in their work. The studio's premise, tested and refined through six years of teaching, was that design needs two distinct thought models to accommodate uncertainty. At one end of the spectrum, the design of specific proposals for particular sites needs to be adaptive to change and revelatory of environmental dynamics. At the other end, design might be understood as the scripting of tactics, strategies and scenarios to guide interaction around the more open development of sites and situations.

In the articulation of their design briefs, students had to define the contexts of their work, the limits of their programmes, and the assumptions about what might or might not be possible either as recommendations for a specific site or as case studies. Required to demonstrate how their proposals met criteria for hydrological performance, community value, political feasibility and aesthetic quality, students established and defined targets for resilience given reasonable scenarios for everyday and extreme environmental demands now and according to predictions for climate change in the coming decades (Wolff, Shelley and Hoferlin 2011). The WWFMP and WMS served as benchmarks for students to consider and evaluate their own efforts with respect to existing policy frameworks, guidelines and standards. Teaching strategies insisted that technical rigour was necessary but not sufficient. Our concern about the frequent divide between attention to environmental systems and care for public space caused us to insist on the integration of social, cultural and ecological value in every project.

STUDENT WORK

We offer two examples of student work, one in Toronto and one in New Orleans, to demonstrate how the studio's concerns were manifested in projects.

A proposal by Logan Littlefield and Rui Felix for the land adjacent to Toronto's Keating channel emerged from an interest in the difficult hydrological intersection of the Don River and Lake Ontario. A significant abandoned industrial parcel close to downtown and at the junction between river and lake had been left out of two important planning endeavours, one for the lower Don and the other for the lake's shoreline. Mr. Littlefield and Mr. Felix developed a master-planning strategy for this site and examined stage-by-stage possibilities for its ecological and cultural transformation over several decades. Their programme centred on a long-term remediation and soil farming effort that would make way for the construction of a new, high-density neighbourhood with easy access to river, lake, and the centre of Toronto. The proposal addressed ecological and hydrological performance in three ways. It cleaned toxic land and produced new soil for use in the reforestation of the Don River valley. (Figure 4) It restructured the mouth of the Don River to improve hydraulic conditions and habitat. It provided areas for controlled flooding that served two purposes: to reintroduce space for the river at high states and to allow public use at low stages. The project offered three distinct types of public amenity: the development of recreational space and the provision of housing in a crowded market. It anticipated public access from the early stages of remediation through the increasingly intense inhabitation of the neighbourhood. (Figure 5) It formalized connections to existing parks and recreation networks along the Don River and the Lake Ontario shoreline.

The project's early phases depended on the idea that its public spaces would draw visitors from around the city; it anticipated that these spaces would evolve for more intimate uses as the neighbourhood grew. Mr. Littlefield's and Mr. Felix's stand on the question of

what could be predicted and what must allow flexibility took shape in a landscape framework that preceded all other transformation and that would maintain its integrity no matter the exact level or character of built development over a period of thirty years. The ecological and infrastructural performance of the landscape from season to season and across decades meant that even without any urban development the project would be an important civic asset.

A proposal by Adam Bobbette and Karen May for the Hoffman Triangle in New Orleans emerged from an interest in the intersection between social issues of poverty and race and ecological issues of topography and hydrology. Their critique of existing conditions focussed on food insecurity and derelict land in a neighbourhood so low that flooding was a constant hazard. Positioned between the Mississippi and an open connection to the Gulf of Mexico, the city has historically faced threats from all sides, but its most recent troubles have occurred as a consequence of its antiquated internal drainage system. Like the western Netherlands, land in the city has subsided to many metres below sea level as a consequence of reclamation, and water must be removed from within its diked boundaries mechanically. During Hurricane Katrina, flooding was the product of levee and pump failures. Even when there is no catastrophe, ordinary rainfall often overwhelms the system locally: using landscape strategies to delay the entry of water into the city's system of pumps and pipes is an important means of reducing flood risk.

Located at the bottom of the bowl that makes up central New Orleans, the neighbourhood under study had seen very little progress from official planning processes in the five years after Hurricane Katrina. The project called for the use of derelict sites for small-scale, cooperative rice production. It depended on the selection of a crop that could accommodate and help to manage flooding, and it emerged from the consideration of local culinary traditions in the community. The project used

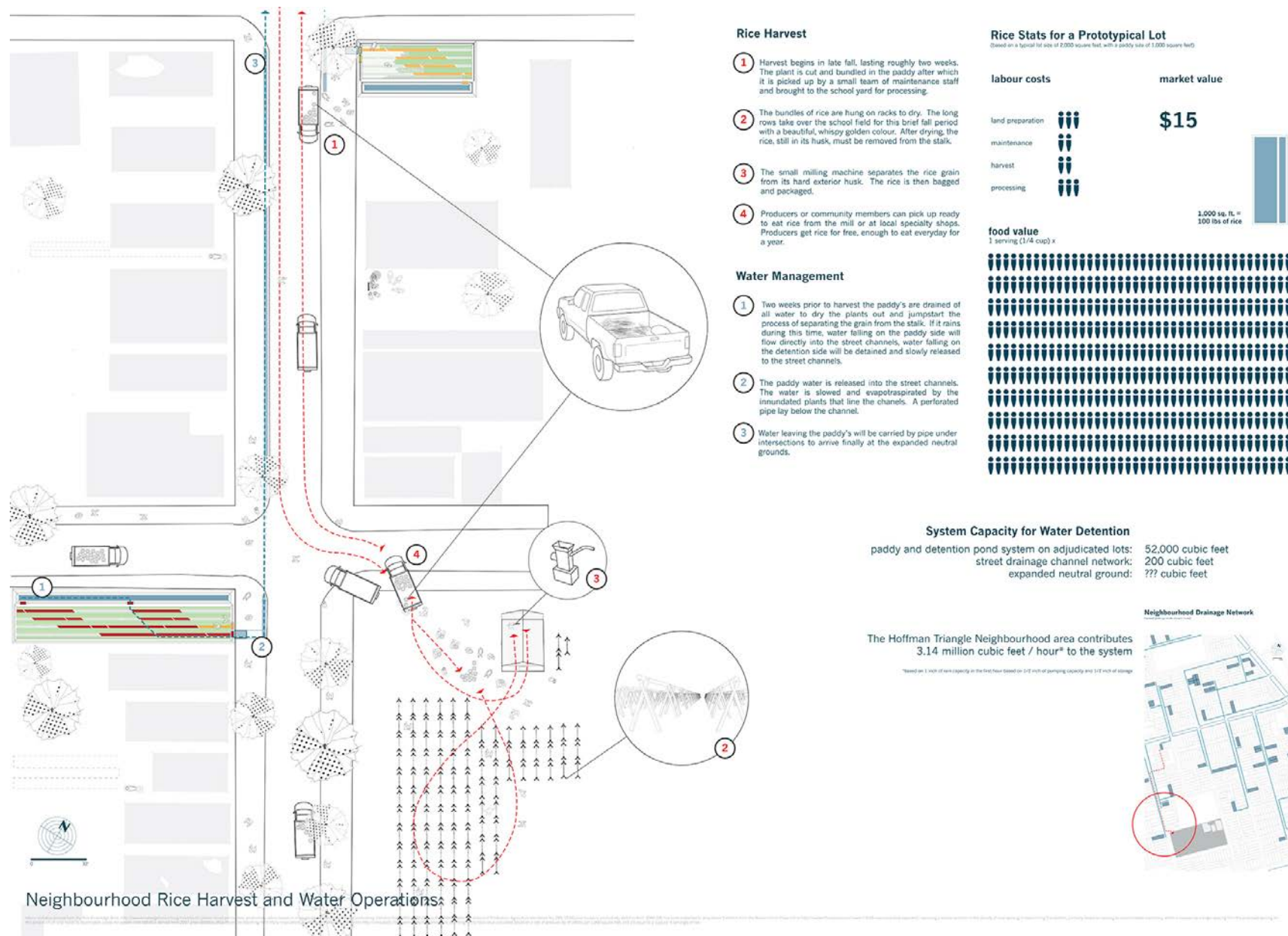


Figure 6: The project used rice cultivation as a tool to improve hydrological performance in a low-lying part of New Orleans.

Source: Adam Bobbette and Karen May, University of Toronto, Studio 4 (LAN 2014), winter 2010.

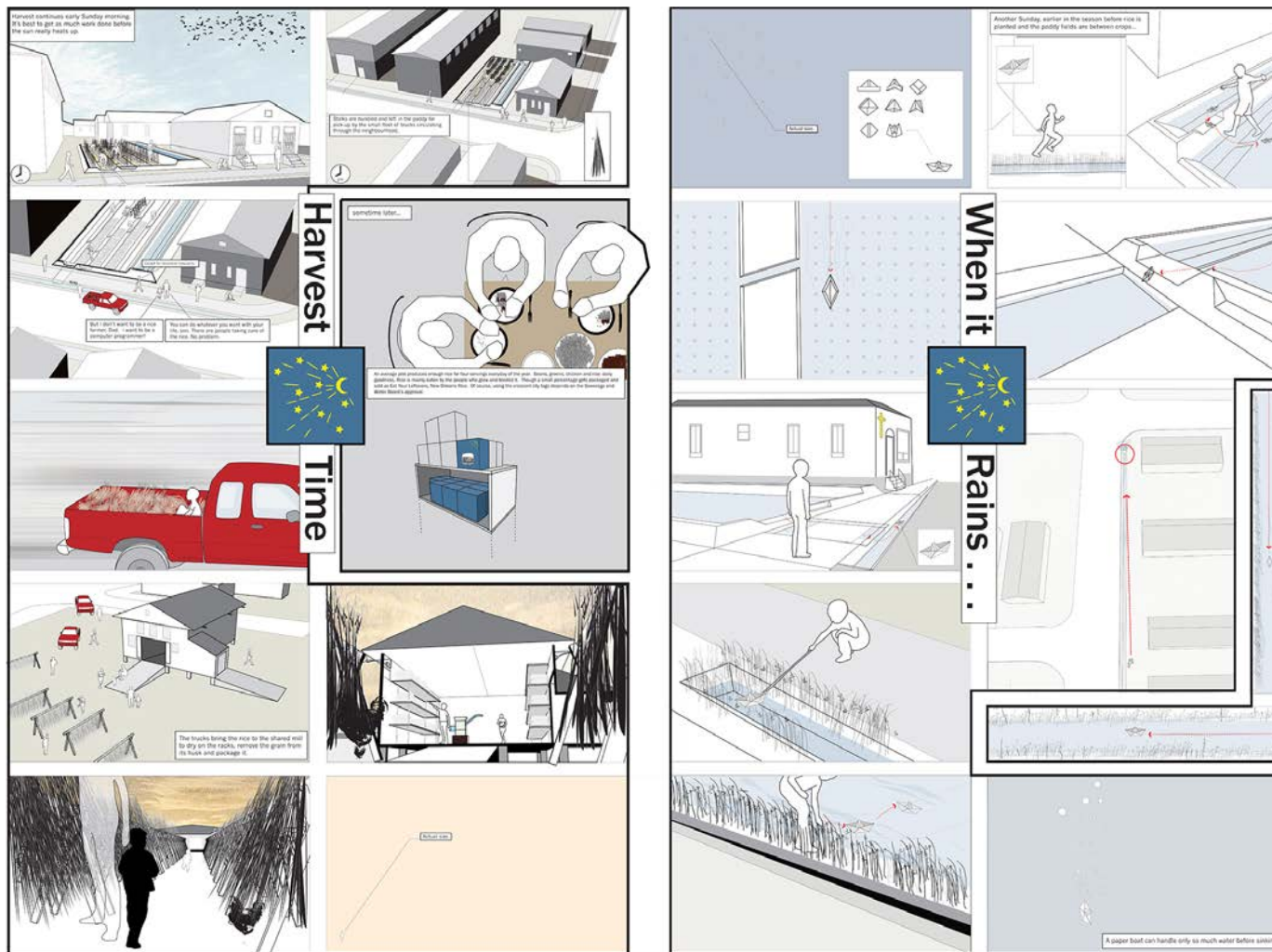


Figure 7: Intended as a case study, the project's social ambitions focussed on landscape uses that could develop replicable scenarios involving process, practice and ritual. Source: Adam Bobbette and Karen May, University of Toronto, Studio 4 (LAN 2014), winter 2010.

agriculture to improve hydrological performance: rice, planted in cycles related to the rainy season, grows in paddies that serve to hold water. (Figure 6) It uses cultivated land to provide both the arena of and purpose for public interaction and community engagement.

The design used an urban landscape to foster shared enterprises that were economic, social and nutritional. Because rice cultivation is a part-time activity, participation was not limited to a small number of professional growers; Mr. Bobbette and Ms. May developed a series of strategies for cooperative cultivation, harvesting, distribution and consumption of the crop. Their stand on the question of what could be predicted and what must allow flexibility took shape in the notion that the landscape is essentially the locus of social practice. (Figure 7) Demand, site types, crops, seasons and methods of cultivation could be forecast and scripted, and these patterns could be adapted to different scales of space and participation. In this framework, the determination of exact physical forms was less important than the development of replicable scenarios involving process, practice and ritual.

CONCLUSIONS

This paper discusses six years of sustained effort in a single studio course, but our experience offers lessons for other studio teaching situations.

Lesson one: repetition is essential to effective teaching about complex issues. One of the key elements of the studio's success was its reiteration over a long period of time. During the six years of this studio, we found that each year's work built on previous efforts. That meant that each year could carry documentary research further; it also offered the opportunity to focus our enquiries on increasingly specific questions.

Lesson two: sustained effort can allow academic work a meaningful role in public discussion. The long

timeframe of the course not only helped us to refine the course for our students but also allowed the studio an essential voice in public discussions about the future of urban landscapes. This was particularly important in New Orleans, where the academic labour pool has been able to fill gaps in the city's and region's official planning processes and institutions. As evidence of this key role, we can point to use of our studio's work by the Dutch Dialogues initiative and the New Orleans Water Management Strategy, efforts by the government of the Netherlands and the Louisiana Recovery Foundation to promote discussion and analysis of the role of water in New Orleans; multiple awards to our students from the Association of Collegiate Schools of Architecture, the American Society of Landscape Architects and the 8th International Biennial of Landscape Architecture; and acclaim by scholars and designers interested in North American urbanism; and praise from municipal planning departments and officials in Toronto and New Orleans.

Lesson three: teaching about ecology in design demands that we let go of our traditional focus on clean, resolved, end-state, singular strategies. Instead, we need to emphasize the value of redundant landscape systems to bolster inadequate grey infrastructure; to remember that incremental benefits can add up to significant gains; to insist on rigorous quantitative documentation with respect to performance; to remain in the arena of believable fiction rather than to venture into Utopian fantasy; and to argue for the representation of work in ways that can reach diverse audiences.

After six years of teaching the studio and evaluating its outcomes, we conclude that, though endeavours like these may produce less formally polished projects than more conventional design studios, students' work takes on greater relevance to the fluctuating physical and political realities of design practice. We conclude that the trade-off is not only valuable but necessary in an era of climate change.

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LANDSCAPE MODEL MAKING: AN ARCHETYPAL DESIGN MEDIUM REEVALUATED IN A DIGITAL AGE

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KEYWORDS

Landscape Design, Education, Space, Representation, Methodology

ABSTRACT

Today landscape digital technologies have become prerequisite for all landscape educational programs, altering the ways landscape architecture design schemes look, and by extension influencing the traditional methods that landscape architecture used to be taught. Digital representation skills are considered baseline design tool for young landscape architects entering the professional “new” world. However, many years of landscape experience in teaching landscape architecture studio proves that model making still holds a major role as an educational tool to understand, explore and create landscape space in studio projects. This paper aims to emphasize the importance of landscape models as a valuable source of mainly a visual approach toward conceiving the nature of landscape space and multitude ways to create successful landscape projects while teaching landscape design studio courses. Our approach to teaching in landscape architecture revolves around the importance of scale models to deeply understand and visualize landscape spatial concepts originally conceived and depicted in sketches, diagrams and plans. The medium of scale models is understood as the best way to deeply understand and visualize spatial relationships while integrating them into studio landscape schemes. Realizing over the years this educational opportunity in the design studio, we have developed a design methodology that allows the students to integrate all acquired knowledge into a fully integrated professional experience. As landscape educators we seek to develop a pedagogical approach towards enabling students effectively synthesize their theoretical and technical knowledge. To evaluate our design methodology, data were compiled from students’ surveys, in class critiques and class evaluations. Results suggest that our students seem to have cultivated a deeper understanding of landscape space and have captured complex design ideas more effectively. More feedback data samples need to be collected over the forthcoming years during which

we intend to enrich our methodology in the design courses in order to be able to reinforce our design approach based on models as a main means of capturing and evaluating landscapes. This research aims stimulate debate and contribute to the further emancipation and development of landscape architecture.

INTRODUCTION

Today technological change has greatly impacted our everyday lives in a number of domains. In that sense, landscape digital technologies have become prerequisite for all landscape educational programs, altering the ways landscape architecture design schemes look, and by extension influencing the traditional methods that landscape architecture used to be taught. With the emergence of digital technologies, it has become possible to construct extremely accurate and realistic computer based three dimensional models of landscape designs, which represent very accurate and realistic images of the proposed landscapes and even simulate corporeal journeys through them using microscopic cameras (Treib, 2008). Such virtual landscape media increase engagement and cognitive response, leading landscape visualization into a new era. Digital representation skills are considered baseline design tool for young landscape architects entering the professional “new” world.

However, many years of landscape experience in teaching landscape architecture studio proves that model making still holds a major role as an educational tool to understand, explore and create landscape space in studio projects. Traditionally, studio design projects, the main educational platform, explore ways of representing, analyzing and designing the landscape through a variety of design media. Physical scale models are often used in conjunction with other graphic forms such as sketches, perspectives, and axonometric drawings to study the complex three-dimensionality of the landscape works and capture the spatial relationships of landscapes since landscape architecture is a design

discipline that explores the articulation of landscape compositions (Wester, 1990). Landscape architects create landscape compositions based on conception of spatial arrangements (Dee, 2001). Understanding the spatial component of landscapes is an essential part of the landscape disciplines' education too. Landscape architects are trained to develop a strong capacity of envisioning space, conceived or realized, through the principles of harmony, order, rhythm, scale, and hierarchy of forms and spaces (Reid, 1993). Therefore, landscape models contain essential knowledge of space and may be regarded as a strong dialogue between conceived and realized space, an effective tool to reveal the spatial order of a space. Since the 1920s and 1930s, many landscape architects have considered models as a truly modern tool and have employed it in their works as an effective way to depict the spatial order and even the various layers of their design ideas (Treib, 2008). As educators, we have observed over the years that students read models more clearly than any other representation media and create an awareness of scale, landforms and volumetric reality, all of which are fundamental concepts of successful built landscapes.

This paper aims to emphasize the importance of landscape models, next to plans, sections, axonometric and perspective drawings as a valuable source in the process of design research in landscape thinking and communication. They are mainly a visual approach toward conceiving the nature of landscape space and multitude ways to create successful landscape projects while teaching landscape design studio courses. Our approach to teaching in landscape architecture revolves around the importance of scale models to deeply understand and visualize landscape spatial concepts originally conceived and depicted in sketches, diagrams and plans. The medium of scale models is understood as the best way to deeply understand and visualize spatial relationships while integrating them into studio landscape schemes. Realizing over the years this educational opportunity in the design

studio, we have developed a design methodology that allows the students to integrate all acquired knowledge into a fully integrated professional experience. As landscape educators we seek to develop a pedagogical approach towards enabling students effectively synthesize their theoretical and technical knowledge.

METHODOLOGY

The question of landscape model as a legitimate means for landscape architectural inquiry has been much debated and remains controversial. Our experiment on the role of models as an educational design tool to understand and conceive landscape space is based on the implementation of an introductory studio in a sequence of studio courses required to complete the two years Master of Landscape Program at Neapolis University of Pafos and at Agricultural University of Athens. A sequence of "hands-on" problem-solving studio work enacted in these introductory courses incorporates multiple ways to explore landscape form and space in diverse contexts at various scales based on model making. These studios, an engaging experiment in creative thinking and practice, introduce students to theory and practice of landscape design by doing, observing, experimenting, reflecting and understanding the media of the landscape that define space (landform, plants, water, and structures) as well as the fundamental landscape design principles (geometry, analogy, volume, scale, size, proportion, balance, structure, symmetry, transparency, solid/void, built/open space, divided/free-flowing space, light, movement/stasis, materiality, function, form, pattern, texture, color) in order to further develop their design abilities. Students are asked to cultivate an approach in landscape design that incorporates physical scale models as a basis to explore and produce space in the design/creative problem-solving process to synthesis diverse ideas, needs, values, into a unified, whole, complete design. The outcome is a multiple stage procedural imaging methodology and toolbox that contains pedagogical design strategies that may be implemented to

bridge the gap between analysis and design for students in the design studio, a platform upon which to build a fuller understanding of space as a design material, and as central to creative/synthetic design processes.

To evaluate our design methodology, data were compiled from students' in-depth interviews, questionnaires surveys, in class critiques and class evaluations. Results suggest that our students seem to have cultivated a deeper understanding of landscape space and have captured complex design ideas more effectively. More feedback data samples need to be collected over the forthcoming years during which we intend to enrich our methodology in the design courses in order to be able to reinforce our design approach based on models as a main means of capturing and evaluating landscapes.

LANDSCAPE MODEL MAKING AS AN ARCHETYPAL DESIGN MEDIUM IN STUDIO WORK

The relationship between landscape and models has long been contemplated in landscape architectural scholarship. Considering the vital role landscape model plays in conceiving landscapes, the question of landscape architectural knowledge based on a visual relationship between a design idea and a built work becomes a matter of importance (Frasconi et al, 2008). Landscape model becomes an essential part of the procedure of making a landscape architectural space, an effective studio design tool to develop an idea into constructed spatial interrelationships in direct contact with the landform (Figure 1). As landscape educators, we regard models as an essential vehicle for scholarship in the field, as an effective design tool to advance landscape knowledge and critical thinking through design studios focusing on design processes. Our design methodology provides our students a toolbox of creative strategies and a framework for a reflective approach towards landscape design.



Figure 1: Landscape model as an effective studio design tool to develop an idea into constructed spatial interrelationships in direct contact with the landform, graduate student work, Agricultural University of Athens (photograph: Anna-Maria Vissilia)

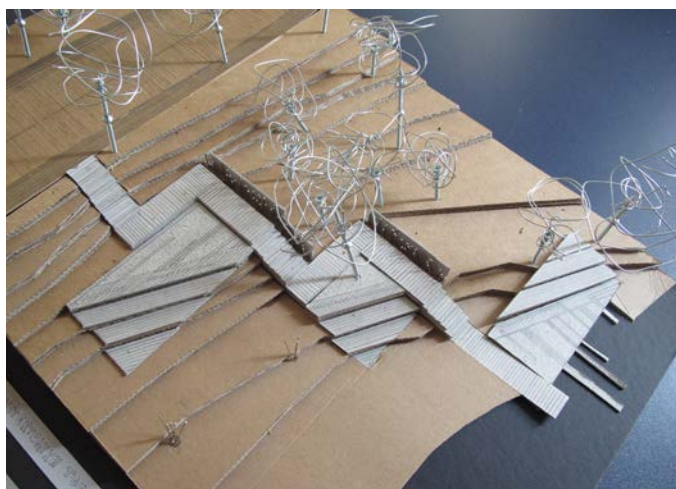


Figure 2: Students are asked to explore the making of a landscape walking experience through a series of three geometrical platforms and a linear connectivity path between them, graduate student work, Agricultural University of Athens (photograph: Anna-Maria Vissilia)

Several important lessons were learned from these studios and we think that our experiences can be useful for peer educators who teach or aim to teach similar courses based on space exploration through the medium of landscape models. A series of focused design projects enable students to develop an understanding of the dynamic qualities of landscape and how space is formed, manipulated and communicated. They aim to equip students with a range of skills that enable them to evaluate existing designed landscape and refine/develop their design solutions exploring spatial interrelationships and specifically how landform and vegetation can be manipulated to create different spatial qualities and user experiences.

Students are asked to explore the making of a landscape walking experience through a series of three geometrical platforms and a linear connectivity path between them (Figure 2). The design scheme needs to be fitted into the given topography which is an inclined imaginative site placed on the North-South axis. At the North site there is a forest whereas the South side meets the seashore. The studio project embodies a variety of forms, textures, patterns, colors, and spatial movement that give the students the opportunity to experiment on a blank canvass, a valuable tool upon which the design process is revealed through a series of drawings simultaneously with the generation of ideas through the creation, experimentation, evaluation and transformation of scale models (Figure 3). The design process consists of three different interactive cycles: origination, development, and testing, all of which are closely related to visual thinking through the medium of landscape modeling. Students gain understanding of the landform through visual analysis of the existing situation in order to provide an accessible information base on which to make their design decisions and acquire design knowledge to generate, develop and evaluate their ideas. Following our design methodology, students position landscape models as an important form of representation next to plans, sections, sketches, perspectives and axonometric drawings. Regarded in this perspective, models provide

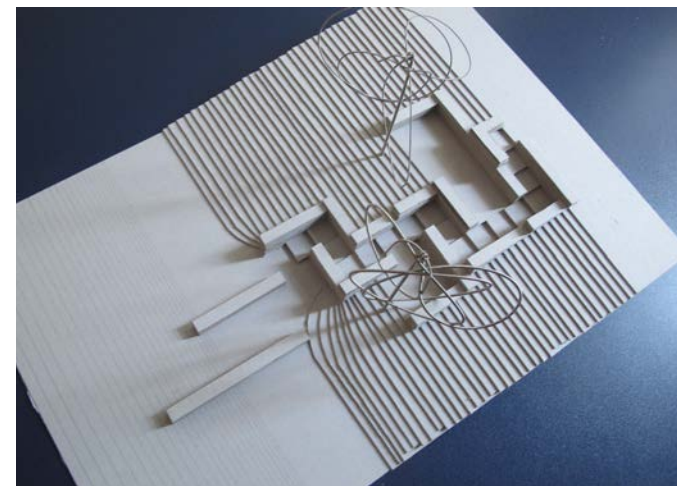


Figure 3: Landscape models give the students the opportunity to experiment on a blank canvass, a valuable tool upon which the design process is revealed, graduate student work, Agricultural University of Athens (photograph: Anna-Maria Vissilia)



Figure 4: Landscape models provide a productive mode of design operation that enables manipulation, analysis and expression of ideas, forms and spatial relationships, graduate student work, Neapolis University of Pafos (photograph: Julia Georgi)



Figure 5: Students manage to “see” their imagined landscapes with a clear sense of understanding that becomes available to them through scale models., graduate student work, Neapolis University of Pafos (photograph: Julia Georgi)

a productive mode of design operation that includes all three cycles of design processes in studio work, an instructive tool to not only depict and understand physical landforms and characteristics of a site, but also to enable manipulation, analysis and expression of ideas, forms and spatial relationships (Reid, 1993), (Figure 4). Students manage to “see” their imagined landscapes with a clear sense of understanding that becomes available to them through scale models (Figure 5). The enveloping nature of landscape space becomes clearly readable bridging the gap between analysis/ design and real experience of constructed space. Our research is a continuing experiment in investigating the role of scale models as a visual design medium with respect to topography, characteristics of the landscape, natural landforms, scale, temporality, and place (Figure 6). To us, they may be considered as a form of framing design thoughts which enhance the landscape architect’s capacity to capture, store, manipulate, manage and reflect on landscape design schemes (Figure 7).

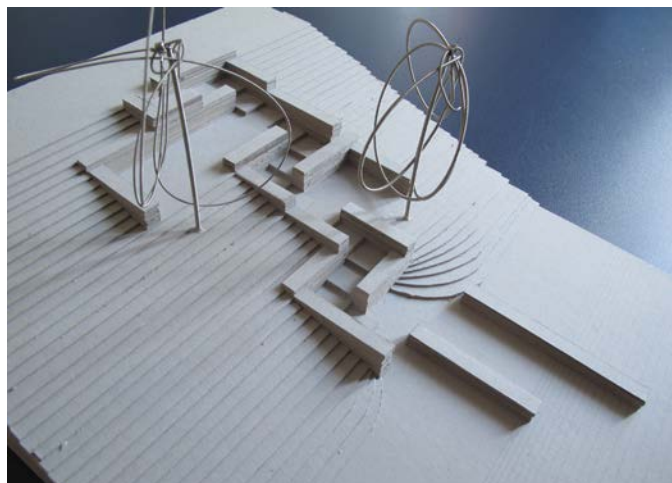


Figure 6: Landscape models act as a visual design medium with respect to topography, characteristics of the landscape, natural landforms, scale, temporality, and place, Agricultural University of Athens (photograph: Anna-Maria Vissilia)

WORKING LANDSCAPE DESIGN IDEAS WITH THE USE OF SCALE MODELS CAN BRING OUT A PLURALITY OF MENTAL/ corporeal activities related to the envisioned environment such as observing, thinking, analyzing, imagining, dreaming and sensing (Figure 8). Landscape models become a powerful tool for developing critical and analytical abilities in order to consciously examine visual/ spatial relationships between the elements they constitute landscape space (Corner, 2002). They embody design ideas and concepts constructed into meaningful compositions, a poetic manifestation of an imaginative process. In this sense, students have the opportunity to “construe” spaces that have the potential to exist. Models could be considered as a means of scholarship that helps make two dimensional design concepts more understandable, a tangible prelude that precedes the construction process. They become a story, a narrative that not only increases the understanding of a design scheme but also help students realize the spatial qualities and properties which are partially



Figure 7: Landscape models may be considered as a form of framing design thoughts which enhance the landscape architect’s capacity to capture, store, manipulate, manage and reflect on landscape design schemes, graduate student work, Neapolis University of Pafos (photograph: Julia Georgi)



Figure 8: Working landscape design ideas with the use of scale models can bring out a plurality of mental/corporeal activities related to the envisioned environment such as observing, thinking, analyzing, imagining, dreaming and sensing, graduate student work, Neapolis University of Pafos (photograph: Julia Georgi)

revealed from on paper design work. To us, there is hidden wisdom embedded in scale models which may act as a research scholarship in landscape studio work.

CONCLUSIONS

Physical scale models are closely related to the discipline of landscape architecture. They offer landscape designers a useful tool for visual thinking and communication extending their preliminary design studies' possibilities for conceptual investigation, spatial configuration, and selection of forms, materials and relationships. In academia, the education of the landscape designer may be developed as highly dependent upon the practice of modeling as a means to enable them to generate and mediate creative landscape ideas. From our studio experiences, we are convinced that there are a wide range of possibilities for application and development of physical scale models in landscape architecture. Results indicate multiple benefits including an increase in discovering new ways to see, experience and understand landscape space, conceptual thinking skills, deeper awareness of how landscape design principles create spatial landscapes, and contribution to the role of the landscape media in the design process. Conclusions, drawn from students' products, discussions, and written assessments, suggest that there are enormous opportunities for design faculty to assist students from diverse disciplines to cultivate fluid, creative ways of thinking and synthetic skills. This is ongoing research and results will continue to be collected. We hope the outcome of this research will stimulate debate for further investigation in the role and performance of models in the landscape design process and will contribute to the further emancipation and development of landscape architecture.

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ENHANCING SPATIAL PERCEPTION ABILITY BY USING LANDSCAPE MODELLING APPROACH

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ABSTRACT

Enhancement of spatial perception ability is an essential part in landscape architecture studies. It allows students to better realize the existing situation and to evaluate a planned spatial structure of the place consisting of terrain, greenery, buildings and other landscape elements. One of the tools to represent the existing and planned spatial structure of the place is a physical model of the landscape. Thus the aim of this study was to evaluate the possibilities of the landscape modelling approach in the enhancement of spatial perception ability in landscape architecture studies. The teaching approach was approbated in the study course Landscape Architecture and Planning for the third year students of Latvia University of Agriculture. As a case study Aldaris Park in Riga city was chosen. It is characterized by large areas with old trees and a high diversity of terrain elements. The teaching approach included several stages: the analysis of the park – current situation, historic development, regulations etc.; development of the physical model of the landscape including the existing terrain and vegetation; simulation and evaluation of different development scenarios of the park by using modelling elements for changing the planned paths, greenery and other landscape elements; elaboration of the final proposal for the development of the park based on findings obtained in the modelling process. In order to assess the usefulness of the approach, the evaluation of the projects took place and a survey of the involved students was carried out. Complexity and laboriousness of the modelling process were mentioned as a limiting aspect of the teaching approach. The main positive aspect was the possibility to visually recognizably present current spatial characteristics of the place. Thus it was possible to more accurately adjust the proposed ideas to the existing terrain and vegetation.

INTRODUCTION

Enhancement of spatial perception ability is a significant stage in landscape architecture education. Spatial perception allows us to better understand the existing and also the planned spatial structure and scale of the definite area, formed by the terrain, greenery, buildings and other landscape elements (Gazvoda, 2002; Cross, 2011; Chinowsky et al., 2006; Rice, 2003). For landscape architects spatial perception ability plays a significant role in the enhancement of design thinking (Razzouk, Shute, 2012). For creative professions design thinking is one of the main characteristics. Design thinking is generally defined as an analytic and creative process that engages a person in opportunities to experiment, create and prototype models, gather feedback, and redesign. Design thinking shows how designers see and how they consequently think, and what kind of problem-solving. At the same time it should be noted that in the fields related to creativity and design, knowledge is generated and accumulated through action by doing something and evaluating the results (Razzouk, Shute, 2012; Rice, 2003). One of those tools in the educational process of landscape architects is the physical model of the landscape. Architecture and design literature sources emphasize the advantages of the physical model of the landscape compared to the 3dimensional drawings, sketches and landscape plans (Frasconi et al., 2007). It is perceived in reality both in scale and in space.

Although the digital technologies have actively entered the field of landscape architecture, several researchers of landscape architecture education consider that it is the creation of the physical model of the landscape that is significant in landscape architectural studies and it can be combined with modern digital technologies – scanners, video and photographs (Rice, 2003; Ishii et al., 2004; Shamonsky et al., 2004). Physical models offer the user an intuitive understanding of complex geometries and physical relationships that are difficult or even impossible to show on a flat computer screen. In general, digital models are more suitable as final presentations of design,

where greater precision and quantitative analysis are required (Ishii et al., 2004). It has also been pointed out in the research papers that even though the end product – a model or 3D visualization – is perceived equally understandably, however in the enhancement of spatial perception ability the sensory of touching with hands is very important when creating and feeling the terrain and other elements of the place (Rice, 2003; Shamonsky et al., 2004). Several researches have been carried out using illuminating clay and sand, mainly to demonstrate the physio-geographical peculiarities of landscape, including groundwater flows. Illuminating sand and clay allows one to create the land surface and simultaneously, by means of scanner and GIS interface digitalize the data of the obtained surface, thus obtaining 3D images on the computer screen (Rice, 2003; Shamonsky et al., 2004). Therefore illuminating sand and clay are successfully used in the simulation of different situations, whose main objects of research are made of simple elements and forms. The use of illuminating clay and sand makes it possible for non-specialists to be involved in the design process, thus allowing them to see and understand the changes in the territory (Ishii et al., 2004). The possibilities of using various materials allow us to use the physical model of the landscape also in Project-based learning, where the project design is based on a real territory designing, including much more varied and more complex information on the terrain, vegetation and man-made elements (Chinowsky et al., 2006).

Having worked in the field of landscape architecture education for several years, the authors consider that one of the problems in teaching landscape architecture students is the lack of understanding of spatial structure of the territory when planning the landscape in 2D on paper. That is the reason why the modelling approach could be important at the initial stages of landscape architecture students' education in order to practice spatial perception ability. A similar view has been expressed by other specialists (Rice, 2003) who consider that the modelling approach as a teaching tool is still essential in teaching novices, when the first skills and understanding are

formed about the specifics of the place. However, taking into consideration the role of using digital technologies in the teaching process, the classical model and digital technologies should be combined in different ways – using scanners and GIS interface, digital photo and video cameras. The aim of this study was to test and evaluate the possibilities of the use of the landscape modeling approach in enhancing spatial perception ability in landscape architecture studies, combining the physical model of landscape with digital photography.

METHOD

Landscape modelling approach as a teaching tool which enhances spatial perception ability was approbated for the third year Latvia University of Agriculture landscape architecture and planning speciality students in the project-based learning study course Landscape Architecture and Planning. Aldaris park territory in Riga was chosen as a case study, since this is characterised by a complex existing situation – a pronounced relief, rich vegetation and various man-made elements. The development project of the park's territory was designed in the autumn semester of 2014 in cooperation with the representatives from Riga's municipality. The data of the research carried out by the students and the materials of students' proposals for the development of the territory have been used for further territorial planning advancement of the park.

Landscape modeling approach included several stages: preparatory work, development of the base of physical model, its analysis and modeling of project proposal.

Stage 1 – preparatory work:

- Investigation and analysis of the history of Aldaris park in order to understand the substantiation and changes of spatial structure and composition.

- Investigation and analysis of historical plans and the existing topographical plan.
- Field survey of the territory and comparison of the existing situation with historical plans, determining the changes in the landscape.
- More precise determining and analysis of the placement of park elements and size of trees and shrubs.
- Photography of the territory from definite view points – entrances to the park, observation places, and characteristic recreational places.
- Surveying architectural and more precise determination of their size (the height of observation tower, fences, walls, etc.).

Stage 2 – development of the base of the physical model (figure 1):

- Calculation of the model base and preparation at scale 1: 250.
- More precise determining of the height of the terrain's horizontals according to the model's scale, making relief's horizontals from cardboard.



Figure 1: Developed base of the physical model of the landscape.

- Marking the existing trees in the model and modelling the trees according to the existing situation.
- Modelling of the existing buildings and other elements and their placement on the model base.

Stage 3 – analysis of the base of phisycal model and modelling project proposal of the park:

- Analysis of view points, using a phone camera, whose height of the objective corresponds to that of a human view at the given scale of M1: 250 (figure 2) .
- Analysis of the obtained photos, determining the valuable and problematic spots of the existing sights, the possible valuable view points, the places where the sights should be covered.
- Analysing the phisycal accessibility to the landscape by measuring on the model the difference in the hight of horizontals corresponding to the scale and the length of the planed pathways, recalculating the necessary ramps for providing phisycal accessibility to the landscape.
- Modelling the planned architectural elements (buildings, benches, squares) and inserting them in the model with the modelling elements, finding the most appropriate place in the base of the phisycal model.
- Analysis of the planned pathway network in the model, placing the lines of the planned pathway using a rope or a band (figure 3), determining the main axes and contoures of the territorial planning composition.
- More precise determining of composition and infrastructure of the layout, moving the modelling elements and rope or band.

The most suitable finally obtained solution for the park territory was transferred from the model to the digital

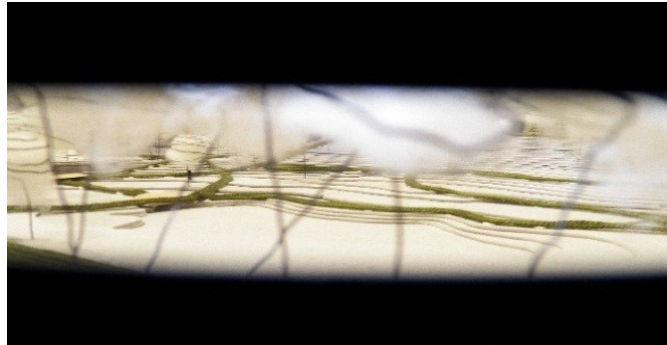


Figure 2: Students' work on the analysis of the model – the analysis of the view point and relief, using a phone camera.

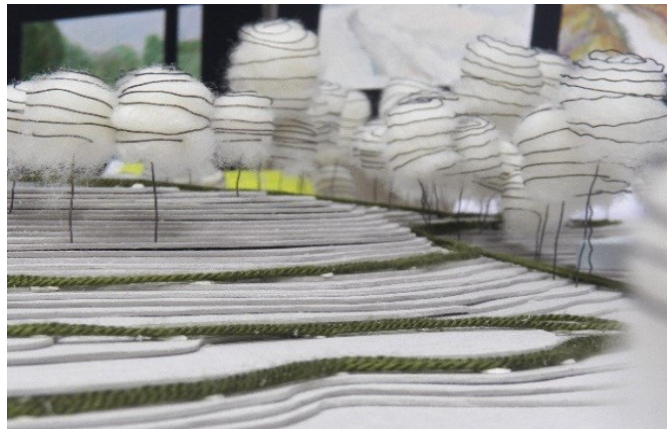


Figure 3: Modelling of pathways by using a rope.

graphics when performing measuring of the planned situation on the model and transferring the obtained measurements to the AUTOCAD interface. Part of the students were additionally involved in processing the photos of the model, so that the sights could be better depicted.

To evaluate the advantages and drawbacks of the modelling approach for the enhancement of spatial perception ability, a survey for students involved in the project and model development was made, containing two closed type and two open type questions were used:

- Did the modelling approach in the process of the development of Aldaris park help better understand the existing spatial structure of the territory? (the offered answers ranged from 1 (weak) to 5 (excellent) points)
- Did the modelling approach in Adaris park's project design process contribute to better develop the project proposal in the arrangement of the park and better understand the planned spatial structure? (the offered answers ranged from 1 (weak) to 5 (excellent) points)
- Mark at least 3 positive characteristics of modelling approaches (free style answers)
- Mark limiting aspects of the modelling approach, if there were any (free style answers)

RESULTS AND DISCUSSION

The number of students taking part in the survey was 12. They were the third year students of landscape architecture and planning study programme – 2 male and 10 female students, aged 22- 26 years. As the third year students were involved in the Aldaris park development project, they had had previous experience in designing

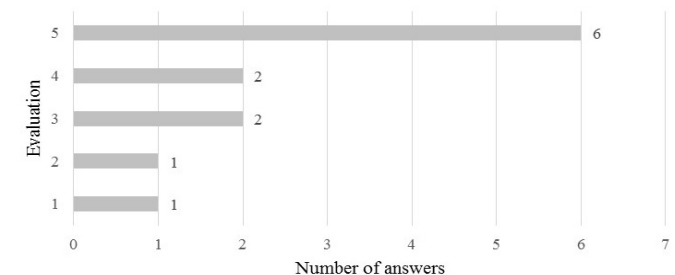


Figure 4: Students' answers to the question about the usefulness of the modelling approach in understanding of the existing spatial structure of the Aldaris park (the offered answers ranged from 1 (weak) to 5 (excellent) points).

similar territories and elaborating models. Most of the students positively evaluated the significance of the modelling approach in the understanding of the existing terrain of the territory and landscape spatial structure (figure 4) as well as in a more appropriate and precise placement of the design elements in the existing terrain.

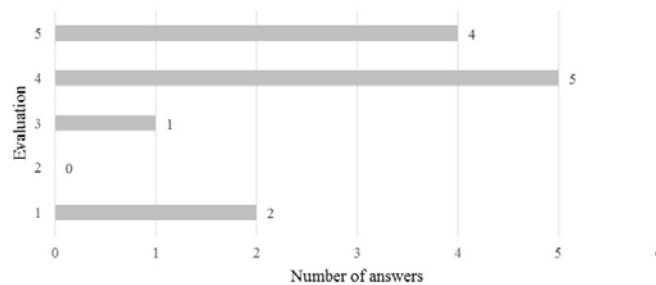


Figure 5: Students' answers to the question about the usefulness of the modelling approach in the design process of Aldaris park territory development (the offered answers ranged from 1 (weak) to 5 (excellent) points).

The modelling approach plays an important role in the modelling of the designed situation, when creating and better understanding the newly created composition and spatial structure of the park, the layout of the possible pathways, ramps and flights of steps (figure 5). Nine students pointed out that the modelling approach helped them choose the most appropriate solution to the improvement of the territory in accordance with the existing terrain, vegetation and architectural elements, respect the scale of the landscape and the mutual harmony and proportions of the elements. Determination of the view points three times, evaluation of the scale for the elements to be designed and their most appropriate placement four times were also mentioned as positive features in using the modelling approach.

Free style answers to open type questions were evaluated in two groups – positive possibilities of the modelling approach and its limiting aspects. The limiting aspects of

the modelling approach are basically associated with the time and great amount of work invested in the modelling process, so this is a time and labour-consuming process. Financial expenditures had also been mentioned among the limiting factors. It was also mentioned that it would be better to work with greater scale – at least M1:100. In that case it would be easier to perceive the existing and planned spatial structure of the territory from the human scale, which would allow to more accurately, and easily to analyse and determine the location of view points. Regarding the positive aspects of the modelling approach, the respondents mentioned the advantages of perceiving the existing spatial structure and the peculiarities of terrain more easily; and in the territory development – to deal with the phisycal accessibility to the landscape in a more accurate and clear way, to find a more appropriate location and environmentally suitable scale for the designed elements, to create the spatial composition and view points, basing on the results of the sight analysis obtained within the framework of modelling process.

CONCLUSIONS

Analysing scientific literature and the data obtained from the survey, it can be concluded that the use of the modelling approach in the process of elaboration of territory development projects is essential for students – novices for the enhancement of spatial perception ability and understanding the scale of the territory, thus also for developing a better idea of the landscape design. Overall, the approach can be evaluated as positive. The results of the survey showed that the main benefit from the modelling approach is a better understanding about the existing peculiarities of the terrirory and its spatial structure, which enabled us to adjust the planned ideas and the location of elements more accurately to the existing situation. Another positive aspect which was mentioned by the respondents was the possibility to clearly see whether the planned idea was appropriate or it had to be adjusted and corrected. The limiting aspects were time and labour consuming feature,

therefore the improvement of modelling process should be considered, searching new, recycable materials and technologies for preparing the existing model base – relief and vegetation, as well as for preparing and easier transformation of the planned landscape elements.

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LARGE-SCALE LANDSCAPE DESIGN: A TEACHING METHOD TO OVERCOME GROUP WORK DILEMMAS

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KEYWORDS

Teaching and Learning, Group Work, Individual Work, Student Evaluation, Landscape Design Studio

ABSTRACT

Large-scale landscape projects, given their dimension and complexity, can only be developed in one-semester landscape design studios through group work. However, group work has several negative aspects. Most students tend to focus only on their particular tasks within the group not acquiring all the competences that the course means to offer. Some tend to behave as “free riders” what often results on group conflicts. Group work also does not allow an accurate evaluation of each student. To solve these problems, a percentage of individual work is necessary in these studio courses. A common option is the introduction of a written exam on the lectures topics. While this solution provides some improvement in the acquisition of theoretical knowledge and contributes positively to individual student evaluation, it doesn’t improve the acquisition of practical competences and does not mitigate group conflict. Also, it creates a separation, rather than integration, between theory and studio work. This paper presents and discusses a 3-phase design process devised in the University of Porto to overcome the above difficulties. The process includes: 1) a group work landscape analysis; 2) an individual proposal (master plan) for the site; 3) group developing of the technical drawings of the 6 winner proposals, which are selected both by teacher and students. The method proved to be efficient in integrating theory and studio work. It contributed positively to student evaluation, resulting in a wider distribution of grades and on significant differences between group and individual grades. There was an improvement in the acquisition of competences, as individual proposals required the knowledge of group landscape analysis. The integration of individual work in the format of a student competition increased motivation, and reduced and revealed “free riding”. Changes in the composition of groups throughout the process reduced group conflict.

INTRODUCTION

The teaching of design studios having as case-studies large scale landscape projects can only be achieved, within a semester time frame, through group work. Group work has several benefits. Race (2000) identified several benefits of group learning for students: i) the opportunity to have an enjoyable social learning experience; ii) the possibility to make friends; iii) the possibility of getting more, and more diverse feedback; iv) the chance to learn by explaining things to group mates; vi) and the opportunity to acquire skills valued by employers, such as leadership and the ability to work in teams. According to Feldman and McPhee (2008), outputs of group work can be superior to the sum of outputs of individual students. Group work also increases the cognitive abilities of students. According to Piaget’s theory of socio-cognitive conflict, group work allows the students to re-examine their ideas in light of contradictions that occur from interacting with others (Afacan, 2012).

Group work is especially beneficial to architectural design education, namely to landscape architecture training. Design problems don’t have only one solution (Akin, 1986), being fundamental the perception that there are multiple solutions to design problems. Group work, through the creation of a communication rich environment, provides opportunities to share, develop, and test various creative ideas through various group teaching and learning methods, being decisive in design training (Afacan, 2012).

Nevertheless, group work carries a number of problems to the teaching of design studios. Most students tend to focus only on their particular tasks within the group not acquiring all the competences that the course means to offer (specialization effect). Some tend to behave as free riders not complying with their functions within the group, what often results on group conflicts (Race, 2000; Afacan, 2012). Group work also does not allow an accurate evaluation of each student, as the group performance masks individual competences.

My teaching experience shows that to overcome the specialization effect, achieve a more accurate student evaluation, and fight “free-riding” it is necessary to introduce in design studios a percentage of individual work. Individual exams, usually on the lectures topics, are the most commonly adopted form of individual work. Individual exams increase the acquisition of assessed knowledge, usually theoretical knowledge, and contribute positively to individual student evaluation. However, they provide little improvement in the acquisition of practical competences and have no effect in mitigating group conflict. Also, they contribute to a separation, rather than integration, between theory and studio work.

The introduction of a percentage of individual studio work is an alternative option. This paper presents a teaching method, alternating group work and individual work, devised to increase the acquisition of theoretical knowledge and practical competences, reduce free riding and group conflict, and increase the accuracy of individual students evaluation. The method was applied in the course “Studio Landscape impact and Rehabilitation” from the Master in Landscape Architecture of the University of Porto, in two consecutive school years: 2012/2013 and 2013/2014.

THE METHOD

The tested teaching method is a 3-phase design process, alternating group work and individual work. Phase 1 consists of a group assessment and analysis of the site. Groups are composed by 3 to 4 students, and each group addresses a different analysis topic. This division of tasks is justified both by the impossibility of every group to perform a complete and accurate site analysis within the assigned time frame, and by the wish to simulate a design office environment. Usual analysis topics are: i) history of the site and its surroundings; ii) site vegetation assessment; iii) site built structures assessment; iv) site use analysis and identification of

future expectations; v) visual quality/impact assessment; and vi) characterization of the surroundings.

Group composition is negotiated among the students, as, according to Damon (1984), this will increase their study, reasoning, and social interaction skills. Each group chooses a topic, with the teacher mediating negotiation when more than one group chooses a particular topic.

At the end of this phase, each group has to produce: i) a written report about its topic; ii) a digital data base to be included in the analysis data base to be made available to all the students; and iii) a PowerPoint presentation about their work that should include goals, methodology, results and conclusions. All groups must do a 15-minute oral presentation of their work to the teacher and the class.

Phase 2 is organized as a student competition. Each student has to develop a master plan for the site (figure 1) and produce a poster. At the end of this phase, all the students have to present their proposals to the teacher and the class in a poster presentation session. Students are required to evaluate all the proposals, including their own, according to several criteria established by the teacher. To each criterion they should attribute a classification of 1 (low) to 5 (high). Student votes are secret to prevent restraints in presenting an opinion.

Student proposals are ranked according to the student voting (60%) and teacher voting (40%). The most voted proposals are selected to be developed, through group work, in phase 3. The number of selected proposals depends on the number of students in the class. The authors of the selected proposals are the



Figure 1: Phase 2 master plan

PLANO VEGETAÇÃO

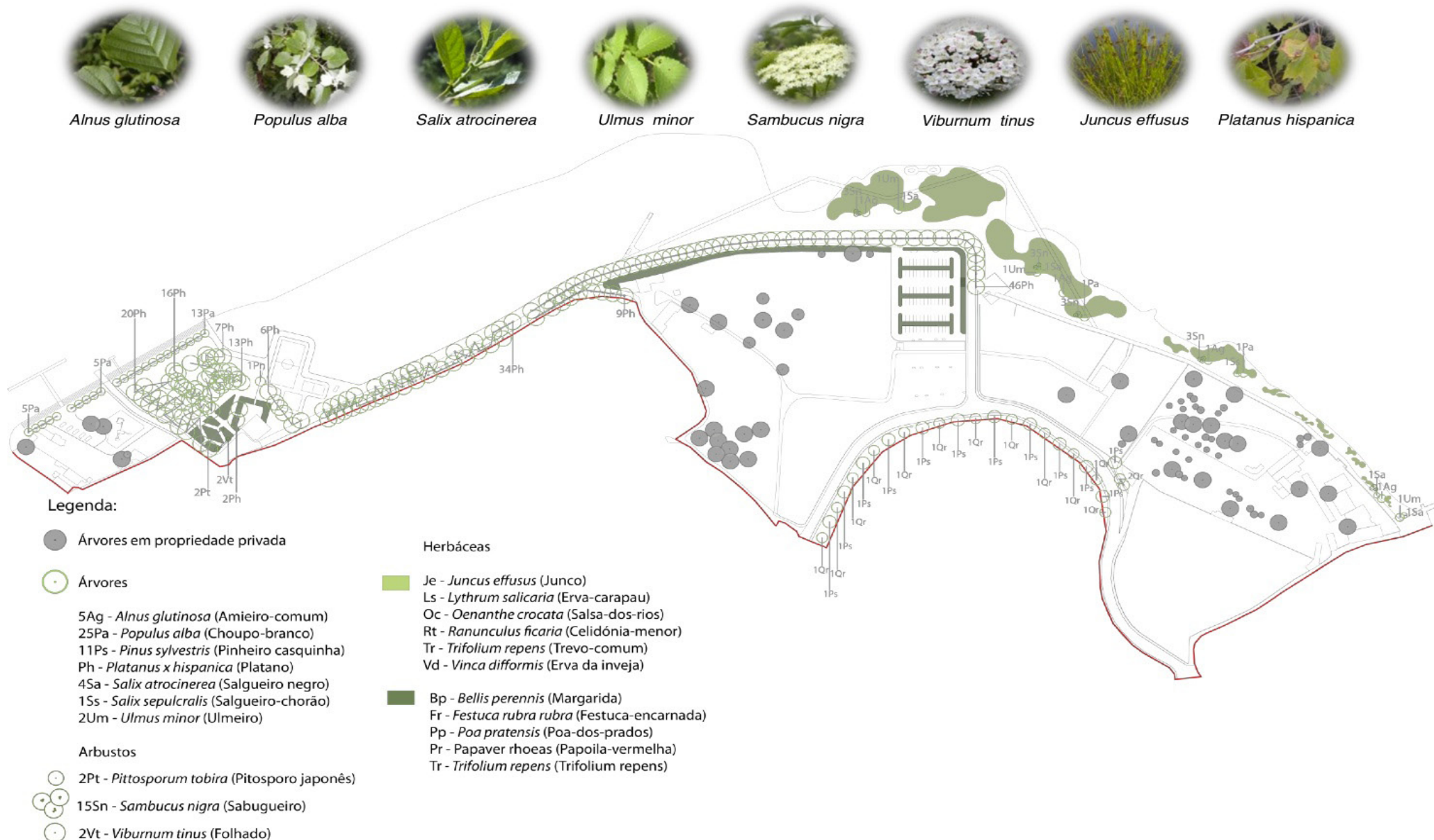


Figure 2: Plantation plan (group work)

PROPOSTA



Legenda

Tipologias de espaço

- 1 - Clube náutico
- 2 - Jardim de Oliveira do Douro
- 3 - Parque infantil
- 4 - Campo de Jogos
- 5 - Praia
- 6 - Sapal
- 7 - Quinta da Alegria (Hortas comunitárias)
- 8 - Quinta do Mirante (Pousada da juventude)
- 8 - Quinta da Pedra Salgada (Eventos)

Tipologias de revestimento

- | | |
|-------------------|-----------------------------|
| Calçada | Vegetação sapal |
| Passeio | Estrato herbáceo |
| Areal | Sebes produtivas |
| Produção agrícola | Edificado |
| Vegetação dunar | Estrato arbóreo e arbustivo |



Figure 3: Final master plan (group work)

group leaders of phase 3 groups. Phase 3 groups are formed according to the following procedure. The most voted student chooses the first member of his/her group from the group of students whose proposals were not voted, followed by the other group leaders sequentially. After all the group leaders have selected one group member, the procedure is repeated to select the second group member. A fourth group member might be added to one or two groups, through teacher mediation, in case of necessity.

In phase 3, groups have to develop the technical drawings of the proposal (figure 2). The proposal can suffer adjustments and modifications suggested by the group, namely through adopting solutions of other group member proposals (figure 3). At the end of this phase each group has to produce: i) a digital folder containing: master plan, grading plan, planting plans, pavement and built structure plan, equipment and urban furniture plan, maintenance plant, selected construction details, and cost estimation; ii) a poster; and iii) a 3D model (figure 4). Each group is required to do a 15-minute presentation to the class and the teacher.

RESULTS

The method has been applied in 2 school years, 2012/2013 and 2013/2014. Tables 1 and 2 display the grades of group work (phase 1 + phase 3), individual work (phase 2), and final grades (60% group work + 40% individual work) for the school years of 2012/2013 and 2013/2014. Grades of group work range from 12/20 to 15/20 in 2012/2013, and from 15/20 to 16/20 in 2013/2014. Grades of individual work range from 12/20 to 17/20 in 2012/2013 and from 10/20 to 16/20 in 2013/2014. The introduction of individual work increased the range of final grades in both years, resulting in a more accurate evaluation of students.

Student #	Grades		
	Group work	Individual work	Final
1	15	15	15
2	15	16	15
3	14	16	15
4	14	13	14
5	13	14	13
6	12	16	14
7	14	15	14
8	15	15	15
9	12	13	12
10	13	15	14
11	12	12	12
12	15	14	14
13	15	17	16
14	15	15	15
15	14	12	13
16	12	12	12
17	13	15	14
18	13	16	14
19	15	14	15
20	15	13	14

Table 1: 2012/2013 grades (year 1 of method application)

Student #	Grades		
	Group work	Individual Work	Final
1	16	15	15
2	15	12	14
3	16	13	15
4	16	16	16
5	15	13	14
6	15	14	14
7	15	12	14
8	15	15	15
9	16	14	15
10	16	14	15
11	16	14	15
12	16	10	14

13	15	11	14
14	15	14	14
15	16	14	15
16	15	13	14

Table 2: 2013/2014 grades (year 2 of method application)

In 2012/2013 individual work increased the final grade of 6 students, decreased the final grade of 3 students, and had no effect in the final grade of 11 students. In 2013/2014 individual work decreased the final grade of 10 students, and had no effect in the final grade of the remaining 6 students.

Grades of 2012/2013 and 2013/2014 school years have been compared with the grades of 2011/2012, where assessment was based solely on group work (Table 3), and the grades of 2010/2011, where assessment was based on two individual exams (30%) and on group work (70%) (Table 4) (Figure 5). Final grades of 2011/2012 range from 14/20 to 17/20. In 2010/2011, grades from individual exams range from 7/20 to 15/20, and grades from group work range from 12/20 to 16/20. Individual exams increased the range of final grades, decreased the final grades of 8 students, increased the grades of 2 students, and had no effect in the final grade of 7 students.

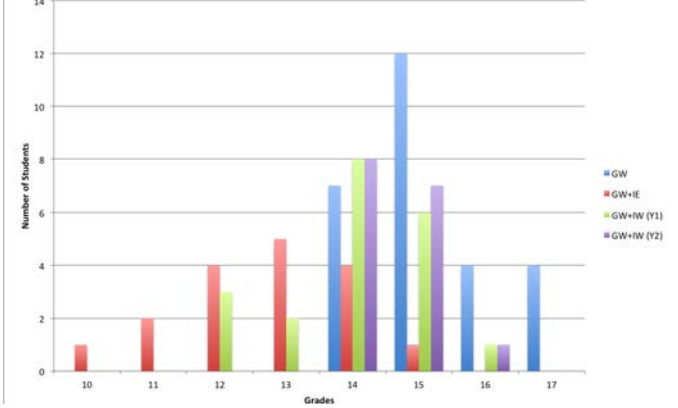


Figure 5: Compared final grades of group work (GW), group work and individual exams (GW+IE), and group work and individual work (GW+IW)

Student #	Grades	
	Group work	Final
1	14	14
2	16	16
3	14	14
4	15	15
5	15	15
6	15	15
7	15	15
8	14	14
9	15	15
10	14	14
11	15	15
12	17	17
13	15	15
14	16	16
15	15	15
16	17	17
17	14	14
18	14	14
19	16	16
20	17	17
21	17	17
22	15	15
23	16	16
24	15	15
25	15	15
26	15	15
27	14	14

Table 3: 2011/2012 grades (group work only)

Student #	Grades		
	Group work	Individual Exam	Final
1	12	7	11
2	16	12	14
3	13	11	13
4	14	15	14
5	13	11	13
6	13	11	12
7	13	5	10
8	14	8	12
9	13	11	12
10	12	15	13
11	14	12	14
12	15	9	13
13	13	8	11
14	15	13	15
15	12	10	12
16	13	15	13
17	13	15	14

Table 4: 2010/2011 grades (group work + individual exams)

VOTING RANKING (2012/2013)			VOTING RANKING (2013/2014)		
Students	Teacher	Final	Students	Teacher	Final

Student #	13	18	18	4	4	4
	2	3	13	10	1	1
	18	6	3	(3)	8	10
	5	13	2	1	11	(8)
	(7)	2	5	11	10	11
	3	5	(6)	9	14	9
	14	8	(7)	(8)	15	15
	17	10	8	15	2	6
	9	11	10	6	6	14
	12	15	14	14	9	(3)
	10	12	12	7	5	2
	16	(7)	9	5	7	5
	8	9	11	16	13	7
	11	14	17	2	12	13
	(6)	17	16	13	(3)	16
	4	4	15	12	16	12
	15	16	4			
	19	19	19			

Table 5: Proposals voting rankings and winning proposals (2012/2013 and 2013/2014)

Table 5 shows the results from the proposals voting (students, teacher and final) for the two school years. In both years, the students and the teacher voted together in all but one of the selected proposals. In 2012/2013, the final proposal voting ranged from 3,21 to 4,34, with a wider interval in the teaching voting (2,83-4,46) than in the student voting (3,46-4,48). In 2013/2014, the final proposal voting ranged from 2,3 to 4,1, again with a wider interval in the teaching voting (2,5-4,6) than in the student voting (2,1-3,8). These results show a coincidence in the student and teacher voting in what concerns the winning proposals. The smaller interval of student voting suggests some contention on attributing extreme grades.

Table 6 shows the changes on group composition between phase 1 and phase 3 for the two school

years. Columns 2 and 3 indicate the group of each student in phase 1 and phase 3 respectively. Column 4 shows students with 2 new group mates in phase 3, i.e., with no mate from the previous group. Phase 3 group leaders are highlighted.

GROUP COMPOSITION (2012/2013)				GROUP COMPOSITION (2013/2014)			
Student #	Phase 1	Phase 3	X_Group	Student #	Phase 1	Phase 3	X_Group
1	G5	G3	X	1	G5	G2	X
2	G4	G4		2	G2	G5	X
3	G2	G3	X	3	G5	G1	
4	G5	G1	X	4	G5	G1	
5	G1	G5	X	5	G1	G2	X
6	G2	G6		6	G1	G4	
7	G5	G6	X	7	G3	G2	X
8	G4	G4		8	G2	G4	X
9	G2	G6		9	G2	G3	
10	G1	G1		10	G2	G3	
11	G3	G5		11	G5	G5	X
12	G6	G2		12	G4	G3	
13	G6	G2		13	G3	G1	X
14	G6	G2		14	G1	G4	
15	G1	G3	X	15	G4	G3	
16	G3	G5		16	G3	G5	X
17	G3	G4	X				
18	G1	G1					
19	G4	G4					
20	G6	G2					

Table 6: Changes on group composition (2012/2013 and 2013/2014)

Table 6 clearly shows that one of the reasons for changes in groups in this teaching method is the coexistence of phase 3 group leaders in phase 1 groups. In 2012/2013, that was the case of students #5 and #18 (Group 1 in phase 1) and students #3 and #6 (Group 2 in phase 1). In 2013/2014, that was the case of students #1, #4, and #11 (Group 5 in phase 1), and students #10 and #8 (Group 2 in

phase 1). Apart from the above cause, group changes can arise from a preference for, or rejection of, certain students. Group leaders tend to choose mates with whom they have affinities or mates with good work group skills. Free riders or students with low work group skills tend to be rejected, being the last ones to be chosen.

Table 6 also shows that some groups maintained their composition. In 2012/2013, group 6 continued to phase 3 without changes (group 2), and group 4 added a new element to the initial group. Curiously, these were the groups with higher grades in phase 1. The same didn't happen in 2013/2014 because all group leaders came from only 2 groups of phase 1, the groups with higher grades.

DISCUSSION

Both individual exams and individual studio work had a positive effect in individual student evaluation, increasing the interval of final grades in one value, in the corresponding years. However, results show a poorest performance in individual exams than in individual studio work (Figure 6). Grades of individual exams ranged from 5/20 to 15/20, with 5 students having negative

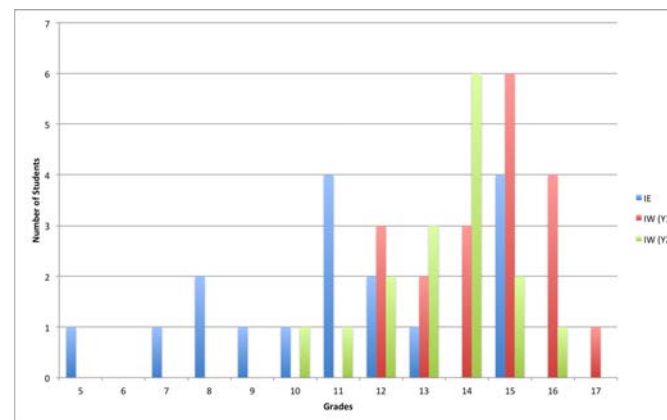


Figure 6: Individual exam (IE) grades versus individual work (IW) grades

grades (under 10/20). Grades of individual work ranged from 12/20 to 17/20 in 2012/2013 and from 10/20 to 16/20 in 2013/2014. Exam results expose the difficulty of transmitting and assessing theoretical knowledge separately in studio classes. Empirical experience and informal talks with the students reveal that students are not motivated to acquire theoretical knowledge in studio classes that is not required for the accomplishment of the design tasks. Students perceive lectures as a waste of time when the addressed topic is not of immediate application in the design problem, and exams as decontextualized and boring. As opposed, students are strongly motivated to acquire theoretical knowledge that is demanded by studio work (integrated approach).

The better results of individual studio work result from its logical integration in the design process. When questioned, students declared that the introduction of an individual student competition stimulated their motivation and commitment to the course, and contributed positively to acquisition of both theoretical and practical design competences.

Another important contribution of individual studio work is the neutralization of the “specialization effect” that might affect group work. Since the development of individual proposals (phase 2) required acquaintance of the site analysis database (phase 1), students declared that they were more motivated to participate actively in all phase 1 group tasks as this will facilitate and improve their performance in the following phase.

The teaching method proved to be efficient in reducing free riding behaviors. Students reported that the introduction of individual work in between the two phases of group work, the possibility of being penalized in phase 2 voting and being unwanted in phase 3 groups increased their commitment to the course, their motivation, and their individual performance.

As mentioned above, most group changes in the two school years were caused by a coexistence of group leaders in phase 1 groups. Apart from that cause, it was observed that groups with high performance in phase 1 tended to maintain their composition, while groups with low grades showed a higher tendency to disintegrate. Results also show that students with low grades in phase 2 were the last ones to be selected to phase 3 groups. These behaviors show that students tend to penalize and reject less committed classmates.

Empirical experience revealed a diminution of group conflict report as opposed to school years when changes on group composition were not part of the teaching method.

CONCLUSIONS

Landscape architecture design studios often require group work. While group work brings several benefits to landscape architecture training, it can result in several dilemmas, namely, group conflict, reduced acquisition of competences, and deficient assessment of individual students. A survey conducted by Afacan (2012) with interior architecture students revealed that working in group improves social and communication skills, provides an enjoyable and sociable learning experience, contributes positively to time management, allows the approach of design issues from different perspectives and the development of several design solutions in a limited time. The same study revealed that difficulties arise when students have different degrees of responsibility and motivation, conflicting ideas, and are reluctant to lose the ownership of their ideas.

The 3-phased design process described in this paper intercalates a phase of individual work in between two phases of group work to fight some of group work associated problems, namely, the “specialization effect” arising from task distribution, free rider behavior and associated group conflicts, and an inaccurate assessment of individual student performance.

As opposed to individual exams, the introduction of individual studio work proved to be efficient in integrating theory and studio work. The dependence of individual proposals on acquaintance of phase 1 group work improved the acquisition of competences, and minimized the specialization effect and free riding. The introduction of a student competition increased motivation and allowed students to reveal and be rewarded by their ideas and commitment. Student decision on group composition and the possibility of group changes throughout the process reduced group conflict. The method also proved to contribute positively to individual student evaluation, resulting in a wider distribution of grades and on significant differences between group and individual grades.

As mentioned above, some of the claims presented in this paper resulted from empirical observation by the teacher and from informal talks with the students during the classes, presentations and evaluation moments. The introduction of a questionnaire on these subjects to the students in future years can provide numerical support to these claims.

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LEARNING BY FILMING- ARCHITECTURAL STUDENTS AND CONTEMPORARY LANDSCAPE

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ABSTRACT

The Politecnico di Milano School of Architecture and Society had in the last decade a very controversial relationship with Landscape Architecture as a subject, bringing the discipline to be just an ancillary contribute in our students career. Called to hold a 60 hours elective semester-long course on Environmental Design at the Bachelor in Environmental Architecture, we teachers decided this could be the last chance to introduce students to landscape. Taking count of students' completely lack of theoretical background, we suggested to interpret landscape as "ultimate infrastructure" giving them a multidisciplinary literature and asking them to choose at least six essays according on a preferred sub-subject theme. More we introduced two essays (Tomas Maldonado and Gilles Clément) we consider fundamental to understand a series of national and international cases studies presented in the course to demonstrate how landscape architecture in the last 30 years influenced and revolutionised the way we perceive environment. To translate these notions in practice we proposed students to shoot short video-clips asking them to take inspiration from the given literature and translate written concepts and their own ideas into moving images with the aim to let them comprehensible to anyone. As a result we obtained different brief documentary films showing various landscapes, their troubles, their beauty, and their neglected potentials. We think this experimental didactic experience could well demonstrate a simplified way to get in contact students in architecture with very structured landscape architecture theories, thanks to a new kind of learning by doing able to let digital-born generation merge knowledge with visions. Neither less this result is a perfect overview on the real contemporary urban landscape, as taken through the lens of a youth who has yet to confront the habit of compromise, and this could be an inspiring vision for professional urban designers as well.

PREAMBLE

The Politecnico di Milano School of Architecture and Society had in the last decade a very controversial relationship with Landscape Architecture as a subject, considering the discipline to be just an ancillary contribution in our students' career. Failing the idea to open a new Landscape Architecture Degree course together with the Agricultural School of the University of Milan, the School activated a 'Landscape Architecture' oriented career inside the Masters in Architecture, but because of the 'supremacy' of Architecture as the main topic and the lacking of teachers involved in the subject the results were very disappointing, so this kind of experiment has been abandoned. It's to be mentioned also that nowadays in Italy the university teachers enrolled in the Landscape Architecture subject are just 33 individuals, and only 2 of them belong to the Politecnico di Milano, and that – contrary to other European Countries – in Italy, Landscape Architecture as a profession is always considered as part of Architecture. For the academic year 2015/16 the School of Architecture and Society will start a new Masters in Architecture in 'Sustainable Architecture and Landscape Design', but of course the 'internal' resources on Landscape Architecture are always the same. The intent of this preamble is to draw attention to the fact that that the study of historical and contemporary landscape is just an eventuality in our careers programmes, and very often is introduced to students by teachers involved in scientific fields that are only 'close' to landscape architecture and that search to fulfil to the students' requests about this peculiar subject.

FIRST DIDACTIC EXPERIENCE

During the academic year 2014/15 the authors were called to hold a 60-hours elective semester-long course on Environmental Design at the third year of the Bachelor in Environmental Architecture. After few lectures we discovered that all the students attending the course were literally hungry for contemporary landscape issues, a subject they never faced during the first two years of

the Bachelor course work. More, we realized that most of our 41 students – thanks to the elective nature of the course, open to all the Bachelor careers available in the School – were coming from careers like ‘Architecture for the Building Production’ and similar fields of study where terms such as sustainability, environment, and landscape are not common at all. Listening to their voices and their passionate requests and considering their need to investigate a subject they felt so crucial to their understanding of contemporary life, we teachers decided to reformulate the entire Course of Environmental Design. While it may appear peculiar to respond to a so-challenging demand: this could be the last chance to introduce these students to landscape studies.

Taking count of students’ complete lack of theoretical background on Landscape Architecture, we suggested they interpret landscape as the “ultimate infrastructure”, giving a extremely elementary interpretation of the European Landscape Convention (2000) – we used the English version as the Italian one presents very contradictory differences in its translation – which says <“Landscape” means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors> (art. 1, a) and, most important, <... It concerns landscapes that might be considered outstanding as well as everyday or degraded landscapes> (art. 2). As we are convinced that <When landscape will be recognized as the primary, basic structure, we all will need to preserve it and to find new ways to design good architecture and good planning to better the environmental conditions not only for the present, but also for the future. Thinking like this means localism has the same value of globalism, as the world is a whole and we should live (well and better) on it, taking care of generations to come> (Fabris, 2009: 36). In fact we noticed that our students, born from the generation that thought, proposed, accepted, and developed all these meanings, were absolutely unaware of all they parents did. Students, taking this entire heritage as granted, simply didn’t

think they had to continue supporting and developing day by day this legacy with their own contribute. There was a great work to do, in such a short time.



Figure 1: Derelict Area as Third Landscape – Frame from the video by students L. Bernardi, L. Boggiani and F. Dolci (Polimi).

To provide them some background about the topic, teachers gave to the students a multidisciplinary literature list asking them to choose at least six essays for individual studying – under a tutoring supervision – according to a preferred sub-subject theme. This method, based on a long list of various contemporary scientific texts in which landscape and landscape architecture are presented together with subjects known by the students as architecture, planning, construction technologies and so on, attempts to show them that the interdisciplinary and transdisciplinary way to process a project solution has to be the preferred one both in the didactic and in the professional approach.

In addition, we introduced two essays we consider fundamental to understand a series of national and international case studies presented during the course to demonstrate how in the last 30 years landscape architecture influenced and revolutionised the way we perceive the environment. The first text is ‘La speranza progettuale’ (The project’s hope) by Tomás Maldonado a tiny book that, even though written forty-five years

ago, is still full of ideas, questions and notions that help the reader in formulating his/her capacity of interpreting subject matter as timeless as environment and its relations with society. Even though full of data and references related to the past, nowadays this fascinating book – the first one presenting Environmental Design as a subject in Italy where Maldonado funded the Chair of Environmental Design at Politecnico di Milano in 1985 – is a guide to explore the relations between human behaviour and nature, and we know that from this relation the outcome is called landscape. How can we ignore the statement: <... in the context of a nature in crisis, of a nature with all the symptoms of praecox senility, the society deprives fatally itself of any tension towards the future ...> (Maldonado, 1970: 143).

The other essay we suggested the students read was ‘Le Manifeste du Tiers Paysage’ by Gilles Clément. In September of 2014 our students had the chance to meet and learn from Clément, who had invited to open the School of Architecture and Society’s academic year with a lecture presenting his visions and his work. We suspended any reservations about inviting a former professor of Landscape Architecture to open the annual activities of a School that has reduced this subject to a ‘nothing’, as this was a great opportunity for faculty and students to see ‘what’ could be considered landscape and ‘how’ landscape architecture could combine with architecture and planning both at the narrow or the wide scale – the importance of maintaining attention to the possibilities of working with a multi-scaled approach is another factor we underline in our lectures –. Reading ‘The third Landscape Manifest’ actually opened wide the eyes of our students: finally most of what is expressed in the European Landscape Convention became real thanks to the Clément’s writing. The ability of the French to talk about environment, ecology, humanity and nature through different dimensions and approaches, not last the political one, was the best key to help our students read their ‘ordinary’ landscape as a ‘unique’

landscape, a landscape to protect, preserve, understand and bettered working it for grades day after day.

All these theoretical aspects have been supported by lectures presenting study cases where the connections between landscape architecture, architecture and planning are very tight and moreover linked to many other practical issues in terms of sustainability, resilience, and recycling. Among all, here we remember the strategies, the projects, and the plans developed during the IBA Emscher Park (1989-1999), the IBA Fürst Pückler Land – See (2000-2010), the IBA Stadtumbau (2000-2010), and the IBA Hamburg (2007-2013) in Germany as well as the Boscoincittà (Wood-into-Town, 1975-ongoing) reforestation park in Milan and the recovery and participated project for the new Parco delle Cave in Brescia (Park of Pits, 2014-ongoing).

After having searched to transmit all these notions to the students, we as teachers wanted to understand clearly what passed, but of course the lack of time and resources to start any kind of project design on a real case study and also the understanding that our students would have produced more an architectural translations of these contents than an elaboration appropriate to a landscape design procedure made us thinking for an hybrid solution for their exercise. So to translate these notions in practice, we proposed students to shoot short video-clips asking them to take inspiration from the given literature. In this we saw the simplest translation from 'observing and analysing' to 'describe and solving' for students with such an urgency to put in practice what they learned in so few time. As demonstrate by Bruno Munari in that inspiring masterpiece represented by 'Disegnare un albero' (Drawing a tree, 1978) <Destroying the model, the rule stands. And the rule says: the following branch is always thinner than the preceding branch> (Munari, 1978: 86). This is actually all we need to know to move further.

We asked students to read their own living landscape (at home, at university, wherever...) through the lens of their smart-phones, taking count of the new notions and interpretations learnt. After the first experiences reported – a part of the scheduled time in each class has been dedicated to a collective presentation of the short movies – teachers asked their students to organize the videos basing on a real screenplay. The writing work suggested was just a combinations of phrases quoted by the read literature and/or keywords that together with the chosen moving images could tell and express in a way comprehensible to anyone a concept informed by their own ideas.

As a result we obtained different brief documentary films –we chose a common format of less than 3 minutes – showing various landscapes, their troubles, their beauty, and their neglected potentials. This reading of landscape, even if not sophisticated yet perhaps appropriate for its kind of intrinsic naïveté, presents the naked reality of most part of our environment asking for solutions and searching for relationships.



Figure 2: New Suburban Area Landscape – Frame from the video by student A. Imaz Figaredo (Polimi).

DIDACTIC EXPERIENCE TWO

The authors had the possibility to try again this multimedia experiment during the week of the Athens Programme, an exchange programme led by Paris Tech University participated in Politecnico di Milano together with other 14 European Universities. In March 2015, 30 foreign students – between them only 4 studying architecture and 2 studying agriculture – were introduced into a full-immersion course where Environmental Design and Landscape Design were the leading subjects. The weekly course titled 'Milan, the unexpected green-growing city. A view from inside' (Director: prof. Luca MF Fabris) was based on a series of morning lectures held by various experts and teachers and afternoons dedicated to guided visits of Milanese locations where the students had the possibility to see the practical results of the notions and the design projects explained during the morning classes. The lectures touched topics as 'history of gardens and parks in Milan', 'Milanese contemporary urban and peripheral parks', 'new parks derived from former industrial areas', 'horticultural garden system in Milan', and 'green strategies applied in the new financial Milanese downtown core'.

Even if this time teachers and invited experts knew beforehand that the audience was completely detached from the basis of Landscape Architecture and the meaning Environmental Design can have in the architectural context, we had to face the challenge to respond promptly to questions we seldom heard. That was learning from both sides, actually. Answering to the questions of management students only in economical terms, to the ones studying engineering – actually suspecting that architecture is just a matter of aesthetics and not (also) of technique – in their language or to the computer sciences' faculties ones – so absolutely sure that so many historical relations between past, present and future were simply pointless – that reality was not composed only by bits... All this was actually the great work during the first two days of the course. When we tasked them with their final work – the students at the end of the

week had to be evaluated with a mark to obtain some university credits – a three-minutes video illustrating what they learned about Landscape Architecture and Environmental Design during the week they seemed shocked, as they never had used these techniques before.



Figure 3: 'Some of us have noticed it' – Frame from the video by students C. Peña Ortega, T. Van Bortel, P. Vasconcelos (Athens Programme @ Polimi).

Strong of the previous didactic experience, and taking into account that this time there was no time enough to implement the students knowledge about landscape and environmental design theory with a sort of literature even if reduced 'in pills', we opted to underline frequently during the lectures the principal meaning and contents of these subjects, actually using them as a mantra during the afternoon visits to the historical parks, to the new parks developed from former industrial areas, to the 40-years-old reforestation areal of the 'Boscoincittà', to the new extension of the Parco delle Cave (Park of Pits, Milan) or to the new quarters recently built in the Milan centre where we finally entered also the skyscraper 'Bosco Verticale' (Vertical Forest, Studio Boeri Associati, 2014), to observe from inside its hanging gardens.

After day two, our foreign and 'strange' students were around filming not only with their smart-phones but also with a motion-cam, and the results were surprising. The brief movies not only present a peculiar way to see Milan and its urban landscape but, using a fresh language that mixes pictures and moving pictures with short texts, are able to document a scenery and also to comment on it with a proper critique. Asking the Athens Programme students, after the final public presentation of their short movies, what they would bring home from this experience we were enthusiastic in listening to them report that they had comprehended that landscape – doesn't matter what's it like – is part of their life and should be supervised, protected and bettered by themselves without waiting for others to do it for them and that Environmental Design and Landscape Architecture are very complex and multifaceted issues that could be easily interfaced with the subjects they are now studying.



Figure 4: 'Milano's landscape through our eyes' – Frame from the video by students M. De La Puente, N. El Kadim, T. Hylak (Athens Programme @ Polimi).

NEXT STEP

We think these two experimental didactic experiences could well demonstrate the utility of a simplified – but not simplistic – way to get in contact

students in architecture and in other subjects with very structured landscape architecture theories.

This approach, very practical even if based on soft-analyses, can be considered as a new kind of learning-by-doing, which facilitates conversation directly with the digital-born generation and permits students to merge knowledge with visions and realism.

Overall, the results we obtained are a perfect overview on the real Milanese contemporary urban landscape, as taken through the lens of a youth who has yet to confront the habit of compromise, and we are convinced this could be an inspiring vision for professional urban designers as well. For sure this learning-by-filming method has proven that the less the 'film-makers' are involved in the landscape architecture theories, the more they can absorb its contents without prejudices, submitting very unexpected contributions to interpret – as in these two cases – the urban open spaces. Moreover the video-recording permits also to present direct witnesses and voices from the studied territories, memories that otherwise could get lost.



Figure 5: 'Milan is a fast growing city...' – Frame from the video by students C. Oliveira, V. Petrzik, P. Ramos Román (Athens Programme @ Polimi).



Figure 6: ‘...in tension with nature...’ – Frame from the video by students C. Oliveira, V. Petrzik, P. Ramos Román (Athens Programme @ Polimi).

As our Environmental Design course has been “ex abrupto” cancelled from 2015/16 didactic calendars for financial reasons, we will continue to explore the potential of this method with the forthcoming new Athens Programme class (in November 2015).

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LEARNING TO LAND, LANDING TO LEARN: ON FIELDWORK IN LANDSCAPE ARCHITECTURE EDUCATION

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ABSTRACT

Landscape architecture is a hybrid of art and science, culture and nature, making and thinking. Such openness is hard to sustain in a social and political context where legitimacy derives from specialization, and where positivism ranks above other modes of knowledge creation in the competition for resources and legitimacy. Recent years have therefore seen attempts to formalize landscape architecture as a 'science'. This trend is salient in landscape architecture education. Students now undertake lengthy 'research' before making design decisions, every one of which they must be ready to justify with 'evidence.' To a degree this is salutary. But it has also dramatically tilted design education toward mediated forms of landscape experience and away from direct engagement with actual landscape phenomena. The result is a paradox. Landscape architecture students today command unprecedented information and tools, but they appear less and less confident in their own design methods, and less and less convinced by their own design decisions. We argue that this problem can only be addressed by rebalancing landscape architecture education toward what Girot (1999) has called 'landing.' This notion is anything but radical. Rather it is a return to a tradition of fieldwork that is deeply ingrained in landscape architecture and 'landscape disciplines' generally, but which has been pushed to the margins of the landscape architecture curriculum in recent years. We therefore argue that clearing a discursive space where fieldwork history, theory, practices, and tools can be explored is essential to give the landscape architecture students of today the skills and confidence they need to emerge as the transformational landscape practitioners of tomorrow.

GET OUT NOW

JOHN STILGOE, *OUTSIDE LIES MAGIC* (1998)

Alone among professions, landscape architecture is a true hybrid of art and science, culture and nature, making and thinking (Bell 1999). This has attracted growing interest among scholars, policymakers (Bloemers 2010) and the public in the past two decades. At a time when oppositions between 'nature' and culture are increasingly seen as having led humanity to a precipice in its relationship with the biosphere, the methods of landscape architecture – methods that embrace complexity, ambiguity, and feedback loops between social and ecological systems – would appear to speak to people in a way quite unlike those of any other discipline. One author even predicted that these methods would make landscape architecture 'the most consequential art of our time' (Beardsley 2000: 5).

But openness to multiple ways of knowing is also a vulnerability in a world where legitimacy derives from specialization, and where 'science' in the narrow sense enjoys a privileged position in the contest for scarce social goods (money, prestige). Even as the wider world praises landscape architecture for its ecumenicism, then, many of its main thinkers argue that the discipline must define its core competences if it is to command greater influence in the shaping of the environment. Such articulation increasingly involves asserting the claims of landscape architecture as 'science' with its own methods and standards of rigor (Davis & Oles 2014). Thus the expansive rhetoric of the field's past visionaries, from Olmsted to McHarg to Schwartz, has gradually given way to a technocratic language of 'solutions,' 'metrics,' and 'performance' (Swaffield 2002; Margolis and Robinson 2007; Landscape Architecture Foundation 2015).

Nowhere is this transformation more evident than in landscape architecture education. A growing number of professional programmes now present the discipline for which they prepare students as one that

[contributes] to analyzing and solving pressing global landscape problems, such as climate change adaptation and mitigation, water management adjustments, transitions to renewable energy sources, and the urbanization of metropolitan delta landscapes. (Wageningen UR 2015)

Descriptions such as the above (which is more typical than anomalous) would seem to suggest important changes in the way landscape architecture is taught and learned. The difficulty of landscape as a research term was noted long ago (Hartshorne 1939), and despite the proliferation of landscape writing in recent years there is scarcely more agreement about its definition today. And yet landscape architecture methods are increasingly presented as though this word were both uncontroversial and fully operational with respect to scientific convention. In many programs today, 'the landscape design process' is presented as a logical exercise where proposals are deduced according to rules and heuristics, rather than an intuitive one where proposals are created through trial and error. Students in such programmes are under increasing pressure to perform 'research' and gather 'data' in order to 'validate' (Wageningen UR 2015) even the most basic design decisions – this despite the prospective and imaginative character of design knowledge.

A higher standard of justification for design choices is, to a certain degree, salutary. Like the older discipline from which it takes its name, landscape architecture has long been marked by extravagant but unsubstantiated claims about the effects of its work (Herrington 2010). Rhetoric has often masqueraded as rigor, and until recently interest has been scant in so-called post-occupancy evaluation (POE), or tracking how the designed environment is lived and experienced after contractual obligations have expired (Cooper Marcus and Francis 1998; Cooper Marcus 2008). It thus seems reasonable to hold landscape architects, as professionals with specific social and economic privileges (Weber 2009), to a high standard of account with respect to their decisions.

To be sure, such standards must apply in landscape architecture education too. But emphasis on justification and proof appears to have become increasingly disorienting and fearsome for many students. The final projects of these students brim with tables and charts on everything from history and hydrology, climate change and chaos theory, and their photomontages and digital models, polished to professional sheen, exude certainty and assurance.

But scratch the surface and the confusion is not hard to discern. 'This week I had a lot of design intent but no direction,' writes a beginning professional degree graduate student on a class blog. 'I am trying to do too much, to always incorporate all the feedback and instruction I get, and to continually push myself to do more.' She chronicles a litany of pressures – to make, consider, integrate, program, include, preserve, omit – that threaten to overwhelm her mind and body. She must 'battle time, battle pastels' and manage her feelings of 'looming inadequacy' and 'looming failure.' She describes her efforts to combine precision and expression, looseness and specificity, rigor and inspiration, to design places that will delight every hour of the day and every day of the year. She must manage, store, and treat water, attend to linework and color, consider boundaries and insides. 'Make everything bigger than your comfort zone,' she tells herself (Student Reflection Journal 2014).

The study of design has always been difficult, but such feelings in the face of even basic design tasks is new in our experience. Students of landscape architecture today command an unprecedented range of information and tools – certainly far more than their teachers did or do. But this munificence also creates and feeds an illusion (for any practiced designer will immediately recognize it as such) of total knowledge – that one can, and should, know everything before having a design idea. This illusion drives growing discomfort with ambiguity and aversion to risk, eating away at the foundations of design confidence before they are set.

This paradoxical combination of technical skill and creative paralysis is surely not the learning outcome any instructor would wish for his or her students, and it suggests something fundamentally awry in landscape architecture education today. One could no doubt find all sorts of causes for it, from waning discipline to political apathy to the pervasive commodification of learning in recent decades. But we want to focus here on a single seismic change in the way landscape architecture is taught and learned. This change has taken place across institutions and countries, and it has transformed the design process in ways that have scarcely begun to be acknowledged. Quite suddenly and almost unnoticed, fieldwork has retreated and even vanished from landscape architecture education.

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We arrived in the morning at the site for a three-hour visit. Armed with digital cameras, clipboards, and sketchpads, we had barely stepped off the bus before we were clicking away in every direction, digital photos of anything and everything, the neighboring buildings, the street, light poles, people waiting for buses, the overgrown patch on the other side of the chain link fence... After a three-hour flurry of running around, snapping photos and, in moments of distraction, being nearly flattened by traffic and cyclists, we piled back on the bus, did a quick windshield tour of the surrounding neighborhoods, and went back home. Three months later, we presented a complete urban design for the site... (Student Reflection Journal 2012)

Many students and their instructors will recognize this scene, described by an upper-level professional degree graduate student. Its details (the long bus trip, the omnivorous digital photography, the 'distraction') speak volumes about the state of fieldwork in landscape architecture education today. The obligatory 'site visit' has been reduced to a perfunctory initial exercise, more box to tick than font of inspiration.

Instead students spend the vast majority of their design time hunched over laptops analyzing places from afar, their cursors poised over back and forward arrows and plus and minus signs in search of experience and understanding. The single hard-won aerial photograph has ceded to a strange and seductive Google Earthscape, assembled from hundreds of different satellite images and showing places that do not and cannot exist, places where it is summer and winter at the same time and where every view angle is right.

At the same time, what was once called 'site analysis' has been systematically removed from many landscape architecture curricula. One must turn to an older generation of textbooks (for example Simonds 1961) to find anything like a systematic treatment of how to engage and understand quickly places one does not know. The methods described in many of these textbooks may now read as quasi-scientific, but the problem is that nothing has taken their place. Students who once reliably learned a set of imperfect methods, now learn in many cases no method at all – and this at a time when the tools available grow more numerous, sophisticated, and accessible by the day.

All this amounts to a shift in landscape architecture education away from direct encounter and toward mediated experience. Some readers might object immediately to our use of these terms, as though we had somehow managed to resolve tensions between subject and object that have bedevilled western philosophy for millennia. Others might counter that 'mediated experience' is in fact the very essence of design, which consists in the main of making, unmaking, and remaking representations of the world. Still others might accept our assertion but argue that its corollary – a design process grounded in fact rather than taste – more than makes up for any alleged loss.

While we acknowledge these objections, all three miss the point. Philosophical niceties aside, most people

would indeed recognize a difference between putting one's body in a place and knowing that place through the symbols made and propagated by others. Indeed most would have no trouble describing the nature of this difference. The two just feel different. If asked to explain what they mean, they might speak of standing on the edge of a field on a blustery day in autumn, the smell of recently ploughed earth and burnt leaves in the air, talking to a farmer about his struggles to stay afloat. They might recall the light raking furrows in field and face, the chill each time a cloud passed overhead, the drone of a motorway beyond the horizon. Or they might describe walking through a dangerous urban neighborhood late at night, alone long after everyone else is safely in bed, the sparse sodium lamps casting pools of green light on the pavement. They might remember the fear in their gut that somehow coexisted with a sense of being alive greater than any they had experienced, or have experience since. These events were just different, they would say, as they were actually experienced, from their representation through sonic or graphic symbols, or indeed from their translation into such symbols as I am doing here now, in the cold grey light of the computer screen. 'Oh well,' they might conclude, 'you just had to be there.'

The gradual replacement of the first kind of experience with the second is, in our view, a significant loss to landscape architecture education. This is not because we think the first is somehow more true, authentic, or valid than the second, nor is it because we deny the insights the second can bring. It is because we are convinced that design knowledge, and hence design confidence, are simply not attainable without the first. *You just have to be there.*

The seeds of this knowledge and confidence are sown early in the design process, at that moment when the designer, still open and unknowing, is thrown into the sensory abundance of the world. This 'landing' (Giot 1999) is always rich with possibility. No matter how fecund the soil, however, these seeds rarely

take root unaided. It would therefore be a mistake to read our comments here as a phenomenological exhortation, an argument that designers should take more time to feel the 'spirit of the place' (Norberg-Schulz 1980) before getting down to work. Such 'feeling,' despite its intuitive appeal and philosophical pedigree, is effectively non-operational as landscape practice. The change we seek is not philosophical but rather structural. We wish to make *fieldwork methodology* the core of landscape architecture education.

This proposal may well imply retooling the landscape architecture curriculum, but it is 'radical' only in the sense of its 'rooting' in history. As we use the term here, fieldwork is simply an accessible shorthand for the method that Francis Bacon, in the early seventeenth century, called the 'interpretation of nature' (*interpretatio naturae*):

There are and can be only two ways of searching into and discovering truth. The one flies from the sense and particulars to the most general axioms... The other derives axioms from the sense and particulars, rising by a gradual and unbroken ascent, so that it arrives at the most general axioms at last. This is the true way, but as yet untried. (Bacon 2004)

The idea that knowledge about the world comes from sensing things in the world is likely to strike many readers as self-evident, even banal. But it was indeed 'untried' when Bacon wrote these words. This method – today usually called 'induction' – would come to underpin virtually all scientific inquiry in the modern era, from the 'natural philosophy' of the seventeenth and eighteenth centuries to the principles of falsification and negation in the twentieth (Popper 1935). And despite the narrow meaning of 'science' in contemporary language, this method is no less important in many 'humanistic' disciplines as well, from anthropology to archaeology to geography.

Whatever ambivalence they may harbor toward Bacon's moral vision of dominion over nature (Oelschlaeger 1991), landscape architects can hardly escape his method. The drawing of 'general axioms' from sensory phenomena is no less essential for them than it is for the anthropologist picking through garbage put out for collection, the archaeologist excavating fragments of pottery in a quadrant, or the naturalist counting insect species in the rainforest canopy. The only difference is the nature of the knowledge derived from these encounters. Whereas practitioners of other disciplines deduce from it positive statements, or statements of what is, landscape architects (and environmental designers generally) must create from it normative visions, or propositions of what should be. Such propositions may be possible absent this encounter, but they are seldom defensible. Not books, not maps, not numbers, but the field itself is the prime source of design knowledge, and the ultimate standard against which every design must be judged. It is this primacy that students of landscape architecture must once again learn, and their instructors once again teach.

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The impediments to such an agenda in the current context are great. As suggested earlier, students are increasingly tethered to desks and laptops, searching for 'data' and 'evidence' in support of 'solutions' and struggling to keep up with the proliferation of new tools and instruments. This leaves little time to examine critically the morals and methods of contemporary practice, and it makes asserting the absolute value of fieldwork difficult. In the words of Garrett Eckbo (1950), landscape architecture education today is overwhelmingly dominated by 'how to' questions. While we would never deny the central place of technics in the profession, we think it is equally or even more important to create in every curriculum a space where students may ask – are asked to ask – 'why to.'

To begin to create this space the authors have established an international, interdisciplinary collaborative platform devoted to re-asserting the place of fieldwork in environmental design teaching. When fully developed this 'Forum on Fieldwork' will span five key arenas:

- **Debates**, where new critical discourses on fieldwork history, theory, and methods are developed;
- **Stories**, where the role of fieldwork in professional design practice is discussed;
- **Methods**, where innovative practices and tools for creating fieldwork knowledge are developed, tested, critiqued, and refined;
- **Translations**, where methods of recording and communicating field experience are developed, tested, critiqued, and refined;
- **Links**, where practices and theories of other 'fieldwork disciplines' are explored.

These arenas also form the structure of an inaugural publication, currently in draft. A cross between textbook and scholarly investigation, *Fieldwork in Landscape Architecture: Approaches and Landings* will provide its readers with practical tools and methods at the same time that it stakes out a wider 'fieldwork agenda' for the years to come.

Clearly method is an important part of this agenda. If our experience is representative (and conversations with our many colleagues in North America and Europe suggest that it is), landscape architecture students today are hungry for encounter with real places and people, but lack the skills necessary to create design knowledge from that encounter. Giving these students practical ways to 'land' effectively is thus essential for building the confidence that will enable them to interpret and envision for

themselves the diverse environments in which they are likely to work during their professional lives.

Ultimately, however, the project we envision is not methodological but moral and epistemological in nature. It is based on the premise that fieldwork is not simply a means to an end, not simply one way among many to 'solve' a given design 'problem,' but rather a habit of mind and action, a mode of understanding and acting in the world. The difference between these two visions is essential. In the first, the purpose of fieldwork is to find the answer to a question. In the second, it is to find the question to answer.

It is this second vision that teachers of landscape architecture must begin to instill in every student. We must teach that the field is not really a place or space at all, but an attitude. One is always potentially 'in the field,' whether counting grass species in a meadow or drafting a planting plan on a laptop (just ask the anthropologist quietly observing from the corner of the studio). 'Landing' is ultimately nothing more than the crossing from familiarity into strangeness, distraction into attention, blind routine into critical reflection. But students cannot be expected to make this crossing without guidance. Their instructors must therefore lead them over the line again and again, insistently and incessantly, until they have gained the confidence – the temerity – to cross on their own and remain on the other side.

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BETWEEN PARKS AND AGRICULTURE- OWNERSHIP PERCEPTION IN URBAN GARDENING

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ABSTRACT

The growing appreciation of urban allotment gardens (UAG), as available open spaces for people within the city limits, has led to a wide range of unique places all over Europe. It is known that existing urban gardening varies very much in terms of its layout and specific functions, from the more classical and regular plot set where to grow food, to the 'guerilla' gardens and high-tech rooftops. The appearance of UAG integrated in urban parks, for instance, in which different motivational uses share the same space, has raised awareness to the issue of ownership perception, since users engage in the park activities differently and have different expectations. A foregoing paper by the authors focused on finding a classification based on the purpose, performed functions, type of users and urban context in 21 UAG developed under a programme in the region of Greater Porto. As a result, 3 types were found: the subsistence allotment (SA), the subsistence and recreational allotment (SRA) and the occupational allotment garden (OAG). The overall perception of these types range from the idea of an individual food production setting to a more open and challenging recreation site – between the realms of agriculture and parks. In the current paper the authors looked at the preceding classification and developed a reflective approach over its public and private dimensions, how they collide or merge in terms of perception and use, and whether they integrate or segregate allotments' non-users. Looking forward to extend the current classification and for a broader understanding of this issue, the discussion is underpinned on a selected sample of examples, taken from the 21 case-studies and other urban gardening practices in Europe. The idea that UAG are both green space facilities (that provide recreation) and a food production land, may determine a more or less inclusive attitude of the gardeners, while affecting non-users willingness to be engaged physically and visually. It is believed that whatever the type of UAG, people's perception is mostly determined by contextual, physical and visual access, cultural and motivational reasons.

INTRODUCTION

Urban allotment gardens (UAG) represent an important asset to cities, providing multiple functions – from recreation to food production – and benefiting the urban and social structures. These places respond to new needs for leisure and occupation, reconnecting people to land, countryside and nature. In many cases they are seen as alternative green open spaces, where the public duties with maintenance are relatively low, while still providing sustenance and opportunities for recreation (Meireles Rodrigues et. al 2013) and fostering social cohesion and well-being (Dunnett and Qasim, 2000). UAG are also important as educational and pedagogical places where knowledge can be shared inter-generationally and sustainable practices of growing food are learned. Overall, there is a general recognition of the importance and benefits of allotments as contribute to the resilience of the city, landscape valorisation and social integration.

The various forms and performances these places encompass are partly due to the way different cultures project urban gardening, being a basic or otherwise a more superlative need. In many countries UAG have developed to resemble summer house neighbourhoods, yet in others they still recall agricultural suburb, which also accentuates very diverse evolutions. Moreover the public awareness about these areas is still not in line with the efforts to frame UAG in general policy and sometimes even in local regulations.

In Portugal, as well as in the majority of the southern Europe, UAG remains a recent event, while other countries reveal a far more substantial evolution. Taking as examples, the 1908 Law of "Small Holdings and Allotments Act", in the UK, responding to the need for such places (Crouch, Sempik and Wiltshire, 2005); or the Schrebergarten, in Germany, a traditional type of allotment garden that appeared in the beginning of the XIX (Viljoen and Bohn, 2009), as a consequence of the Schreber Movement; and the ultimate breakthrough of the Danish urban allotments in Nærum, by Carl Th. Sørensen (Damin and Palmer, 2002).

A past study by the authors, based on spatial distribution, urban context, purpose, performed functions and the type of users, revealed three main types of UAG: Subsistence allotment (SA); Subsistence and recreational allotment (SRA); and Occupational allotment garden (OAG). (Fig. 1) The SA can be placed closer to the urban agriculture and productive realm and further from urban recreation. All the available area is divided into plots with primary purpose of growing food products to aid family economy; on the other end of the scale, the OAG is connected with urban recreation and all, or part of the available area is divided into plots, with no specific purpose of growing food and with primary occupational objectives, such as leisure, social interaction, learning, or occupational therapy; the midterm is the SRA, in which part of the available area is designed in order to provide recreation and leisure opportunities to the community, but there are also plots with the purpose of growing food.

People perceive each of these types of places in a variety of ways and every of these typologies result in different attitudes from the gardeners towards the non-gardeners. Plus, there are many new and challenging types of UAG revealing also a great diversity of forms and functions. How does public and private perception and use collide or merge in the different types of UAG?

The sense of ownership is a psychological issue concerning the connections that an individual establishes with certain targets in their environment and their

own assumptions (Dittmar 1992, Avey et al. 2009, Lee and Suh 2015). The studies of Pierce et al. (2001) and Avey et al. (2009), mapped the idea of psychological ownership based in roots and routes, the first being related with the self and the second with the investment towards the target. In order to experience any sort of ownership regarding some target people need to be emotionally attached to the various characteristics of the target, whether they are physical attributes, or place and cultural meanings and symbols. Type of UAG, its components and composition are therefore contributing to how these places are perceived by both gardeners and other publics.

One of the most noted components relating to the spatial organization of UAG are associated with boundaries which separate the realms of private and public ownership. Accordingly to Blomley (2005) spatial manifestations of public and private spheres are assumed to be both exclusive and exhaustive /comprehensive/inclusive. Furthermore, this author states that *“boundaries are succinct statements and the only symbolic forms that signify possession or exclusion in a space with direction”* (p. 285).

METHODOLOGY

Previous work of the authors focused on developing a classification for urban allotment gardens types based on 21 UAG in Portugal, developed under an allotments' programme (Horta-à-Porta) in the region of Greater Porto. The in-depth analysis to the 21 LIPOR cases

revealed that most of these UAG follow the global tendency and plots are formally arranged in a grid-like pattern, only 5 showing any sort of biomorphic design. These are normally fenced and gated or have boundaries hard to trespass, varying in form and type of materials applied. Some are provided with additional recreational features such as ponds, playgrounds and seats and others have the spaces organized for productive purposes only (Meireles Rodrigues et al 2014).

From our in-depth analysis of 21 case studies in the Great region of Porto we found that even though they vary in shape, which normally adapts from the city's leftover or vacant spaces, and context, there are several aspects in common which relate to the fact that they are used by exclusive groups of people interested in gardening/horticulture and/or need to do so due to budget constraints, and have at the same time a bounded physical structure which impede the trespassing by non users unless they are invited or ask for permission.

Our reflection is underpinned on a selected sample of 3 case studies with the purpose to explore how ownership perception can derive both from boundaries and from users and uses of this type of gardens. These, from our perspective, represent different senses of ownership and relationships with the wider community and landscape: an allotment garden case from the 21 LIPOR cases, an allotment park in Lisbon and a community garden in Berlin, Germany.

CASE-STUDIES

1. Quinta da Granja, Lisbon, PT

The Quinta da Granja Urban Park was established in 2011 in the northern part of Lisbon. The 11 ha space is well integrated within the urban fabric and surrounded by a private estate with agricultural land, residential areas within a walking

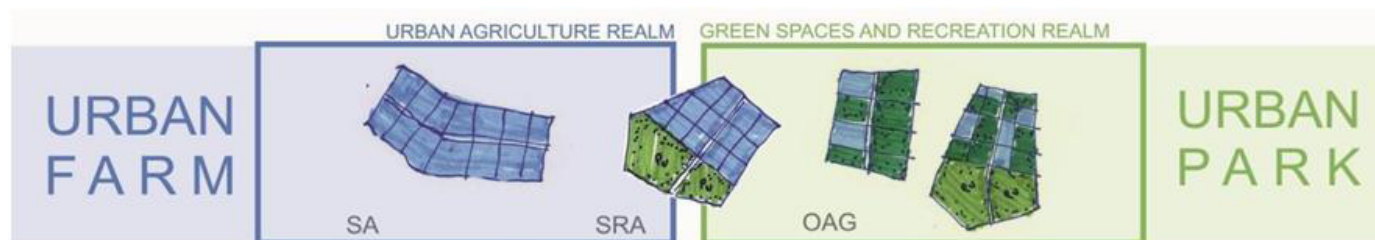


Figure 1: Diagram illustrating the classification system (Meireles Rodrigues et al 2014).

distance of 5-10 minutes, roads and walkways, sports facilities and commercial and retail areas.

In 1970's, after the Portuguese revolution, this area was illegally occupied by local residents for urban agriculture purposes. Throughout the years, these sort of unplanned spaces scattered Lisbon's urban landscape leading to public health risks, incivilities and general landscape degradation (Mata, 2014). As part of the city green infrastructure strategy, the municipality redesigned and re-structured this and similar spaces to accommodate mixed uses including allotment gardens and family recreation facilities. The idea is that allotments, even though privately used and managed, become physically integrated in the recreational park, thus providing an extension to the activities offered by the park. The combination of private and public uses brings economical, social and spatial value to the area and allows the use of a wider group of the population, which do not work on the allotment.

Granja allotments adapt to the landscape morphology (slope and plain); the space is reorganized in individual plots (56 plots of about 150m²), provided with water for irrigation, rainwater collectors, tool-sheds and paths. Fences are low and easily trespassed, sometimes with flowers or bushes, encouraging a good relationship between public and private spaces. Flanking the allotment areas there are cycling and walking paths, lawns, a playground and spaces for sitting. The spaces are connected to a wider network of cycling and walking paths which links a wide group of public spaces of the city. It is as well served for other uses, such as gardening, open free recreation, and children's play.

The intervention in this site followed a top-down approach funded by public and private partnerships, involving the interest of the local community and stakeholders.

2. Prinzessinnengarten, Berlin, DE

This place was established in 2009 at Moritzplatz, in Berlin, after a 60 year period of vacant and derelict land use. It was firstly developed as a pilot study by the Nomadish Grün Society, an NGO dedicated to nature and environment, but also to education and community enrolment.

The site has about 6000 m² where everything is mobile and recycled, challenging the typical concept of UAG. It is a flat impermeable square with a collection of containers, some small, where plants are growing, other larger to the facilities – there are a restaurant, a library, toilets, a food store, a storage and a common centre, where workshops and other gardening related activities take place. The garden is surrounded by large warehouses and any sorts of urban buildings and roads, and from an aerial perspective the place looks rather disorganized and constructed, however when on-site, it feels quite green and inviting.

Prinzessinnengarten is rather distinct from the typical concept of UAG in Germany, especially from the Kleingärten colonies, which looks much more private and in need of a continuous input of resources in order to work and be well maintained. That otherwise is open to the community and promotes newcomers and new ideas, becoming more autonomous and sustainable (Prinzessinnengarten 2013). The concept was brought from Cuba and aimed, right from the beginning, a strong cultural interchange and the community action, based on an intelligent use of resources (Clausen et al. 2012) and results in a singular example of community empowerment where recreation and leisure are one of the main efforts (Sousa 2014).

3. Horta de Crestins, Maia, PT

This UAG is placed in a suburban area of Maia, a city which is part of the Greater Porto region. In the surrounding perimeter there are highways, tramlines

and other streets and connecting roads. There is also an intensive agricultural use and some industry. This is one of the allotments committed to the LIPOR UAG programme (Horta-à-Porta programme).

The site is about 8000m², with 74 plots and a common recreation area. The plots have access to water and a composter. The UAG is completely enclosed by a continuous edge of vegetation, leaving two open accesses, one of which allowing the entrance of vehicles. Existing paths were designed mainly to provide access to the plots. The common recreation area is made of an extensive lawn with some scattered elements, such as a pond, playground equipment, tables, benches and two tool sheds. It shows a rather good care.

The selection of the gardeners is based on family revenue and it is intended to people living near the site. The plots are mainly used to grow a diversity of horticultural products and herbs and occasionally some flowers and fruit trees and shrubs. The use of the plot is entirely determined by the occupants and there isn't any product sale. Organic production and composting are encouraged.

On one hand, the suburban location and the enclosed design discourages the use by non-gardeners. On the other, the same characteristics are effective on the sense of possession and belongingness towards the site experienced by the gardeners.

DISCUSSION

The three case studies reflect different types of physical and social boundaries which might affect spatial use, attitudes/behaviours and ownership. They also show different levels of enclosure to the general public: fully closed, semi-closed or easily trespassed, and open. According to Brain (1997), understanding a public space as public, depend on several aspects, including what happens within it and how the distinction between private and public is represented.

Open does not represent the absence of boundaries but that their existence does not impede the public to be welcomed and be involved in the space. The Prinzessinnengarten is physically enclosed by soft-edges; however, its founding philosophy, based on community-led development ideas, requires that the space opens up to all of those who want to take part in their activities and way of life. Therefore, even though the space is physically bounded, boundaries are symbolic and inclusive; they accommodate and offer a sense of intimacy. The yield of the Prinzessinnengarten is not only associated with the food growing, but on the ways it is used to promote wider social interaction, community empowerment and the generation of ideas. Semi-closed boundaries physically divide the space and intend to control people's behaviours to crossing over its limits; these are visually permeable to others, low and easily overcome by non-users. The distinction between public and private is clearly marked, suggesting to non-users that the use becomes private, without blocking visual relationships and observation/contemplation. At the Granja allotment, boundaries are physically and visually trespassed; boundaries are symbolic in giving the message of private and public divide. Both users of the allotments and of the park are accustomed to that visual openness. Because of their integration in the urban park, allotments open to public view, offering an idea of a space that is simultaneously public and private.

Fully closed boundaries represent clear restriction to non-users who are unable to trespass it, normally both visually and spatially. Gates are present and locked. According to Lamont and Molnar (2002) boundaries might represent social and collective identity and that certain communities/groups tend to create social and symbolic boundaries, between themselves and the general public, by reconfiguring the public-private divide. The Crestins allotment garden rejects passersby and the sense of ownership is greatly associated with the protection of the value/yield. However, the fact that it

is located in a peri-urban context, and more isolated, emphasises the need for protection and enclosure.

Even though allotments are urban settings which often occupy public land they tend to be used and accessed by a group, in the community, which is interested in that activity. They are places of individual cultivation and expression which frequently transcend to the public realm, independently of the existence and type of their boundaries. Nonetheless, they tend to be both private and public as they overcome the limits of the plot to the domain of the public display (Crouch and Wiltshire 2005). On the one hand, to the allotment holders the boundaries offer a sense of intimacy and containment. Public pathways crossing the allotments expose the personalized and intimate domain of the plot-holder to the world of the spectator. Allotments that can be traversed represent a sequential demonstration of the plot-holders own choices, taste and private reality. Being exposed to openness and easy accessibility for others might impact on their sense of safety, privacy and private expectation. On the other, there is the need for safety and protection of the produce and of the user personal and economic investment. That is, the intention/purpose why people seek these places is mainly related to the value of the produce – sustenance and self-consumption. The purpose of the produce being self-consumption acquires an added value which tends to enclose a higher sense of ownership and protection of the yield, as it also involves a higher personal investment.

Regarding the Prinzessinnengarten the expectation for use of this place is associated almost exclusively with recreation, leisure, therapy, or the use is just for the sake of the experience. This is a different approach in which people's interactions and perceptions of boundaries are not exclusively affected by the design of those boundaries, but especially by the quality of, and expectation for, the use of the bounded space.

CONCLUSIONS

It is safe to conclude based on the lessons learned from the case studies that sense of ownership is associated with the protection of the yield/produce, i.e., the need of the food product as a subsistence good originates greater protection towards the space, which recalls Maslow's hierarchy of needs (1943).

The sense of ownership is also associated with the expectation for use. The primary purpose of the UAG affects people's willingness to be more or less welcoming thus resulting in a more or less imposing sense of ownership. Also, depending on the primary purpose, physical boundaries and the overall environment, in which the UAG are integrated, can encourage either an inclusive or an exclusive attitude.

Allotments with subsistence purposes tend to increase the gap between the public and private perception, whereas community based gardening and occupational allotments tend to merge with public life.

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EVALUATION OF SPATIAL AND FUNCTIONAL EMBEDDING OF URBAN AGRICULTURE PROJECTS IN THE URBAN FRINGE

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ABSTRACT

According to the PLUREL report Peri-Urbanisation in Europe the sprawl of chaotic and uncoordinated urban land use is the largest single threat to sustainable peri-urban development. The report states that “large parts of the European environment are under pressure from peri-urban development. This affects many types of ‘ecosystem services’, including biodiversity, water supply, flood control, soil quality, landscape aesthetics and the capacity for climate change adaptation”. It also states that “many of Europe’s wide variety of landscapes – places for recreation and regional identity – are endangered by further urban growth”. The authors observe a ‘leisure-shift’, resulting in the transformation of large peri-urban areas towards ‘golf course’ or ‘horsiculture’ uses. The urban fringe is a dynamic area where new functions such as urban agriculture find a location. In many cases the location and the design of this function is not planned and the question is how design measures may contribute to enhancing landscape quality. An important factor of landscape quality is embedding. This paper explores to what extent urban agriculture projects in the urban fringe are embedded in the landscape and how landscape design can improve the embedding of new and existing UA projects. It builds upon the survey and analysis of a number of student’s research reports which investigate how current urban agriculture projects in the Netherlands are embedded in their urban surroundings and which design measures can contribute to the improvement of the spatial structure and quality of city fringes. It is important to transform urban agriculture further towards an integrated series of related interventions in the physical context of metropolitan areas.

INTRODUCTION

The last decade more and more urban agriculture initiatives pop up in different cities in the Netherlands. Cities like Rotterdam, Amsterdam, Utrecht and Arnhem are known for the development of many new initiatives for urban agriculture within or just outside the city boundaries. In most cases these initiatives were started by small groups of individuals. Motives are usually mainly of a social nature or emerge from the desire to consume pure and sustainably produced food. Knowing this, it is not a surprise to discover that up till now landscape architects are rarely involved in the planning and spatial design of Dutch urban agriculture initiatives.

Many urban agriculture projects that over the last decade have emerged in the Netherlands seem to profit from the economic crisis, and are of a somewhat opportunistic nature, making temporal use of sites for postponed or cancelled building projects, or using left-over space in the city (figure 1). Other initiatives are meant to be permanent and may contribute to the city’s main green infrastructure and ecological and recreational network. For this, urban agriculture projects need to have a strong spatial and functional embedding in the city.

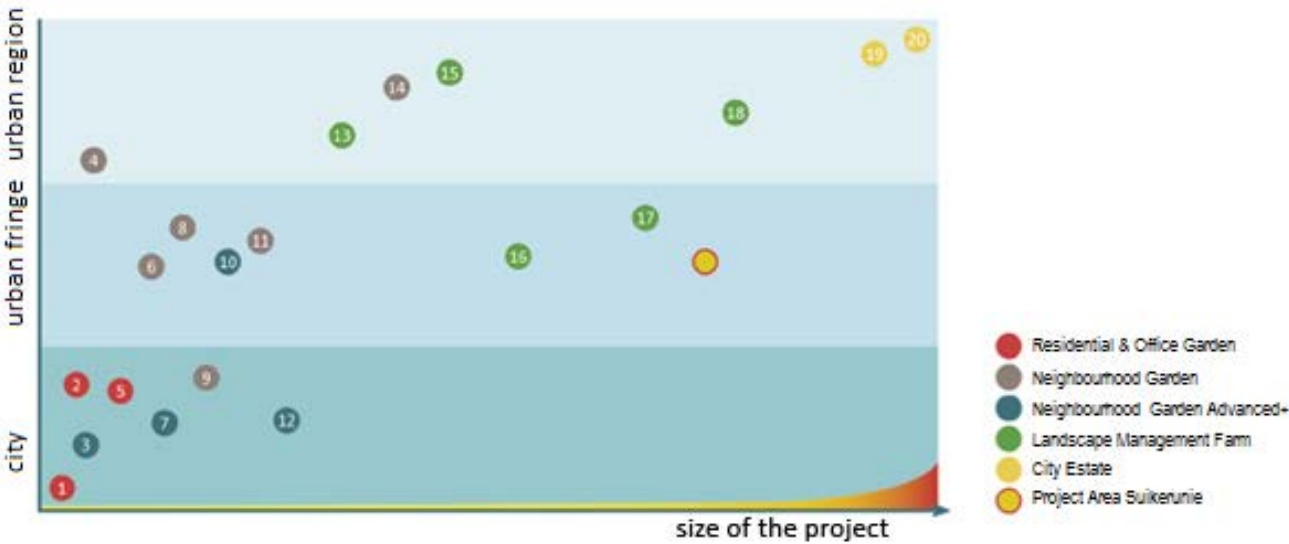


[Figure 1: various animals are held in a left over piece of land between industrial buildings, Tilburg. Picture Ben ter Mull]

Looking at the seemingly unplanned dispersion of urban agriculture initiatives over Dutch cities, the question arises how well these individual initiatives are embedded in the urban landscape and to what extent they currently contribute to the city’s green infrastructure. This paper evaluates a student research project into the embedding of urban agriculture projects in Dutch cities. By comparing these results with three other student projects, involving design for urban agriculture in an urban fringe area of Utrecht, this paper explores how the spatial and functional embedding of urban agriculture projects can be improved by landscape design.

STUDENT RESEARCH ON URBAN AGRICULTURE PROJECTS

Bachelor students of the final year in Landscape Design at VHL University of Applied Sciences analysed the spatial embedding of projects for local food production in The Netherlands. Twenty existing Dutch urban agriculture projects were examined and classified in five categories, based on the parameters ‘character’ (is the initiative a ‘place’ or a ‘landscape’ in itself?),



[Figure 2: graphic representation of the size and location of the twenty categorized urban agriculture initiatives]

‘intensity of use’ (is the initiative mainly directed towards agricultural production or is it combined with multiple functions?) and ‘accessibility’ (to what degree is the project open for the public). The students distinguished the following five urban agriculture concepts: ‘Residential & Office Garden’, ‘Neighbourhood Garden’, ‘Neighbourhood Garden Advanced+’, ‘Landscape Management Farm’, and ‘City Estate’. Since the design project area of these students was situated in the urban fringe, more in depth analysis of six projects in the urban fringe areas took place (figure 2).

The analysed projects are located in the fringes of different cities and were categorized as representatives of the concepts ‘Neighbourhood Garden’, ‘Neighbourhood Garden Advanced+’ and ‘Landscape Management Farm’ (numbers 6, 8, 10, 11, 16 and 17 in the graph). The scale of the analysed projects varies considerably; with two projects far larger than the other four (figure 3).

[Figure 3: the six urban agriculture initiatives selected for further analysis, with indication of size (one square represents 1 × 1 km)]

In order to analyse embedding a set of criteria was developed. The quality of embedding of these projects was analysed based on the analysis of the ‘connection to the abiotic layer’, ‘cultural history’, ‘land use’, ‘spatial structure’, and ‘internal spatial structure’, derived from the layer method (Vroom, 2006: 187). An overview of the criteria can be seen in table 1.

	Criterion	Well embedded	Badly embedded
Abiotic	Abiotic conditions	Soils well suited for agriculture	Soils unsuitable for urban agriculture
		Drainage conditions well suited for agriculture	Drainage conditions not suited for agriculture
Cultural history	Agricultural history	Continuity in the historic use for agriculture	No continuity in use for agriculture
	Historic landscape	Connected to (the network of) historical roads and paths	Not connected to (the network of) historical roads and paths
		Preservation of historical buildings	No preservation or re-use of historical buildings
		Original landscape pattern (parcelling, ditches, lines of planting, landscape elements) preserved / incorporated	Original landscape patterns and elements do not correspond with the lay-out of the site
	Planting	Species of trees, shrubs and plantings according to the characteristics and ecology of the existing landscape	Species of trees, shrubs and plantings without relation to the characteristics and ecology of the existing landscape
Land use	Continuity	Continuity in time of the land use for agriculture	No continuity in time of the land use for agriculture
Spatial structure	Connectivity	Well connected to the structure of the surrounding and former landscape	Not connected to the structure of the surrounding and former landscape
Internal spatial structure	Openness	Continuity in time of openness of the site	No continuity of openness over time
	Plot size	Patch size is not changed	Size of plots changed a lot
	Intensity of use	Gradient in intensity of use is constant	Gradient in intensity of use changed much

[Table 1. Criteria for the embedding of urban agriculture projects]

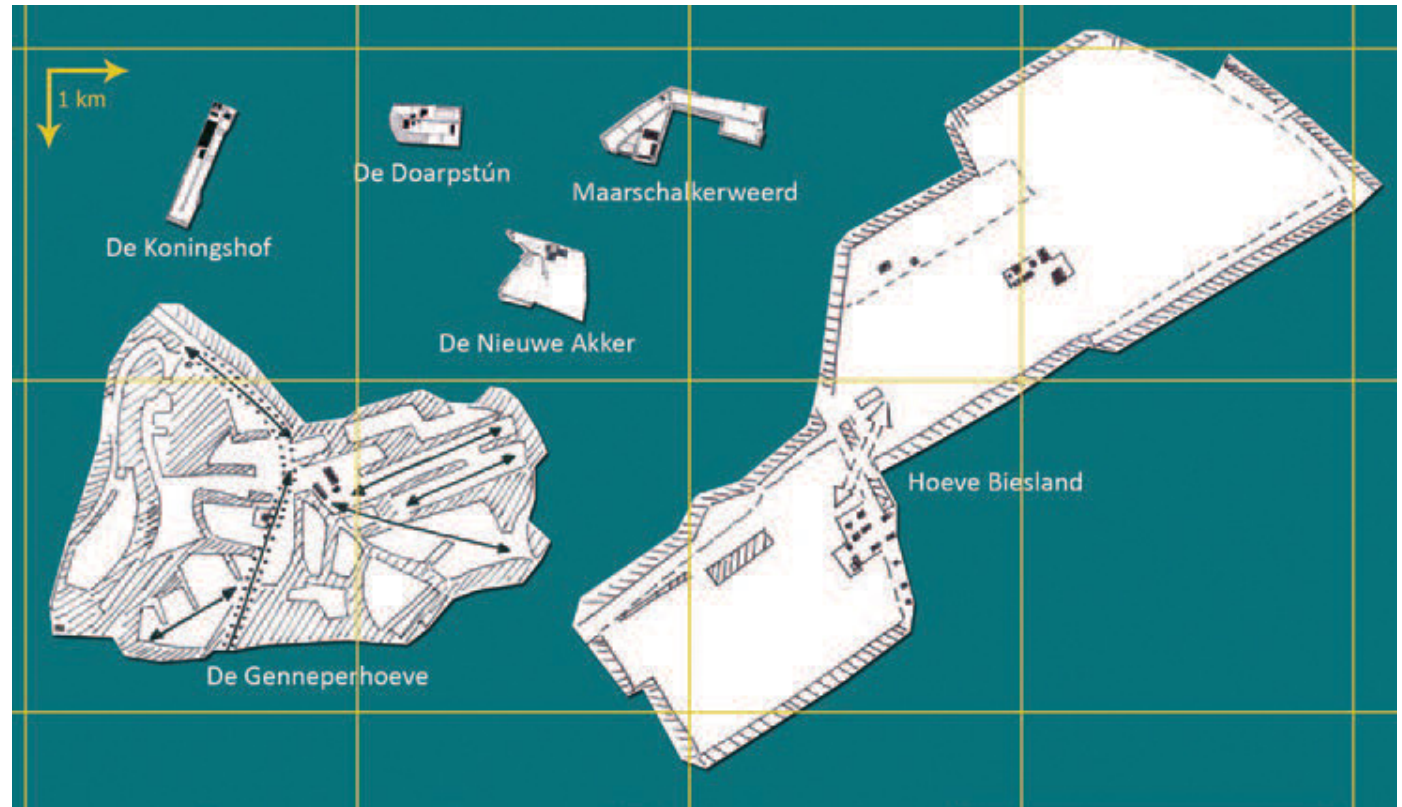
The students found that most projects were spatially well embedded in the landscape. Important factors for the strong embedding in the urban fringe landscape were the connection to the historical landscape (connection to the abiotic landscape conditions and agricultural history of the project area), conservation of historic landscape elements and patterns, the use of trees and shrub species that are typical for the region and the spatial embedding in the landscape (such as 'patch size', degree of openness and visual connection with the surrounding landscape).

CONNECTION TO THE ABIOTIC CONDITIONS AND THE AGRICULTURAL HISTORY

The study concludes that all analysed projects have a long agricultural or even horticultural history that dates back several centuries or even ages, based on good (abiotic) soil and drainage conditions for agriculture, that for hundreds of years exist in these areas. In addition, in the majority of the analysed projects, current land use still matches with the historical use (arable land or grassland). In earlier times these areas already had a connection with the city for food supply, because of the vicinity of the city. Once the city expanded, the four smaller projects became isolated parts of the city fringe and were forgotten or used in a different way. Recently these locations have been rediscovered and were redeveloped for urban agriculture. The two bigger projects were able to withstand the pressure of the expanding city, mainly due to their size, and continue being a coherent estate. Therefore these always continued to be in agricultural use. Recently other functions, such as nature, leisure facilities and selling agricultural products to visitors from the city were added, thereby changing but not completely transforming the landscape.

CONSERVATION OF HISTORICAL LANDSCAPE CHARACTERISTICS

The students found that the majority of the projects fit well into the historical landscape. Most projects make



[Figure 3: the six urban agriculture initiatives selected for further analysis, with indication of size (one square represents 1x1 km)]

use of still existent historical roads, as entrance to the site and connection to the road network. Main buildings fit into existing rows of houses, while the openness of the cultivated fields behind these houses matches with the areas that have been open since cultivation. As a result of the main structure, even original gradients in intensity of use (calm-busy) are being preserved. Regardless the landscape type all but one project fit into the original landscape pattern, respecting the main alignment of landscape elements and parcelling, often incorporating ditches and other landscape elements into the site. The contours of two projects were not based on the historical landscape structure. But these changes to

the original landscape took place over sixty years ago. In the two larger projects (Hoeve Biesland and Gennepshoeve) only minimal changes to the historical landscape structure were made. The redevelopment of the analysed sites as urban agriculture projects and the use of characteristic landscape plantings like hedges, orchards and other typical plantings refer to the historical use of these formerly agricultural and horticultural landscapes.

SPATIAL CHARACTER

Looking at the internal spatial characteristics of the projects, the original scale and lay-out of the historical

landscapes seems to a large extent to have been preserved. In general however plot sizes have diminished, compared to the original sizes, but mainly so in the entrance zones and around buildings. Also new elements, like buildings or recreational facilities, have been added, to increase the attractiveness of the site for citizens, leading to a further spatial densification of the site.

CHANGE OF THE SURROUNDING URBAN LANDSCAPE

What radically changed however, are the spatial characteristics and use of the areas surrounding the urban agriculture projects. Without exception, the former historical landscapes have dramatically changed. All six projects are now situated in complex urban fringe landscapes. Even the surroundings of the two larger projects, the biggest one measuring about one hundred hectares, are completely transformed over time. In most cases the openness of the original landscapes has diminished dramatically.

It is however remarkable that in most projects the visual presence of the city is very modest. Only a single multi-story apartment building or some remote city buildings that can be seen from the site, remind the visitor of the proximity of the city (figure 4). Nevertheless the presence of sight lines and visual relations with these built elements constantly remind the visitor of the nearby city, be it in a subtle way.

CONNECTIVITY WITH THE SURROUNDING LANDSCAPE

Apart from the analysis of the relation of the projects to their current surrounding, as described above, the student analysis mainly focuses on the connections with the historical and abiotic landscape. However, a deeper analysis of the way in which the analysed projects connect and interact with the surrounding (transformed) city seems to be important for a good understanding of the embedding of these initiatives in the city fringe. Aerial photographs of



[Figure 4: visibility of the city from the urban agriculture project 'Maarschalkerweerd', Utrecht]

the project areas reveal that the analysed urban agriculture projects are not completely isolated, but are part of bigger green areas, accommodating different green functions, situated adjacent to one another.



Surroundings



Historic landscape

Genneper Hoeve



Abiotic layer

[Figure 5: Analysis Genneper Hoeve, Eindhoven]

The Eindhoven project 'Genneper Hoeve' ('Landscape Management Farm') forms part of a bigger green lung that enters the city from the south and connects the site to the landscape, as well as to the city centre (figure 5). Because of the large size of the project, and its position in a 'green lung', the connection to this bigger green structure and to the city seems to be quite strong. Two small rivers, the 'Kleine Dommel' and the 'Tongelreep', as well as a number of old roads, are strong landscape structures that organize the green area and connect it with the surrounding city. Because of the combination of location, size and spatial characteristics, the Genneper Hoeve project doesn't have very clear borders or edges. Therefore the project seems to 'dissolve' into the surrounding landscape, leading to a strong embedding in its surroundings.

Looking at two smaller analysed projects, 'Koningshof' ('Neighbourhood Garden') and 'Maarschalkerweerd' ('Neighbourhood Garden Advanced+'), both situated in the south-east of Utrecht, the embedding in the surrounding green structure seems to be weaker (figure 6). Like the Eindhoven project, these initiatives are embedded in a bigger green area that potentially has a strong connection to both city and countryside. This green infrastructure however is very fragmented, due to many different types of land use, sports facilities being the dominant function. The small size of the projects (the biggest one being just over 2,5 hectares) and the intensive use and (semi-)private character of the projects make it harder to connect the projects with their green surroundings. The Maarschalkerweerd project for example, is completely surrounded by different functions such as soccer fields, a soil depot and school grounds. As a result of this the project boundaries are quite closed and the project is functionally isolated from its environment. The other project in this area, 'Koningshof', seems to be better embedded in the surrounding green infrastructure. An important reason for this seems to lie in the openness of the plot itself, with open views to the surroundings, as well as in the character of the functions

that surround the project. Greenhouses like the one at Koningshof can also be found on the surrounding plots, although one of them is not used for growing plants, but for storing caravans. Adjacent plots on the west side of the project still have a rural character. Some are even used for horticultural purposes, such as allotment gardens. The before mentioned characteristics seem to result in a stronger embedding of The Koningshof project in the environment than the Maarschalkerweerd project.



[Figure 6: situation two urban agriculture initiatives in Utrecht]

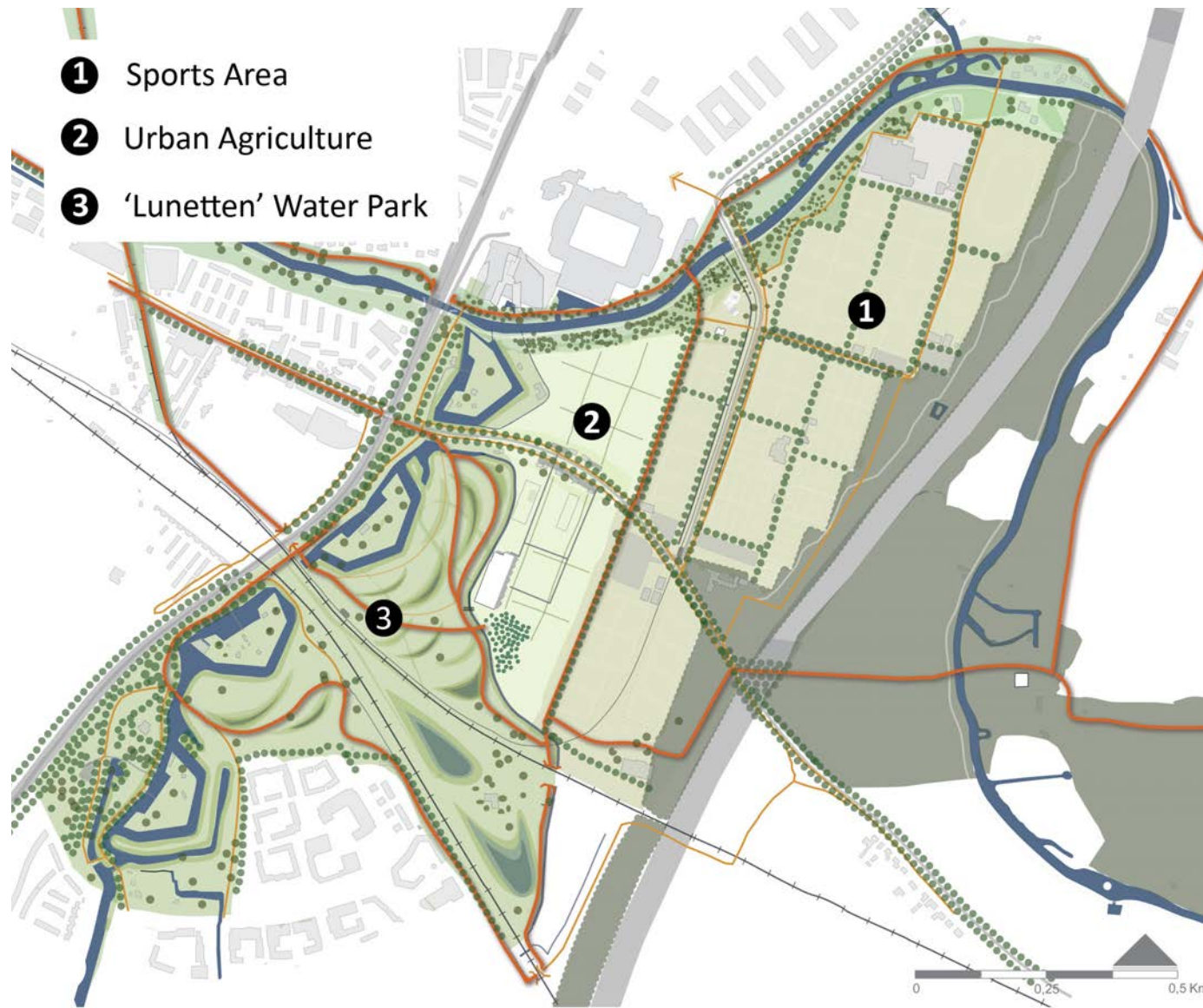
A general conclusion based on the student's analysis is that most projects are well connected to still existing historical landscape patterns, structures and elements as well as to the abiotic conditions of the different sites. Although the student project doesn't fully analyse the relation with the current city fringe landscape, some tentative conclusions can be drawn, based on general characteristics of the different sites. The spatial and functional embedding of the urban agriculture projects

in the city fringe seems to depend on a range of aspects, such as size of the initiative, design of the site itself and connection to the surrounding functions. The examples show that the spatial and functional embedding of urban agriculture projects in the landscape still needs attention. This mainly counts for the smaller projects, where emphasis should lie on the incorporation of historic patterns and elements. The two larger projects are better embedded in the peri-urban landscape. Due to their larger scale new functions, like recreational facilities, ecological value or water storage can be added, whilst preserving the original landscape structure.

POSSIBLE DESIGN MEASURES FOR IMPROVING LANDSCAPE QUALITY

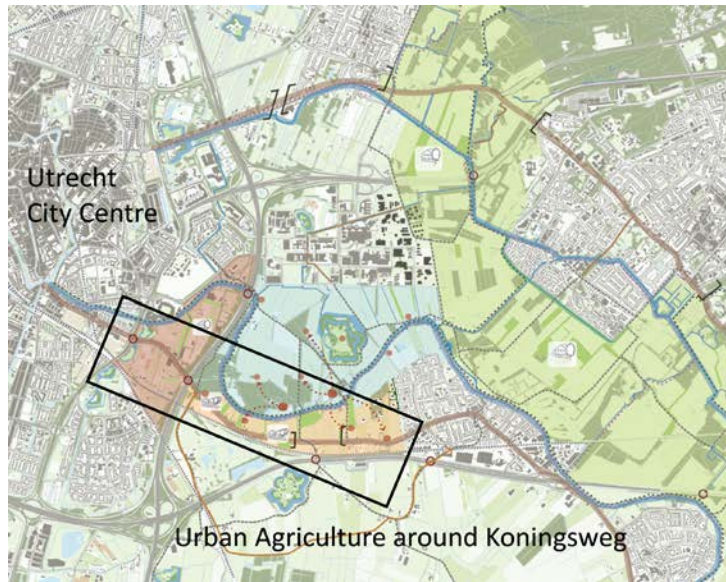
So what design measures can landscape architects take in order to improve the landscape quality of urban agriculture projects in the peri-urban landscape? Three student projects that were made for the same area as the two examples mentioned before, 'Koningshof' and 'Maarschalkerweerd', were analysed to answer this question. All three projects aim to restore relations between the city of Utrecht and the countryside and (without this being part of the assignment) they all incorporate urban agriculture in their design as part of their strategy.

The first design, made by Chantel van Beurden, puts much emphasis on realising a coherent network consisting of a foot- and cycle paths, connected to cultural-historic artefacts like redoubts, bunkers, dykes, etcetera. For the green entrance area of Utrecht she designed a strongly zoned landscape, by rearranging functions in the area. These measures lead to larger interconnected areas with a strong internal spatial coherence, an urban agriculture area being one of these (figure 7). This area is visually linked to its surroundings as well as connected through foot- and cycle paths. Also new functions like water storage and nature were added. The historical parcelling structure was enhanced as an organising principle for the sports and urban agriculture area.

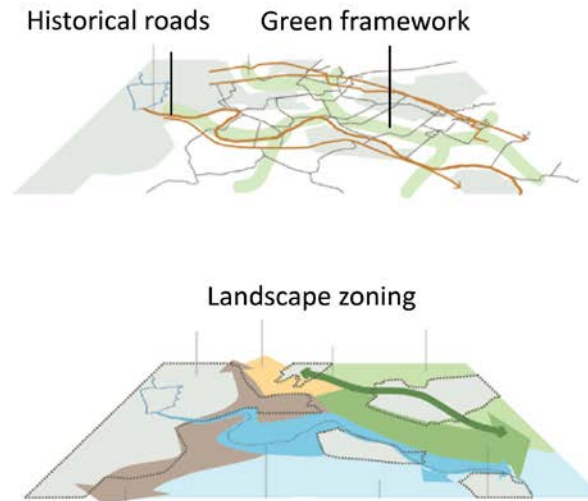


Another plan for this area was made by Joyce Lokate. She designed a robust landscape framework that anticipates further growth of the city into the historic landscape around the city. The green framework strategically safeguards the most valuable parts of the landscape, ensures the preservation of green corridors and enhances existing differences in the landscape (figure 8). Two major historical lines, that have connected the city and countryside for ages, were redesigned as main recreational corridors, making use of their individual characteristics. One of them, the Koningsweg (Kings Road) was once a main artery along which farms and nurseries were to be found. One of these nurseries is the urban agriculture project 'Koningshof' that was analysed by the first group of students. In her detailed design Joyce uses urban agriculture, in combination with recreational facilities and housing, as a strategy to strengthen the landscape structure and identity of the area (figure 9).

[Figure 7: design proposal Chantel van Beurden, Utrecht]



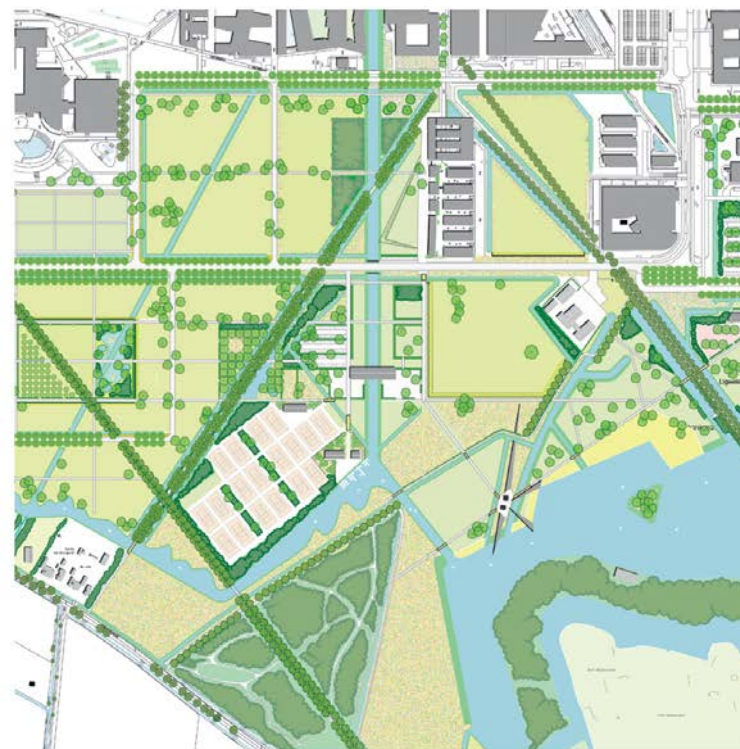
[Figure 8: plan layers and design proposal Joyce Lokate]



Another student, Alexander Bijl, uses an offensive strategy which anticipates rather drastic changes in the landscape, due to the expected expansion of the university campus. His design does pre-investments in lane structures, based on historic lines in the landscape. In between the lanes urban agriculture is proposed as a temporal function in a multifunctional landscape that will gradually disappear with the expansion of the university campus (figure 10).



[Figure 9: artist impression urban agriculture area Joyce Lokate]



[Figure 10: image spatial concept and zoning plan area Alexander Bijl]

CONCLUSIONS

The PLUREL report mentioned in the introduction notices that “Peri-urban areas suffer from urban pressures, but they also gain from proximity to urban areas, markets and cultures”. It is also suggested that developing green infrastructure and better linkages between city and countryside will lead to improved quality of life and a more sustainable urban and rural development (Piorr, Ravetz & Tosics, 2011: 11).

Urban fringe areas, because of their ‘intermediate nature’ between city and countryside and their relative abundance of green space, seem to

be able to absorb urban agriculture projects that are connected to the abiotic and historic landscape as well as to the city and its inhabitants.

With their plans landscape design students at Van Hall Larenstein show that urban agriculture as a spatial, social and functional concept provides new possibilities to link green areas in the city and to reconnect cities with their surrounding landscape. Not as an isolated project, but as part of a broader landscape strategy. In order to do so a strong embedding of these projects in the peri-urban landscape is needed. This asks for a contextual approach for their developed. The student projects show, because of their holistic view that landscape designers are able to have an integral approach to the landscape.

Designing small bottom-up initiatives for urban agriculture should not necessarily be the main focus of landscape designers. These initiatives can be seen as valuable incentives for redevelopment of peri-rural landscapes. The challenge for landscape designers however is found in designing strategic master plans and development plans for multifunctional green areas connecting the peri-urban landscape on different scale levels, while meeting different needs. The student designs show that there is a need to approach urban agriculture initiatives form a wider perspective. Using a set of criteria for embedding can help to strengthen landscape quality and the development of green infrastructure.

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THE EDIBLE LANDSCAPE WITHIN THE URBAN AREA (ELWUA) OF BEIJING

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KEYWORDS

Rapid Urbanization, Typologies, Spontaneous
ELWUA, Organized ELWUA, Impetus

ABSTRACT

In recent years, the edible landscape within the urban area (ELWUA) has become a globally frontier topic in the field of landscape research, which could contribute to the sustainability of cities corresponding to the rapid urbanization from environmental, social and economic aspects. However, in China the research on edible landscape so far mainly evolved around the issue of integrating agriculture in the suburbs and rural area, but only few mentioned cases within the urban area. This research aims to find out the types of the Chinese ELWUA emerged during the rapid urbanization, and reveal the impetus for its emergence. Beijing was selected as the research site. Besides the literature review, a field survey on 36 selected cases was carried out and semi-structured interviews to 81 interviewees were completed from 2011 to 2013. The investigation shows that numerous farming activities emerged within the urban area during the rapid urbanization, in which, most of them are spontaneous activities. The ELWUA can be generally divided into two types according to the organization form: spontaneous ELWUA and organized ELWUA. The impetus for the emergence of the spontaneous ELWUA mainly comes from the urban residents' individual motivations such as for leisure, health, food supplement and healthier food. The impetus for the emergence of the organized ELWUA might come from governmental, commercial and other organizations for public (or collective) interests or commercial benefits. This result shows that the ELWUA in Beijing is mainly a response of the urban dwellers that are living away from nature for pursuing pastoral life and healthy life, rather than simply an initiative for food production. This research contributes to the understanding of the ELWUA in China and might supply references for the further comparative study with the European cities within the context of rapid urbanization in future.

INTRODUCTION

Urban agriculture is a globally frontier topic in the field of landscape research, which can contribute to the sustainability of cities in various ways: socially, economically and environmentally (Deelstra & Giardet, 2000). Facing with the two global challenges of urbanization and food security, the integration of urban agriculture is suggested to be used as a strategy for the sustainable and resilient urban development and providing a productive green infrastructure for the future cities (Giseke, 2011).

Urban agriculture can be defined as the growing of plants and the raising of animals within and around cities, and it can provide food products (e.g. vegetables), animals (e.g. poultry) as well as non-food products (e.g. ornamental plants) (FAO n.d.). Besides, urban agriculture can be classified into the urban agriculture within the urban area and in the peri-urban area according to its locations. This research only focuses on the growing of edible plants within the urban area, which is defined as edible landscape within the urban area (ELWUA).

Growing edible plants in cities has a long history. From an historical perspective, agriculture is the initial prototype of the ancient garden (Lin & Wang, 2005). And orchards were an important feature of the English landscape throughout medieval and post-medieval times (Dallas, Barnes & Williamson, 2015). In recent years there has been a tremendous upsurge of interest in growing food in urban centers (Philips, 2013) and ELWUA is becoming more and more popular in cities all over the world. For example, in Europe, interest in allotment holding, urban farming or community gardening has constantly increased in recent years (Howe, Bohn & Viljoen, 2005), and the number of concept, research, conference and practical project related to ELWUA greatly increased, such as the urban design concept of Continuous Productive Urban Landscapes (CUPLs) proposed in 2004 (Viljoen, Bohn & Howe, 2005) and the project of COST-Action Urban Agriculture Europe launched in 2012 (COST UAE, 2012). Furthermore,

western scholars started to realize the absence of food among the basic essentials for life (air, water, shelter and food), and the food have started to be moved up the political and planning agenda (Morgan 2014).

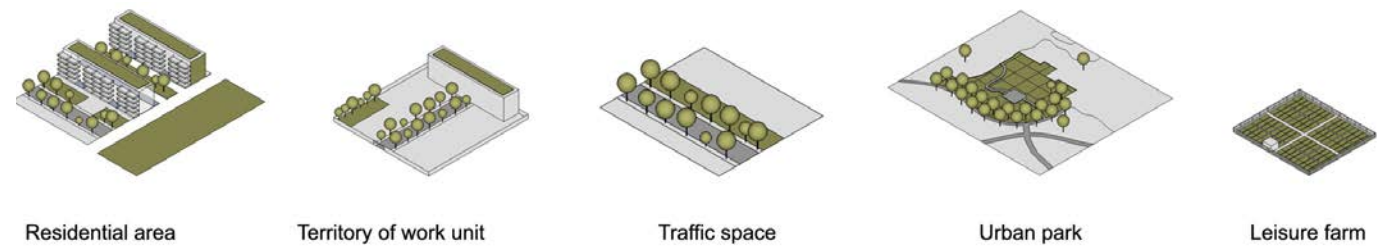
China is the world’s most populous country. Since 1992 the country has been experiencing rapid urbanization (Zhou, 1995), which lead to a great decrease of farmland and resulted in many social and environmental problems (UNDP China and IUES, CASS, 2013) especially in the urban core. Within this context, in 2010 a statement of “returning to productive landscapes” was declared by a Chinese landscape architect with the aim of improving the health of people and ecosystem (Yu, 2010).

However, comparing with the tremendous upsurge of research on the ELWUA in European countries, the research on edible landscape in China so far mainly evolved around the issue of integrating agriculture in the suburbs and rural area, but only few mentioned cases within the urban area. Therefore, there is currently an urgent need to fill in the research gap on the ELWUA in China. The research selected Beijing as the research site and used a sample of 36 ELWUA cases to address the following two questions:

- Which types of the edible landscape currently exist within the urban area of Beijing?
- What is the impetus for the emergence of these ELWUA in Beijing?

METHODS

The research designated the built-up area of Beijing as the research site. The literature on ELWUA in Beijing is very rare and maps of cases do not exist, therefore, in addition to the literature reviews and the professional recommendation, an internet questionnaire and a pre-field investigation were conducted to collect the ELWUA cases in Beijing as many as possible and set up a database



Note: ‘work unit’ is a unique term in China, which refers to any social institutions or organizations where people work, such as enterprises, schools and government agencies. Most of the big work units in China have their own territories, which is composed of working building zone and courtyard zone. The territory of working units is usually enclosed by enclosures and gates, and normally only the people who have permission can enter

Figure 1. Five types of urban space where ELWUA is located in Beijing.

to support the further sampling. The database shows that the ELWUA cases in Beijing mainly located in five types of urban space, which are: the residential areas, the territory of work unit, the traffic space (street space, space along rivers and space along the rail network), urban parks and leisure farms at the edge of the urban area (Figure 1), therefore, a further stratified sampling was applied respectively from each type of urban space with the criteria of covering different forms of ELWUA to the greatest extent. Finally, 36 cases were selected as the sampling, including 22 cases in residential area, 4 in the territory of work unit, 6 in the traffic space, 2 in urban parks and 2 in leisure farms. Then the following field survey and semi-structured interviews to 81 people were conducted in October, 2012 and October and November, 2013. The 81 interviewees include two types of people, which are the “urban gardeners” who grow vegetables or fruits trees spontaneously (63 people) and the organizers of ELWUA (18 people). The main issues of the interview were summarized in below (Table 1 and Table 2).

Table 1. The main contents of the semi-structure interview to the “urban farmers”

Content	Structure of the questions
Basic situation of edible landscapes	Origin and Evolution, sites, size and openness, planning and design, types of the edible plants, daily activities
Motivations	Reasons for cultivating edible field, use of the harvested products
Personal information	Age, occupation, working status, farming experience, living time in Beijing

Table 2. The main contents of the semi-structure interview to the organizers of ELWUA

Content	Structure of the questions
Basic situation of edible landscapes	Origin and evolution, sites, size and openness, organization, planning and design, typologies of the edible plants, invest and cost of maintenance, use of the harvested products, relative policies
Motivations	Aims of projects

TYPES

The field survey shows that numerous farming activities exist within the urban area of Beijing, and these ELWUA can be generally divided into two types according to their organization forms, which are spontaneous ELWUA and organized ELWUA.

3.1 The spontaneous ELWUA

The spontaneous ELWUA refers to the edible landscape built by the urban residents individually and independently in the urban area under neither uniform organization nor professional design. The spontaneous ELWUA is usually built for self-use and normally in the form of family garden and guerrilla garden in small size. It might be located in (or around) the residential area and in the traffic area (Table3). Take the spontaneous ELWUA in (or around) the residential area as an example, the urban residents usually make use of the roof, the balcony and the façade of buildings, the private courtyard, the public (green) space,



Figure 2: One spontaneous vegetable field in the public green space adjacent to the residential buildings in one residential area of Beijing

even the space outside but adjacent to the residential area for growing their own food (Figure 2). The field survey shows that there is a large number of spontaneous ELWUA existing in Beijing especially in or around the residential areas, and the spontaneous ELWUA

accounts for the majority of the total ELWUA in Beijing.

3.2 The organized ELWUA

The organized ELWUA refers to the edible landscape established under a uniform organization from different institutions. This type of edible landscape could be divided into two sub-types. The first type is the one initiated and organized by government or certain other work units with the aim of offering benefits for the public, which might in the form of uniform fruit trees for urban (semi-)public greening (e.g. avenue tree), educational or demonstration garden, community garden, kitchen garden of working units and the experimental farm. The second type of the organized ELWUA is the one initiated by the commercial companies with the aim of producing commercial benefits, the forms of which mainly include commercial vegetable garden, tourists' picking and sightseeing farm and the fruit trees for greening (Table3). The field survey shows that the number of the organized ELWUA cases in Beijing is very few.

IMPETUS

4.1 The motivations to cultivate a spontaneous ELWUA

The semi-structured interviews to the 63 “urban farmers” allow us to identify the cultivators’ motivations to build a spontaneous edible garden in the urban area. The 63 interviewees include 32 women and 31 men, which show no significant gender preference, but most of them are retired aged people (Figure 3). The interviewees’ responses indicated that the motivations appear to be quite different and tend to be driven by the urban residents’ individual needs, such as for leisure, health,

Table 3. The forms and locations of the spontaneous and organized ELWUA

Types	Forms	Location
Spontaneous ELWUA	built by the urban residents individually	Small-sized family garden and guerrilla garden
		Residential area (roof, balcony, façade, private courtyard, public (green) space, adjacent to the residential buildings, space outside but adjacent to the residential area)
Organized ELWUA		Traffic area (street space, space along rivers, space along the rail network)
	initiated by government or work units for offering public benefits	Residential area
		Territory of work units
		Traffic area
		Urban park
		Territory of work units (e.g. schools)
		urban park
		Residential area
	initiated by commercial companies for commercial benefits	Territory of work units
		Territory of work units (e.g. Chinese Academy of Agricultural Sciences)
		Leisure farm at the edge of city
		Residential area
		Leisure farm at the edge of city
		High-grade commercial residential area

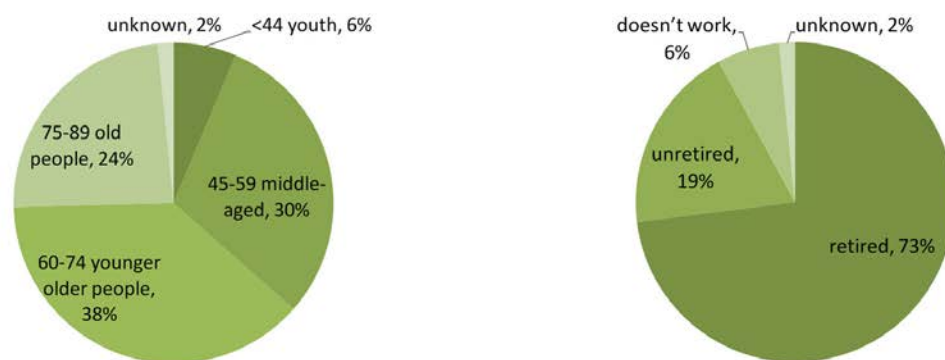


Figure 3: Age distribution and working status of the 63 interviewees of urban farmers

food supplement, healthier food and connection with nature, rather than for subsistence (Table 4). Through the interviewees' responses, the urban residents' main motivations to cultivate the spontaneous ELWUA can be roughly grouped into the following categories (Table 5).

Table 4. The representations of the urban farmers for their motivations of building a spontaneous edible garden

Question: What is the main reason why you started planting vegetables/herbs/fruit trees?	Number (63 people)
Fun, entertainment	28
Enrich life, cultivate mind	22
Physical exercises	20
Produce green, organic or fresh food	17
Food supplement, bring convenience and pleasure to daily life	15
Hobby and habit	14
Achieving green, connect with plants and nature	10
Appreciate the edible plants with both flower and fruits	10
Beautify and improve the environment	9
Food supplement, saving money for vegetables consuming	7
Build shade	3
Cultivate edible plants imitating other people	2
For relax and think	1
For recreation with friends	1

Table 5. The impetus for the emergence of the edible landscapes currently existing within the urban area of Beijing

Types	Impetus for the emergence of the edible landscape
Spontaneous ELWUA	<ul style="list-style-type: none"> ·Inhabitants' desire of recreation and enriching life ·Inhabitants' pursuit of health: physical exercises and mental relaxation ·Inhabitants' desire for connecting with nature ·Food supplement ·Inhabitants' demands for organic and fresh food ·The influence of a cultivating tradition
Organized ELWUA	<ul style="list-style-type: none"> ·Governmental, commercial and other work units or organizations ·The introduction of designers ·The influence of the new concept on urban agriculture ·Social demands <ul style="list-style-type: none"> Social demands of fast greening Urban inhabitants' demand of cultivating edible plants The demands of education and research

Recreation and enriching life

In the 63 interviewees, 28 (44%) people said that they plant vegetables, herbs or fruit trees for fun and recreation, and 22 (%) people mentioned that they do it for enriching life and cultivate the mind. The Chinese rapid urbanization has lead to an unbalanced urban entertainment development, which could be reflected

in the lack of urban leisure activities and entertainment space, especially for the aged people. During the interviews, many aged interviewees expressed their depressed mood and loneliness after retiring. Therefore, farming activities became a way of entertainment, which could enrich their lives, improve their mood and help them obtaining a sense of accomplishment.

Health· physical exercise and mental relaxation

Many urban citizens consider cultivation to be a good way of pursuing health, both physically and mentally. In the interview, 20 (32%) interviewees said that they planted edible plants for physical exercises.

'The people over 60 are old people, I'm an old person almost aged 70, I need to do some physical exercise to keep strong and healthy.' – A man aged 62

Besides physical exercise, some interviewees mentioned that farming activities could bring a good mood and relieve them from the anxiety and tiredness, which could naturally improve health.

For connecting with nature

In the interview, 10 (16%) interviewees mentioned cultivating for achieving greening, connecting with plants, and 9 (14%) interviewees mentioned improving environment, which are all ultimately come from the urban residents' desire of rebuilding the relationship between people living in the modern concrete jungle and nature.

Food supplement

The interviews indicated that due to improvements of the economic situation since the implementation of Chinese economic reform in 1978, urban citizens primarily did not plant edible plants for subsistence, but more for pursuing leisure, health and for contact with nature, which have already been mentioned previously.

However, the interviewees still mentioned “food supplement” as a secondary reason of having a spontaneous edible garden, but this is suggested to be associated with bring pleasure or convenience to their daily life.

‘The edible plants can be used as the food supplement in wet weather, which brought conveniences of life, because I don’t need to go out to buy vegetables.’---- A woman aged 52

Organic and fresh food

Due to the occurring of the increasing scandals of food safety in China, there is growing public disquiet over the food safety problems. Some interviewees said that they cultivated particularly for producing organic food, which are natural and pollution-free, for self-consuming. Furthermore, some interviewees mentioned that these self-produced “natural” products are more fresh and tasteful than those bought from the supermarket.

The influence of a cultivating tradition

Agriculture is one of the most deeply rooted activities in Chinese history. When China was founded in 1949, 89.4% of the Chinese people were farmers, and in 2010 50.1% of the population was still farmer. That means most of the Chinese people have farming experience because they either worked as farmers or helped their parents to work on the farms, therefore, the tradition of farming has rooted in Chinese minds. Although the rapid urbanization lead to the segregation of the urban citizens and the land, a large number of urban citizens still had profound affection for the land and the farming tradition. Some urban citizens cherished the memory of previous lives of living in the bungalows and growing vegetables in the gardens in front of their houses, therefore, after moving to the storied buildings, they still acted as “urban farmers” and did everything possible to find a piece of land close to their houses for edible plants growing.



Figure 4. The paddy field in Haidian Park of Beijing – an educational and demonstration garden in urban parks

‘Planting edible plants is just my habit; it was formed by seeing my parents’ cultivation from childhood.’ – A man aged 62

4.2 The impetus for the emergence of the organized ELWUA

Through the semi-structured interviews to the 18 organizers of ELWUA the impetus for the emergence of the organized ELWUA can be summarize as below (Table 3).

The impulsion of governmental, commercial and other work units or organizations

The governmental, commercial and other work units or organizations gave an impetus to the emergence of the organized ELWUA in Beijing, although they might organized the ELWUA with different objectives. The commercial companies build the ELWUA for obtaining commercial benefits; the governments and other work units or organizations usually build the ELWUA for public or collective interests, such as public greening,



Figure 5. The community garden of No.30 Min-Kang Hutong

education, demonstration and research. For example, the educational and demonstration garden in Haidian Park in Beijing was built under the plan of governments (Figure 4). The community garden in an old residential area named “No.30 Min-Kang Hutong” was built by transforming the public space into edible gardens under the organization of the community neighborhood committee and the property management with the aim of achieving greening and improving the degenerated living environment of the residential area (Figure 5).

The introduction of designers

Some organized ELWUA emerged in the urban area because the professional designers or planners took the edible plants into consideration during the planning and design stage of the urban construction. Therefore, the professional designers play an important role in introducing edible landscape into the urban space.

The influence of the new concept on urban agriculture

Along with the popularity of the concept of the urban agriculture all over the world, varieties of urban agriculture forms, such as community garden and community supported agriculture (CSA), were gradually introduced into China. These new concepts of urban agriculture gave an enormous impetus to the emergence of the ELWUA demonstration projects and the leisure farms.

SOCIAL DEMANDS

Social demands of fast greening

Before the foundation of the P. R. China, the ecological environment of Beijing was severely damaged and the forest cover was only 1.5%. In 1950s, the greening development in Beijing started and the fast greening became the urgent task at that time. Some fruit trees were cheap and grow fast, thereby were massively used for urban greening. Although since 1979 when the new guideline was proposed by the Chinese Central Committee the decorative woody shrubs and trees became the first choice in the urban greening, there were still a lot of work units using fruit trees for greening in 1980s. Some of those fruit trees were preserved until today (Figure 6).

Urban inhabitants' demand of cultivating edible plants

The urban inhabitants have demand for growing food by themselves, which have been introduced previously, and this demand gave impetus to the emergence of the commercial ELWUA. It promoted the emergence of leisure farms and also brought commercial opportunities for the estate developers. Because of urban residents' demands, ELWUA has become a symbol of the dreamy pastoral life, thereby the estate developers usually select fruit trees as the landscape trees in the high-grade residential areas (e.g. villa areas) to attract people to buy houses.



Figure 6: The persimmon trees in the public green space of the Institute of Semiconductor, Chinese Academy of sciences

The demands of education and research

The need for education and research also gives impetus to the emergence of the organized ELWUA. For example, some schools in Beijing planted edible plants as teaching or experimental materials. Besides, the agricultural experimental farm, which is a very special ELWUA in Beijing, emerged because of the demand of agricultural scientific research.

DISCUSSION

Comparing with the tremendous upsurge of new concept, research and practical projects on the ELWUA in European countries, such as the urban design concept of CUPLs and the research project of COST Action EUA, to date the research on this topic in China has been only marginally researched. This empirical research filled in the research gap and found out the ELWUA types in Beijing and the impetus for their emergence through the empirical research. The survey shows that numerous edible landscapes emerged within the urban

area of Beijing during the rapid urbanization. These ELWUA in Beijing can be generally divided into two types according to their organization forms, which are the spontaneous ELWUA and the organized ELWUA, in which, the spontaneous ELWUA accounts for the majority of the total ELWUA in Beijing, while the organized ELWUA cases are very few. This phenomenon is quite different with the European status, which is there is a large number of organized ELWUA in addition to the spontaneous ELWUA. For example, the community gardens in Europe are usually built up by the community collectively with common rules although it is normally a bottom-up initiative. And the allotment gardens usually stem from municipal initiatives on public land and their regulation are highly formalized and precise, sometimes even following specific regional or national laws (COST UAE Wiki n.d.).

The impetus for the emergence of the spontaneous ELWUA mainly comes from the urban residents' individual motivations, such as for leisure, healthy, food supplement and healthier food. And the governmental, commercial and other organizations gave impetus for the emergence of the numbered organized ELWUA during the rapid urbanization of China, which is mainly for public (or collective) interests or commercial benefits. This result shows that the ELWUA in Beijing is mainly a response of the urban dwellers that are living away from nature for pursuing pastoral life and healthy life, rather than simply an initiative for food production. This conclusion shows a difference with a prevailing view of 'in developing countries, urban agriculture is largely driven by economic demands, while in developed countries it is more likely to have arisen in response to social or recreational needs and desires' (Howe, Bohn & Viljoen, 2005).

This research contributes to helping people to understand the ELWUA existing in the rapid Chinese urbanization context, and it also supplies references for the further comparative study with the European cities in future.

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ALLOTMENT GARDENS IN SWISS CITIES- CONTESTED SPACES IN CHANGING URBAN LANDSCAPES

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ABSTRACT

Allotment gardens can be understood as dynamic elements of urban and societal transformation processes. Currently, they are in a state of flux due to following reasons: Firstly, Swiss cities are experiencing movements of expansion and are marked by processes of densification. Secondly, the meaning and function of green space in Swiss cities are undergoing changes. On the one side, green space becomes increasingly important within of global city competition. It contributes to the landscape quality as well as to the quality of life and recreational value of cities. On the other side, the needs and demands of urban residents for green space become more fragmented and diverse. Furthermore, the development of new urban lifestyles linked to a societal reorientation towards sustainable living practices leads to new forms of urban gardening. In this context, the meaning of green spaces is contested and subject of negotiation. Based on empirical research in Basle, and Berne this paper explores the discursive practices in processes of negotiation of allotment gardens in Swiss cities. The interpretative discourse analytical approach linking Foucault's post-structural discourse theory with the Grounded Theory method was applied to address questions concerning politics of knowledge and to analyse the meaning of social and political discourses (re-)produced, contested and negotiated in the public sphere (Glasze and Mattisek 2009; Keller 2005). The findings show that state and civil actors constantly move on the controversial ground between securing and transforming existing green space. This negotiation is not only shaped by normative constructions about future visions of cities (e.g. economic growth, ecological sustainability, social inclusion) but also by actual understandings of urban green space, the changing relation between nature and city, and urban planning practices.

INTRODUCTION

The emergence of allotment gardens in Swiss cities is strongly linked to the rise of industrialisation and its economic, political and social implications. Since their emergence meanings and functions of allotment gardens and their role within the urban tissue have been subject to continuous change in the context of urban development processes and social change (Gallati and Schiller 2011). As such, urban allotment gardens can be understood as dynamic elements of urban and societal transformation processes. Recently allotment gardens in Swiss cities have increasingly come under pressure due to urban growth which is characterised by the planning paradigm of urban densification. The article aims to elaborate how meanings of allotment gardens are constructed in political negotiation processes by comparing the cities of Basle and Berne. Firstly, current urban development processes and its impact on allotment gardens as part of the urban green infrastructure will be introduced and the theoretical understanding of allotment gardens as contested spaces will be outlined. Secondly, the case-studies Basle and Berne will be discussed in order to show how meanings of allotment gardens are discursively produced within the different contexts and what implications follow.

REURBANISATION AND ITS IMPACT ON URBAN ALLOTMENT GARDENS

After having lost population for about three decades, Swiss cities are experiencing the reversal trend of reurbanisation since the 2000s. The current period of growth of urban areas is mainly explained by economic growth, international migration flows and the residential behaviour of certain population groups including an increasing per-capita land use. Simultaneously, construction activities in Swiss cities have intensified over the last decade (Rérat 2012). In order to regulate urban sprawl and environmental degradation of the rural area, and to facilitate sustainable urban development, the model of compact city has become the

most dominant planning paradigm in Swiss cities. It is marked by the utilisation of land reserves for development projects and the structural transformation of former industrial areas or fallow land into service or residential areas due to limited availability of urban building land. Further this paradigm is shaped by an economic benefit optimisation of land (Bauer 2010).

This has several implications for the role and meaning of urban allotment gardens as part of the urban green infrastructure. Firstly, urban green space has gained strategic importance in the context of increasing global city competition. By contributing to the quality of life and the subjective well-being of the urban population, by strengthening social cohesion and fostering economic stability as well as by positively influencing the urban ecosystem, urban green space has been recognised as valuable source to enhance the attractiveness of a city. Thus, in order to allow for a qualitative densification of urban space, so-called attractive green space needs to be developed and integrated into the urban landscape (Arnberger 2012; Lossau and Winter 2011; Petrow 2012). Secondly, the promotion of a more compact urbanisation and an increasing demand for green space due to the growing population has created an utilisation pressure on remaining green spaces in the urban area (Bauer 2010). This pressure has been reinforced by a heterogenization of needs and demands of urban residents for green space linked to the emergence of postmodern lifestyles characterised by a diversification of leisure and recreational behaviour and a reorientation towards nature and sustainable living practices (Jim 2004; Ward Thompson 2002).

In this context, new forms of urban gardening appear in the urban fabric as an expression of new urban lifestyles and as a means to cater the urban residents' needs for urban green space by using vacant or unused green space (lawns, buffer strips and fallow land) in dense inner-city areas for the purpose of small-scale urban gardening initiatives. Simultaneously, meanings

of traditional allotment gardens have become contested and a subject of negotiation within current urban development processes (Gallati and Schiller 2011).

THE CONCEPT OF CONTESTED URBAN SPACE

Following a discourse theoretical understanding, urban allotment gardens are not simply understood as an ontological entity but as a discursively ordered space that emerges out of historically situated practices (Glasze and Matissek 2009). Discourses are understood as structured and structuring practices that gain an internal stability but are never fixed. Thus, discourses are in a continuous state of flux producing meaning along inconsistencies, fractures and lines of conflict (Foucault 2010). They produce a "particular conceptualisation of reality and knowledge that attempts to gain hegemony. This 'will to knowledge' attempts to embed particular values and ways of seeing and understanding the world as natural, so that they become taken for granted and slip from critical gaze" (Richardson and Jensen 2003: 16). Thus, the (re)production of discursive practices is always a power struggle over the (symbolic, material and spatial) ordering of society (and social practices) from which historically contingent power-knowledge regimes arise (Keller 2005). These regimes are not levitating but rather bound to time and space. This implicates that "spaces, then, may be constructed in different ways by different people, through power struggles and conflicts of interest" (Flyvbjerg and Richardson 1998: 53).

A discourse theoretical approach enables to analyse the spatial dimension of power-knowledge regimes by conceptualising space as structured and structuring medium unfolding social practices. The problematization and contestation of particular spaces and places can then be interpreted as a fought over spatialized power (Bauriedl 2007). However, space is not rendered only as a result of discursive practices but space itself is an integral part of the production of society. The constitution of space, thus, becomes an essential

element of the discursive production of hegemonic social practices and power relations. Thus, the production of space dialectically relates to the production of power (relations). In this regard, space becomes of interest as starting point for discursive struggles and as materialized power effects of hegemonic discursive practices (Glasze and Matissek 2009; Massey 2005).

The conceptualisation of urban allotment gardens as a problematized and contested space in the urban fabric can then be understood as an expression of a will to order urban space through hegemonic discursive practices. As such, the meaning of allotment gardens as well as their location within the urban fabric is discursively (re)produced through the different actors, interests, resources, values, norms and planning practices bound in a particular time-space setting. The negotiation and planning of urban allotment gardens are conceptualised as structured and structuring hegemonic power-knowledge regimes unfolding particular social and spatial orders.

This paper aims to deconstruct the reification of urban allotment gardens as contested urban space by exploring how the meaning of urban allotment gardens in Swiss cities are discursively (re)produced in processes of negotiation.

METHODOLOGY

This paper is framed by an interpretative discourse analytical approach linking research questions related to the concept of discourse with the methods of qualitative social research. Data on urban allotment gardens was collected for the Swiss cities of Basle and Berne following a theoretical sampling strategy. The final sample consists of published and unpublished documents (N=30) collected from the two different discursive levels considered to be of main relevance for the research questions addressed in this study: politics (verbatim protocols of parliament sessions) and public administration (concepts, guidelines,

reports, plans). A comparative perspective is applied to explore discursive practices constituting meanings of urban allotment gardens in Swiss cities.

For a first exploration of the discursive field the approach of pure description was applied. This does not entail a simple summary of contents but their dissection, sorting, commenting, contrasting and aggregation in terms of patterns, similarities and dissimilarities. In order to reconstruct the discursive structures emerging in the field, relations of equivalence, opposition, causality or temporality of the constitutive elements were examined (Glasze and Matissek 2009). A coding scheme has been developed and the method of continuous comparison between the data and the different cities has been applied. The research project follows an abductive logic implying an iterative-cyclic approach between theoretically-driven empirics and empirically-generated theory (see diagram 1).

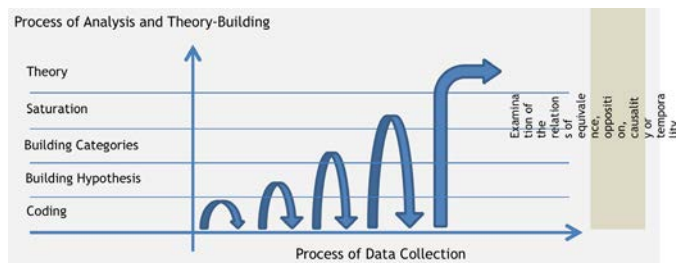


Diagram 1: Data Collection and Analysis in Grounded Theory

RESULTS

CASE-STUDY BASLE CITY

Basle is the third biggest city of Switzerland (174'491 inhabitants on 22.75 km²), located next to the borders of Germany and France. Following a balanced growth strategy Basle's urban development strategy focuses on an integral development of new housing possibilities and urban green spaces aiming to offer attractive

living conditions for the actual and future population. Since 2000 the closure of allotment garden areas due to urban development projects has been contested and referendum votes in 2011 and 2014 have resulted in a re-dimensioning or cancellation of the city plans and in a new allotment garden law (2012). According to future development plans 6.1% of the total surface of the 33 existing garden sites will be closed down until 2017.

The city's development plans are dominated by two different concepts of space. On the one hand, urban space is seen as public good. This not only implies the accessibility of public places for all inhabitants but also a demand on public actors to supply adequate quantity and quality of public (green) spaces in the city. Urban development must therefore be focused on fostering the common welfare. On the other hand, in accordance with economic as well as ecologic arguments it is argued for an efficient and resource-saving management of urban space. Consequently, urban space is conceptualized as a resource that should be developed in favour of the city's interests supporting a balanced growth strategy. These two concepts build a continuum of different but interrelated discursive practices defining the value of urban space and its uses.

The discussions whether allotment gardens should be preserved or converted are embedded in this understanding of urban space: allotment garden areas are seen as a resource serving as a mean to achieve more general urban development goals. If other uses seem more suitable at this site to match city's interests the conversion of allotment garden areas (serving more particular than common needs) is perceived as legitimate. By criticising allotment garden areas for their limited accessibility for the public (although mostly located on publically owned land) and therefore defining them as deviating from the concept of public space their social and ecological functions are neglected and allotment gardens as a whole devalued. To still legitimate the preservation of these areas allotment gardens

are discursively constructed as a public good which must be secured by the state but only under the condition of opening them up for other users (both arguments are legally consolidated in the new law of 2012).

Furthermore negotiating allotment gardens also implies negotiating how urban planning should be understood and implied. Basle's planning administration seeks to realize compatibility between different spatial concepts, urban visions and political interests by propagating an understanding of integrated and reliable as well as adaptive urban planning: planning should focus on the city as a whole in spatial as well as temporal regards, it should be based on expert knowledge and rational assumptions, and it should take into account future conditions and dynamically adapt to actual and prospected requirements. This planning understanding is equated with the strategy of a sustainable and balanced growth of the city. Regarding allotment gardens in Basle the logic of a flexible but nevertheless reliable planning practice was adapted by a two-fold strategy: On the one hand, the gardener's and supporter's claim, to preserve all garden sites at their actual location, was dismissed by arguing for flexibility in urban development. On the other hand, the preservation of 80% of the sites was guaranteed by law in order to provide planning security. A widely disseminated discursive pattern in this context is the rationalization of the planning problem by analysing actual needs and supplies and therefrom derive future demands (e.g. of public green space or housing). This pattern is an inherent part of a planning approach focusing on holistic, research-based and adaptive proceedings. A conversion of an allotment garden site seems consequently legitimate because the city's supply for gardens is relatively high compared to other cities while the demand for garden plots is constantly declining. This argument shows how garden areas are discursively constructed as a resource for a growing city and that demand-oriented planning delegitimizes allotment gardens as a valuable use of scarce urban space.

CASE-STUDY CITY OF BERNE

Berne is the fourth biggest city in Switzerland with a total of 139'211 inhabitants on 51.60km². Similar to the city of Basle, urban development in Berne is embedded within a growth strategy aiming to reconcile economic and ecologic interests of the city. The intensification of housing construction activities is combined with the development of attractive urban green space in order to enhance the quality of life for urban residents. In total, there are 28 allotment garden areas on 40ha in the city of Berne. Due to urban development processes, five allotment garden areas have been closed over the last 15 years reducing the surface area by 3.5%. The conversion or transformation of further allotment garden areas appears to be a continuous process of negotiation.

The political discussion on urban development is framed by a problematization of a mismatch between more workplaces than housing opportunities causing environmental pollution in urban neighbourhoods due to commuter traffic and, as such, reducing the quality of life of urban residents. Additionally, the mismatch creates a loss of potential tax revenues. Thus, housing construction in the city is not perceived as subject of negotiation but rather as necessary solution to environmental and financial issues. In order to resolve these environmental problems a resource-saving urban growth approach is applied resulting in the densification of urban space. The compact city model as efficient and (ecological and economic) resource-saving growth model is equated with concepts of urbanity producing a development paradigm from non-densified (non-urban) to densified cities (true urbanity) justifying the dominant planning paradigm of the compact city.

The promotion of a compact urbanisation results in an understanding of (inner-city) urban space as a resource that needs to be used in the most efficient and resource-saving way. Since densification is constructed as a holistic approach tackling environmental issues by densifying urban space, it also allows rationalising the

necessity of converting allotment gardens in the inner-city area within the bigger picture of ecologic sustainable urban growth. Here, planning instruments such as the zoning plan in coherence with the uniqueness and quality of a location reinforce this necessity as rationale representing allotment garden areas situated in well-developed inner-city area (existing infrastructure, transport connection, well integrated into the neighbourhood) as predestined for housing construction. The meaning ascribed to a specific location appears as prediscursively existing and rationalising a particular utilisation of the location. In consequence, any other use of space becomes illegitimate. Additionally, this constructs urban allotment gardens as land reserve, originally developed for temporary use only, and, as such, justifying that allotment gardens in the inner-city area are made a contested space that legitimately needs to be converted.

Negotiations about conversion, transformation or preservation of these spaces are further shaped by understandings of urban green space in the urban fabric and entanglements of the concepts city and nature. Before the mid-2000s urban green space was constructed as space serving urban residents as compensation following an idea of green space as enabling urban residents to get out of the city. This is shaped by a clear functional divide between the categories city and nature constructing nature as an obstacle for urban development and vice versa. The functional separation between city and nature inherent to planning practices at that time, solely allowed for discussions of allotment gardens as increasingly contested spaces to be either converted or preserved. The dualistic conceptualisation of city and nature has been increasingly dissolved resulting in urban spaces that integrate nature into the built city producing a new urban landscape. This is also closely linked to an extended meaning of green space as not solely serving the needs of urban residents but also as ecological resource enabling an ecologic sustainable urban growth (by enhancing biodiversity or positively influencing the urban climate). Further, it is shaped by

shifted approaches from a quantitative preservation of urban green space to the preservation of attractive green space that needs to be assessed based on qualitative criteria in order to assure an efficient utilisation of these urban spaces. Shifted meanings of urban green space create additional margins for urban allotment gardens that enable negotiations beyond conversion or preservation of these spaces and allow integrating them in housing construction developments.

However, the diversification of approaches towards urban allotment gardens is structured by a cost-benefit ratio according to the efficient and resource-saving urban growth model. Urban allotment gardens are considered to be a public good. As such, they need to comply with the requirements of a public good. Marked by the logic of a cost-benefit ratio, open green spaces need to allow for a high density of utilisation facilitated through high accessibility. Urban allotment gardens, on the contrary, are constructed as private spaces due to low accessibility and low density of utilisation exclusively serving as leisure activity for a small part of the urban population. Thus, current utilisations are not directed to the common good making the contestation of these spaces to appear as natural consequence. Additionally, representing urban allotment gardens as not fulfilling the requirements of public goods, results in a devaluation of these spaces. In consequence, the integration of allotment gardens in urban development projects implies a so-called opening and transformation of these green spaces to make them more attractive (valuable) and efficient by increasing accessibility and density of utilisation.

CONCLUSION

The two case-studies show how different rationalities of space, city and nature produce a hegemonic order constructing urban allotment gardens as contested space. Both cities are shaped by an urban growth strategy aiming at an efficient and resource-saving (re)

organisation of urban space by enforcing a more compact urbanisation. Growth and efficiency embedded within a cost-benefit ratio are different but entangled discursive structures rationalising current transformation processes of urban allotment gardens along the continuum of conversion, opening-up by enhancing the attractiveness of the site and preservation. Thus, these discursive practices produce particular hegemonic spatial practices reorganising urban allotment gardens within the rationalities of the emerging power-knowledge regime. Through continuous reproduction of discursive practices structuring and stabilising the hegemonic order, the transformation of urban allotment gardens becomes taken for granted and a required condition to enable urban development and growth. Other (discursive, social and spatial) practices and rationalities become marginalised or are delegitimised by dominant ways of seeing and understanding cities and how urban space should be organised. The transformation of urban allotment gardens in terms of opening up in order to enable high density of utilisation and high accessibility of the areas implies a restructuring of this particular urban space changing its functions and utilisations and, as such, also potentially the users. The reorganisation of urban allotment gardens understood as materialized power effects of hegemonic discursive practices and unfolding social practices, then, produces new mechanisms of inclusion and exclusion. Simultaneously, the conversion of allotment gardens is often combined with a relocation of these spaces to the outskirts of the city implying a (socio-) spatial marginalisation. In this regard, the constitution of urban allotment gardens currently understood as being in transformation is not only a result of discursive practices but itself an essential part of the production of (power relations in) society.

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ENVIRONMENTAL BEHAVIOUR OF URBAN ALLOTMENT GARDENERS IN EUROPE

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ABSTRACT

Across Europe, urban gardening is receiving an emerging interest from the public as well from planning authorities. Urban allotment gardens have a particular role integrating social benefits, recreation, health, food, and urban ecology issues. Differences are seen in the historical context, local regulations, gardener's motivations, and knowledge which result in different gardening behaviour. This behaviour, i.e. the use of fertilisers or pesticides, has effects on the quality of soil, water and the habitat. We report on the results of a series of questionnaire surveys undertaken between 2012-2015 by members of the COST Action (TU1201) 'Urban Allotment Gardens in European Cities' which addressed motivations, environmental attitudes and ecologically relevant behaviour. Urban regions in Poland, Austria, Portugal, Estonia and West of Scotland were studied. In Austria and Poland about 80% of the respondents identified recreational motivation dominated over food production. These results confirm former studies on Central Europe. In contrast, the supply of fruits and vegetables is the most important motivation in our Estonian, Scottish and Portuguese cases. Also in Poland and Austria food production is still of importance for those gardeners who are interested in a healthy food. Since in some cities (e.g. Warsaw, Salzburg), the majority of respondents use chemical fertilisers and pesticides, this is not the case in our Scottish and Estonian case studies. Even with this use most gardeners believe that their grown products are healthier than store bought and that their gardens are sustainable and environmental friendly. Results show the need for deeper investigation of the relation of environmental relevant garden practices, environmental risks and environmental attitudes.

INTRODUCTION

Today, urban gardening appears in a great variety types from the traditional allotment, i.e. a plot that is aimed at individual, non-commercial gardening, to more recently emerged forms such as community or neighbourhood gardens (Ernwein, 2014). In general, urban allotment gardens (UAGs) are seen to provide food and sustain human well-being, health and recreation, contributing to the provision of habitats for plants and animals and to a number of regulating ecosystem services on the local scale such as water retention and microclimate regulation (see e.g. van den Berg et al., 2010; Breuste, 2010; Guitart et al., 2012; Barthel and Isendahl, 2013; Breuste and Artmann, 2014). The natural conditions for urban gardening differ widely between the European countries as do the respective historical background, local regulations and policies for the management of UAGs as well as the gardeners’ motivations resulting in different gardening practices. UAGs are often subject to environmental pressures not only as a result of contamination from former and current industrial and traffic activities, but also through the practice and behaviour of the gardeners themselves (Breuste et al., 1996). This behaviour, i.e. the use of fertilisers or pesticides, has effects on the soil, water and habitat quality. Despite the growing understanding of the multiple benefits humans can derive from UAGs, the environmental and ecologically relevant behaviour of UAG gardeners is not well understood. Do they behave in an environmentally friendly manner? Is their kind of behaviour related to their motivation and their environmental attitudes? With the aim to examine these relationships, we present and discuss the first results of an international survey on urban gardening in six European urban regions.

CASE STUDIES

Between 2012-2015, members of COST Action TU1201 ‘Urban Allotment Gardens in European Cities’ undertook a series of questionnaire surveys (n~396) focused on the motivations, environmental attitudes and ecologically

relevant behaviour of gardeners in Salzburg in Austria, the Polish cities Warsaw and Poznań, Lisbon in Portugal, Paide in Estonia, and in a number of locations in the West of Scotland. The aim was (a) to capture the motivations for urban gardening, assess also why gardeners consume their self-grown produce and what they had changed in the garden in recent years; (b) to comprehend the environmentally relevant practice by looking at the improvement of soil conditions and the use of pesticides. In addition, (c) we asked the gardeners to self-estimate their ecological behaviour.

Most of the surveys took place in traditional UAG colonies (Poland, Scotland, Estonia, and Austria), some of them existing for decades in the city centre or in suburban areas. In Lisbon, community gardens have been surveyed. Criteria for the selection of the study sites differ due to the specific scientific objectives of the respective research team. For example, the criteria were to comprise areas subjected to different urban pressures (e.g. road and industry proximity) or on the basis of previous concerns with soil quality (Lisbon, Scotland). Other criteria were to cover a broad range of different UAGs in respect to age, size, number of plots or positions within the urban structure (Salzburg, Poznań, Warsaw). In Paide, a colony founded by employees of a former dairy factory was selected as a result of convenience sampling. Despite that, the same questionnaire was used as a base in all case studies, only slightly adapted to the respective local situation and to the specific research focus and translated in the native language. For the same reasons, some questions were not used in all national studies.

In Salzburg, the questionnaires were distributed by the directors of the four sites (added up 284 plots); 156 gardeners answered. In Poznań 100 (21 sites) and in Warsaw 90 (three sites) gardeners completed the questionnaires. 15 gardeners were asked face-to-face in one site in Paide, 15 in West Scotland, and 20 in Lisbon (six community gardens). The survey can thus be considered

as a pilot study, but the data provides a standardized insight into urban gardening practice in Europe.

RESULTS

Please note that percentages shown in tables do not always sum to 100% as multiple answers were sometimes given; the hyphen (-) means ‘not asked’.

As shown in table 1, in Salzburg (Sb), Warsaw (Wa) and Poznań (Pz) relaxation and recreational motivations as well as connectivity to nature dominated over food production. This contrasts with Paide (Pa), West Scotland (WS) and Lisbon (LI), where the self-supply with fruits and vegetables were the most important motivation for urban gardening.

Table 1: What were the main motivations for choosing an allotment? (Multiple answers possible)

Motivation	Sb	Wa	Pz	Pa	WS	Li
Recreation and recovery	80.3%	82.3%	80.0%	6.7%	-	35.0%
Space for children to play	18.5%	24.3%	23.0%	0%	-	0%
I love gardening / gardening is my hobby	64.3%	51.3%	26.0%	20.0%	20.0%	55.0%
Silence/ fresh air	57.3%	60.0%	64.0%	6.7%	13.0%	25.0%
Self-supply with fruits and vegetables	45.9%	24.7%	30.0%	86.7%	66.0%	85.0%
Compensation for missing balcony, terrace or garden	32.5%	10.0%	21.0%	53.3%	0%	10.0%
Community spirit / to establish ties with others	22.9%	25.0%	21.0%	13.3%	0%	20%
Connectivity to nature	65.0%	68.5%	58.0%	40.0%	0%	-
Number of answers, n=	156	90	100	15	15	20

Most gardeners had changed the usage of their garden in the last 10 years. In Poland, gardeners clearly increased the proportion of lawn, covering ca. 40% of total plot area (data not shown); in the West of Scotland, Poznań and Salzburg the number of flower beds has increased.

Table 2: What have you changed in the last years in your garden? (Multiple answers possible)

Changes	Sb	Wa	Pz	WS
More lawn	24.8%	57.6%	58.0%	-
Less vegetable patches	23.6%	29%	24.0%	47.0%
More flower beds	41.4%	55.7%	49.0%	53.0%
More space for leisure time (e.g. terrace, pergola...)	27.4%	-	34.0%	-
More possibilities / bigger area for children to play	5.7%	14.6%	13.0%	-
Nothing	17.2%	3.0%	10.0%	-
Number of answers, n=	156	90	100	15

In addition, we asked the gardeners, why they consume their home-grown vegetables and fruits in particular. In all countries, large percentage thought that their own produce was healthier than that from the supermarket, but apart from this, answers differ widely. In Estonia an important additional reason was to save money, in contrast in Poznań, where almost a quarter did not cultivate fruit or vegetables, only 2 % indicated this cause (see table 3).

Table 3: Why do you consume your home-grown vegetables and fruits in particular? Attention: in Salzburg and Poznań only one answer was possible, in Warsaw and Paide multiple.

Reason of Consumption	Sbg	Pz	Wa	Pa
It was produced and has to be consumed	11.1%	19.0%	12.3%	0%
Quality (taste) is better	31.3%	18.0%	50.0%	20.0%
It is healthier /less harmful substances	47.5%	37.0%	56.7%	86.7%
I can save money	-	2.0%	28.7%	66.7%

It is fun / I simply like it	-	-	71.0%	40.0%
Others	10.1%	-	-	26.7%
I don't cultivate fruits nor vegetables	-	24.0%	7.0%	-
Number of answers, n=	99	100	90	15

When asked how they improve the soil conditions, in all countries gardeners indicated self-generated compost, manure or other organic fertilizers. In Salzburg, Poznań and to a minor degree in Lisbon chemical fertilizers were used; only the gardeners in Paide indicated not to use chemical fertilizers (see table 4). In Warsaw 48.7% of gardeners apply natural fertilizers regularly; however 56.33% still use also chemical fertilizers (data not shown).

Table 4: How do you improve the soil conditions in your allotment? (Multiple answers possible)

Soil Improvement	Sb	Pz	Pa	Li
Compost, manure, other organic fertilizers	84.7%	72.0%	93.3%	90%
Peat	7.6%	48.0%	13.3%	15%
Chalk	34.4%	42.0%	0%	0%
Mineral multi-range fertilizers	27.5%	33.0%	0%	5%
Nitrogen	15.4%	8.0%	0%	5%
Phosphate	8.9%	2.0%	0%	0%
None	1.9%	8.0%	-	0%
Number of answers, n=	155	100	15	20

In relation to the use of pesticides, big differences are observed across the case studies. In most locations, respondents admitted to use pesticides at some stage or regularly during the year. Only in Scotland was this practice absent and only a minority in Paide identified that they occasionally used pesticides (see table 5).

Table 5: Do you use any pesticides?

Usage of Pesticides	Sb	Wa	Pz	Pa	WS	Li
Regularly	1.9%	6.0%	5.0%	0%	0%	0%
Sometimes	54.2%	20.1%	53.0%	0%	0%	25.0%

On rare occasions	-	22.2%	-	13.3%	0%	35.0%
Never	43.9%	51.7%	42.0%	93.3%	100%	40.0%
Number of answers, n=	155	90	100	15	15	20

Do gardeners think that they behave in an ecological manner on their UAG? Results show that most respondents estimated themselves that they always or most often behave in an ecological and sustainable manner, in all countries (see table 6). In Warsaw plot holders were asked if in their opinion their UAG is ecologically sustainable or not. 94.3% of them gave a positive response.

Table 6: Do you think that you behave in an ecological/ sustainable manner in your allotment?

Ecological behaviour	Sb	Pz	Pa	WS	Li
Yes, always	19.7%	23.0%	66.7%	53.3%	80.0%
Mostly / more often	70.4%	58.0%	26.7%	46.7%	5.0%
Sometimes	-	-	0%	0%	10.0%
Hardly/ rather seldom	5.3%	13.0%	0%	0%	0%
Never	0.7%	0%	0%	0%	0%
I don't know	4.0%	6.0%	0%	0%	5.0%
Number of answers, n=	152	100	15	15	20

DISCUSSION

Despite some differences in the format of questions and in the total number of respondents, these results give interesting insights into urban gardening practice across Europe, showing a number of differences and some common aspects of behaviour. They point to some aspects which raise questions for further and deeper research.

Interestingly, there seem to be two contrasting clusters of behaviour. In Poland and Austria, UAGs are increasingly seen and used as a place for recreation and relaxation. We did not ask how people behave in detail on the UAGs and what they do for recreation.

Even if some gardeners might see exhausting physical gardening practices as recreation, the change of plot use to more easy-maintenance lawn indicates a reduction of work load. Edible plants are successively replaced by lawns and ornamental species. In Poland, the country with the highest number of UAGs in relation to the population in Europe (Wycichowska, 2013), some gardeners even stop to grow fruits and vegetables (which is not permitted in other countries such as UK and Austria). These results confirm previous insights (see Breuste, 2010; Pawlikowska-Piechotka, 2011; Szkup, 2013; Breuste and Artmann, 2014) regarding the use of traditional UAGs. In contrast, the supply with fruits and vegetables is the most important motivation for the gardeners in our Estonian, Scottish and Portuguese cases. This is still of importance in Poland and Austria, for those gardeners who are interested in a healthy food production and do not trust the quality and taste of vegetables and fruits they can buy.

These differences in motivation might be also due to the current life situation of the gardeners as well as costs of gardening. In countries which experienced early industrialization, UAGs were specifically created to improve the quality of life of urban workers at the beginning of the 20th century. The two World Wars as well as the communist period in Eastern Europe forced the urban population to grow for subsistence and authorities to provide space. In communist Poland, UAGs were crucial for food provision that in present days clearly is of less importance than recreation. The economic situation for the majority of Polish people has changed significantly, and numerous supermarkets offer cheap fresh products. In Salzburg, even if the UAG lease is low, plot holders have to pay a transfer fee to the former plot holder for the garden cabin, tools, plants etc. This transfer fee has risen and leads to social selection (Atzensberger 2005). In addition, waiting lists are long. Due to these barriers, the younger generation who are interested in growing their produces, tend to join or organize new forms of urban gardening

that are much cheaper, less compulsory and meet their expectations in organic gardening (Voigt, 2014).

In contrast, the contribution of UAGs to food security has recently emerged as an issue during the worldwide financial crisis of the mid 2000's, particularly across Southern Europe Countries (Cabannes and Raposo, 2013). Also Portugal, with previously little tradition of UAGs, shows a recent increase in urban gardening. The UAGs surveyed have emerged spontaneously or are introduced recently due to the Lisbon 'Urban Allotments Gardens Programme' that has come to existence to help people with low financial status (Mata, 2014). For Lisbon gardeners it is cheaper to pay the small fee to the city council instead of buying the products. So food security might be the main reason why the supply with fruits and vegetables is the most important motivation in the Lisbon case. The UAGs in Scotland were established for many decades. Legislation restricting activity may be the main motivation for produce growth for consumption. By definition of the UK Allotments Act an AG must be wholly or mainly cultivated for the production of vegetables or fruit crops for consumption by the tenant or his/her family. In addition, digging for subsistence is a powerful cultural tradition in the UK.

In relation to environmentally relevant practice, the high percentage of people using organic fertilizers is striking. However, keeping in mind that producing and using compost is a quite obvious and usual practice in gardening for both the disposal of the organic garden waste and for soil improvement this result is not so surprising. In Poland, plot users are even obliged to compost organic wastes. Our results show that a lot of gardeners also use mineral fertilizers. For this and other means of soil improvement such as adding chalk or peat, it would be interesting to compare the practices with the resulting soil properties on the plots. Are the practices appropriate for the improvement of local soil conditions? However, sampling soil

now will show conditions accumulated over a long time; soil properties may be related to diverse practices of past tenants and not to what is done now.

There seem to be big differences in the use of pesticides. These disparities between the case studies cannot be wholly explained by differences in national regulations. In Lisbon UAGs, pesticides are forbidden, but this does not mean that they are not used. In Poland, gardeners are obliged to combat plant diseases and pests by application of chemical plant protection treatments selected by the National Council of Polish Allotment Gardeners. In Scottish and Estonian UAGs, pesticide use is allowed, where commercially available. However, but people do not use them (much). Perhaps this could be explained by disparities in perception or education. The use of pesticides is perceived to be linked to a wide range of health problems and environmental impacts. It would be interesting to review the detailed understanding and motivation of UAG users in this activity across the EU dimension.

Interestingly, despite the use or absence of these substances, most gardeners believe that their grown products are healthier (and tastier) than store bought and that they behave in a sustainable and environmentally friendly manner. It would be interesting to investigate the gap between self-perceptions and attitudes of gardeners as environmentally friendly and their actual behaviour.

CONCLUSION

Urban allotment gardens provide a unique combination of productive land and recreational places to European cities, which in turn provide multiple benefits to urban inhabitants. To increase these benefits it is useful to look on gardeners' motivations, their attitudes and practices. Our results highlight the wide range of motivations for urban gardening in Europe with emphases on recreation

and food supply and disparities in environmentally and health relevant behaviour and attitudes.

In further research it would be interesting a) to link the questionnaires results on environmental practices with results from soil, water and food sample analysis. This will allow understanding the suitability of gardening practices as well as resulting qualities and problems, and to assess potential public health risk due to inadequate horticultural practices. b) Another task would be to study the gap between self-perceptions and attitudes of gardeners and their actual behaviour.

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LOCAL FOOD PRODUCTION FOR SUSTAINABLE DEVELOPMENT OF ESTATES: A RESEARCH THROUGH DESIGN PROJECT

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Design concept, Research by Design, Sustainability, Urban Agriculture

ABSTRACT

Larenstein Estate, the campus of VHL University of Applied Sciences, provides a space for synergy between programmes, projects, research and communities of practice. Local food production can contribute to a sustainable development and management of the estate. Education at VHL is based on the constructivist learning theory where learners construct knowledge out of their experiences. Therefore active learning, or learning by doing is promoted. The integral design studio focuses on an integration of the competences for landscape design, landscape construction and landscape management and every year there is a cutting edge theme. Research questions for the design of urban agriculture focus on feasible design concepts for urban agriculture and how these can contribute to sustainable area development? In 2014 landscape architecture students made 30 designs for Larenstein Estate for developing urban agriculture. The design should act as a catalyst for interaction with local communities and as an example for similar urban agriculture projects in the region. The designs are evaluated and an overview of design methods, approaches, values and principles was made. The outcomes are twofold: design concepts for urban agriculture in estates and recommendations for the improvements of the teaching methods. This study examines whether the use of different design approaches and methods changes the outcome of the design concept. Next to that the results of the student work are discussed in the framework of the research project on urban agriculture. The design concepts comprise preservation of existing landscape values, multifunctional use of space, embedding agricultural plots in the spatial framework, integrating a network of routes in the fields. The teaching approach involves improving the expertise on the subject matter of the tutors, providing a design toolkit for students and combining seminars with the studio. The conclusions form a set of starting points for teaching landscape design and the development of estates.

INTRODUCTION

This paper reports on the results of a design studio that was aimed to explore the possibilities for local food production and sustainable development of Larenstein Estate. Urban agriculture can contribute to sustainable economic, social and spatial development. Local food production offers opportunities for social renewal and improving landscape quality. The conclusions relate to design concepts for local food production and the process of research through design.

Most of the programmes of VHL University of Applied Sciences that relate to spatial planning are located at the Larenstein Estate in The Netherlands. Larenstein Estate provides a space for synergy between programmes, projects, research and communities of practice. Local food production can contribute to a sustainable development and management of the estate.

Education at VHL is based on the constructivist learning theory where **learners** construct knowledge out of their experiences. Therefore active **learning**, or **learning** by doing is promoted. The integral design studio focuses on an integration of the competences for landscape design, landscape construction and landscape management and every year there is a cutting edge theme.

In 2014 landscape architecture students made 30 designs for Larenstein Estate. The design brief designated 30% of the area to urban agriculture, a restaurant and the location of an urban farm/market garden with a shop. The design should act as a catalyst for interaction with local communities and as an example for similar urban agriculture projects in the region.



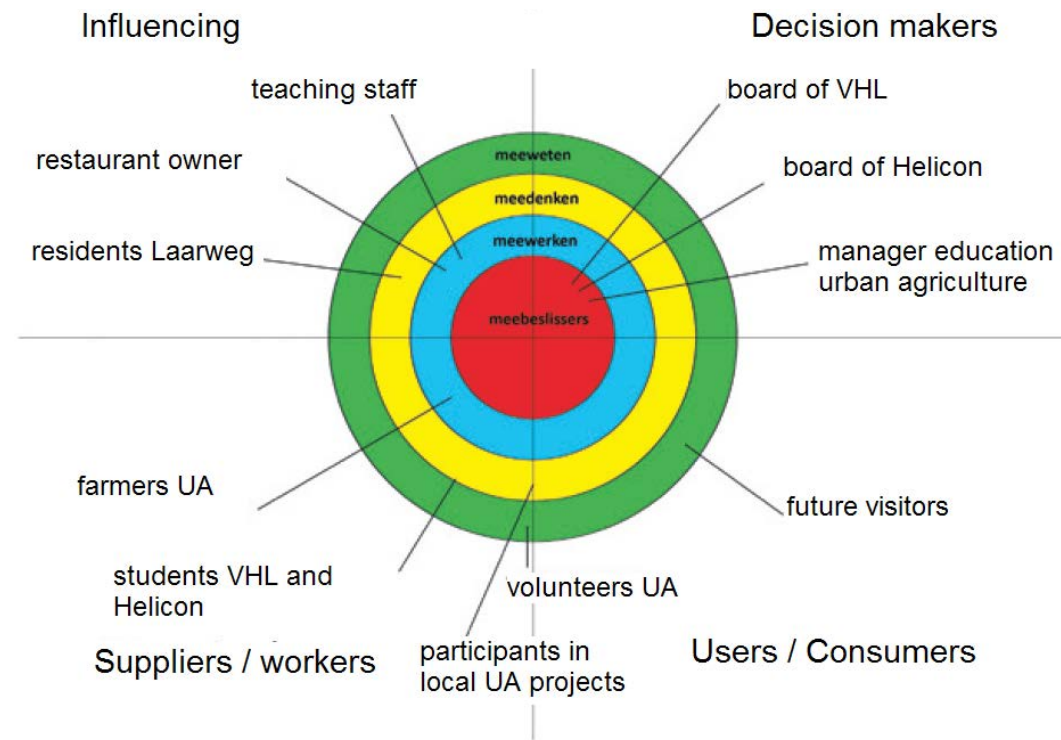
[Figure 1: The Larenstein Estate in Velp, The Netherlands]

The outcomes are twofold: design concepts for urban agriculture in estates and recommendations for the improvements of the teaching methods.

THEORETICAL FRAMEWORK URBAN AGRICULTURE

The landscape architecture department carries out a research programme on design of urban agriculture. For this research two questions of the programme were explored: what are feasible design concepts for urban agriculture and how can these contribute to sustainable area development?

Roggema (Roggema & Keefe, 2014, p.48) defined a framework for the design of urban agriculture. The framework relates the system of urban agriculture to different scales and describes the components of the design tasks: e.g. strategies, concepts and principles. This research relates to the design tasks for individual projects on the scale of site design. Within the context of the integral design studio a “research through projective design” in the form of a design experiment (Deming & Swaffield, 2011, p 40, 205) was carried out. The context and the programme were provided.



[Figure 2: Stakeholder analysis]

The aim was to find possible design solutions and design concepts. A design concept is an abstract representation of reality that acts both a window to the problem situation as well as a window to problem solution possibilities (Roggema & Keefe, 2014, p 54).

RESEARCH QUESTIONS URBAN AGRICULTURE

On the basis of the objectives a series of questions and criteria for evaluation were formulated.

For the analysis for the design of urban agriculture the following questions were used:

- Which methods for analysis were applied?
- What are the main aspects of the design concept for Urban Agriculture and which aspects contribute to improvement of spatial, functional and ecological quality?

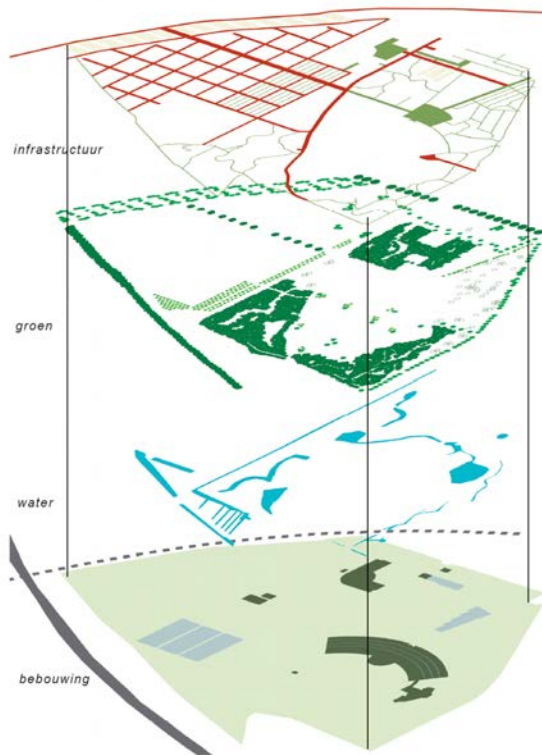
The outcomes of this analysis were integrated into a set of conclusions. The integration was done by selecting from all the designs new or valuable solutions for urban agriculture.

METHODS AND DESIGN CONCEPTS FOR UA ON A SITE

The students used the following methods for the design process: stakeholder analysis, multi-layer landscape analysis, reference studies and analysis of spaces, routes and nodes.

STAKEHOLDER ANALYSIS

The stakeholder analysis provides an overview of all actors, their interest in the plan, their role in the different planning phases (from programme, design to management and use), their involvement in the project and their preferences for use. This analysis was used to see how participation in the planning process might work and what kind of use was feasible for the new design.



[Figure 3: Multi-layer analysis]

MULTI-LAYER LANDSCAPE APPROACH

This analysis takes into account the layers of soil and water (abiotic), ecology and infrastructure. In many cases in combination with the existing buildings and objects that are valuable from a cultural-historical point of view. By projecting the layers on top of each other it is easy to relate these aspects and to come to integral conclusions.

SPATIAL ANALYSIS OF AREAS, ROUTES, NODES`

For this analysis the principles laid down by Lynch (1960) were used. In many cases it was combined with a mass/space map with vistas. This was applied to see how the spatial structure of the site can be improved, which views were lacking and how the routing on the site and the visual relations can be strengthened.

REFERENCE STUDIES

For every design one or more reference projects were selected. These were used to present possible economic and social models for urban agriculture, for guiding images of the plots and possible combinations of types of produce. There was no format provided for the description of the reference projects.

DESIGN PRINCIPLES

From the design concepts a combination of attributes is selected that favours sustainable development of the site.



[Figure 4: Master plan- addition of cycle and footpaths along and through urban agriculture plots]

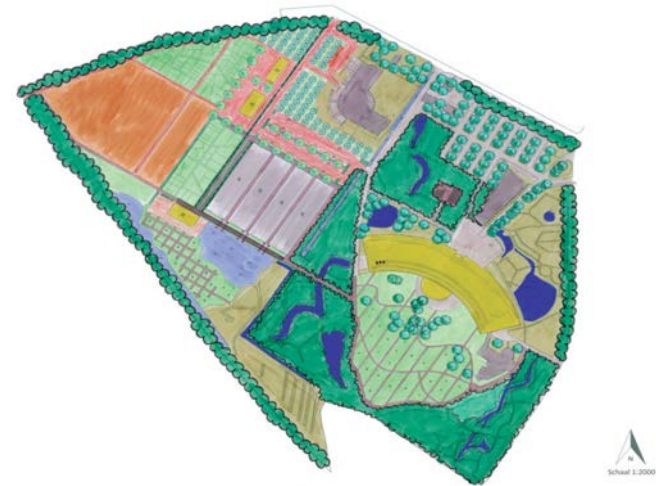


[Figure 5: Masterplan – introduction of principles of Permaculture with food forest, edible plantation and closing of cycles]



[Figure 6: Masterplan – embedding urban agriculture in the existing and new green framework]

3.4 Masterplan



[Figure 7: Masterplan – extending and completing the water system]

The design concept consists of values, organisation of the design, spatial composition and routing. The main aspects of the design concept are presented in Table 1.

[Table 1. Scheme with aspects of the design concept for urban agriculture]

Aspect		Example
Values	Preserving and developing existing historical and landscape values	The chapel, the graveyard, the historical water system
	Preserving existing ecological values	The existing forest plantation with old trees, the wet-hay land
Use	Multifunctional design: combination of urban agriculture, leisure and education	Combining urban agriculture with leisure, using plots for educational purposes
	Embedding of Urban Agriculture in the local and regional network	Connecting the site to the network of cycling paths and walkways. Introducing a high speed cycle path that runs through the area
Closing of cycles	Combining Urban Agriculture with the development of a sustainable water system, local renewable energy, closing the circles of streams of materials	Reed filter; Small windmills Re-use of compost
	Applying the principles of Permaculture in the farming system: attuning to the landscape conditions, circular economy.	Applying the concept of Permaculture as an integral system for the whole estate.
Maintenance	Developing a semi-natural planting with low maintenance	Designing a plant system that makes use of natural competition and succession.

INNOVATIVE ASPECTS

By the designs the following new ideas were developed:

- Combination of different social and economic models in one site: pick your own, subscription packages, community gardens, educational and instruction gardens.
- Combination of different types of crops in one site to make urban agriculture more attractive for perception: orchards, vegetable gardens, herb gardens, shadow crops.

- Full closing of cycles in the form of Permaculture combined with renewable energy like solar panels and wind mills.
- Building a greenhouse that functions as a noise screen along the motorway with a walking route inside.
- New types of producing: mixed forest with indigenous trees combined with fruit trees, walnuts, hazelnuts and various berries.

IMPLICATION OF THE DESIGN METHODOLOGY FOR TEACHING

The second part of the research was an analysis of all off the designs made by the students. The goal of this analysis was to investigate whether the outcome could lead to recommendations for the improvements of the teaching method. The theoretical framework for this analysis was based on a Study of Landscape Architecture Design Methods by Lidy (2006). He studied the effect that different design methods have on the design outcome.

Lidy mentions eighteen (18) types of methods used by landscape-architects during the design process (where Lynch & Hack identify 12 methods used in landscape architecture). On the basis of these methods he defines four categories (Figure 9). He states that if one of the categories is not used in the design process, the design may fail because it will lack one or more of the following (see comment in Table 2).

[Table 2. Categories for evaluation of landscape architecture design (Lidy, 2006)]

Category	Comment
External connections	If a design is not connected to the surrounding area (infrastructure and community) it runs the risk of become irrelevant.
Internal connections	Elements within a design must have sufficient connections; otherwise the design is an amalgamation of parts with no synergy.

External structure	incorporates existing conventions into the design. For example cars drive on the right side of the road. If this well understood convention is changed, it causes problems for those in the design and those entering the design.
Internal structure	Internal structure establishes an order and weight of the design elements within the design. If the most important element is a lake, then every other element in the design is subordinate to the lake.

The main question for this part of the research was: Is it possible to analyse the design-outcome of the students work, using the four categories of Lidy, and come to recommendations for the teaching method? A second question is to see whether the students work has a tendency towards one or more of the categories or is lacking in one of them.

CONCLUSIONS OF THIS ANALYSIS SHOWED THAT-

- External connections were studied in the analysis phase, e.g. surrounding infrastructure, stakeholders-analysis. But in the design-outcome the improvement was not always clear. An additional entrance to the estate and visual connections were introduced. But hardly any student included elements to attract the local community (except one cycle path) which was part of the design brief (act as catalyst for interaction with local communities).
- The internal connections of the designs were mostly poor. The urban agriculture was introduced in the designs as an “extra” element. Little or no relations were established with existing elements. A few students related urban agriculture to education or to research (the main functions of the estate) but most students considered pathways or visual relations as internal connection between the design elements.
- For the external structure some reference projects were visited. In these projects existing models of urban agriculture were studied. The analysis showed that most students used

one or more of these models in their designs. Some students even came to new models.

- The analysis of the internal structure of the designs showed that most plans showed no clear hierarchy where education or urban agriculture or sustainability was the leading design element. In some plans the combination of agriculture and research was the leading element.

The conclusion shows that the internal connections and the internal structure of the designs were mostly poor. Most students were not familiar with the subject of urban agriculture and found it difficult to incorporate it into the design. External connection of the design to the (local) community is not obvious for the students, the design is considered to be a “physical” thing and not a mental one. However the reference studies as a means of incorporating existing ideas into the design had a good impact. There was a great difference of the outcome of these studies between the individual students.

IMPLICATIONS FOR TEACHING

In order to improve the process and outcome of these types of research driven studios the following recommendations are made:

- Define the role of the studio in the overall research agenda of the landscape programme or research project.
- Give two teachers right from the start of the studio the role of evaluating the design solutions, also during the design process.
- Prepare all teachers/ tutors on the research subject of the studio, e.g. by a seminar with discussion.
- Provide students with a design toolkit that relates to the research subject.

The analysis of the designs on the basis of the four criteria of Lidy led to the following recommendations for teaching:

- Instructing the students on a method for analysing the embedding of the site, e.g. space syntax or the 3-step method to provide a tool for analysing and designing external connectivity
- Organise a seminar on the subject matter of the studio, in this case urban agriculture and make an additional reference list of key literature on the subject.
- Show the students that landscape-architecture and designs have an impact on (local) community and that sometimes the goal of the design is not so much the design on itself but the effect it has on the community.
- Provide the students with a format for the reference studies in order to make the outcomes more comparable, e.g. by a fact sheet, a determined set of questions.

DISCUSSION AND FURTHER RESEARCH QUESTIONS

This study is a first step to examine whether the use of different design approaches and methods changes the outcome of the design concept. Next to that the results of the student work are discussed in the framework of VHL policy for sustainability.

The analysis of the projects led to a series of questions on how to carry out this kind of research through design. Does one really explore the full scope of methods in a teaching context, where a school had a specific didactic approach and set of values? Is a combination of didactic evaluations combined with looking for design concepts for urban agriculture and sustainable design not too complex? Can students within the context of one design studio sufficiently deepen their knowledge both in a programme for urban agriculture

and the contribution of landscape architecture to sustainable development or should one concentrate on one issue? How can one make the process of selection and assessment of innovative solutions more transparent? What are important success factors for organising this kind of research driven teaching?

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The Dutch Green Building Council developed beside the scheme for new and existing buildings a scheme for integral area development: BREEAM-NL Gebiedsontwikkeling. It provides an assessment tool for a site or an area

INTERACTION OF SCIENCE AND PRACTICE IN GREEN INFRASTRUCTURE PLANNING IN FINLAND – COLLABORATION METHODS FOR PLANNERS AND RESEARCHERS

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Collaborative Planning, Urban Planning, Participatory Research, Action Research, Urban Ecosystem Services

ABSTRACT

Green infrastructure (GI) has been presented as an integrative approach for land use planning (Benedict 2006) combining multiple functions of urban environment. Internationally identified benefits of GI solutions are promising and intents for integrating multifunctional green infrastructures into urban structure are emerging on policy level. However, integrating GI into planning practices is not unproblematic. The multidisciplinary nature of GI is both the potential and the challenge of the approach. Learning in interaction between science and practitioners is needed to successfully integrate the concept in the urban planning practices. This research identifies methods for establishing collaboration between the theory of green infrastructure concept and practice through examining international examples and existing practices of science-practice collaboration in Finland. In addition, the barriers and possibilities of collaborative GI development identified by urban planning practitioners in Finland are examined by interviewing a specified group of practitioners. As a result, a model for establishing collaboration that supports social learning of mixed science-practice groups is presented. Collaboration, networking and discourse in multiple scales provide basis for the success of the GI approach. Scientific tools have to match the needs in practice and therefore mutual understanding and learning needs to be developed. This research is part of the initiative of the new Landscape Architecture Research Group in Finland to develop novel methods for promoting the interaction of science and practice in GI planning.

INTRODUCTION

Why is better science-practice collaboration needed to implement green infrastructure?

Environmental sciences have long been raising the issue of insufficient impact of scientific knowledge in urban planning and decision making (Opdam 2010). Recently green infrastructure and ecosystem services (ES) have been presented as approaches to better deliver scientific knowledge into decision making. However, integrating these new perspectives into planning practices is not unproblematic (Albert et al. 2014).

The problems related to GI planning can be described as “wicked” problems, in which involved parties deviate in their view on the problem. Planning for GI requires for new thinking about the relationship of nature and the built environment. Actors in the planning process are not always convinced by scientific results and may even deny facts (Beunen & Opdam 2011).

Although internationally identified benefits of GI solutions are promising, mere relying on the assumptions of the benefits of GI may result in targets for supporting biodiversity and ES being missed (Collier 2013). This may lead to generic “greenwash” by, for example, designing green roofs as fragments of GI, without considering the role of these structures in a wider context. Concrete mechanisms for, and barriers to, widespread enhancement of ecologically functioning urban landscape with GI must be identified together with diverse stakeholders (Collier 2013). Collaboration is needed to implement, develop and test the latest academic results in the real-life urban planning and design projects.

Incorporating resilience policies, including GI, into practice has proved to be difficult. Although GI offers opportunities for multi-faceted approaches it does not always offer insight into practical implementation (Collier 2013). In addition to new challenges and functions of urban GI, solutions should address existing

socio-economic, cultural and historic urban challenges. Coproduction of knowledge becomes a necessity when solving complex issues such as this.

The multidisciplinary nature of GI is both the potential and the challenge of the approach (Collier 2013). Intentions for integrating multifunctional green infrastructures into urban structure are emerging on policy level and in strategic plans. However, design solutions in practice are still often controversial and based on traditional approaches, where green and grey infrastructures are planned separately. For example in Helsinki, the bureaucratic structure and scattered decision making competencies in different planning and management departments has been identified as a hindering factor for GI planning (Vierikko 2014). Strongly institutionalized planning systems are slow to change and are typically developed in a different phase with society (van Assche et al. 2013). This is one reason why methods to improve the collaboration between different actors are needed, both to integrate the knowledge in current practices but also to slowly affect the adaptation of the planning system to the current needs of the society.

We argue that the concept of GI has high potential to be applied as a tool that simultaneously addresses social objectives, biodiversity and ES delivery. However, difficulties lie in the integration of the multidisciplinary concept in the current planning process and practices. In this paper, we explore what type of cooperation model would improve the science-practice collaboration related to GI planning in Finland.

THEORETICAL BACKGROUND – PRACTICES IN URBAN PLANNING

Practice – science collaboration

The use of science-practice collaboration, or the lack of it, in land use planning has been criticized, modelled and developed in several papers (Opdam 2010, Nassauer 2008, Yli-Pelkonen & Niemelä 2006). Lack of interaction

between different actors and theoretical methods that are difficult to apply in the planning process create a situation where knowledge exists, and is available, but is not utilized in the practical decision making.

Cash et al. propose that the effectiveness of knowledge transfer is determined by three characteristics of knowledge: credibility, saliency (relevance in local context) and legitimacy (Cash et al. 2003). Practices of science encourage scientists to concentrate on credibility by improving accuracy in their models. By improving accuracy, relevance and legitimacy might be overlooked and that causes lack of interest on questions such as how to use the model in a particular context of problem solving or what the values and interests of potential users are (Opdam 2010).

Opdam (2010) argues that improving the compatibility of science and practice requires interdisciplinary integration and learning in interaction with practice. There is a growing understanding that knowledge can have a much greater impact, if researchers not only calibrate their tools on scientific evidence but also tune their methods to problem solving in practical cases. Therefore, application should actually become part of the scientific domain. (Opdam 2010.)

Nassauer (2008) proposes that design could be both a scientific activity and a co-production by scientists and practitioners of problem solving. Such social learning of mixed science-practice groups can improve skills of practitioners to handle scientific knowledge and tools, and at the same time improve skills of researchers to provide the right knowledge in the right context (Opdam 2010).

Unexploited scientific knowledge

In Finland, experts find that ecological knowledge is not very well utilized in planning and decision making processes in the Helsinki metropolitan area (Yli-Pelkonen & Niemelä 2006). The main hindrance found

by Yli-Pelkonen and Niemelä is the way the knowledge is presented. More coordination on the type of information research is producing is needed to make sure that it serves the needs of the planning process. (?)

The insufficient accessibility of knowledge to practitioners seems not to be the only reason for the low influence of ecological knowledge into decision making. Decision support tools and assessment models have been developed to support the use of knowledge. The problem is that the tools are often not taking into account the actual complexity of decision making process and the real-life challenges related to the planning process. Therefore, knowledge might remain too theoretical and hard to implement, hence widening the gap between theory and practice. (Opdam 2010, Bäcklund & Mäntysalo 2010.)

Credibility of science might be undermined by the generality of knowledge produced. If knowledge is difficult to apply site-specifically, local expertise can be seen as an advantage over science. Later the facts are difficult to identify in the larger context. Furthermore, scientific knowledge might also be used selectively to support political claims. (Beunen & Opdam 2011.)

In the project coordinated by the Finnish Forum for Environmental Information, the conclusion is that in Finnish land use planning practice scientist and planners do not encounter. One problem is the lack of interaction and meeting places. Interestingly, while available knowledge is not fully applied during the planning process, applied knowledge is considered expedient in the construction phase. However, it has been claimed that scientists in turn do not appreciate the knowledge developed in practical design. It seems that knowledge is produced for and appreciated in different phases of planning and design processes. (Forum for Environmental Information 2015.) Collaboration and interaction through open dialogue is hence required to improve both the use of scientific knowledge

in practice but also for scientists to see planning and design as processes producing knowledge (FIG. 1).

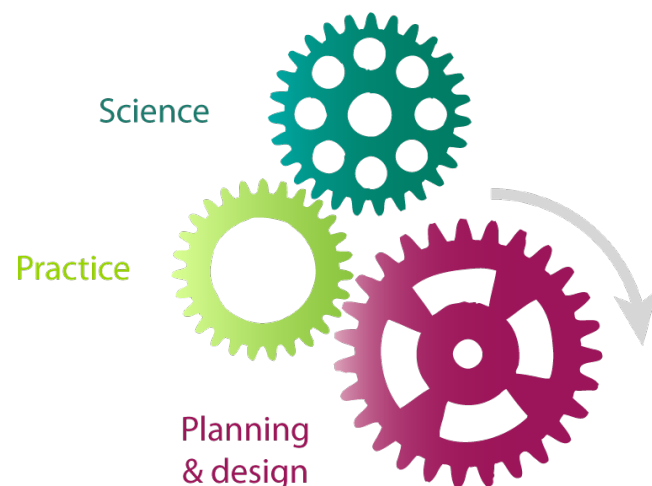


Figure 1: Urban planning and design could be a co-production of research and practice, where each party involved get feedback and researchers can adjust their activities towards the production of more relevant knowledge for the specific context.

DEVELOPMENT OF COLLABORATION METHOD FOR FINNISH PRACTICES

Pre-survey

Before the development of collaboration model, a pre-survey was conducted by interviewing a small group of practitioners (landscape planners and designers, both private and municipal). The aim was to identify current research needs and interests among landscape practitioners. The interviewees were asked, first, about the knowledge need that they had recently identified through their own work, and second, new knowledge needs that are raised by societal changes or phenomena and that affect their work. In addition, they were asked how they feel about their possibilities to utilize new

knowledge and the sources they used to find information. The same questions were then discussed together in a workshop. The interviews were not limited only on GI issues, but the whole scope of landscape planning and design was discussed. However, in the workshop, GI was found as a concept with high potential but difficult to implement because of the limited capacity of any practitioner alone to handle such large unities. A need for new continuous cross disciplinary collaboration and open discussion was raised as a key conclusion.

Both the literature review of recent GI research and the pre-survey revealed that there is a need for new forms of science-practice collaboration. Hence, a model to increase interaction within the field has been compiled. The model, which is based on the cooperative learning method, has three stages described in the following chapters.

Cooperative learning for science-practice collaboration

Cooperative learning between different actors is an effective way to improve collaboration between different actors (Panitz 1999). Cooperative learning methods are typically applied for educational purposes, though good examples of application can be found from the fields of business and innovation development as well (Siltala et al. 2007).

Cooperative action can be classified either as learning, development and/or innovation. The purpose is to commit the participants into an active process (Johnsson & Johnsson 1991). We suggest that co-operational learning can be used for creating open and confidential dialogue between science and practice and therefore for improving collaboration. Qualities of cooperative learning, such as positive interdependence, individual accountability, interaction, and evaluation of team process, serve also the needs of practice-science collaboration.

The model proposed in this paper is partly based on the cooperative learning method. Its elements; positive interdependence, individual accountability and interaction, are utilized as basic elements of cooperative learning in different phases of the model.

Positive interdependence and focus group workshops

Positive interdependence is providing foundations for long-term collaboration that benefits each of the participating actors. In the model, interdependency is realized by several consecutive workshops with step-by-step construction of knowledge (FIG. 2). *Focus group* discussions have been chosen to be the working method in the workshops, mainly for their potential to create interaction among participants.

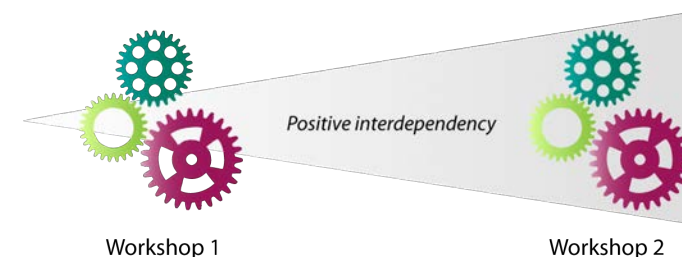


Figure 2: Positive interdependency is based on consecutive workshops and step-by-step construction of knowledge.

The aim of the focus group workshops is to raise participants' knowledge about the GI methodology, solutions and tools and to evaluate the learning process. The concept of GI is complex by its nature and the implementation always demands understanding of local circumstances. Thus there are no ready-made, complete answers to be offered. Based on the difficulties of applying environmental knowledge in practice, we argue that a full understanding about the potential of the GI concept would not be achieved by top-down teaching methods.

Furthermore, the focus group method can be used as an occasion for participants to learn from one another (Pietilä 2011). Participants are able to exchange and build on one another's views through discussion, and hence experience the research as an enriching encounter. Gray et al. state that "perhaps the most important benefit of focus groups is that the give-and-take among participants fosters reflection on other people's ideas" (2007: 362). Focus groups are also of particular value because of their ability to allow researchers to study how people engage in collective sense-making. The researcher is allowed to follow how views are constructed, expressed, defended and (sometimes) modified in the context of discussion and debate with others. (Wibeck, Dahlgren & Öberg 2007)

At the beginning of the collaboration the target group is chosen depending on the specific question or field that will be tackled in the process. Focus group members are invited to participate the process. In an ideal situation, participants represent different backgrounds and expertise, which fosters knowledge sharing and exchange of views during the process. On the other hand, there should be participants from the same planning or administrative department in order to increase positive interdependence inside the institutions. However, the size of the group should be relatively small. Large groups are difficult to control and they limit each person's opportunity to share insights and observations (Liamputtong 2011). Group dynamics change when participants want to but aren't able to describe their experiences.

During the workshops, members work together to increase general interaction. The role of the facilitators is to keep the conversation on the right track. It is not a self-evident fact that such collective construction of understanding will be created. In order to achieve the level of mutual learning in focus group research, the facilitators should manage to create some level of trust between the participants to build the dialogue on (Liamputtong 2011).

Creation of individual accountability

During the process focus group members receive inputs, which contain information and small tasks to familiarize oneself with the topic (FIG. 3). The role of the inputs is to maintain interest, share information of the latest research results and to encourage taking responsibility for learning by personal tasks. The inputs create individual accountability as some sort of preparation is needed to share the results in the group meetings. Inputs are also used to raise curiosity towards new ideas and create a good basis for adopting new thinking during the process. Through a step-by-step approach new concepts become easier to familiarize oneself with.

Adaptation of the model and dissemination of results

The collaboration process is monitored and evaluated by two phases of the model in order to gather information on the impact of the process (FIG. 3). At the beginning of the process, participants are asked to fill in an online questionnaire. In our case it is used, first, to study how the concept of GI is understood, and second, to evaluate the capacity to implement the concept on daily work. At the end of the consecutive workshops, the same questionnaire is to be filled in again.

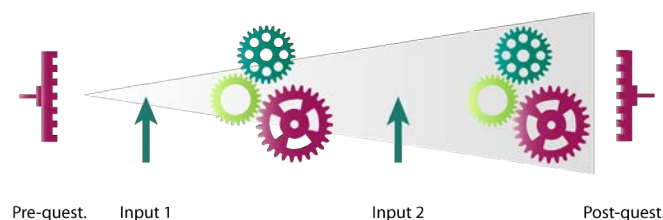


Figure 3: Individual accountability is created through inputs, which increase engagement to the process between workshops. Pre and post questionnaires create possibility to follow and evaluate the process of knowledge building and the increase of positive interdependence.

The process ends with a final session, the aim of which is to further discuss of the results and possible follow up projects. The final session gathers together all the workshop participants and can also be addressed to a larger audience to further disseminate the results. The process of interdependency building and the results of the focus group research are compiled by the organizer before the final meeting. The purpose is also to create readiness for the participants to organize further science-practice collaboration activities within the participant's home organizations (FIG. 4).

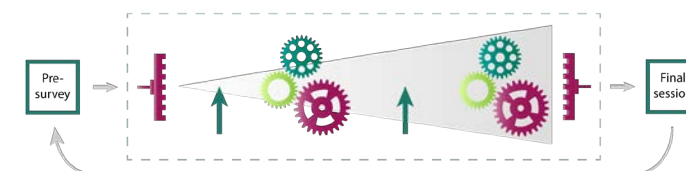


Figure 4: Results of the process are revealed and distributed in final meeting session. The whole process is possible to repeat from the beginning with the help of pre-survey to adjust collaboration needs.

DISCUSSION

More interactive and dynamic science-practice collaboration is needed to implement GI into current planning and decision making practices. In this paper, we explored what kind of cooperation model could be used to improve the science-practice collaboration in order to successfully implement the promises of the GI concept in Finland.

We strongly support the idea of the urban planning and design process as a co-production by scientists and practitioners. With the new collaborative model, we aim to enhance cooperation and bring unexploited scientific knowledge into discussions. We argue that open dialogue and social learning of mixed science-practice groups can improve the quality of environmental research, decision making and urban planning and design.

The model will be piloted during the year 2015 in a project that aims at launching new research dealing with practices and challenges of ecological planning and design of urban areas. The model will be used to define the key challenges related to the design and implementation of multifunctional GI solutions in Finland and to find out what kind of tools and methods are in use or available to overcome these barriers. The model developed here can however be adapted for diverse GI related research and planning activities. Thus, we argue that researchers should expose themselves more eagerly to interaction with practitioners. Collaboration has high potential in generating new methodologies and interactive landscape ecological models suitable for design purposes rather than only for analysis or evaluation of fixed landscape patterns. New ideas can then be developed into best practice solutions supporting sustainable wellbeing of the whole society.

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FROM “GREEN WEDGES” TO “GREEN INFRASTRUCTURE”. BACK TO THE FUTURE?

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ABSTRACT

Evolution of ideas, discourses or theoretical concepts result in changing planning, design or management practices of urban green spaces. These mechanisms are true irrespectively from planning traditions and systems worldwide. The paper describes the evolution of ideas towards green-spaces-planning in Poland, from theory to practice. It aims in discussing the most influential ideas, which directed the green spaces development in Polish cities, in the 20th and 21st centuries. Basing on the literature review, as well as examination of planning documents for selected Polish cities, several such concepts were identified. Amongst them, there are concepts recognised all over the world, likewise those, which are very specific for Polish cities. The performed analysis of concepts allowed us to identify three main groups: (1) Ideas, which are not used anymore, but their physical effects are still evident in urban fabric, e.g.: “Green Wedges”, “Multifunctional Centres for Leisure and Entertainment”, “Indicators for Green Spaces Development”; (2) Ideas still influencing green-spaces-planning in Polish cities, e.g.: “Urban Natural System”; (3) Ideas just emerging in Poland, e.g.: “Green Infrastructure”. Comparative studies of examined discourses allowed us to draw two main conclusions. First, depending on the time, when the particular idea was born and/or implemented, one can observe the dominance of social or ecological discourse, often correlated with specific political, social and economic situation in the country. Second, conclusion is linked to the notion of revivable ideas that were popular at the beginning of the 20th century, and nowadays are gaining interest again. One such example is an integrated approach to green spaces development, actualised through the concept of “Green Wedges” (widespread in the initial stages of planning history in Poland) and Green Infrastructure that is still not well developed, but gaining the attention nowadays.

INTRODUCTION

Evolution of ideas, discourses or theoretical concepts result in changing planning, design or management practices of urban green spaces. These mechanisms are true irrespectively from planning traditions and systems worldwide. The tradition of green-spaces-planning and existence of public recreational spaces in cities date back to 18th century in Europe and North America. The legacy of 18th and 19th centuries is enormous and amongst founders of concepts and ideas important for green-spaces-planning in cities one should mention C.C. Hirschfeld, J.C. Loudon, F.L. Olmsted, E. Howard (Jørgensen 2005). The changes of approaches toward planning and design of urban fabric have been progressing gradually following development of environment related knowledge. The worldwide recognised concepts or plans significant for urban design and green-spaces-planning include: J.C. Loudon’s “Greenbelt Plan” for London, F.L. Olmsted’s “Parkways”, E. Howard’s “Garden City”, C. Perry’s “Neighbourhood planning” or later related to modern movement – Le Corbusier’s “Radiant city” and Radburn’s “Cluster concept” (Laurie 1980, Woudstra 1997, Maksymiuk 2008, 2009).

The principles for planning and realisation of green-spaces in cities have been changing thoroughly the twentieth century in Poland. The changes of discourses over the decades reflect altering social, economic and political circumstances. The paper describes the evolution of ideas towards green-spaces-planning in Poland, from theory to practice. It aims to discuss the most influential ideas, which directed the green spaces development in Polish cities, in the 20th and 21st centuries.

MATERIALS AND METHODS

The carried research consisted of two main phases:

(1) Identification of concepts and ideas that were or still are relevant for green-spaces-planning in Polish cities. In order to search for discourses that usually first appeared

as theoretical concepts a literature review was performed, including Polish and international publications;

(2) Analysis of selected concepts in order to find out their specific characteristics and to understand their influence on design and planning of cities in certain times. The examination of spatial planning documents and strategies for all Polish cities over 200,000 inhabitants was performed (totally 19 cities).

The survey of Polish achievements in regards to green-spaces-planning was accompanied by a comprehensive summary of international historical background for a better presentation of a wider context.

RESULTS

Critical analysis of sources including scientific papers and spatial planning documents for selected Polish cities resulted in identification of 11 concepts that were influential or still are significant for the planning practice. Amongst them, there are concepts recognised all over the world, likewise those, which are very specific for Polish cities. A summary of main characteristics of above mentioned concepts and ideas is presented in Table 1 [at the end of paper].

Historical Concepts and Ideas

The concept of “Green Wedges”, elaborated at the beginning of the twentieth century, dominated perception and a way of thinking about green spaces in cities. It is considered to be the first such comprehensive notion of the urban green spaces system in Poland (Wilski 1990, 1993, Kotaszewicz 1994, Kicińska 2000, Szulczewska, Kaliszuk 2003, 2005, Maksymiuk 2008, 2009). The concept was implemented in 1916 in „A draft regulation plan for Warsaw”, which was the first complete land-use plan for the capital city (Fig. 1). The concept established a radial pattern of green wedges, connecting a hinterland with the city centre (Fig. 2). The main green

spaces functions were to secure a proper air ventilation in a downtown zone and provide city dwellers with places for recreation (as the green wedges mainly included parks, children’s gardens, squares and allotments). This regional approach toward spatial planning was also prominent in Europe and America at that time (Szulczewska, Kaliszuk 2003 after Ndubisi 2002). The “Green Wedges” concept had been an inspiration for generations of town planners. Nevertheless, in the later succeeding land-use plans, the spatial contours of “green wedges” had been systematically limited, the concept has left a trace in a layout of Warsaw green spaces.



Fig. 1. A draft regulation plan for Warsaw, 1916. Source: Kotaszewicz, T., 1994.

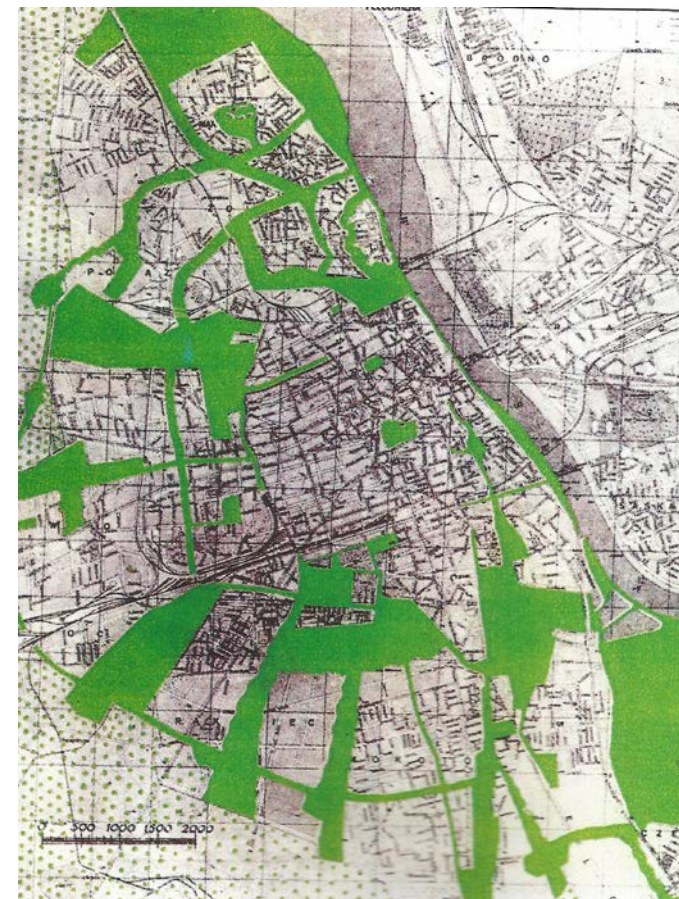


Fig. 2. “Green wedges” as implemented in Master Plan for Warsaw, 1931. Source: Kotaszewicz, T., 1994

The above concept was continued in a further theoretical concept of a row-and-satellite development of Warsaw. It was popularised by edition of a book by Chmielewski and Syrkus (1934) with iconic title “Functional Warsaw”, which later on became a name of the concept (Fig. 3). The authors believed in concentrating city dwellings along transportation routes and dividing them by rows of areas covered by vegetation. The importance of linking urban and regional natural structures

(which were treated with the same level of significance as transport or economic connections) was emphasised.

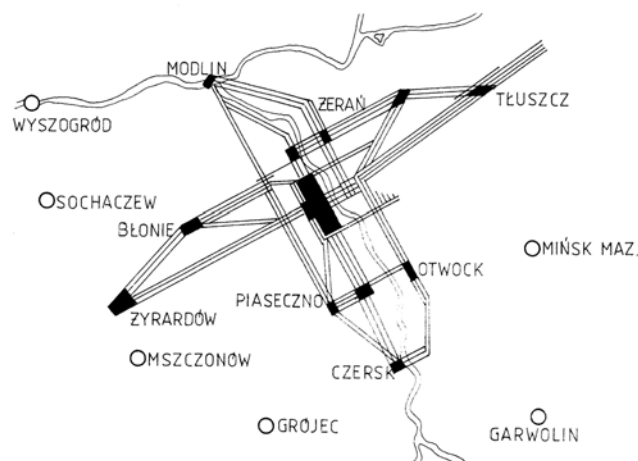


Fig. 3. Functional Warsaw scheme by Chmielewski, J. and Syrkus Sz. Source: Warsaw Master Plans, 1990.

Similarly to the previous concept, the functions of those vegetated spaces were mainly recreation for citizens and improving of the city's climatic conditions (Wilski 1990, 1993, Szulczewska, Kaliszuk 2003, 2005, Maksymiuk 2008). The post-war period for Warsaw was 'a period of reconstruction' after a vast war destructions. This new situation produced a possibility of rebuilding Warsaw according to modern urban ideas and concepts, which at that time in Poland revolved around the political and social issues. The new paradigm actualised through a concept of "Parks of Culture and Leisure" elaborated in the 1950s (Piątkowska 1983, Kicińska 2000, Szulczewska, Kaliszuk 2003, Maksymiuk 2008). The discussed idea derived from the soviet experiences, where the Parks of Culture and Leisure had served as a place for recreation, but combined with a political programme. The programme of such parks was carefully described, aiming at providing cultural entertainment for dwellers

(by dint of cinemas, amphitheatres, etc.) and enhancing sporting activities (stadia, playgrounds, etc.), but also serving a place for propaganda mass events (Czarnecki 1961). Nevertheless, over the years a character of the Parks of Culture and Leisure has been evolving from a socio-political towards more concentrated on recreation, leisure and entertainment. During the 1960s and the 1970s, many parks in Poland were reconstructed in order to serve newer trends in a recreation, what could be considered as a clear shift in leading concepts. The new idea of "Multifunctional Centres for Leisure and Entertainment" appeared, with main aim to provide places for a massive recreation. According to the concept's principles, each multifunctional centre was supposed to consist of several individual leisure objects, such as parks of different programme and area, sports grounds with diverse facilities, etc. Altogether, these elements constituted an important part of the system of open spaces (Piątkowska 1980, Kicińska 2000, Szulczewska, Kaliszuk 2003, Maksymiuk 2008, 2009).

The next concept that gained popularity in the 1970s is "System of Open Spaces in Cities", elaborated in 1968 and further developed in 1974 (Smogorzewski, 1968, 1974). It underlined a structural role of all open spaces in forming the cityscape, not emphasizing recreation significantly (Maksymiuk, 2009).

The 1960s in Poland it's time when diverse norms, standards and indicators concerning a vast range of human activities became popular. In 1964 and 1974 "Standards and Indicators for Green Spaces Development" were implemented. These regulations indicated that recreational areas and sports grounds had to be evenly distributed within a city, following a minimum standard of 8 square metres per inhabitant. In overall city structure, the recreational spaces and sports facilities were thought to cover at least 50 per cent of the built-up area. Additionally, the standards introduced a rule to incorporate basic recreational and sports facilities within a distance of 500 metres for dwellings (Król 1995, Kicińska

2000). Implementation of these standards resulted in a multi-layered hierarchical concept of a recreational system – from neighbourhood level to a whole city. Besides, each level consisted of recreational facilities provided to fulfil different needs (Kicińska 2000, Szulczewska, Kaliszuk 2003, Król 2004, Maksymiuk 2009).

Ideas still influencing green-space- planning in Polish cities

The growing awareness of environmental protection that spread from early 1970s around the world had also influenced Polish planning profession and brought a change in thinking about the city's green and open spaces. Their recreational function, which up to that time had been considered as crucial in elaborated spatial documents, took a second place and was exchanged with an ecological role. The environmental awareness is clearly visible in the appearing concepts and ideas of that time (Stala 1986, 1990). The environmental function of the green areas started to be perceived as key issue, while the recreational one became less important (on a contrary to the previous decades) (Maksymiuk 2008). Promoted ideas and proposed concepts at that time follow 4 key approaches towards ecological planning: (1) sustenance of ecological niches equilibrium, (2) support of functioning ecosystems connectivity in time, (3) maintenance of ecological systems structural connectivity and (4) keeping proper relation of ecological systems to existing abiotic conditions (Andrzejewski 1980, Kaliszuk 2003).

The reflection of implementation of ecosystem theory into a planning process was actualised through a concept of the **Urban Natural System** (UNS) (Szulczewska, Kaftan 1996). The UNS underlines the importance of a protection and, at the same time, formation of ecological systems

in order to secure proper living conditions for city dwellers (mainly in a relation to climatic condition related to air ventilation) (Szulczewska, Kaliszuk 2005). In the theoretical concept, the UNS structure consist of

areas important for climatic, hydrological and biological natural processes – the so-called “core areas”, which are supplemented by “supporting areas”, crucial only for one or two functions (e.g. air ventilation and hydrology). The provision of recreational function was not fully recognised originally, and it was supposed to be additional, however green spaces were considered as linkages between UNS structural elements. In Warsaw the UNS has been implemented in the spatial policy under the name of Warsaw Natural System (Fig. 4).

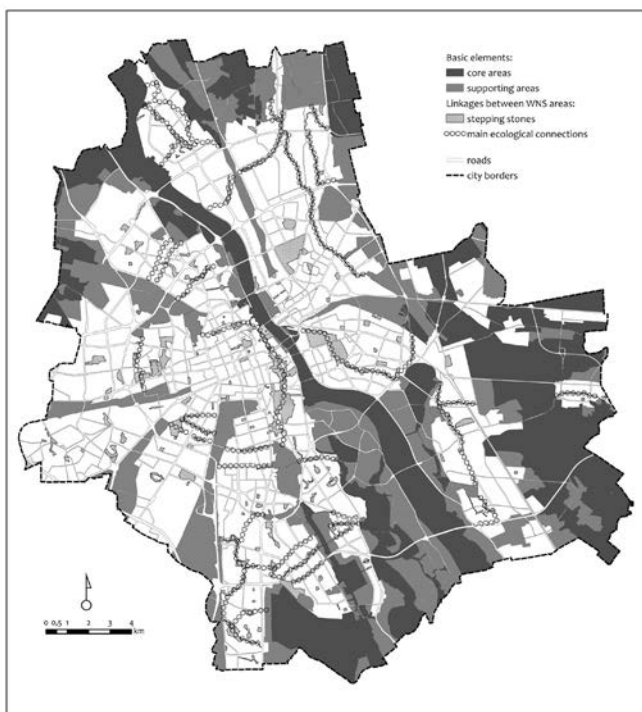


Fig. 4. Warsaw Natural System as implemented in Warsaw Spatial Policy, 2006 amended in 2010.

The notion of ecological systems was developed in several cities in Poland, however sometimes under different concepts' names. Thus, in 2006 in Warsaw, the Urban Natural System was applied as Warsaw

Natural System and it implemented into a city spatial policy (amended in 2010). Also in previous plans and strategies that had been elaborated for Warsaw since 1998 there were references drawn towards Urban Natural System. It should be reckoned as a positive experience, however at the same, this concept and regulations cannot ensure an efficient level of the recreational provisions for Warsaw dwellers. Moreover, it should be mentioned that a spatial range of the Warsaw Natural System, as it was delimited originally compared to today's layout, is greatly limited.

A specific transformation or re-definition of main UNS objectives can be found in an “**Ecological Framework**” concept presented in 2002 (Przewoźniak, 2002). The author does not assign individual structural elements for specific functions (biological, hydrological or climatic), but underlines that properly delimited ecological framework will sufficiently regulate these processes. However, integration of regional and local ecological frameworks and providing connectivity between those structures are strongly stressed in the concept's objectives (Kaliszuk 2003). The examples of application of this concept can be found in cities such as: Gdańsk, Gdynia, Elbląg or Tczew.

Simultaneously to Urban Natural System theoretical concept, a different application concept of “**River Parks System**” (1996) was proposed for the city of Cracow (Bohm 1996, Hrabiec 2007). It introduced a new system of green spaces, in which city hydrological network had been its backbone. The concept assumed integration of ecological, social and flood protection functions provided by green spaces

The next stage in the evolution of green spaces concepts started with an international acceptance of sustainable development idea as a leading policy. A general idea of “Ecological City” or “Sustainable city”, has actually acted as a base for two crucial concepts: “green city” and “compact city” (as both of them found themselves around

ecosystem theory) (Szulczewska 2002). However, the two concepts differ in their objectives. The “green city” concentrates on the relation between the built-up areas and natural spaces important for natural processes, while the “compact city” depicts on the model of ecosystem functioning. The examples of applications of both concepts can be found in Warsaw, where “green city” advocates promote protection of and development of green spaces and “compact city” supporters choose densification of urban fabric at the expense of green areas.

New ideas just emerging in Poland

Concept that is slowly gaining attention in Poland nowadays is “**Green Infrastructure**” (GI). However, the concept has been identified since over a dozen of years and in most European countries and in America is well recognised and applied (Benedict & McMahon 2006, Davies et al. 2006, Hostler, Allen, & Meurk, 2011; Mell, Henneberry, Hehl-Lange, & Keskin, 2013; Mell, 2014), in Poland it is still rather discussed by academics than practitioners (Giedych et al. 2012, 2014, Szulczewska 2014, Drapella-Hermansdorfer 2014, Pancewicz 2014). The EC Green Infrastructure Strategy (2013) brings forth the need to implement this concept in countries where GI concept has not yet been adopted, so it marks a new trend also in relation to urban planning and more specifically green spaces planning.

DISCUSSION AND CONCLUSIONS

Comparing leading 20th and 21st centuries' discourses concerning green-spaces-planning in Poland, it can be stated that the main emphasis has been moved from their recreational function to their natural function (important from ecological point of view). Some of the Polish concepts can be easily linked to ideas recognised or promoted worldwide. For example, in objectives of Functional Warsaw concept influence from Corbusier's Radiant city can be traced.

Also authors of River Parks System point Emerald Necklace by Olmsted as their inspiration.

The performed concepts check-up allowed us to identify three main groups of ideas, which can finally be classified as:

(1) Ideas, which are not used anymore, but their physical effects are still evident in urban fabric, the so-called historical concepts e.g. “Green Wedges”, “Parks of Culture and Leisure” or “Multifunctional Centres for Leisure and Entertainment”;

(2) Ideas that have been promoted in the past, but they are still influencing green-spaces-planning in Polish cities, e.g. “Urban Natural System”, “Ecological Framework” or “River Parks System”;

(3) “Fresh” ideas that are just emerging in Poland, such as Green Infrastructure.

Comparative studies of studied concepts allowed us to draw two main conclusions. First, depending on time, when the particular idea was born and/or implemented, one can observe the dominance of social or ecological discourse, often correlated with specific political, social and economic situation in the country. Second conclusion is linked to the notion of revivable ideas that were popular at the beginning of the 20th century, and nowadays are gaining interest again. One such example is an integrated approach to green spaces development, actualised through the concept of “Green Wedges” (widespread in the initial stages of planning history in Poland) and Green Infrastructure that is still not yet developed, but gaining the attention nowadays.

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Tab. 1 The review of studied concepts and ideas related to green-spaces-planning in Poland in 20th and 21st centuries.

No.	Name of concept / idea	Period of time / Year of elaboration	Author(s) / Promotor(s) in Poland	Scale (regional/ city/local)	Main objectives	Application / Implementation	Dominating discourse / function
1.	Green Wedges	1920s	Tołwiński T. et al.	City	- green spaces linkages between city centre and suburbs - recreation and air ventilation	- 1916 – implemented in a Draft regulation plan for Warsaw; 1929 implemented in Master Plan for Warsaw -	Recreational Hygienic
2.	Functional Warsaw	1934	Syrkus S., Chmielewski J.	City / regional	- minimising of conflicts between functional zones - zones: dwelling and spa, agrarian, orchard, horticulture, sport and industry	- theoretical concept prepared for international architecture contest (CIRPAC)	Structural
3.	Parks of Culture and Leisure	1950s – 1960s	Majdecki L.	Local (particular type of green spaces)	- providing of spaces for mass events - enhancing sporting and cultural activities (e.g. stadia, amphitheatres, etc.)	- designed and constructed in large cities all over Poland, e.g. in Warsaw and Katowice	Political Social Recreational
4.	Multifunctional Centres of Leisure and Entertainment	1960s – 1980s	Piątkowska K., Kicińska E.,	Local (particular type of green spaces)	- creation of hierarchical system of green spaces fulfilling various recreational, cultural and sports needs of city dwellers	- Warsaw Multifunctional Centre of Leisure and Entertainment – Moczydło	Recreational Social
5.	System of Open Spaces in Cities	1970s – 1980s	Smogorzewski J.	City	- open spaces as main structural elements shaping the cityscape	-	Structural
6.	Standards and Indicators for Green spaces Development	1970s – 1980s	Ministry of Spatial Economy and Environment Protection	City / Local (by providing legal basis for construction of specific green spaces)	- ensuring the proportionality between built-up and green areas in cities (8 – 15 sq. m per inhabitant) - providing diverse recreational and sport facilities	1964 – Ordinance no. 118 1974 – Ordinance no. 9 Legally binding regulations till 1984	Recreational Social
7.	Urban Natural System	1996 – onwards	Szulczewska B., Kaftan J.	City	- enhancing and maintaining of natural processes	- implemented in Warsaw spatial policy as Warsaw Natural System (2006)	Ecological (climatic, hydrological, biological)
8.	Ecological Framework	2002 – onwards	Przewoźniak J.	City	- maintaining the continuity of urban and regional ecological framework - enhancing and maintaining of natural processes	- examples of implementation in Gdańsk, Gdynia, Tczew and Elbląg	Ecological Structural
9.	River Parks System	1996 – onwards	Błachut et al.	City / Local (particular type of green spaces)	- incorporating of vacant land along rivers and streams into green spaces system to serve as recreational spaces - providing natural areas for flood protection	- implemented in Cracow spatial policy	Recreational Structural Flood protection
10.	Green Infrastructure	From 2010	Szulczewska B., Kowalski P., Giedych R.,	All scales from national through regional, city, local and site	- multi-functionality of spaces - structural and functional connectivity of GI elements - multi object approach	Not implemented yet, still discussed as theoretical concept	Multifunctional

NATURALISTIC DESIGN – LIMITED SUSTAINABILITY OR LAST CHANCE ACTION

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ABSTRACT

Greenery designed around buildings gives us the opportunity to shift the local biodiversity, especially if the building is expected to gain sustainable certification, which could be achieved by applying various methods, taking the BREEAM method as an example. This paper demonstrates three designs created by the present author in accordance with the demands of the BREEAM method. The designs were prepared for buildings in three Polish cities – Katowice, Krakow and Lodz. In each case, the approach adopted was affected by the different local conditions, for instance, a postindustrial place with a number of local species will differ from a city centre with lawns and impervious surfaces. However, it seems to be possible to bring the local native species to such areas, and thus support the local wild life there. The choice of plants was made as a result of the analysis of the typical plant communities present in the region and the examination of nurseries with accessible species. The plants selected for the designs represented the species typical for the local dry grasslands – if possible, or included their ornamental forms. Such use of local plants in the design may give rise to questions relating to the design ethics – Will the use of ornamental forms still support biodiversity? What influence might be thus exerted on the local plant communities? When is it worth trying to find native species for the design? Is the whole idea of implementing such designs honest or rather deceiving on the part of the investor towards nature and society? With regard to the problem, a more detailed discussion should be taken, especially as the aesthetic value of greenery designed in this way is comparable to that created with cosmopolitan ornamental plants.

INTRODUCTION

Sustainability is a popular slogan which supports a sensitive approach to the environment. At the same time, however, this could be misleading the technical implementation seems to be more important. The more human expectations are considered, the less natural habitat is achieved. In our civilization the race is on to reach new technological achievements. An artificial environment created in this way will imitate certain natural features but with inadequate structural interaction with the natural environment. Nature shows that adaptation and balanced interaction will give durable existence. Ian McHarg proves that the principle also applies to urban planning (McHarg, 1969). Almost half a century later we have not made any progress, in spite of all the sustainable development programs and environmental protection plans. The protection itself is not sufficient any longer to preserve the environment for future generations. The overwhelming loss of biodiversity needs taking adequate action to restore it to our landscape to the largest possible extent. The term “adequate” means “compatible with the conditions”; it does not mean “tending to achieve the original state”. Sustainable development gives the chance to people and nature. In order to increase the endangered biodiversity one can apply the program of ecosystem services providing both measurable parameters and usefulness for human health (Fisher et al., 2009). It is hard to convince investors to spend money on the greenery corresponding to the local biodiversity, since such green elements are usually less ornamental than a typical nursery offer. However, the solution here seems to be the promotional system of the European investment certifications called BREEAM (BREEAM, 2013). The sustainable approach to greenery design needs a review to reveal what corresponds with biodiversity protection and what raises objections.

NATURE VERSUS HUMAN HABITAT

An economic approach to nature could be debatable. We are aware that nature should not be treated only as a “uniform commodity” with measures of size compared to a unit of population and the cost of land and expenses on development (McHarg, 1969). In spite of a large number of regulations and directives supporting biodiversity nature still appears to be perceived as mass with no individual form. The main interest is energy saving solutions and CO₂ reduction facilities. Nature is a living structure, able to choose a better solution, change under pressure, and survive in spite of human creative ideas. If only we could create a self-sufficient greenery. The immediate answer seems to be aesthetics. We need clean and tidy parks with no weeds, insects or bacteria, providing safety for our children, comfort for rest and fun, and plenty of colours. It is a paradox is not generally noticed, but the more artificial the environment is, the more effort and money are needed to maintain it. Generally, beauty is a valuable target and not always synonymous with health. People create their own environment with convenient paths, comfortable beds and antibiotics, detergents etc. It is difficult to say now what is better to us – the stuffy comfort we are used to or the wilderness bringing allergy, dust and microbes. The answer is not obvious. On the one hand, experts mention some advantages of the air quality, positive psychical and physical response owing to physical activity and social contacts (Sjerp de Vries, 2010). But we must often stay in our cubic work and home spaces and go for walks in the cubic and regular spaces of streets and modern parks. I wonder if it is proper that we prefer to live in the same kind of space – legible, easily-oriented, and understandable. Taking into consideration the recreation of our bodies, I would suggest considering the influences of affordances overfilling the space around us (Rostanski, 2012). Our minds are gripped with them all the time in city life. The situation, however, changes when we enter a wild forest. There is almost nothing to tell us about its functionality or usefulness. We are not obliged to respond immediately to any element of the landscape.

We do not have a sense of direction, but it does not matter as we are not in a hurry. We can take a rest, at last.

If there are some measurable benefits from nature and if there are elements of designed greenery comparable to them exerting a positive influence on us, it is worth assessing their compatibility. The pragmatic approach leads to three issues in design work. The first is the demand of the biotope or the green area factor. The second is the ecosystem services – the gate for the economic approach in landscape planning and design. The third is the investment certification system which supports biodiversity by means of measurable facts.

GREEN AREA FACTORS

It is easy to find some detailed information about green area factors used in Berlin (BAF Biotope Area Factor), where ecologically effective surfaces are referred to the total investment area. Another similar example is the Green Space Factor used in Malmö. Although in both cases the native species are disregarded, the idea of providing water permeable surfaces and promoting greenery surrounding houses is praiseworthy. Only in Seattle (Green Space Factor) the use of native plants is additionally privileged, but the plants can be replaced with drought-tolerant species with any provenience. It is difficult to say how the green area factor is applied in other countries. In Poland, for instance, the values of native plants are not considered in regulations concerning the investment area plant cover.

ECOSYSTEM SERVICES

The concept of ecosystem services attempts to link the functioning of natural elements to human welfare. The definitions of ecosystem services are not compatible, and thus the very idea is open to interpretation (Fisher at all.2009). Taking into account biodiversity issues, the most appropriate definition states that ecosystem services are conditions and processes through which

natural ecosystems, and the species that make them up, sustain and fulfil human life (Daily, 1997). According to Fisher’s definition, ecosystem services are rather the aspects of ecosystems utilized (actively or passively) to produce human well-being. They are ecological phenomena that do not have to be directly utilized. The impact of nature is complex and the benefits obtained from ecosystems and connected with biodiversity include the following: medicinal resources, pollination, biological control, habitats for species, habitat stability, genetic storage (TEEB, 2011, Fisher at al., 2009). Besides, people may benefit also from landscape with the diversity of ecological components, plant communities, such as woods of different kinds and meadows with various aspects. It is up to the local authorities to emphasize specific services in the local regulations. Given this, it may be concluded that supporting biodiversity depends on people’s engagement and their determination to work against the loss of diversity.

CERTIFICATION METHODS WITHIN THE SCOPE OF SUSTAINABLE DEVELOPMENT

With the development of the idea of sustainability there have appeared several methods of investment assessment encouraging solutions and technology which support sustainability. The LEED certification (Leadership in Energy and Environmental Design) developed by The Green Building Council in the USA is compatible with the above-mentioned Green Space Factor from Seattle. The assessment entails the local conditions and the influence caused by the investment, as well as the water management, the greenhouse gases emissions, the use of materials, particularly the local ones, the quality of the environment inside and outside the object and, finally, the innovations. Although biodiversity is of marginal significance here and may not be mentioned at all, the assessment score could be quite high owing to the dwelling technological solutions. The same holds true for the French HQE (High Environmental Quality) elaborated at the Centre et Technique du

Bâtiment (CTSB – Center for Scientific and Technical Building) as well as for the Green Star, described by The Green Building Council of Australia (GBCA) in 2002.

These important assessment systems support the development of ecological technology. However, the best promotion of biodiversity is offered by the BREEAM (BRE Environmental Assessment Method) elaborated by The Building Research Establishment (BRE) in Great Britain. The criteria applied are as follows: the used technology and materials, implementation process, maintaining after implementations, use of media, energy, transport, recycling and neutralization of contaminations, people's welfare, nature protection and innovations. They clearly promote the convergence with sustainable development, which becomes the proof of the design quality. The precision of the requirements applied should have a positive influence on biodiversity protection or even its increase. Before the actual construction starts the site should be assessed with regard to the presence and quality of the natural habitats, of the native plants and of the environmental support for the native animal species, which proves that a positive change has been made in the state of the environment in connection with the investment implementation. It is also suggested that the shifting biodiversity should be maintained by preparing a special program for several years after the actual implementation to provide stability of the new ecosystem elements. The ability of the created habitats to survive even without a watering system might be achieved with the use of native plants. It is good practice to examine the local natural communities and choose plants typical of them. Besides, it is important to adjust the created habitats to the local conditions. Basically, the BREEAM assessment refers to the number of native species. The exception could be introduced plants serving as food for native animals. Sometimes introduced plants may create a valuable ecological niche, a habitat encouraging wild animals to settle within the construction area. Thus, extra points could be received for the ecological profit for the animals. The construction process in relation to

greenery must be supervised by an experienced ecologist and designer. Even if all the demands are hard to implement, the more of them will be met, the more points will be gained. The BREEAM certification seems to be the most useful instrument to make investors more aware of the problems related to biodiversity loss. A high score gained gives not only prestige, but also opens up possibilities for sources of financial support for further investments, which is a clear profit indeed.

CASE STUDIES

There were chosen three examples of BREEAM implementation. They were designed by the author of the paper. Designs are different according natural context. First refers to urbanized postindustrial area with existing plant cover, mostly ruderal but native and 72 species were added. Second refers to urbanized area with only ornamental plants on highly limited land and 36 species were added. Last refers to urbanized area with number of ruderals on highly limited land too and 115 species were added. The first office building in Poland to receive the BREEAM Outstanding Certificate is called the GPP Business Park and was built in Katowice in 2012. Its location had characteristic features of a postindustrial place. The area used to belong to a zinc smelter and the soil was so contaminated that the number of the local species was not impressive. The ruderal species found on the construction area did not represent any valuable natural community. The office building has a limited area with vegetation on the ground, mainly the car park, roads and the building itself. Most of the vegetation was planned on the roofs and walls. The roof of the building was covered with extended sedum species plantations. An open recreational space was designed between the buildings on the garage roof. Lawns and flowerbeds were created with a mixture of native and introduced plants. The green walls have the form of gabions and the cheapest solution was to plant climbers there. The design work started with a review of potential flora and natural plant communities in the



Figure 1: GPP Business Park, Katowice. Flowerbed with native plants and lawn. Illustrations: author – K.M.Rostanski



Figure 2: GPP Business Park, Katowice. Initial composition with native plants. Illustrations: author – K.M.Rostanski



Figure 3: GPP Business Park, Katowice. Gravel accented planes with dry grasslands plants. Illustrations: author – K.M.Rostanski



Figure 4: GPP Business Park, Katowice. Composition with native plants and lawn. Illustrations: author – K.M.Rostanski

region. Whereas the construction area was impossible to afforest, it was possible to create habitats similar to those found in the border zone of the local form of beech forest (*Luzulo pilosae-Fagetum*) and oak-hornbeam forest (*Tilio cordatae-Carpinetum betuli*) (Matuszkiewicz, 2008). These syntaxa are not the only ones in the region but they seem to be related to the most proper biotopes on the conditions created in the construction area. Their localities could be indicated within the distance of a few kilometers. Hornbeam (*Carpinus betulus* L.), elderberry (*Sambucus nigra* L.), mountain ash (*Sorbus aucuparia* L.), yew (*Taxus baccata* L.) and birch (*Betula pendula* Roth.) are the local species common in the above-mentioned communities. On completing the construction, the area will be exposed to the sunshine like a natural meadow, only partly shaded at certain times, so most of the perennials selected for the flowerbeds come from the nearby meadow communities and green cover of limestone rocks found within the aforementioned distance. It was difficult to find a nursery with common plants. The solution was to examine nursery offers and select species naturally occurring in the region, according to the key for the determination of Polish native plants (Rutkowski, 2006). The rules of nature conservation in natural locations require the use of plants from the local gene bank. This condition is unrealistic in our situation as nurseries mostly offer ornamental forms of native plants and probably never those of the local genotype. Some local species accepted to the project are as follows: *Ajuga reptans* 'Uciekinier', *Briza media*, *Carex flacca*, *Deschampsia caespitosa*, *Festuca ovina*, *Thymus serpyllum* and *Veronica spicata*.

A similar approach was adopted in the design for Krakow's BUMA Five Office Building, located at the city center. After a review of the local plant communities, the choice of plants to be used was affected by a very limited green area and lack of possibility of planting trees caused by the fire regulations. As a result, it was decided to use perennials common to the meadow communities and dry grasslands from the Polish southern uplands.

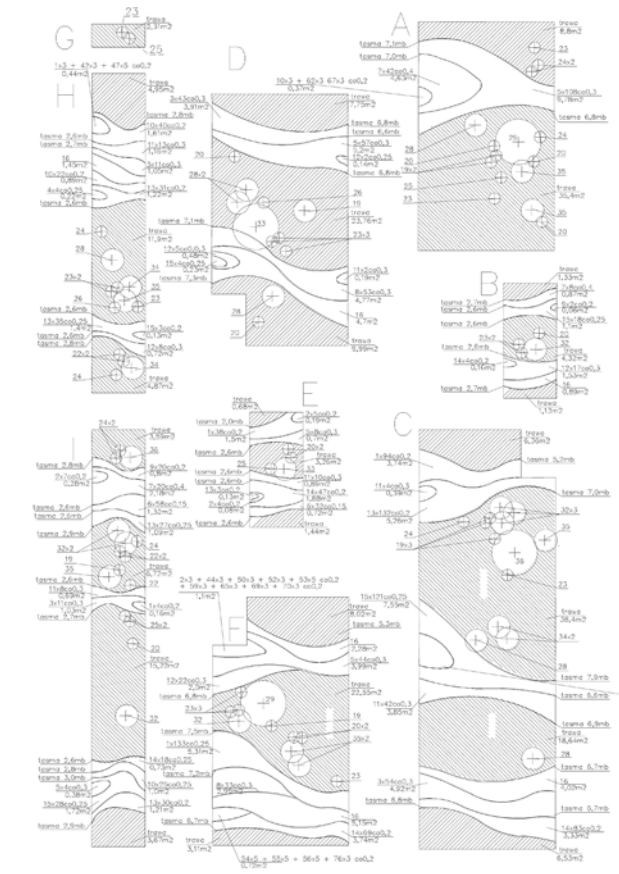


Figure 5: GPP Business Park, Katowice. Plantation design on the car park roof. Illustrations: author – K.M.Rostanski

A few forms of ornamental local species were selected from the local nurseries. An important value of the existing greenery was the introduced shrubs of *Buddleja davidii* Franch, which in the warmer parts of Europe are invasive but in Poland suffer from too cold a climate. As the shrubs provide an important source of nectar for butterflies in the autumn, maintaining butterflies in the

area, some of which are quite rare, was one of the targets of the construction process. The greenery designed has enriched a number of native plants suitable for butterflies. The pattern adopted followed the natural mixture of plants on the meadow or on the forest floor. The reason behind was not only aesthetic but also protecting the composition from possible drought or disease. Thus, even if certain species prove weaker, all the composition form will be preserved. Artificial habitat on the area allowed to use small number of designed plants.

In the third case of a shopping mall in Łódź the location is also in the city center. Complying with the demands of the local authorities and the fire department, a decision was made to plant the spherical form of *Acer platanoides* 'Globosum' along the street. The trees need, however, special root barriers to protect the underground utilities. On the roof and on the ground floor there are designed flowerbeds with mixed patterns of perennials and grasses. As local plants, with their special appearance, are less ornamental than typical garden flowers, in order to make them more acceptable to the users, some introduced plants were added there as accents. To reach good score there were needed over 100 species for design.

CONCLUSIONS

To sum up, some scientists seem to disregard a variety of habitats as a reason to protect native plant communities and, as a consequence, to protect biodiversity. Thinking of biodiversity as a variety of any plants or animals without relating them to their home region will lead to homogeneity of natural elements across the whole climate zone around the world, which does not mean, however, the same level of variety. Many of the introduced ornamental plants behave like invaders and diminish the variety by destroying natural communities and reducing their number. All methods supporting the local biodiversity shift seem to be worth employing. Even in city centers, depending

on the situation, local species could be preferred in designs, with introduced ones serving only as accents.

On the other hand, such an attitude might be disputable. Does the use of ornamental forms of native plants still support biodiversity? How could they influence the local plant communities? They could mix with them, thus changing the local bank of genes. Even the typical species forms are mostly of strange provenience. Under what conditions is it worth trying to find the native species for a design? The local conditions and social expectations may vary depending on the place in the urban structure. Finally, building greenery with ornamental forms of native species and creating reduced communities with very little chance to become self-controlled ecosystems might be a mistake and even a fraud towards the investor and society. The issues mentioned above are open to discussion.

All things considered, the truth is that greenery designed with local plants does have a comparable aesthetic value to that made with cosmopolitan ornamental plants. Besides, compositions with local plants can provide the "final touch" in a building design responding to the local identity and thus demonstrate the regional uniqueness – variety crowned with biodiversity. To mention a few other benefits from variety, with a naturalistic composition it can be free from everyday affordances, and provide us with much complete rest in this speeding up world. Also, it does co-operate with the local nature system. And finally, by bringing us tangible profit, variety gains its right place in the free market society.

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OPPORTUNITIES AND CONSTRAINTS FOR IMPLEMENTATION OF GREEN INFRASTRUCTURE NETWORK – THE RESEARCH ON MEDITERRANEAN HISTORICAL TOWNS IN CROATIA

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ABSTRACT

Research on changes of the urban forms, spatial edges and their relationship to the surrounding landscape can specify and direct the future development in urban areas. Therefore this paper emphasizes the basic analysis for overcoming the possible constraints in development of Green Infrastructure (GI) network. The case study of Mediterranean towns in Croatia has indicated different natural and social features during historical development which have influenced the development of GI. These characteristics (ancient roman division of agricultural land, visible in structural division of urban and landscape areas; human behaviour connected to the historical usage, which is connected to the preservation of some present green areas – woodlands used for the picnic areas...) are vulnerable to changes and without proper analytical approach and management they can be easily erased. So, this paper indicates the possibilities for transforming the constraints of historic conservation into the opportunities for future development of GI network within the Mediterranean towns. The historical layers under the urban surface (water features canalized under the town streets connected to the riparian landscapes in the region) need to be explored and in order to preserve the material and non material heritage and to reevaluate its ecological and historical value. Even though ecological investigations usually deal with its connectivity, stepping stones model can occur as a problem in GI implementation. Distances between patches are important issue but must be associated to the specific regional and natural character to achieve an effective implementation of GI as a model of sustainable urban and regional development. Their distance should be analysed, not only for wildlife functions but as a possible social usage in order to develop sustainable urban and regional development.

INTRODUCTION

Open spaces within the towns are very important urban elements in a holistic approach to the urban area. In this view it is very important to comprehend them as systems in which all open urban spaces are inside the urban area for a very good reason and their locations are not just “left overs” in the process of city development. Such approach is very important for development of urban sustainability as well as overall development of the cities and it can provide resources for future generations. In this process, the consideration of historical development can be very helpful in deciding about the structure and the function of the open urban and nonurban spaces within the future structure (form) of green infrastructure.

DEFINITION OF GREEN INFRASTRUCTURE

European Commission defines green infrastructure as a network of green spaces, habitats and ecosystems within a defined geographic area which can range in size from an entire country to a neighbourhood encompasses wild, semi wild and developed environments (from wetlands to the urban parks). It is in function of ecosystem services too human quality of life (European commission, 2013).

This definition is connected to the terminology used in many researches in last fifteen years. Therefore Maruani and Amit Cohen (2007) note that the researches can generally be divided into two approaches: those that address human needs (planners) and those who cover environmental qualities (ecologist and conservationists). Green infrastructure integrates these aspects into one term which elements and aspects can be traced in different terminology used by different authors: green paths, greenway model (Toccolini, 2004; Conine, 2004; Cawood and Somers Smith 2006; Teng et al. 2011), green network (Teng et al 2011; Mahmoud and El Sayed, 2011). Terminology for the elements are ecological corridor, green wedge (Mell, 2009; Gazvoda, 1999;



Figure 1. Roman division of the surrounding landscape of ancient town Zadar (Jadera). Source: Suić M. 2003. Antički grad na istočnom Jadranu. Zagreb, Golden marketing: 528 p.



Figure 2. Remains of roman division, town Zadar

Source: Hrdalo I. 2013. Green systems in the evolution of the open space of selected Mediterranean towns. Doctoral dissertation, Ljubljana, Biotehniška univerza: 247 p.

File name: Remains of roman division, town Zadar

Levin et al., 2006; Tzoulas et al., 2007; Tannier, 2011) and green belt (Gallion and Eisner, 1963; Mumford, 1988; Amati and Yokohari 2005, Tang et al., 2006).

Term green Infrastructure was used by several authors (Tzoulas et al 2007; Sandström, 2002; Mell, 2011; Hoestetler, 2011). Tzoulas et al (2007) emphasized that this term is improved definition of the urban green system since it includes, besides urban spaces, non urban areas and therefore the term city is viewed in the wider context of region in which it was located. Moreover, Valdermulen (2011) emphasize social role of green infrastructure, the aspect of green infrastructure which this research noticed that it was important.

Tzoulas definition of green infrastructure was inspiration for this research because it gives us opportunity to start from the city and its surrounding region by



Figure 3. Remains of roman division, regional area of town Zadar. Source: Googleearth, 15 May 2015

emphasizing not only biodiversity and ecology, but social functions which are concentrated inside the urban areas with a long period of development.

URBAN GREEN INFRASTRUCTURE AND LESSONS FROM THE PAST

Development of urban green infrastructure is a process which has to have many different inputs that need to be integrated into its design. Besides geology, geomorphology, climate, vegetation, energy, transport etc. it can be very helpful to determine a historical

urban development and specificity of the urban growth through the past. In this analytical approach open urban spaces can give us very interesting and useful information for decision directing. Historical usage of the open space can be very important for future urban usage even though the functions of the open space has been developed and specialised through the centuries (mainly through the twentieth century). The important issues for green infrastructure, in terms of its ecological value or sustainable usage, can be addressed in the historical town in different periods and can assist to determine green infrastructure development. Other questions regarding its form can aid to determine the structure of the future form of green infrastructure.

METHODS OF RESEARCH

Research was based on the extensive literature review which included different aspects of green infrastructure. This theoretical study encompassed different aspects of study – ecological values, structural functions and social character of green infrastructure. Literature research was also based on the study of the urban areas (urban green infrastructure, green system....) and of the green infrastructure (concerning wider areas) as a part of European Union strategy 2020 (European parliament, 2013). Study of the development of fifteen settlements on Mediterranean Croatian coast was made. After selection, detailed exploration was made on few of them using literature and historical maps (for certain periods). Analytical comparison of results (textual and graphical form) gave us interesting information usable for synthesis phase. This research method gave number of information for comparison and further syntheses. In this phase the set of guidelines for further development of concepts of urban green infrastructure has been identified.

RESULTS AND DISCUSSION

Research on the historical development of the open spaces of the towns on the Croatian coast gave some

inputs which can contribute to the development of the sustainable development of the town in the future. Analyses of sustainability of the historical town by the principles of the sustainable development (Gafron et al. 2008) led to the conclusion that historical towns were very sustainable. Main open spaces were always located on the best location inside the urban parameters because they were the nuclei of the town and the most frequently used spaces inside the urban area. Therefore, their location was the best place for all year and all day usage (according to microclimate, ambient, availability ...). Therefore, almost all historical squares have a very high level of ambience values. Ecological value of the urban area was always at the highest level because they were always worked with nature (not against) what can be considered as sort of anthropocentric ecology. Relationship between the town and its background was always very synergic because town planners were very much aware of their causal relationship. Without food which was growing nearby, city residents could not survive. Everyday usage of the surrounding areas was, between other things, for walking, recreation, leisure, love... (Mumford, 1988; Whiston Spirn, 1985; Sheperd, 2002). Urban footprint had to stay in smaller parameters because it was connected to the security issues and defensive wall, but also with an easy access to the surrounding natural and agricultural landscape which was part of normal everyday life.

There are many aspects worth to explore for finding information usable for development of sustainable urban town of tomorrow. This research conducted few important data, specific for explored towns, which has to be considered in development of green infrastructure.

The water (sea, rivers) was significant element of the urban area because it was very important as a transport or communication media. At the same time, urban areas were always developing adjusting to the water features and were using it in different aspects (Mumford, 1988). In this kind of circumstances, open public

spaces were developed next to the water elements and were used as a places for gathering and therefore were important elements of social urban life. Many interesting information connected to the water features occurred during this research. Analyses of the historical development showed that in a certain period of urban development, some towns started to overlay streams that were a part of landscapes and were very important elements of urban life. These elements still exist inside of the urban morphology but are hidden by the built urban environment (Town of Rijeka). In some parts of the urban parameter they have a high potential for reconstruction because they are canalised under streets. Today, these layers can become key elements in urban sustainability because they are connected with riparian landscapes of the surrounding area and therefore they can become a backbone of green infrastructure (European Commission, 2013).

Historic land division from different periods of development is cultural heritage of the Croatian coastal towns. If this division is more than 2000 years old and is part of Ancient Roman agricultural land division in a form of a net (Towns of Zadar (Figure 1, Figure 2, Figure 3), Split, Pula, Stari Grad), there should be a strong awareness of this structures in the space and its value within the town planning process (Suić, 2003; Milić, 1990). In the field areas, this net is sometimes presented in a form of stonewalls, or paths. Also it can be a part of urban structure (roads, blocks) (Figure 2). These elements are very important for holistic approach of sustainable urban development because sustainability is connected to the resources for future generations (Figure 3). Therefore the cultural heritage should be comprehended as a valuable element for protection and its possible preservation should be part of urban and non urban landscapes in the future. As valuable landscapes are considered to be an integral part of the green infrastructure these elements can be important key figures for its development. As many research have already

showed, ancient divisions have ecological value because they can be considered as habitat for certain species, so its overall role is even bigger (Collier, Marcus, 2013; Duchoslav, 2002). Austro-Hungarian maps have been a great source of this kind of information for some towns that have been mapped primarily during that period (Town of Dubrovnik). In comparison to the regular roman division, these elements show a different structure (mostly irregular/organic) and can be determining factor for structure of urban green infrastructure.

Social usage is also very important element for consideration of the future GI development. Historical usages of the space can insight the interesting information which can be included into green infrastructure development. Research of the town of Zadar showed the interesting information on the usage of the woodlands Vruljica and Maestral. In eighteen and nineteen century, it was used as a traditional place for picnics (Arbutina, 2002). This area can be tracked within the Italian regulatory plan (1939th year) for the town where its surface is one of the key open space urban elements (Valle de Bora, Valle de Maistro). Even though this plan was not implemented, this area has been included within the future plans of town, but some parts of it disappeared with illegal construction development. Such places have a certain historical value and, besides other factors, can be protected as meaningful or associative areas.

COMPARISON OF THE RESULTS WITH CHALLENGES OF IMPLEMENTATION OF GREEN INFRASTRUCTURE PRINCIPLES

Results specified in previous chapter have shown that certain urban and regional area have many specific spatial and social aspects which have to been considered. This research emphasizes that historical development, as well as natural background develop different sets of issues addressing development of green infrastructure. Therefore, analytical process is crucial for holistic approach of the town research. In these aspects

of consideration it is very important to consider ecological connectivity and patches distances which are determined through the flora and the fauna. The broken ecological corridor or the stepping stones distances have to be specified by the certain location, in a specific climate area and determined by the relief configuration. These data have to be overlaid by a very complex set of information from natural or social spatial character (just some of them were mentioned in previous chapter) in a purpose of holistic approach to the space.

CONCLUSION

Green infrastructure is very important tool for future development of the towns, especially those with huge historical heritage, such as Croatian coastal towns. The successful implementation of green infrastructure within them is closely connected to the analytical approach of the ecological, structural and social aspects. Also, to get more detailed information it is very beneficial to investigate history of spatial development with many hidden information, very advantageous for sustainable future development. These information are derived from the Croatian material and non material heritage which must be additional aspect for green infrastructure protection. In this way, green infrastructure can become a tool for multipurpose protection, beneficial for man and other living organisms on the Earth. So if, besides biodiversity, green infrastructure emphasizes the human quality of life (European commission, 2013), some additional aspects should be taken into the consideration, such as landscape visual qualities (with natural and cultural elements), spatial identity and material and non material heritage.

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BIODIVERSITY IN PORTO: A COMPARATIVE STUDY BETWEEN TWO MAJOR PUBLIC GREEN SPACES

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Habitat Mapping, Space Morphology, Urban Flora, Urban Fauna

ABSTRACT

Green spaces reveal a crucial role in the urban environment, as they positively contribute to ecosystem services. They are particularly helpful in supporting biodiversity in the context of human proximity. The diversity of green spaces in the city of Porto set the framework for a study of the relation between spatial morphology and urban biodiversity, focusing primarily in public parks, gardens and green squares. Two of the most important public green spaces in the context of Porto are examined as case studies, Pasteleira Park and Palácio de Cristal Gardens, to demonstrate the relation between biodiversity content and spatial variables. In each study area, biodiversity was assessed considering three main aspects: 1) habitats; 2) flora; 3) fauna. A new urban habitat mapping methodology was developed, based upon a general habitat classification method (EBONE project) adapted to urban context. Main outputs are maps representing different habitat and landscape attributes, showing valuable guidance for green space planning, design and management. Flora and fauna surveys were carried out, covering the highest habitat diversity. Adequate sampling methodologies were used for each group: 1) vascular plants; 2) small mammals; 3) birds; 4) reptiles; 5) amphibians; 6) butterflies. Pasteleira Park and Palácio de Cristal Gardens, although similar in size, exhibit distinct characteristics, especially due to the differences in age, spatial character and planting options. Pasteleira Park revealed the presence of 22 habitat categories, with 122 species of plants and 44 species of animals. In Palácio de Cristal Gardens, 158 species of flora and 42 species of fauna were recorded in 29 habitat categories. This research aims to contribute to a better understanding and promotion of the relationship between biodiversity and spatial morphology, particularly for the disciplines involved in planning, design and management on urban landscapes.

INTRODUCTION

Green spaces have a structural role in the city environment, as they positively contribute to mitigate the disturbances caused by urban development; they provide a multitude of functions, uses, goods and services, dependent on the dynamics of living systems. They are particularly helpful in supporting biodiversity in the context of human proximity (Farinha-Marques et al., 2011). Therefore, it is crucial to understand how urban biodiversity relates to urban green space attributes. Efficient biodiversity conservation measures ought to consider different configurations and contents of urban green spaces, as they influence the ecosystem's functioning (Smith et al., 2005).

The diversity of green spaces in the city of Porto set the framework for a study of the relation between spatial morphology and urban biodiversity, focusing primarily in public parks, gardens and green squares. Two of the most important public green spaces in the context of Porto are examined as case studies, Pasteleira Park and Palácio de Cristal Gardens, to demonstrate the relation between biodiversity content and spatial variables. In each study area, biodiversity was assessed considering three main aspects: 1) habitats; 2) flora; 3) fauna.

METHODS

Study area

Porto is the hearth of a metropolitan area of nearly two million inhabitants in Northern Portugal (Figure 1-a,b). The city of 41 km² lies on the intersection of Douro River and the Atlantic Ocean, where a multitude of important habitats occur next to each other. In addition to the river and sea front, smaller watercourses and rocky cliffs, Porto's urban ecosystem benefits from a rich green structure that includes agricultural areas, woodlands, public parks and gardens, institutional green spaces and private yards, just to name a few (Farinha-Marques et al., 2014).



Figure 1: Study area: a) Metropolitan area of Porto, Portugal; b) Administrative boundaries of Porto; c) Pasteleira Park (1) and Palácio de Cristal Gardens (2) in the Green Structure of Porto.

Selection of the sample and the case studies

Public parks, gardens and green squares play an important role in the city: they are the most used green spaces as they are directly accessible by the general public. They are designed and constantly influenced by maintenance and management, so they seem to be crucial to the understanding of the relationship between biodiversity and spatial morphology.

In the city of Porto, there are 95 public parks, gardens and green squares. With the aim of evaluating the relationship between spatial features and biodiversity of these green spaces, a representative sample of 29 elements was selected. A clustering procedure was adopted, considering the following variables: 1) area; 2) impermeable area; 3) vegetation cover; 4) water presence; 5) age; 6) dominant function; 7) space character. This method originated four clusters (plus two outliers), based mainly on the size (Farinha-Marques et al., 2014). Cluster 1 includes some of the largest parks in Porto, with

dominant naturalistic character and recreation function. However, as far as age is concerned, this cluster includes young and old spaces, allowing the possibility to choose two green spaces from very different periods.

For the purpose of comparing spatial features and biodiversity content between two major parks of Porto, the selection focused on Palácio de Cristal Gardens and Pasteleira Park (Figure 1-c), particularly because of their differences in age.

Palácio de Cristal Gardens (Palácio; Figure 2) date back to 1865, following a project of the landscape architect Émile David. The garden takes its name from the monumental Crystal Palace designed by Thomas Dillen Jones and built at the same time of the original gardens. The Crystal Palace was destroyed in 1951 and the current gardens embellish a modernist sports and cultural pavilion. The majestic gardens have an important role for recreation and, simultaneously, it promotes the



Figure 2: Different landscape types of Palácio de Cristal Gardens and Pasteleira Park.

conservation of cultural heritage and natural values. The vegetation and the layout are designed according to naturalistic and geometric principles, which resulted in a very intricate and complex garden composed by very distinct areas. At the main entrance, a formal garden is bordered by woods dominated by cedars (*Cedrus libani*), red cedars (*Thuja plicata*), camellias (*Camellia japonica*) and azaleas (*Rhododendron indicum*). A tree alley of lime trees (*Tilia spp.*) leads the visitors to the large pond and multiple woods. Near the southern and western limits, there are also several formal gardens and some thematic gardens. Throughout the area, one can find numerous statues, fountains and several buildings, such as the Carlos Alberto Chapel and the Almeida Garrett Municipal Library.

Pasteleira Park (Pasteleira; Figure 2) is implemented in the southwestern section of the city. It was designed by the landscape architect Marisa Lavrador and its construction was completed in 2004. Its planimetric design and vegetation arrangement were clearly inspired in natural landscape, resulting in a more organic character. Additionally, the previously existing remnant woodland composed of maritime pines (*Pinus pinaster*)

and cork oaks (*Quercus suber*) was integrated in the park, further contributing to the naturalistic feel. Its dominant function is associated with recreation and it possesses several structures linked to leisure activities, such as a cycle lane, a picnic area and playgrounds. It also acts as an important conservation area, especially due to the significant presence of native vegetation, which also harbours and supports native fauna species. The western area of the park essentially comprises a small and simple formal garden, a central clearing bordered by tree and shrub patches (*Crataegus monogyna*, *Arbutus unedo*, *Viburnum tinus*, *Laurus nobilis*, *Lagerstroemia indica*, *Acer saccharinum*, *Pinus pinea*,

etc.) and a pond with domestic fowl. The eastern section is heavily wooded with a majority of pines and oaks and it is punctuated by recreation equipment.

Urban Habitat Mapping and Description

For the study of habitats, a specific method for survey and mapping was devised by the research team. The developed method is focused on the urban landscape and is here designated Urban Habitat Biodiversity Assessment (UrHBA). This method stems from the adaptation to the urban context of a general habitat classification method and is largely inspired on the work of European projects like BioHab (Bunce et al., 2005) and EBONE (Bunce et al., 2011).

UrHBA is based on land cover to classify Urban Habitat Categories, according to life forms (vegetation) and non life forms (artificial structures, bare soil or water surfaces). It suggests great potential for biodiversity surveys and monitoring schemes in a multitude of urban environments. It aims at describing urban habitats in detail through a spatially explicit procedure, resulting in the classification of different spatial units of habitats (areas, lines or points). Additionally, the plant life forms that set up the base of habitat categories are a good indicator of habitat structure and environmental conditions.

The main steps of the method are indicated in Figure 3 and summarized as follows:

- **Step 1:** In the lab, spatial databases are carefully studied in order to identify different habitats and classify them according to their shape as areas, lines or points; this produces the initial map that is to be taken into the field for further study of each habitat.
- **Step 2:** The initial map is corrected during fieldwork, as the previously marked elements are confirmed or corrected and new habitat elements, only identified on site, are added to produce the field map.

- **Step 3:** Then, recording forms are filled for each habitat element: 1) the life forms and non life forms with 10% cover or more are identified, as well as the dominant species; 2) the Urban Habitat Category is then determined; 3) all the other attributes, such as Site Descriptors or Vegetation Layers, are also defined.
- **Step 4:** The resulting data is then used to create the final maps: the Habitats map, the Site Descriptors map and the Vegetation Layers map.

For a detailed description of the method and an explanation of how to apply the correct procedures see the work of Farinha-Marques et al. (2015).

Fauna and flora survey

In order to assess the species content of each of the green spaces, species richness, plant cover and animal abundance was evaluated for six groups, using different sampling methods: 1) vascular plants (vegetation plots; Bunce et al., 2011); 2) butterflies (transects); 3) birds (point-counts; Sutherland et al., 2004); 4) reptiles (transects); 5) amphibians (transects; Heyer et al., 2004); and 6) small mammals (live-trapping; Gurnell & Flowerdew, 2006).

RESULTS AND DISCUSSION

General overview

Both green spaces have similar size: Palácio de Cristal Gardens (Palácio) 8.3 ha; Pasteleira Park (Pasteleira) 7.4 ha). Pasteleira reveals higher values of permeable area (79.2%) and vegetation cover (87.7%) while Palácio has only 43.2% of permeable area and 69.8% of vegetation cover. This can be explained by the predominance of a variety of paved areas in Palácio, whereas in Pasteleira Park these paved areas are mainly present in the form of narrow pathways. Both green spaces have similar phanerophyte cover (around 50%); however the

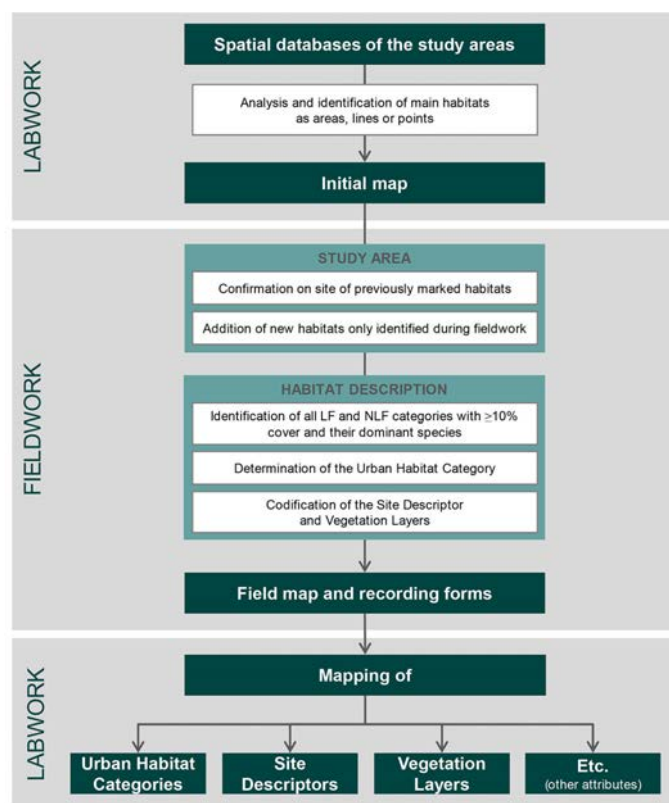


Figure 3: Diagram of the UrHBA method.

majority of Palácio vegetated areas are more evenly covered by trees, forming an open woodland green space; in Pasteleira a spatial arrangement marked by herbaceous clearings is more evident creating a clearing-woodland green space. Water surfaces are reduced in both green spaces, expressed by medium sized ponds (3.7% in Palácio and 2.6% in Pasteleira); nevertheless Palácio is richer in water element with more fountains scattered about the gardens, creating numerous opportunities for biodiversity spots.

Urban Habitat Mapping and Description

Palácio de Cristal Gardens reveal a high manifestation of artificial structures and pavements, mainly in the form of buildings, paths and paved areas. The vegetated areas are mainly represented by closed woods, dominated by deciduous and evergreen life forms, and several formal gardens. When considering the vegetation layers, most of the areas show a two layer combination, generally of tall trees and herbaceous groundcovers or tall trees and small shrubs (Figure 4).

Pasteleira Park is not so rich in built elements, and the vegetated areas show a more balanced proportion of open and closed areas. The open and closed woods are notoriously dominated by coniferous trees, and are interrupted by large short meadows of perennial and annual grasses and forbs. This is also reflected in the vegetation layering, where most areas have the presence of herbaceous groundcovers, with or without tree cover (Figure 5).

When analysing the occurrence of different spatial units it can be acknowledged that the complexity of Palácio is higher than Pasteleira; with similar dimensions, Palácio has almost three times more spatial units than Pasteleira (290 and 110, respectively) and Palácio exhibits a higher diversity of different Urban Habitat Categories and Site Descriptors (Figure 6). This is a consequence of the spatial heterogeneity of Palácio, with multiple and



Figure 4: Palácio de Cristal Gardens: a) Urban Habitat Categories; b) Site Descriptors; c) Vegetation Layers.

different gardens, each of which with its own character and specific features. Pasteleira Park with a simpler and less intricate design relies on larger homogenous spatial units and therefore less habitat diversity (Figure 6).



Figure 5: Pasteleira Park: a) Urban Habitat Categories; b) Site Descriptors; c) Vegetation Layers.

When evaluating the vegetation structure (vegetation layers), the two green spaces reveal similarities, both in terms of the diversity of layer combinations and of number of layers in each spatial unit (Figure 6). In both green spaces, around 50% of the spatial

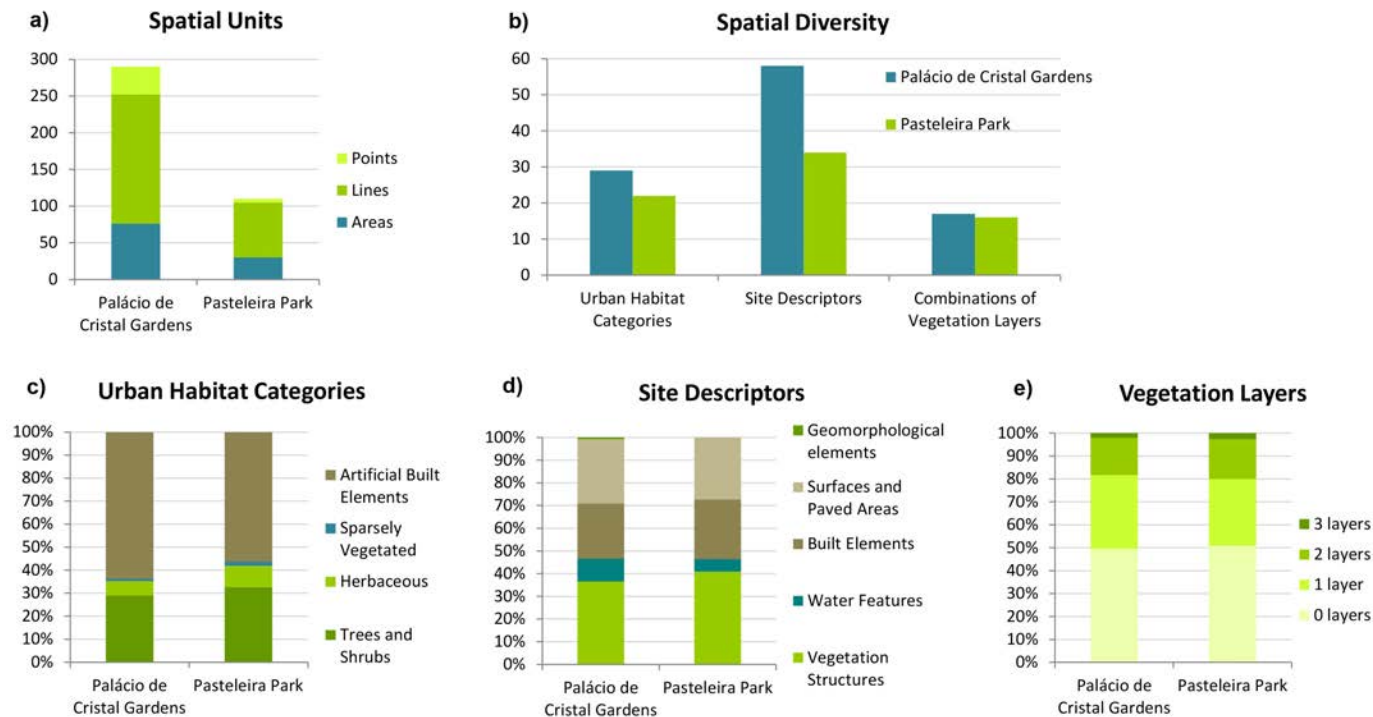


Figure 6: Spatial attributes of each green space: a) number of spatial units (areas, lines and points); b) number of Urban Habitat Categories, Site Descriptors and combinations of Vegetation Layers; c) diversity of Urban Habitat Categories; d) diversity of Site Descriptors; e) diversity of combinations of Vegetation Layers.

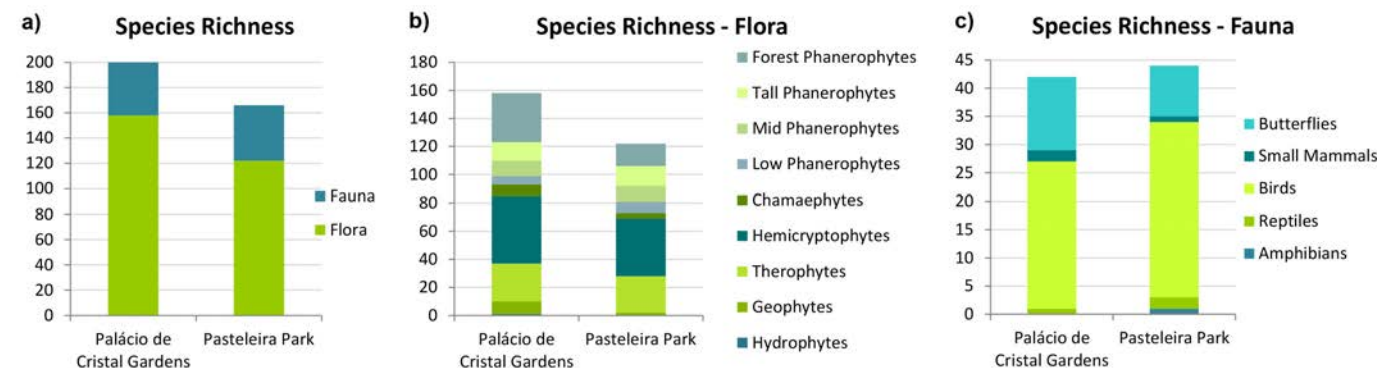


Figure 7: Flora and fauna of each green space: a) Total species richness; b) Flora species richness, by plant life form; c) Fauna species richness, by group.

units do not have any vegetation cover (zero layers), approximately 30% have only one vegetation layer, 16–17% have two vegetation layers and 2–3% have a combination of three vegetation layers.

Flora and fauna surveys

Considering the species richness, the only obvious difference is the higher diversity of plant species we can find in Palácio de Cristal Gardens (158 species versus 122 in Pasteleira Park; Figure 7). Palácio is a much older green space (1865), created in a period of high interests in horticulture and exotic plant collections; over the years, the gardens accumulated a variety of ornamental plant species originating a singular men made biodiversity spot. This is particularly noted regarding forest phanerophyte species (trees above 5m), such as *Araucaria heterophylla*, *Cedrus spp.*, *Tilia spp.*, *Chamaecyparis lawsoniana*, *Washingtonia robusta*, *Metrosideros excelsa*, *Acacia melanoxylon*, *Platanus x acerifolia* and *Magnolia grandiflora*. Geophytes are also well represented in Palácio, namely *Acorus gramineus*, *Ophiopogon japonicus*, *Nephrolepis cordifolia*, *Chlorophytum comosum*, *Agapanthus africanus*, *Liriope muscari* and *Ruscus hypoglossum*. In Pasteleira, the variety of plant species is lower than in Palácio, particularly in forest phanerophyte species. Tree cover is mainly achieved by pre-existing native species and a few introduced ones (*Pinus pinaster*, *Quercus suber*, *Quercus robur* and *Populus spp.*).

When comparing the fauna content of both parks, one cannot find a significant difference in the values of species richness (42 species in Palácio de Cristal and 44 in Pasteleira Park; Figure 7). The main differences can be found when examining the species composition in detail.

Concerning the diversity of bird species, both green spaces reveal a rich assembly of passerine birds, especially in the heavily wooded areas (*Carduelis chloris*, *Certhia brachydactyla*, *Erithacus rubecula*, *Garrulus glandarius*, *Parus spp.*, *Phylloscopus collybita*, *Sylvia*

atricapilla, *Troglodytes troglodytes*, etc.). However, Pasteleira harbours more species of aquatic birds that do not occur frequently in Palácio, such as seagulls (*Larus spp.*), cormorants (*Phalacrocorax carbo*) and kingfishers (*Alcedo atthis*), benefiting from its location, closer to the sea and the estuary of Douro River. The higher diversity of butterfly species (e.g. *Gonepteryx rhamni*, *Iphiclidides feisthamelii*, *Issoria lathonia*, *Pieris napi*) that occur in Palácio seems to be associated with the higher flora diversity, especially if we consider the higher variety of flowering plant species.

Small mammals, amphibians and reptiles are overall represented by a low number of species. Although both green spaces have a similar water cover, the water elements have a very distinct character. In Pasteleira, the larger pond with vegetated margins has a more naturalistic character being able to accommodate one frog species (*Pelophylax perezi*). In Palácio, the existing pond and the smaller tanks and fountains have a more artificial nature, are less vegetated and frequently washed; this context creates unfavourable conditions for amphibians which seem to be completely absent in this green space; they are however present in nearby locations where heavy maintenance is not occurring.

Regarding reptiles, only one species was detected in Palácio (*Podarcis hispanica*). This particular lizard species is not very common within the city limits and is greatly associated with rocky habitats; these habitats occur naturally in the south area of the gardens, marked by its cliffs and rock outcrops. Pasteleira offers conditions for the presence of slow worms (*Anguis fragilis*) and lizards (*Podarcis bocagei*).

Considering small mammal species, in Pasteleira only one was identified. *Mus spretus* is associated with clearings and agricultural areas; this type of land use still occurs in a few relic zones in this part of the city. In Palácio, two species of small mammals were identified, the greater white-toothed shrew

(*Crocidura russula*) and the house mouse (*Mus musculus*), closely associated with the urban matrix.

The higher numbers of plant species in Palácio can be associated with human intervention in the creation and maintenance of gardens. On the contrary, Pasteleira, a more naturalistic type of park and richer in natives, reveals a lower diversity of overall plant species. However, the existing habitats of Pasteleira seem to be sufficient to support higher diversity of animal species than those in Palácio.

CONCLUSIONS AND FUTURE RESEARCH

Although the presented green spaces belong to the same cluster, they display significant dissimilarities which generate diversity and interest in the context of city of Porto. In this sense, it is important to repeat this study comparing the results obtained from other green spaces of the same cluster and of different clusters.

So far, a strict quantitative approach of spatial features only based on figures does not allow the detection of significant differences between the two green spaces. This calls for a more attentive observation on qualitative matters regarding habitat categories, site descriptors and vegetation layers; the fine details of plant and animal species are also very significant as they reveal fundamental information that highlight the differences between the spaces and its ecology. These aspects sustain the value and uniqueness of each green space in the context of the city and confirm their relevance in the urban green structure.

This reveals the importance of the qualitative information in complex and systemic research subjects, when quantitative data are difficult to obtain. This is particularly significant in matters of spatial arrangement and design when spaces with similar quantitative indicators show a different spatial arrangement (pattern); such differences can influence the ecological metabolism of

each space, which therefore explains some of the distinct plant and animal species found. Future research calls for the use of more detailed quantification procedures, particularly for describing spatial patterns, in order to better understand the complexity of these green spaces.

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THE ROLE OF URBAN GROWTH MODELS AND GEOGRAPHICAL INFORMATION SYSTEMS IN LANDSCAPE ANALYSIS STUDIES

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ABSTRACT

Urbanization gradually results in a changing spatial pattern and causes profound changes in the socio-ecological functioning of the landscape over time. Geographical Information Systems (GIS), and urban growth models helps in analyzing these spatio-temporal changes in complex urban environments at multi scale.

The aim of this paper is to investigate the role of GIS and urban growth models in shaping future land use planning decisions. In this case study, Town of Sariyer in Istanbul is chosen as the study area. The area hosts major water resources, natural resources such as the northern forests of İstanbul, and historical and cultural structures. However, 3rd. Bosphorus Bridge constructions have been jeopardizing the natural and cultural landscape values in Sariyer. In the study, 2005 IKONOS, and 2013 SPOT5 satellite images were utilized along with ArcGIS and CYGWIN programs, while SLEUTH model is used to understand the growth trends. The model simulations revealed future land uses in Sariyer for 2045. Results show that correlative method of SLEUTH model and GIS analysis are greatly capable of reading historic data and creating a strategic framework for future landscape planning strategies.

1. URBAN GROWTH ANALYSIS AND ROLE OF GIS AND CELLULAR AUTOMATA MODELS

Environmental effects of urban growth have been analyzed with variety of assessments and digital models in many studies all around the world. (Akin, Clarke, & Berberoglu, 2014; Hayriye. Esbah, Akyol, & Steindl, 2014; Silva & Clarke, 2001). In last decades, urban growth modeling and simulation studies have become essential tools to analyze the dynamic structure of complex cities and landscape mosaics (Batty & Longley, 1994; Clarke & Hoppen, 1997; McGarigal, Cushman, & Ene, 2012). Especially, with the fast development of computing ability and improvement of data quality, prediction and simulation process of urbanization has greatly enhanced (Lee, 1994).

This considerable contribution of technology and evolution of the scientific theories, paradigms and philosophies (e.g. equilibrium theory versus non-equilibrium theory, deep ecology and landscape ecology) supported the conceptual development of modern day landscape assessments through models. Thus, one of the leading landscape scientist, Carl Steinitz, outlines 6 model types (Table 1), where three models examine existing conditions within a geographic context, and the other three models analyze the intervention process by examining possible changes (Stenitz, 2012).

Table 1, Classification of models by Carl Steinitz (Stenitz, 2012).

How should the landscape be described ?	Representation Models	Data	
How does the landscape operate ?	Process Models	Information	Assessment
Is the landscape working well ?	Evaluation Models	Knowledge	
How might the landscape be altered ?	Change Models	Data	
What differences might the changes cause ?	Impact Models	Information	Intervention
Should the landscape be changed ?	Desicion Models	Knowledge	

The aim of this paper is to investigate the role of GIS, and urban growth models in shaping future land use planning decisions. The paper displays the effects of urban development on the composition and the configuration of the landscape pattern in the town of Sariyer in Istanbul, and proposes planning recommendation to safeguard the landscape quality.

2. STUDY AREA

Town of Sariyer in Istanbul-Turkey, is chosen as the study area to analyze landscape changes and land use/land cover change. Sariyer, is located in the north of Istanbul between 41° North Latitude and 29° Eastern Longitude. It is surrounded by the Black Sea on the north, Besiktas, and Sisli towns on the south, the Eyup town on the west, and the Bosphorus on east (Figure, 1). It covers 151 km² land with population of 335,598 in 2013 (TUIK, 2013). Sariyer has experienced a significant population growth between 2007 and 2013. Currently, 10% of this population lives in the rural areas.

Sariyer houses good quality water resources in the city, and these water resources are located on the hills. Most of the slopes are 6-15% in more natural areas. The common slope for the settlement areas is 0-5% (Sariyer Rehberi, 1998, Ayasligil, 2011). Forest land covers 17.5% of the whole area (26,470 km²). Along with semi natural land uses such as agricultural lands, natural forest and semi natural covers constitute the major land use types in the town, followed by artificial surfaces (Tokus, 2012).

Sariyer contains a considerable part of the northern forests of Istanbul. It has a strategic location as it is at the entry to Bosphorus from north. Subsequently, this area is famous with not only its natural landscape attributes, but also its cultural landscapes, historical monuments, and countryside fisherman villages (Figure 2). However, new transportation projects, such as the third bridge over the Bosphorus, may affect variety of ecological and cultural dynamics in the city. The



Figure 1 Sariyer District is located on the North-West, in the European side of Istanbul.

findings of this study reveals the possible effects of the 3rd Bosphorus Bridge on Sariyer's landscape quality.

3. METHODOLOGY

Analytical approach of this study has three main steps: (1) Data gathering, (2) Analyzing land use/land cover change, (3) Simulating urban growth for 2045 by using SLEUTH Cellular Automata model (CA).

In this study, first, the land use classifications for 2005 and 2013 were generated; and later, these are used in the SLEUTH model for predicting land uses in 2045. The classification, and simulation results were interpreted, and landscape-planning recommendations are revealed for the town of Sariyer.

3.1. DATA GATHERING

2005-dated IKONOS and 2013 dated SPOT-5 images were used to analyze land use, urbanization, and transportation change while 1966, 1972, 1987 dated LANDSAT images were used to analyze historic urban and transportation network expansion. The dates were chosen according to construction years of the two Bosphorus bridges (1973 and 1988) to indicate the effects of such major transportation change on landscape pattern and urban growth behavior. Environmental plans and strategic plans were obtained from Istanbul Metropolitan Municipality (IBB). Statistical information



Figure 2, Fisherman boats and coastal landscape of Sariyer (a), and Rumeli fortress as one of the cultural values of Istanbul (b) (Sariyer Municipality Gallery, 2015).

and demographic data were obtained from the database of the Statistics Institution of Turkey (TUIK).

3.2. ANALYZING LAND USE /LAND COVER CHANGE

Geographic Information Systems, and Remote Sensing Technology (ArcGIS 10.02, ENVI programs) were used for analyzes. In this study, the "supervised classification"

tool under the ArcGIS program was used to display the land use/land cover change in 2005 and 2013. This method depends on the polygons created by the user to identify the actual land use classes. Representative pixels are chosen for each land use class, and the mean reflection value of these pixels defined the land use classes according to the sample pixel values. The “Maximum likelihood” algorithm in ArcGIS program was chosen to classify the pixels all over the image according to the closest pixel values in the sample polygon.

CORINE land cover classes were adopted to produce land use classification maps: (1) artificial surfaces, (2) forest and semi natural areas, (3) agricultural areas, (4) wetlands, and (5) water bodies (Figure 3). Area of each class was calculated by multiplying the pixel size and the number of pixels for each class. Total of 48404.48 hectare area was calculated.

Finally, an Accuracy assessment was applied to the each classification. For the accuracy assessment, point data was created based on five land use classes by using “field calculator” tool in ArcGIS. These point data was then compared with the points in the classified image. The overall accuracy value was measured as user reference points divided by supervised classification points.

3.3. SIMULATING URBAN GROWTH FOR 2045 BY USING SLEUTH CELLULAR AUTOMATA MODEL (CA)

CA models assume that urban environments are self-organized systems and develop heterogeneously with influence of neighboring rules (Dietzel & Clarke, 2006). This research paper utilizes CA based SLEUTH model to predict the future change in Sariyer. The model especially takes into consideration the changes in the road network, therefore is more suitable to use in Sariyer case in which the negative implications of building road infrastructure is highly speculated.

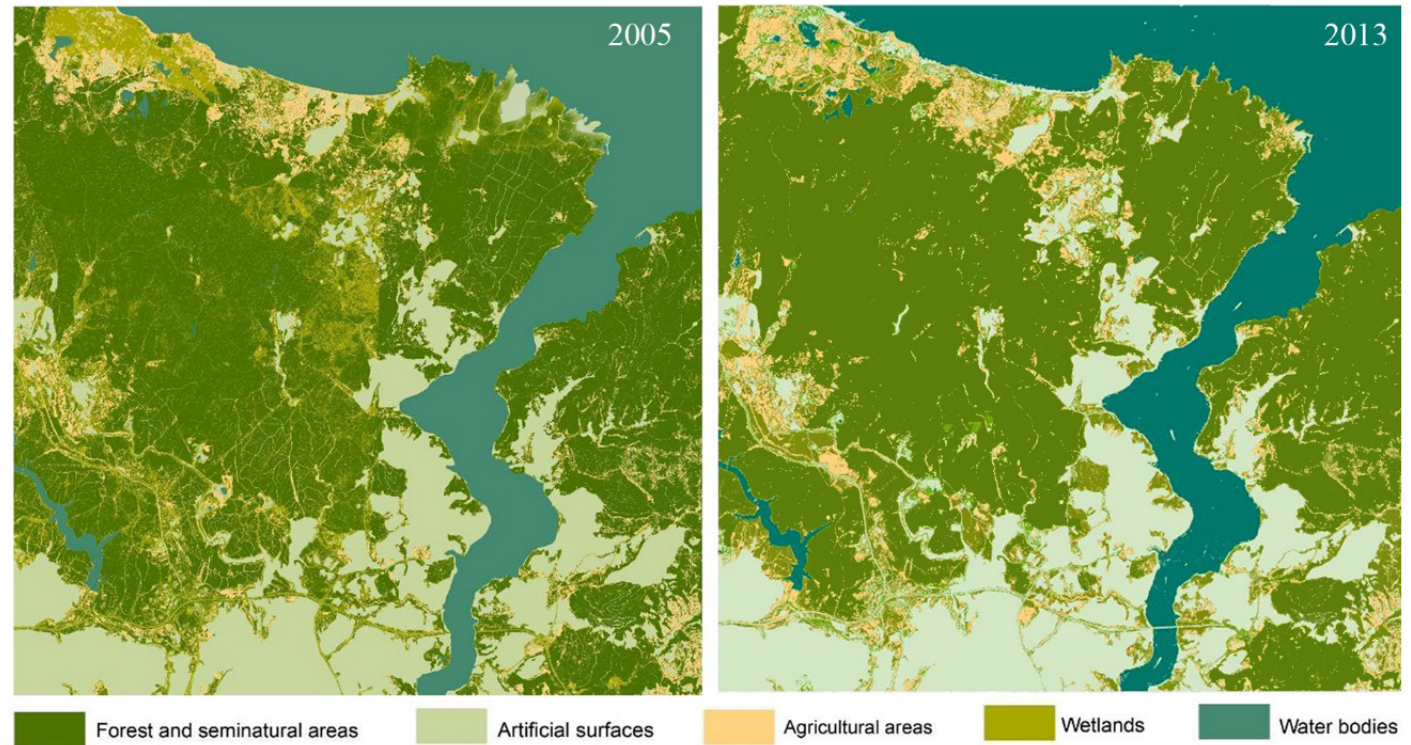


Figure 3, 2005(a), and 2013 (b) dated Land Use Classification of Sariyer, Istanbul.

SLEUTH is an Urban Growth Model (UGM) which is a C program running under UNIX, and it is an acronym of initials of its input data: Slope, Land use, Excluded areas, Urban areas, Transportation network, and Hill-shade. The model has three main stages: test, calibration and prediction, and five coefficient values to control the calibration phase (diffusion, breed, spread, slope, and road gravity) (Clarke, 2002). Each coefficient changes after each phase, and best fit values are defined according to calibration results. Accuracy of the model output is assessed through the metrics embedded in the model.

4. RESULTS

In this research, the possible effects of a major change in transportation network on landscape structure and urban area are examined in Sariyer case, and an urban growth simulation for 2045 is displayed. Overall, GIS analyses and SLEUTH CA model worked efficiently to simulate possible urban growth in the study area.

4.1. LAND USE /LAND COVER CHANGE IN SARIYER

The overall accuracy values were measured as 76% (Kappa 76.5%), and 87% (Kappa 84%) for the classification of 2005, and 2013 images. The accuracy of forest lands, artificial surfaces (urban), and water were high

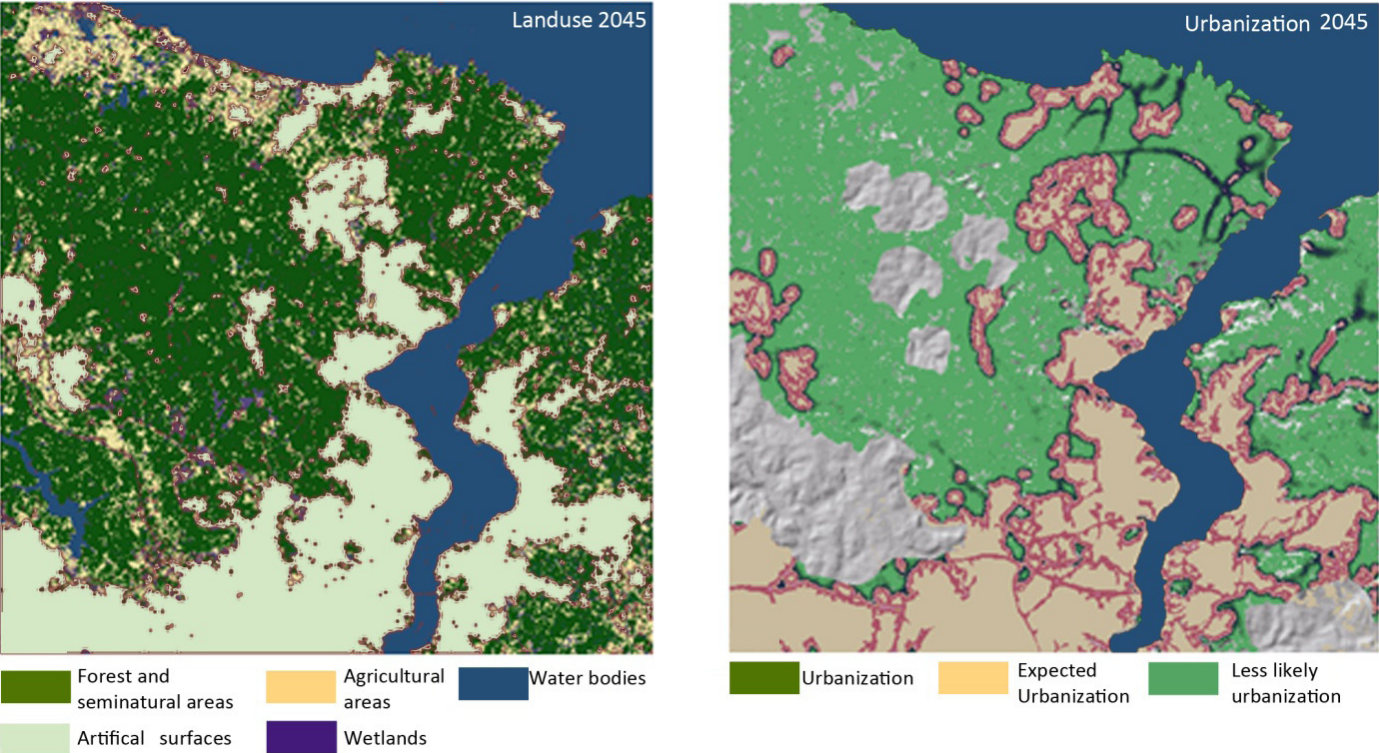


Figure 4. Land use classification and predicted urbanization for 2045 according to SLEUTH simulation.

enough to proceed with the research, while the accuracy of agricultural lands, and wetlands were relatively low.

According to 2005 and 2013 land use classifications, forest and semi-natural areas are the dominant land use classes in Sariyer's landscape, followed by artificial surfaces (urban areas) which has tendency to increase (Figure 3). The forest lands, and semi-natural areas all together covered 44% of the study area, and are mostly distributed around northern parts of the study area. In the northern areas these land classes form large patches (Table, 2). Whereas, covering %18 of the study area, urban areas are usually located in the southern parts. The amount of urban cover reached

to %21 in 2013. This development worked as a detriment of forest areas, as most of the new development took place at the edge of the forest cover. Some urbanization occurred on the fertile agricultural areas, where the farmers abandon their practice with the anticipation of eminent urban development.

Overall, natural areas and forest cover increased 5% within an eight year period in Sariyer. And, artificial surfaces (mainly urban areas) increased 3%. This change worked against wetlands and semi natural lands: wetlands and agricultural lands experienced %2, and %3 decline, respectively (Table 2). New urban patches emerged in the south and south

west due to the transformation of agricultural lands (Figure 3). This transformation of arable lands into new settlement areas can be defined as a typical edge effect of urban uses on agricultural lands.

Table 2. Land Use Classification of Sariyer District and Context of Each Land Use Class (2005-2013)

Land Use Classes	2005	2013	Explanation
Artificial Surfaces	%18	% 21	Urban, settlements, commercial centers, major asphalt roads, railways, mine and construction sites, port areas, airport, sport and leisure areas, urban green areas.
Forest And Seminatural Areas	%44	% 49	Forests, meadows, grass land, and urban open space covered with vegetation
Agricultural Areas	%6	% 3	Vegetative production areas with specific pattern, Pastures, vineyards, orchards.
Wetlands	%11	% 9	Wetland marshes, salt marshes, saline
Water Bodies	%19	% 18	Sea, lakes, dams, rivers and lagoon.
Total Area=	48400.0 (ha)		

Decline of wetlands undermines the efforts to protect water resources and their surroundings in the area. Since Sariyer hosts many important wetlands that provide habitat for variety of wildlife species, the future change should be monitored carefully. In addition, new strategies should be developed to protect productive landscapes such as agricultural lands.

4.2. IMPLICATIONS OF LAND USE CHANGE IN SARIYER IN 2045
In this study, SLEUTH CA model is used to simulate future landscape change in Sariyer for the year 2045. In order to elaborate future land use pattern, first, we mapped the major transportation route, and urban boundary changes.

The results displayed, 64% road expansion between 1966 and 2015. Specifically, 13% increase in the road length

occurred after the construction of the first Bosphorus Bridge (between 1972 and 1988). New roads emerged especially in the southern parts of the area, closer to the bridge. These roads worked as disturbance to forests and natural areas. Especially in the southern parts of the area, roads divided large forest patches into smaller pieces, which resulted in vegetation loss while attracting new settlements. Thus, these results show that roads are the main drivers of urbanization in Sariyer.

Subsequently, the increase in the transportation network encouraged rapid urban extension in Sariyer. In order to detect this expansion, urban boundary of 1966, 1987, 2005, 2013 were delineated from the satellite images. The results showed that urban growth was slow until 1987, but after that growth rate went up (Figure 4). Subsequently, Sariyer experienced a rapid sprawl until 2013. Between 1972-1988 (16 years), after the first bridge constructions, %13 increase in the urban growth occurred while % 199 (almost three times) more urbanization is detected in 2005, after the establishment of the second bridge (1988). This critical urbanization jump is mostly related with the second bridge, which was constructed in the southern part of Sariyer. New roads emerged spreading from the main artery, and 30,4% transportation expansion was detected in the same period. This considerable increase in urbanization resulted in a strong pressure on forest areas, hence gradual shrinkage. This change demonstrates the growth attitude of the city in case of a major transportation change. As observed in the land use change analysis, 3% urban extension was experienced between 2005 and 2013. This finding was valuable for calibrating the SLEUTH model in Sariyer, Istanbul, and considered as an important alert for future development decisions.

Urban boundary expansion and road extension analyzes constructed the inputs for the modeling of the future landscape composition of Sariyer. In the study, 2045 is defined as the prediction date. The results of an exhaustive calibration process revealed the best fit values (100,

90, 1, 2, 9), which were then utilized to develop the prediction scenario. Five main coefficient values controlled urbanization; 1-diffusion, 2-breed, 3-spread, 4-slope, and 5-road weight. SLEUTH model simulated a realistic reproduction of the study area with specific growth rules. Specifically, in the case of Sariyer, road gravity coefficient showed an increasing behavior showing a road oriented growth behavior. Also high diffusion and breed values indicated an organic growth towards new urban centers. This change resulted as new emerging urban nodes independent from existing urban structure towards north in the natural vegetation cover dividing the landscape structure into smaller pieces. These findings highlight the possible effects of third Bosphorus Bridge in the urbanization behavior, which may lead to considerable landscape loss in Sariyer, Istanbul in 2045.

Thus, the model outputs showed 11% urban growth in 2045. Urbanization is to spread through the new transportation route in the north of the study area (Figure 4). This growth behavior causes further pressure on the northern forests and wetlands.

According to the comparison of land use maps (2005-2013-2045), forest areas and semi-natural lands will experience 10% decrease while urban areas will increase %14 (reaching 32% of the total area) between 2005-2045 (Table 2). These proportional changes remark a critical transition in the territorial landscape mosaic where forest lands are losing their. Based on the 2045 simulations, forests would lose their compactness and most of the large patches would turn into smaller forest or semi natural lands. Besides, most of the wetlands will lose their landscape value, and experience a critical decline from 11% to 2% between 2005 and 2045. The wetlands are mostly located towards the northern and western parts adjacent to water resources, and they are mostly neighboring forest and natural lands. Therefore, their sustainability mostly relies on the quality of their surrounding environment. Tough, results show that the northern forests are mostly disturbed by urbanization pressure

approaching from south. The decline in the environmental quality and vegetation loss is more rapid and dramatic in the southern and western parts of Sariyer.

5. CONCLUSION

Landscape is a complex system influenced by many different factors. In the case of Sariyer, the major change decisions in the transportation system (such as the construction of the third bridge and its new major artery) revealed the influence of developing transportation routes on urbanization.

The results of this study show that the area is under urbanization threat due to new transportation and urbanization trends. In order to mitigate the possible effects, our study suggests following actions: 1-land management strategies should encourage actions to regenerate disturbed forest lands and semi-natural areas while providing opportunities for people to use semi natural arable lands for urban agriculture activities; 2- effective regulations should be generated and implemented for landscape protection. Especially a special treatment and protection program for wetlands should be prepared; 3- subsequently, a well-structured landscape monitoring system is required for controlling landscape change in relation to urban growth.

The findings of this study show that the combination of remote sensing techniques (e.g. supervised classification), land use change analyzes in GIS, and SLEUTH model can generate considerable data that can be used to understand landscape change dynamics in the complex urban regions. The correlative study of GIS analysis and SLEUTH model gives great opportunities to foresee and make provisions for possible effects of current growth decisions in future, as well as to comprehend environmental and institutional issues. Future studies that compare alternative scenarios which are based on economic, ecologic, and

current growth trends would further enable understanding of landscape change and urban growth.

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LANDSCAPE EXPERIENCE AND THE SPEED OF WALKING

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Speed, Walking, Interaction

ABSTRACT

Walking is a very comprehensive act that includes different paces, stopping, sitting as well other associated patterns, and produces dynamic ways of experiencing and feeling spaces. This paper aims to explore how the speed of walking affects spatial experiences and perceptions. A number of 30 participants were selected and invited to perform individual self-narrated walks in two urban green spaces located in Portugal and in the UK, during which their movements and speed were GPS tracked. The findings suggest that landscape experience is affected by speed; in particular, they indicate that spatial perception, introspection and interaction decrease with the increase of the speed. Gentle movements allowed participants to take in the surroundings and were concurrent with detailed descriptions of the experience, whereas accelerations tended to produce vaguer accounts. Furthermore, some spaces revealed a tendency to convey repose and quietness associated with slowing down and sitting, whereas others seemed to evoke movement and acceleration. Some participants even identified those characteristics of the place which they perceived as eliciting a faster or slower walk. Even though each participant established his/her individual and unique pace of perceiving and sensing place, the results demonstrated that the average speed of walking in those selected environments was significantly slower when compared to the average values considered for a normal walk. The variations in the speed of walking contribute to give insights into how people move in places. Understanding the dynamics and fluxes of the user walking experience might contribute to better plan and design pedestrian-based places, and to delineate strategies and elements that lead to slow or faster interactions with the landscape.

INTRODUCTION

Walking is a way by which movement can occur and an act during which sensorial engagement and interaction with the landscape take place (Wunderlich 2008). In Lund's (2005) walking descriptions she refers to a comprehensive kinaesthetic act of walking that combines movement, vision and touch and the interaction between them and, therefore, "Walking is a bodily movement that not only connects the body to the ground but also includes different postures, speeds, rhythms (Lund 2005:28).

Many authors have asserted that rhythms are a dynamic characteristic of place that can be produced through walking and regular interactions with the environment (Lefebvre 2004; Edensor 2010; Wunderlich 2008). Regular practices of walking vary in pace and purpose and leads to different relationships with place (Wunderlich 2008). Lefebvre's (2004) accounts of Parisian streets seen from the balcony of his apartment reflect on the different rhythms resulting from the distinctive walking paces between the frenetic people moving at a peak hour and the promenading tourists. In the same line of thought, Edensor points out that different types of rhythms are "embodied in certain kinds of urban walking" (Edensor 2010:74), and claims that the speed and pace of a journey produces dynamic ways of knowing and feeling places (Edensor 2004).

A walking pace provides the time needed to absorb the surroundings (Miaux et al. 2010). Lee and Ingold (2006) suggested that "variations of pace affect the experience of the walk and the environment" (Lee and Ingold 2006 cited in Myers 2010:64). Middleton's (2009) work on commuting daily walks by Londoners demonstrates that speed and efficiency resulting from taking the more direct route possible can compete with the desire for enjoyment of a most interesting route when her participants manifested the aspiration for walking avoiding main roads, preferring to take a route through the park or, depending on the environment, just to slow

down the pace. Seamon’s (1979) accounts of everyday life uses the terms “Place-ballet”, a place composed of “lived synchronicity between human movement and the pathway structure through which that movement unfolds” (Seamon 2007:iii–o7) and “body-ballet”, “a set of integrated gestures and movements which sustain a particular task” (Seamon 1979:55). As Seamon notes, the balance of these two create the rhythms of a place, which consist of “speeding up and slowing down, cre-scendos of activity and relative quiet.” (Seamon 1979:151).

Attunement describes the alignment of the body with place where rhythms of the self flow with other rhythms in place. People attune themselves to the rhythmicity of the moment through breathing, gestures, pace of movement and speech (Edensor 2010). According to Myers (2010), attunement through kinaesthetic, synesthetic and sonesthetic perception is one of the strategies to interact with place. Thus, a walking sort of experience in urban green spaces may help understand the sensory ways of navigating an environment (Pink 2007) and to what extent people synchronize with rhythms and flows of gardens and parks. Therefore, this paper aims to explore how the speed of walking affects landscape experiences and perceptions and how people move in response to the characteristics/components of spaces and in response to their own world.

METHODOLOGY

For research purposes two case study areas were established, one in Portugal (Serralves Park) and another in the United Kingdom (Birmingham Botanical Gardens). These are designed urban green spaces which have the capacity to present participants with on-site immersive experience. A number of 30 participants were selected to perform a self-narrated walk. The self-narrated walk is a method which permits direct engagement with the environment, enables people to know and make sense of experiences, and allows the recording of people’s perceptions of their experiences in-situ, in-movement

and in-the-moment. It is based on single participations of structured walks and in the use of complementary digital media, to gather simultaneously narratives able to be overlapped with data collected by a GPS device. With this method, audio recorded narratives, photos, movements and speed are captured along a route suitable for lone walking, and person-place interactions are expressed and shared along without the researcher’s presence. Wylie (2005) argues that narrating own experience while walking is a method of gathering the distinctive senses of the self and spatiality, a way to describe affinities and detachments concerning the relation between the self and the landscape experienced, the movements, sensations, thoughts and encounters. The 30 participants performed 42 walks which were both GPS tracked and audio recorded; however, due to technical issues, one walk only was not GPS tracked. Using the GPS allowed mapping the walk and associated movements linked to places, and the speed, including stops, decelerations and accelerations. Insights gained included both individual movements and group representations allowing for spatial patterns to be found.

FINDINGS AND DISCUSSION

Speed and slowing down

The results suggest that during the self-narrated walk participants’ walked fairly slowly. The average speed of the 41 walks, when considering moving and stopping (stationary positions of standing and sitting), was measured equal or below 2,0 Km/h (max=3,0 km/h; min=0,8 km/h). When considering moving only, the average speed for the same walks was measured equal or below 3.0 km/h (max=3,4 km/h; min=2,4 km/h) – [see Table 1]. These measurements highlight that the average speed of a walk in the two selected green spaces was significantly slower than the average of a normal walk. Specific studies have found that the mean walking speed for younger pedestrians is 5.45 Km/h and 4.5Km/h for older pedestrians (Knoblauch et al., 1996).

Table 1: Walking speed averages

Walks n=41		Moving and stopping (km/h)	Moving (km/h)
BBG (walks=20)	average	1,8	3,0
	max.	3,0	3,4
	min.	0,8	2,4
PS (walks=21)	average	2,1	3,1
	max.	2,6	3,4
	min.	1,3	2,6
average TOTAL		2,0	3,0
Note:		27 walks out of 41 were measured equal or below 2,0 Km/h (represents 65,8% of walks)	24 walks out of 41 were measured equal or below 3,0 Km/h (represents 58,54% of walks)
		Moving and stopping – represents de total walking activity (including sitting and standing)	Moving – represents the continuous periods of actual movement/ walking

The above values are representative of all the walks, and they demonstrate how slow the walks in the gardens were (Costa et al 2014). Notwithstanding, each participant established his/her individual and unique pace of perceiving and sensing place, which shaped the experience of accessing, contacting and connecting with each place individually. The above figures are in line with some participants’ perceptions and self-accounts of their own walking rhythm in the gardens. For example, two participants reported:

‘My walking really slows down here at the gardens. I usually walk at a very fast pace as there is always lots to do, but there’s no need to walk fast here’ [Joanne]

‘I think I’m walking too fast... I should stop and think for a little. I’m sitting here for a little.’ [Paulo]

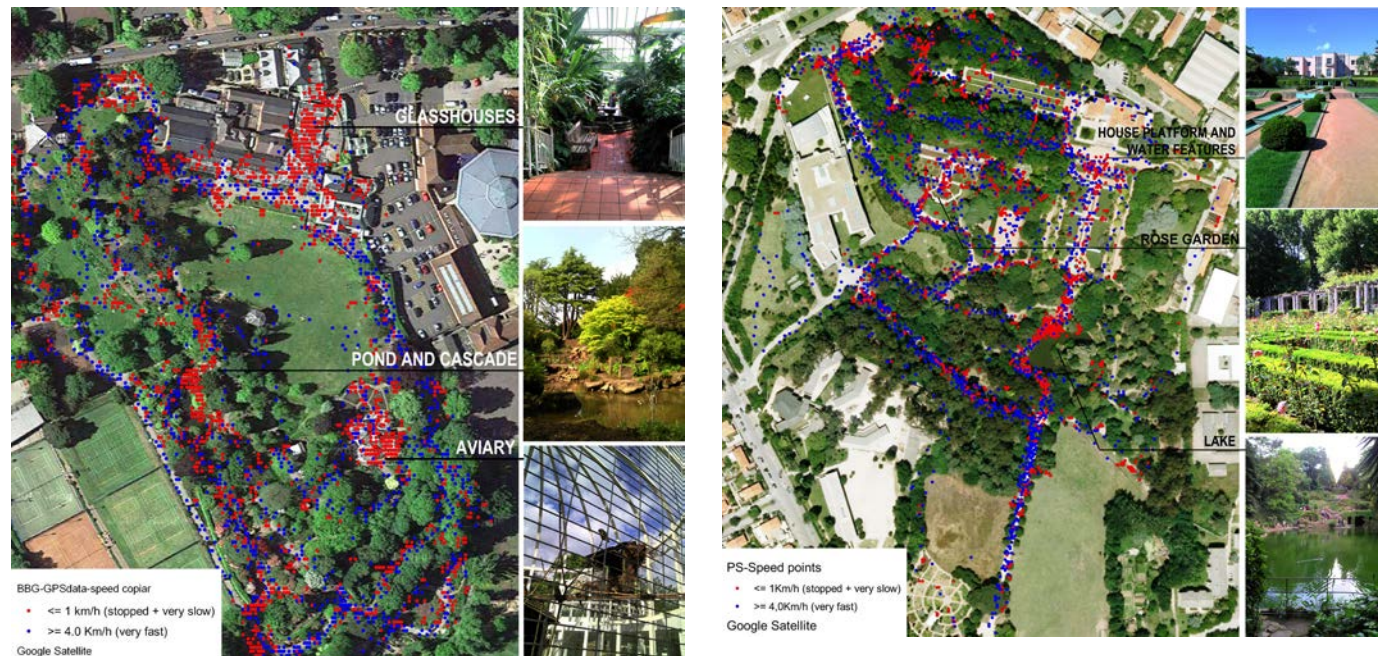


Figure 1 and Figure 2: The maps of Figure 1 and Figure 2 show the visualization of speed points' distribution and the contrast between slow and fast speeds. All acquired points at the two intervals $\leq 1.0\text{Km/h}$ and $\geq 4.0\text{Km/h}$ were plotted on a map (QGIS). Points are coloured by participants' speed at these intervals. Blue coloured points indicate that participants walked fast through those areas. Red coloured points indicate that participants walked slowly and/or stopped. The top three places where participants not only slowed down but also stopped the most, were: Birmingham Botanical Gardens – the Glasshouses, the Aviary and the Pond and Cascade; Serralves Park – the Lake, the platform and water feature in front of the Art Deco House and the Rose garden.

Speed, spaces and sense of spatiality

Finding of the study also suggest that there is a correlation between participants' walking speed and spaces. Many spaces indicate having both experiences of fast and slow movement and stillness. However, as illustrated in Figure 1 and Figure 2, most of them show a trend for stillness and gentle movements, whereas others intensify movement and velocity. Decelerations and stationary positions tended to occur mainly in those environments understood as contained or somehow enclosed, in meeting points, near focal elements or features of interest (e.g. water features, trees, sculptures),

at junctions (i.e. where decision of what direction to take has to be made), when views and vistas emerge, where benches and views are available together, and in some of the meandering paths. The main activities participants did in association with slowing down were, among others, drawing, sitting, thinking and reflecting, taking pictures, watching and/or interacting with people, birds/animals and plants, quiet contemplation of the landscape, and to engage in haptic and other bodily gestures. Therefore, it does not mean that by slowing down or stopping the person became less active, on the contrary, a slow walk has actually prompted more activity.

When combining the information of the GPS tracks and speed profiles with the one of participants' accounts, the places where people stopped the most were highly related to participants' favourite or special places. To such places they also tended to allocate and dedicate greater amount of time, sometimes walking through gently, stopping, sitting or just standing. The clusters of speed points indicating stopping and very slow movements [red points, see Figure 1 and Figure 2] were concurrent with the majority of the areas that were stated as being the most favourite in a previous questionnaire. The following are quotes from two different participants, a regular user of the Serralves Park and a first time user of the Botanical Gardens. They demonstrate that favourite places are places for ease and repose, and thus for slowing down:

'Sitting on what has become one of my favourite spots, hiding behind the bushes that surround me...' [Teresa]

'I think this is probably my favourite scene in this garden, so far. I'm gonna sit down the bench and look to the birds for a while. Those oranges hanging on the trees as food to feed the birds reminds me during Chinese new year, people have orange trees displayed outside their houses as sign of lucky and good life in the coming year.' [Ting]

Regarding accelerations, these seemed to occur mainly along paths that connect the different spaces in the gardens. It is more evident, but not strictly, in straight pathways, straight woodland paths or when repeating the same trajectory [blue points, Figure 1 and Figure 2]. It is worth noticing that some of these paths are provided with benches. Descriptions of these places tended to be shallow, with few exceptions, and sometimes the participant talked about someplace else.

Many participants identified in the environment those cues that prompt them to walk fast, walk slowly or remain in the place.

Acceleration-

'And my goodness it's hot, very hot in greenhouse today. I just go quickly on through to the temperate greenhouse? It's the fern house, make you feel much cooler' [Rose]

Deceleration and stop-

'The animals make us stop here... we have here a donkey, some sheep, some oxen, and the fence itself allows us to lean on for a bit.' [José]

'This is another little nice place. It's got three benches but it's quiet, there's no one here. (...) that's a little nice place to sit. Just gonna sit here for a while ...and just think. And the smell... the smell of the trees, the grass, the greenery' [Amira]

As indicated, participants revealed a tendency to slow down and to stop in particular places and to speed up in others. The findings appear to show that these tendencies are affected by the characteristics of place; in fact, many participants identified those characteristics of the place that made them walk faster (e.g. the 'rigid geometry', the 'very hot' temperature), walk slower or become stationary (e.g. the 'animals', the 'warmth', the 'smell'), and by their level of attachment to place. This might be interpreted as indicating that through speed it is possible to obtain different senses of spatiality. In other words, some places revealed a tendency to convey repose and quietness associated with slowing down, whereas others seemed to evoke movement. It is not always clear why in certain places participants tended to speed up. A plausible reason might be because there is no affinity with the place, its low level of attractiveness or due to its intrinsic characteristics or qualities, which evoke faster movements. However, moments of speed and monotony can be fundamental to the appreciation of those of slowness, and to the experience of climaxes and contrasts. Therefore, it seems important that places are not presented with the same level

of attraction, since having one attraction competing with another may not benefit the overall experience.

Landscape perception and walking speed

Interactions and perceptions of the landscape are affected by speed. When moving at a faster pace the details perceived are replaced by volumes and less information is acknowledged, and thus less detailed descriptions were delivered by the participants. On the other hand, slowing down prompted participants to see things they were unable to see before while walking through quickly and induced moments of directed attention to the surroundings. In the following transcript, the participant seems to be focused on the gentle movements and lights that affect the rose bush:

'I am sitting on this bench and I'm watching all the leaves on the rose bushes and there's just a light breeze and they're all moving in the breeze and sun lights... an almost brittle sunlight that you get this time of the year, and it's shining very intensively through the leaves, so there's sort shimmering scintillating circus.' [Christine]

Therefore, gentle movements allowed participants to take in the surroundings. The self-narrated walks demonstrated evidence of very slow experiences with many opportunities for stopping and sitting down to soak in the environment. By slowing down or stop, participants were able to pay attention to the particularities of the surroundings, to describe them with powerful and precise language and detail, and to increase interaction through bodily engagement. A slower pace was also associated with flow experiences (Nakamura & Csikszentmihalyi 2009), reflection, introspection, privacy, and a certain loss of a sense of self.

Conversely, participants' accelerations during the self-narrated walk tended to produce vaguer accounts regarding to their perceptions and details of the landscape. Spatial perception, introspection and interaction

decreased with the increase of the speed. Tunnard and Pushkarev (1963, cited in Motloch 2000) say that as speed increases, space perception declines, as well as the understanding of place. A number of these differences in perception that derive from fast and slow movements were evidenced in walking speed intervals of the current study. As they pointed out, rapid movements tend to fade details, objects are seen, get closer and disappear faster; and the vision tend to be directed forward. However, accelerations have a role to play in the experience, as they might contribute to developing expectations and curiosity to explore and to unfold sequences of places. Most of the literature available refers to slow and faster speeds of driving rather than walking. A recent study (Torres-Campos 2014) showed that awareness of existing buildings and secondary roads is higher when walking than when driving; this may lend some support to the finding that spatial perception decreases with the increase of speed.

FINAL REMARKS

The fact that walking in the gardens is slower than the average walking speed suggests that the task given, that is, to walk and narrate, requires a certain level of observation and thus speed, but also that the environment readily induces this, while the specifics of the encounter also demand adjustment to speed and eventual stopping. The key aspects which emerge from this study are:

- The walks in the Gardens/Park were significantly slower when compared with a normal walk;
- The environment might have a role to play in cueing a slow or a fast walk;
- A slower walk provides time to immerse in the details of the surroundings;
- Slowing down prompted more interaction than while speeding up;

- Slowing down provided more detailed descriptions of the environment;
- The GPS tool has proven to be excellent in recording individual and group movements, allowing for spatial patterns to be found

However, other questions remain concerning what influences what, that is, does the environment interaction cause a slower speed because the experience demands it, or is it that simply faster walking is associated with a different type of perception?

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KINESTHETIC ENGAGEMENT IN THE URBAN LANDSCAPE

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ABSTRACT

Tracing the rich historical trajectory of kinesthetic engagement in the landscape, this investigation extends existing theoretical groundwork, often focused on gardens, to the urban landscape. Michael Conan described how bodily encounters with light and topography in gardens shape cultural narratives. To situate this research, three categories for kinesthetic engagement are identified: designer-driven, activity-driven, and space-driven. Designer-driven refers to the use of conventional landscape elements such as paths, steps and platforms to guide how people move through a landscape. Activity-driven often takes the form of workshops where movement-based activities serve as prompts for augmenting kinesthetic experiences, for example the 1970's 'Take Part' workshops developed by Anna and Lawrence Halprin. Finally, space-driven focuses on spatial relationships between body and landscape. The body as a perceptive instrument responds to, rather than is controlled by, prescribed landscape features or defined activities. Focusing on space-driven modes, certain questions emerge: How does one call attention to the spatial qualities of the urban landscape? How can human experience in the urban landscape be brought to the foreground? Artists working within the contemporary milieu of 'community engagement' are taking on such challenges. This includes a performance project that I undertook as part of the Berlin Unlimited Arts Festival in October 2014. The project, 'Body as Urban Unit' investigates a technique that relies on the agency of collective movement to engage participants in the landscape in unique and unexpected ways. Community engagement techniques involving familiar environments or actions are outmoded and being replaced by projects that focus on novel strategies for generating deeper levels of kinesthetic experience. The strength of these strategies is their ability to defamiliarize and therefore distance community participants from the meaning of what they're doing in order to focus on pure space.

INTRODUCTION

Community engagement practices are social constructions used to encourage human interaction within the urban landscape. This study explores kinesthetic strategies for enriching community engagement techniques as they are currently practiced. Whether it is the highly mediated world of technology or our fast-paced urban lifestyles, the tendency for urban dwellers to disengage from the spatial qualities of the urban environment is problematic. People are drawn to urban areas for commercial activity, entertainment value or cultural amenities, but rarely just the space itself. In a more nature-like environment such as a forest, these spatial and sensorial qualities are perceived as higher in value. This research seeks to use kinesthetic engagement as a means of illuminating spatial and sensorial qualities such as light, shade, scale, texture, color, movement, sound and smell in urban environments. Calling attention to these hidden qualities can alter how people perceive the urban environment, heighten their appreciation for it and affect their broader value judgments about the public spaces that they inhabit. In a community design setting, where designers must 'listen' to the concerns of the public, the ability to alter public perception of a place can have significant benefits.

The term 'kinesthesia' is derived from the Greek *cinēo*, 'to put in motion,' and *aisthēsis*, 'sensation' or 'impression,' (Noland, 2009: 9). The spatial organization of kinesthesia can be described as choreography, "the art of ordering bodies and their movements in time and space – making images, stories, and feelings concrete" (Huschka, 2010: 62), a definition that could also be applied to landscape design. In landscape writing, 'choreography' is sometimes used as a verb in the context of designing a process and/or circulating people through a city, or as a noun describing movement patterns in the landscape. To address the differing usages of such terminology, this paper develops a taxonomy of body-landscape relations for characterizing the complex relationships between movement and landscape.

TAXONOMY OF BODY-LANDSCAPE RELATIONS

Unpacking the relationships between the body and landscape gives weight and visual presence to the ephemeral act of movement that can be easily overtaken by object-based design considerations. Therefore, a taxonomy consisting of three modes of kinesthetic engagement are identified: design-driven, activity-driven, and space-driven. This taxonomic structure creates a more nuanced vocabulary for theoretical discussion on this topic and a framework within which all body-landscape relationships can reside.

Design-driven relations are perhaps the most obvious and common means by which designers affect movement within a landscape. Intended movement patterns are choreographed using designed landscape features: paths for movement parallel to the ground plane, steps or ramps for descending and ascending, platforms as places of pause etc.

Activity-driven relations often take the form of processes where movement-based activities serve as prompts for augmenting kinesthetic experiences. For example the 1970's 'Take Part' workshops developed by Anna and Lawrence Halprin (Halprin, 1974) represent the act of participation truly becoming an art in and of itself. One of these workshops took place on the site of Lawrence Halprin's eventual development at Sea Ranch in northern California during the early stages of the project's conceptualization. Participants constructed architectural structures out of driftwood and occupied the spaces that they built. The objects that resulted were less important than the improvised process of creation. "Although many of us view participation as a way to improve design, Larry singularly employed it with such focus on insightful discovery to shape intense experience through design" (Hester 2013: 137). Body-landscape relations of this kind evoked a tangible immediacy akin to that found in improvisational dance. The work of Anna Halprin influenced these workshops

in profound ways, by pulling forth techniques drawn from dance into the world of landscape design.

Finally, space-driven relations focus on spatial relationships between body and landscape unmediated by objects or events. The work of choreographer William Forsythe, who conceives of "the body as a terrain acted upon by the work and an agent of inscribed and remembered forms that consciously monitors its own actualizations" (Huschka, 2010: 62), aligns with this strategy. Diverging from the previous two modes that could be differentiated as 'body as user of landscape' (design-driven) and 'body as activator of landscape' (activity driven), a more integrated notion of 'body as landscape' (space driven) positions the body as a perceptive instrument (Huschka, 2010, 67) that responds to, rather than is controlled by, prescribed landscape features or defined activities.

COMMUNITY ENGAGEMENT AS CREATIVE ENDEAVOR

Community engagement relies on tools such as activities, events or community service activities as methods of engaging participants. The purpose of community engagement varies. It may be used to build stakeholder support for a public project or to bring people together around an important issue. Typically, community members are gathered in a room to view a presentation, voice their opinions, fill out surveys or in some cases participate in a design charrette where they are invited to offer ideas. However most of these strategies have become standard practices conducted as a checklist item and often considered by designers to be an administrative burden. The effectiveness of these practices is now being called into question as alternative ways of conducting such events begin to emerge. For example, recent public processes by the landscape firm James Corner Field Operations in Seattle and San Francisco utilize a 'photo booth' as a strategy to engage the public. A large-scale photo-realistic image of a scene within the proposed project becomes the backdrop

against which people can take photos, as if they were 'in' the actual space. Ken Smith's Orange County Great Park offers visitors a 360-degree view of the park under construction by lifting visitors up into the clouds in a tethered helium balloon. Such creative community engagement strategies have created a niche for artists interested in human interaction with the urban environment. Underpinning these strategies is the augmentation of the participant's kinesthetic experience, repositioning their bodies within and above the 'site' itself, whether through an image or in actual space.

ARTIST CASE STUDIES

Performance-based art from different eras have spoken directly to the concept of 'body as landscape'. The 1960's post-modern dance movement viewed dance as a form of research, studying the mechanics of human movement or the exploration of the body in urban space. Choreographer/dancer Trisha Brown exemplifies this spirit of experimentation in her piece the 'Floor of the Forest' (<http://www.artbabble.org/video/hammer/trisha-brown-floor-forest>) which has a landscape-like quality: a grid of ropes form a raised plane as a datum within which bodies are suspended while struggling with the every day action of putting on clothes. William Forsythe uses a landscape of tabletops in 'One Flat Thing, Reproduced' (<https://vimeo.com/41151136>) to form a raised datum across which dancers move. A number of artists have created 'walking' projects, one of the earliest being that by Richard Long, where a line of flattened grass was photographed to document the trace of a past action. More recently, British artist Hamish Fulton created a walking performance where long lines of people were organized to walk in specific directions operating as geographic marking devices (http://www.adk.de/de/blog/index.htm?we_objectID=33410). Lita Albuquerque gathered 300 performers dressed in red to walk in linear patterns along the slopes of Baldwin Hills Overlook in Culver City (near Los Angeles) in the piece 'Spine of the Earth 2012' (<http://litaalbuquerque.com>).

com/2012/03/sote2012/) highlighting topographic features of the landscape. Lauren Bon led an entourage of 100 people on mules on a walk in the Owens Valley in celebration of the centennial of the Los Angeles Aqueduct. (<http://blogs.kcrw.com/whichwayla/2013/10/walking-the-los-angeles-aqueduct-with-100-mules>). Writers such as Michel DeCerteau, who views walking in the city as a form of writing, and Rebecca Solnit, with her poetic reflections on walking and thinking, embrace human movement itself as a form of landscape.

BODY AS LANDSCAPE

Situated in relation to the works above, this research seeks novel ways of deploying kinesthetic engagement to navigate the urban landscape and reveal underlying opportunities for enhancing human interaction within it. Central to this work is the understanding that the human body is both spatial and cultural material across which new narratives can unfold. Releasing the body from its conventional positioning as 'user' allows for the experience of 'body as landscape'. Rosalind Krauss' seminal article 'Sculpture in the Expanded Field' (Krauss, 1979) elucidates ways in which contemporary sculpture merges with the landscape. In a similar vein, the relationship between the human body and the landscape deserves equal attention. Elizabeth Meyer's companion article on the expanded field of landscape architecture (Meyer, 1997) offers the notion of 'figured-ground' dismantling the binary condition of body as figure and the landscape as ground, in favor of a kinesthetically engaged ground condition that further reinforces 'body as landscape'.

Body-landscape relations can be experienced through certain sports such as skateboarding (Borden, 2001), parkour (Ameel and Tani, 2013), windsurfing (Dant and Wheaton, 2007) and rock climbing (Abramson and Fletcher, 2007). In Iain Borden's theories on skateboarding and architecture each and every slope, surface, texture, bump and disruption of the urban

surface is registered as if the skateboarder is 'reading' the landscape (Borden, 2001). This "body-centric space production of time, touch, sound, muscle movement, balance, rhythm, and counter rhythm is a set of complex spatial actions...inhabitation actualizes patterns of movement" (Robinson, 2005).

BODY AS URBAN UNIT

My own exploration of 'body as landscape' took place through a workshop I led as part of the urban arts festival 'Berlin Unlimited' in October 2014 in Berlin. The participants' task was to move as a group across pre-determined areas of the city, beginning in the densely packed and highly surveilled zone surrounding the Bundestag (the German Parliament). The manner of walking was dictated by a set formation requiring that everyone be physically linked together; a plastic ring as 'holder' between each set of hands kept the group together while allowing for flexibility of movement. The rules for the walk are simple: walk in silence, remain attached as a closed loop unless one designated pair makes the decision to let go and turn the loop into a single line. The group, visually unified by their orange baseball caps, was free to move in any way, relying heavily on physical gestures and their own bodily forces to communicate with each other. Moments of playful conflict were revealed as limbs became intertwined, clumped, pushed and pulled. Stories shared by the participants after the walk revealed that qualities of the urban environment such as light, shade, scale, texture, color, movement, sound and smell became more apparent during the walk. They noted that feelings of self-consciousness dissipated because being part of the moving unit gave them permission to move their bodies freely in public space.

Straddling between a dance performance and a walking tour, the project does not represent a technique but rather serves as means of opening up a dialogue about principles that community engagement practitioners might incorporate into their thinking. Principles such



Fig. 1 Body As Urban Unit ABOVE the Holocaust Memorial, Berlin. Photo credit: Betina Kutzsch



Fig. 2 Body As Urban Unit BELOW the Holocaust Memorial, Berlin. Photo credit: Betina Kutzsch

as defamiliarization and phenomenological perception can deeply alter one's experience of the urban landscape. The performance/walk defamiliarizes or distances people from what they already know as they embark upon new spatial journeys. Body as Urban Unit engenders new modes of sociality and urban occupation that liberate people from tacit social codes while permitting play and exploration. Just as Larry Halprin's scores have been observed to be "first and foremost,



Fig. 3 Body As Urban Unit BETWEEN architecture at the Sony Center, Berlin. Photo credit: Betina Kutzsch



Fig. 4 Body As Urban Unit ON TOP OF windowsill near the Bundestag, Berlin. Photo credit: Betina Kutzsch

a search for enrichment, not immediate solutions to a problem (Hester, 2012: 136), participants are not fixated on a 'problem' they are trying to solve, but instead emerge as enlightened, open minded and, to the extent possible, devoid of agenda. Kinesthetic engagement injects creativity back into the art of participation.



Fig. 5 Body As Urban Unit WITHIN streetscape near Brandenburg Gate, Berlin. Photo credit: Betina Kutzsch

CONCLUSION

Within the taxonomy of body-space relations, design-driven modes of kinesthetic engagement (steps and benches) are so ubiquitous they easily go unnoticed. Activity-driven (Halprin workshops) can be overly prescriptive and outdated. Space-driven modes of kinesthetic engagement provide an extreme condition (body as landscape) that can be used to critique and inspire contemporary practices. Kinesthetic engagement forces people to slow down within a fast-paced urban environment, valuing the every day urban landscape in the same way that a hiker appreciates rugged terrain, reminding us that the "... the most important landscapes are those in and through which daily life unfolds" (Hanlon, 2011: 2). Performance events such as Body As Urban Unit may be too extreme for traditional community engagement, but the provocations and principles behind the work serve as an inquiry into the kinesthetically impoverished processes used for engaging the public today. The urgency of this issue is reflected in the fact that community engagement has almost become its own discipline, creating an imperative for creative action that invokes a deeper understanding of what engagement means.

Flat imagery must revert back to phenomenological experience in order to grasp the complexities of human behavior. Kinesthetic engagement, body as landscape, and figured-ground can serve as agents for constructing dynamic participatory processes of which human bodies and urban landscapes are an integral part.

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RESTORATIVE VALUE OF PINE FOREST COMPARED WITH SPRUCE FOREST: AN EXPERIMENT USING AN IMMERSIVE, SIMULATED, ESTONIAN WINTER LANDSCAPE

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ABSTRACT

Cross-country skiing in forest landscape is a popular pastime in Estonia. It is valuable to know which forest characteristics, including visual density and variation, increase the restorative value of a ski trail when designing such a recreational site. Visually more open pine forest has been reported to be a favourite type for recreational activities by Estonians. It is a common research practice to use static images when measuring landscape preference and the restorative value of environments. However, landscape perception involves aspects that static images can't represent fully, such as movement. The research reported here asked the question: would a cross-country skiing track in a visually more permeable pine forest produce better restorativeness ratings than one in a visually less permeable mixed spruce forest (as predicted by previous research using static images) when test subjects are shown simulations of moving through a landscape instead of static images? The study used an immersive landscape simulator to induce effects of perceived movement along a cross-country skiing track through both pine and mixed spruce forest, each with sections without openings, a section with large but few rectangular clear-cut openings and a section with small but numerous clear-cut openings. While viewing each of the sections of the simulated forests respondents filled in a standard restorativeness rating questionnaire. From among the multiple factors included in this perception model it was possible to associate a higher restorative value to the visually more permeable pine forest over the denser mixed spruce forest. The variation in appearance caused by one forest type changing to another also had an effect, but spatial variation caused by clearings in the forest did not have significant impact on perceived restorativeness. We conclude that where possible ski tracks should be routed through sparser forests but equal consideration should be given to variation in appearance of the forest.

INTRODUCTION

Seasonality is very prominent in the Estonian landscape and recreational activities in winter are often snow-related with cross-country skiing being a major pastime. In the case of Estonia, where forests take up a large portion of the countryside, cross-country ski tracks commonly include long sections within forests. From the perspective of forest landscape and recreational design and planning it is important to know which environments or structural properties of those environments are preferred by people. After all, designers are expected to provide beautiful and elegant solutions to real life problems. In relation to the design of natural areas and recreation sites located within them, previous research has pointed out some general tendencies in what people like. Multiple studies have shown that people prefer landscapes where large trees are scattered across a smoothly textured ground surface that is perceived to be easy to move over to create a view that resembles savanna or park (Ulrich. 1996; Kaplan et al. 1998:12). The defined depth of view that allows visual access to further parts in the landscape is another property that increases the preference (Ulrich. 1996; Kaplan et al. 1998:33,46). From the perspective of cognition (Kaplan et al. 1998:10-16), people tend to like landscapes that are at the same time easy to understand (coherent and legible) and interesting to explore (are complex and contain mystery). On the contrary, properties of a scene that are known to cause low preference include limited depth of view in the landscape (such as views blocked by dense vegetation), low locomotive permeability caused by a rough ground surface or dense vegetation, too complex and messy scenes that are hard to grasp or featureless scenes that are not interesting (Ulrich. 1996; Kaplan et al. 1998:11-16).

In the case of views within forest landscapes such findings have also been confirmed. Herzog and Kropscott (2004) confirm that coherence (ease of discerning and/or organising objects into orderly groups or patterns on a two-dimensional image plane) and legibility

(distinctiveness and ease of understanding spatial and cognitive relations between objects in environment that aid wayfinding), the two sub-factors that facilitate ease of understanding (Kaplan et al. 1998:11-16), are positive predictors of preference. Furthermore, existence of landmarks and visual access are positive predictors of legibility (Herzog & Kropscott. 2004). Similarly, in the case of views along a path within forests, the border visibility (visibility through vegetation right at the border of the track) and visual access (ability to see all parts of setting) have been shown to be positively related to preference and negatively related to perceived danger (Herzog & Kirk. 2005). A later study by Herzog and Bryce (2007) reports that in the case of lower visibility in denser forest the preference is positively correlated with visual access and in the case of good visibility in sparser forests the preference is positively correlated with mystery (visible hint of more information further ahead).

The forest cover in Estonia includes different mixes of deciduous (mainly *Betula*, *Alnus*, *Salix spp*) and coniferous (mainly *Picea abies* and *Pinus sylvestris*) stands. In the context of previous research it can be expected that mixed spruce forest, a typical example of an environment with lower visual and locomotive permeability, would be less preferred than more open pure pine forest. Indeed, pine forest has been found in earlier studies to be a favourite setting for all types of recreational activities by Estonians (Hansson et al. 2012).

Besides structural properties within a single landscape unit, the sequencing or combination of different settings may play an equally important role. In a survey that employed on-site visits by study participants Axelsson-Lindgren and Sorte (1987) found that a trail through a forest with a larger number of visually distinguishable vegetation types was judged to be more pleasant and suitable for more recreational activities. They also pointed out (ibid.) that a number of previous studies had found visual variation to be an important landscape factor in recreation area and particularly recreational

forest design. This implies that simply routing recreational tracks through settings with the highest preference ratings may not give the best possible results.

Landscape preference research may broadly focus on different measures, such as scenic beauty, aesthetic preference or restorative effects. Preference and restorative value have been reported to show high correlation. Purcell et al. (2001) showed that restoration and preference are well correlated and theorise that restorative value of a scene may be used as a basis for preference judgment – a view supported by other research (van den Berg et al. 2003; Hartig and Staats. 2006). Han (2010) argues that, although scenic beauty, preference and restoration are highly correlated, they are still discernible constructs. The design guidelines for sites for recreational purposes should therefore go beyond general preference criteria and try to maximise restoration. There are several methods for assessing restoration including self-reported scales. The widely used Revised Perceived Restorativeness Scale (RPRS) (Hartig et al. 1997) is based on four of the dimensions of the Kaplan's (1989) Attention Restoration Theory (being away, fascination, extent and compatibility), measured using a total of 16 questions. Another, more recent addition is the Short-version Revised Restoration Scale (SRRS) (Han. 2003), which is based on a combination of Attention Restoration Theory (Kaplan & Kaplan. 1989) and Ulrich's (1983) Stress Reduction Theory, and has a total of 8 questions, measuring four dimensions of emotional, physiological, cognitive and behavioural response. The SRRS measures restoration from stress in a broader sense, not just stress from attention fatigue and is considerably shorter, making it more applicable in situations where the administration of the test is dependent on available time and participants' willingness to engage.

It is a common research practice to use static images as surrogates for environments when measuring landscape preferences and the restorative value of different environments. In many situations this is considered a

valid method. However it is strongly advisable to use panoramic images and/or more than one image from each viewpoint to gain representation validity (Palmer and Hoffman. 2001; Meitner. 2004). In a previous study in the Haanja Uplands of Estonia Vassilijev et al. (2010) used photographs of different forest types for testing the restorativeness of winter forest landscapes when skiing and found that open pine forests were more restorative than dense spruce forests or shrubby areas. However, following Gibson's (1979) ecological theory of visual perception, Heft and Nasar (2000) argue that since landscape is often perceived when moving through it, studies should employ dynamic visual representations (i.e. video). They advise caution when drawing far-reaching conclusions based on studies that only use static scenes. Expanding further on the issue of movement in landscape, preference may change over time as people become used to the scenery. Viewing an image for a minute may reveal a certain preference or restorative score while exploring the landscape for several minutes could yield different results simply because of adaptation.

The research reported here asked the question: would a cross-country skiing track in a visually more permeable pine forest produce better restoration ratings by users than one in a visually less permeable mixed spruce forest (as predicted by previous research using static images) when test subjects are shown immersive panoramic simulations of moving through a winter landscape instead of static images?

METHOD

The study used an immersive landscape simulator (virtual landscape theatre) to include effects of perceived movement along a cross-country skiing track through an Estonian forest landscape with different levels of compositional variability in order to gauge the restorative value of the forests.

Two cross-country skiing tracks – the same one but experienced in two directions – through various sections in winter forests were constructed in the virtual landscape simulator (160 degree cylindrical 6m wide system, seating capacity of 15). Small groups of people, up to 15 at a time, were taken along a virtual skiing trip and asked to fill out a questionnaire survey as they were experiencing the virtual landscape. The Short Revised Restorativeness Scale (Han, 2003) questionnaire, translated into Estonian, was used to determine the self-reported restorativeness levels obtained by different sections along the track. The sample was drawn from a general public who were participating in various natural protection promotion events and tours around the campus of the university. Overall 39 participants viewed track A and 55 viewed track B. Prior to test the participants were given an overview of the questions, the track started with an introductory section to allow them to practice with filling out the answers on paper and to allow them to get used to the simulation experience. In each section of the forest the first 160m (48 seconds) section was meant for observation only, followed by a 320m (96 seconds) section for simultaneously observing and filling out the questionnaire. The general layout of the tracks can be seen in Figure 1.

The software of the landscape simulator allows the definition of different land-use classes/biotopes/stand types which are populated with parametrically “grown” plant models. It is possible to define the density, clustering/scattering parameters and dimensional variation of a range of plants. The visual appearance of the virtual biotopes was based on real-life winter photos of such environments with snow. The snow cover on the ground used a tileable texture obtained from real life photos. Atmospheric conditions during the simulations were kept sunny and clear, shadows were enabled in the proximity of the viewer and movement of plants in the wind was disabled.

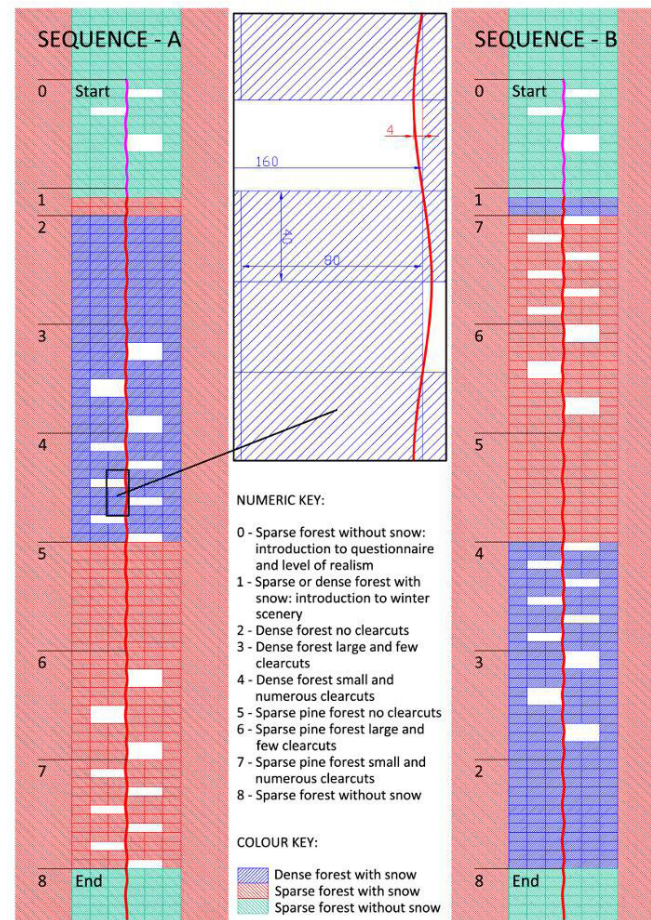


Figure 1. The principal layout of the tracks through different sections in forest and a fragment describing the parameters of track oscillation and dimensions of blocks in the forest.

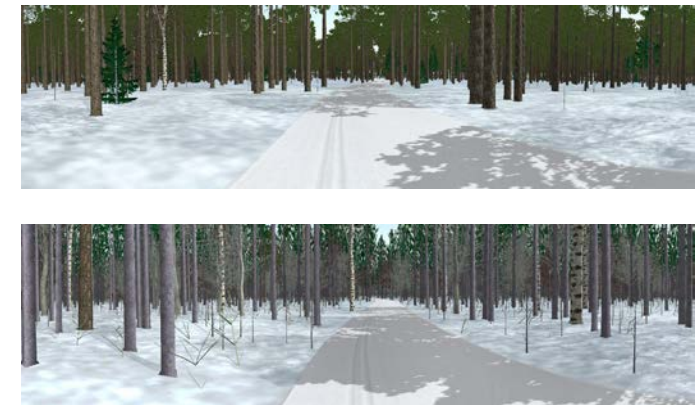


Figure 2. Sample panoramic view of the ski track in sparse pine forest (above) and dense mixed spruce forest (below).

The general trajectory of the track was straight but it followed a sinusoidal path (see Fig. 1) to avoid extremely long views that would reveal the next environment. The width of the path was 4 m and the texture was obtained from a photo of a real free-style and classic style combined track typically found in Estonia. The speed of movement was constant 12km per hour, judged by authors to be a plausible speed for a recreational skier.

Here we report only a part of an ongoing study which aims at detecting the influence of multiple variables on restorativeness, and hence the sequencing of different sections of the forest along the track follows somewhat more complex logic. The four predictor variables included in the virtual tracks were: two visually different forest stand types: a sparse pine forest and a dense mixed spruce forest (the main subject of this paper); the existence of clear-cuts as opposed to closed forest; the existence of high spatial fragmentation of the forest achieved by multiple smaller clear cuts as opposed to sections with few or no spatial variation; a significant degree of novelty achieved by a major change in appearance such as a simultaneous change of stand type and level of spatial fragmentation or season.

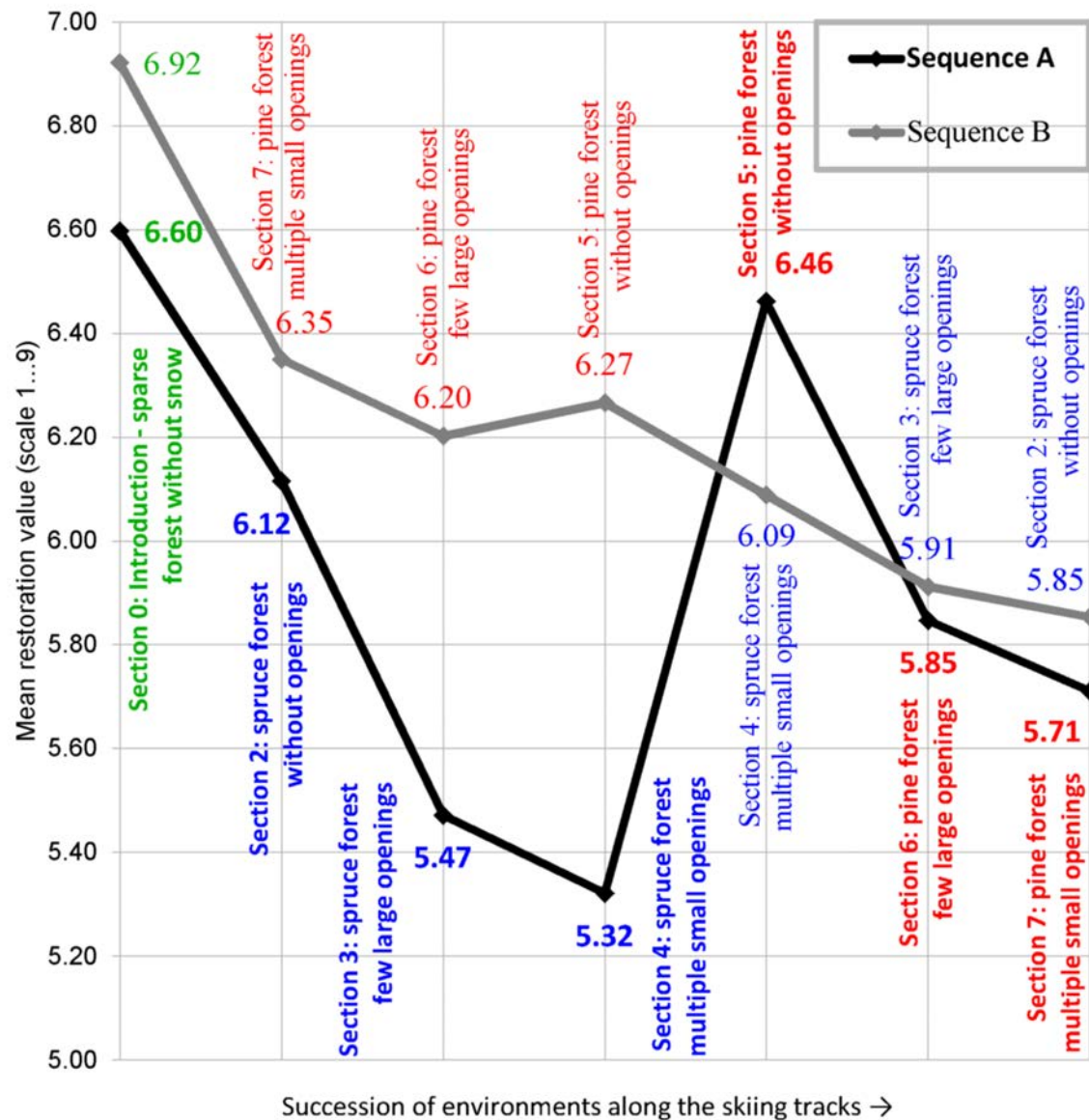


Figure 3. Graph of mean restorativeness values for different sections of tracks A and B. Consult figure 1 for additional section number explanation and colour coding key.

RESULTS

A multiple linear regression analysis was conducted to determine how predictor variables: stand type, existence of clear cuts, high fragmentation of forest with the clear-cuts and significant degree of novelty caused by stand type change may explain restorativeness values given by respondents. The regression was carried out on dataset of individual responses, not aggregated averaged data. The results show that the four component model was statistically significant: $F(4, 559)=7.140$, $p=0.000$, $R^2=0.049$, $R^2_{\text{adjusted}}=0.042$. Intercept was 5.790; the effect of stand type ($B=0.342$, $\text{Beta}=0.135$, $p=0.001$) and significant novelty ($B=0.466$, $\text{Beta}=0.174$, $p=0.000$) were statistically significant while the effect of existence of clear cuts ($B=-0.069$, $\text{Beta}=-0.026$, $p=0.617$) and high fragmentation of forest ($B=-0.237$, $\text{Beta}=-0.088$, $p=0.111$) were not statistically significant.

The mean restorative values for different forest sections obtained on tracks A and B can be seen in figure 3.

DISCUSSION

The apparently low regression coefficient of 4.2% may raise concerns. It has to be noted however that the regression analysis was carried out on individual responses, not the aggregated data of setting scores and was bound to include a strong factor of individuality. It is a noisy signal with rather small effect size (on the scale from 1-9 the biggest contrast is only 1.14 units) being analysed here. The significance of the regression was extremely good ($p=0.000$), so the model has power to show small but reliable relations between the factors and restoration.

The results show that the effect of stand type on restoration was significant, so according to this study, pine forests do have a positive effect on restoration even if subjects are experiencing it for several minutes while moving on a simulated virtual skiing track. The notion of visually more permeable forest with

higher locomotive permeability being preferred holds true when subjects are experiencing the environment for a longer duration and have a better chance of exploring the environment on panoramic screen while moving compared with looking at a static scene.

Another factor that had significant and even greater effect on restoration was the significant degree of novelty achieved by a major change in appearance such as simultaneous change of stand type and level of spatial fragmentation. Participants were immersed in the landscapes for quite a long time and probably had enough time to adapt to the visual stimuli. The strong change in the appearance had a positive effect on restoration. In viewing sequence A the biggest spike in restoration value change happens where positive effects of significant change in appearance coincides with the factor of transition to the favoured forest type. In viewing sequence B the two factors are in the opposite direction (as track A was experienced in reverse) and seem to dampen each other out. Comparing how particular sections performed in different sequences reveals a similar picture. Section 4 (fragmented dense mixed forest) and section 5 (sparse pine forest) both had better restoration score when they were introduced as a significant change in appearance (see Figure 2).

Two factors (existence of clear cuts, high fragmentation with clear cuts) that dealt with spatial variation created by openings within the forest had no significant effect on restoration scores. This is somewhat unexpected result as it conflicts with findings by Axelsson-Lindgren and Sorte (1987). It could be that a) the existence of clear cuts truly doesn't impact restorative experience b) the clear cut areas were not noticed or c) their impact was too small for the current limited dataset. During the virtual tours some participants expressed the feeling that the existence of openings in the forest was barely noticeable and sometimes it was obvious from the questions that the openings went unnoticed. This fact in itself does not prove much, however, as

the underlying reasons remain unaddressed. Openings in the forest may be perceived as an integral part of the settings and result in small or absent effect or, perhaps the effect on restorativeness may be mediated by some additional factor that as yet unexplored.

This study confirmed that the sparse pine forest is deemed more restorative than denser mixed spruce forest and this effect is not present only for a short period but continues for at least several minutes. The implication for ski track planning is obvious – cross country skiing tracks in winter landscapes should be routed through sparser pine forest in general, but equal attention should be paid to providing variation. This spatial variation cannot be achieved with the introduction of clear cut openings alone, but rather with even greater change in visual appearance.

CONCLUSIONS

It was postulated that sparse pine forests are judged to be more attractive and to hold more restoration potential than denser mixed conifer forests. Our test confirmed this in winter conditions under the condition of simulated movement. Thus skiing tracks for restorative as well as physical exercise purposes should be routed through pine forests, where possible. The other finding was that besides stand type, the factor of significant degree of novelty influenced the restorativeness just as much. So besides seeking out pine forests, an equal amount of consideration should be given towards creating an environment that is not monotonous, somewhere, where spatial and species composition changes considerably after some time – variation. Further work is needed to test the extent to which the simulated environment is an adequate proxy for the real landscape with many other perceptual factors to consider.

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USE OF PUBLIC PARKS IN AN ISLAMIC COUNTRY IN TRANSITION: A CASE STUDY OF THE ISLAMIC REPUBLIC OF IRAN

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Islamic culture, public parks, preference study

ABSTRACT

The Middle East, including Iran, has undergone significant social changes in the past two decades. There are tensions in society between the cultural structure and the increasingly younger, educated and secular population. Iranian landscape designers have to understand how people's preferences for urban parks are changing within the cultural setting, with rules governing the behaviour of men and women in public. This study investigated the patterns and preferences of use as well as the characteristics of visitors to two older traditional gardens designed according to Persian classical principles (Chehel-sotoun in Esfahan and Bagh- Phin in Kashan) compared with two modern parks designed in the 1970s following Western principles (Jamshidieh and Mellat in Tehran). The study used a combination of a close-ended questionnaire and site observations. Information on the respondents' age, gender, marital status, employment, and educational level and the frequency and timing of visits were collected and analysed. The content validity of the questionnaire was checked using the Delphi method. The results showed that compared to the west, parks are used rather differently. The traditional gardens tended to be used rarely, mostly on holidays and weekends, for a couple of hours in the mornings or evenings. The more modern parks were used daily or weekly in the early mornings and – most significantly – at night. The users also tend to be much younger, better educated and a mix of males and females. This pattern of use can be attributed to the value placed by young couples to be able to meet and date.

INTRODUCTION

The Middle East, including Iran, has undergone significant social changes in the past two decades. There are tensions in society between the traditional cultural/religious structure and the increasingly younger, educated and secular population (Statistical Centre of Iran, 2011). Iranian landscape designers have to understand how people's preferences for urban parks are changing within the cultural setting, with rules governing the behaviour of men and women in public so that urban green areas respond to these needs

The history of a interest in public space in Iran can be dated back to the Persian Empire period around 500 years B.C. Most of the gardens in Iran were based upon a geometrical regularity, the most typical feature of which was the axis. Since ancient times, the square or rectangle has been one of the complete and important figures, formed by a main axis parallel with the length of the garden and crossed by axes at right angles to form a quadrant. Gardens were always surrounded by a wall (Behbahani, et al., 2006). According to Majnonian (1996,) public spaces were used for different purposes such as for national ceremonies, coronations and announcing important news. During the 14th century A.D., the Chahar-bagh or so-called “four-square” design was considered as the most characteristic of garden design in Iran. During this period, public spaces were used for social communication, national and religious ceremonies. Many fine examples remain today and are still used by the public (see below). In modern times in some old urban gardens were replaced by new parks constructed in a typical western inspired fashion (Moosavi, 2012). It is nowadays taken for granted that urban parks form an important part of the city and benefit urban communities socially, economically, environmentally, psychologically, aesthetically (Whyte, 1980; Burgess, Harrison, Limb, 1988; Gehl, Gemzoe, 2001; Chiesura, 2004; Adimo & Bao, 2009; Jim & Chen, 2010). However, while this may be generally true it is not clear how this holds in countries with different cultural

norms and backgrounds such as Iran after the Islamic revolution, when social and cultural restrictions, especially on the freedom of women, came back into play.

According to a survey of urban parks in Tehran by Khosravaninezhad et al. (2011), it was found that most people understand the benefits of nature for their improved psychological, mental, and social well-being. The majority of people surveyed felt happy when to be nature, and they prefer to spend their leisure time outside of their residences in parks and enjoy going out and to being with other people – the social benefits being the most important. This sounds a similar story to most cities but masks fundamental differences which are uncovered by this research

Tehran is the capital of Iran and most important educational centre of the country, and is a cosmopolitan city with an eclectic, sometimes unstable mix of ancient traditions and modern fashions and prospect. Isfahan and Kashan are traditional cities; they have a lot of historical buildings. The famous half-rhyme “Isfahan nesf-e jahan” (Isfahan is half the world) was coined in the 16th century to express the city’s grandeur. Isfahan is currently developing as fast as Tehran as and maybe faster than other cities but, unlike Tehran, people are loyal to their old traditions. In Isfahan city has a lot of artists and smart students in it (actually art is in their blood).

Apart from the above-mentioned survey, little is known about users’ true preferences concerning urban parks in Iran. As Suhardi (2002) point out, if designers understand the people’s needs and behaviour when they interact with their environment, then they can create more successful plans for urban parks. Pasban Hazrat (2009), Iranian designer who was responsible for one of the parks studied here, considers that urban parks should be designed according to the needs of people. Designing a park should meet the needs of its users, and provides community with a positive image and experience..

STUDY OBJECTIVES AND RESEARCH QUESTIONS

The objectives of this study were to understand the patterns and preferences of use of Iranian parks by comparing the characteristics of visitors to two older traditional gardens designed according to Persian classical principles (Chehel-sotoun in Esfahan and Bagh-Phin in Kashan) with two modern parks designed in the 1970s following Western principles (Jamshidieh and Mellat in Tehran). Jamshidieh was originally designed as a private park for the Farah, the wife of the Shah, who then gave it to the city for the use of the people. It was designed and constructed to an especially high standard. The former classical parks are national monuments and while they are publicly accessible it is necessary to pay a (small) entrance fee and they are open until the late evening. The two modern parks are completely and freely accessible at all times, day or night. Figures 1–4 show views of each park.



Figure 1: Chehel-sotoun garden in Esfahan, a classical Persian garden and a historic monument set within the fabric of the city and enclosed by a wall.



Figure 2: Bagh-Phin garden in Kashan enclosed by a high wall with dense trees in a desert city, forming a kind of artificial oasis.



Figure 3: Jamshidieh park in Tehran, a large park in hilly, rocky topography with views out over the city.



Figure 4: Mellat park, with formal avenues and many curved paths following slopes and many elements for visitors.

The research question asked in this study was: Who currently visits Iranian urban parks and what are the differences between the types and temporal patterns of usage between traditional and modern parks?

METHODS

The study used a combination of a close-ended questionnaire and site observations. Information on the respondents' age, gender, marital status, employment, and educational level and the frequency and timing of visits were collected and analysed. The content validity of the questionnaire was checked using the Delphi method among Iranian experts (not presented here).

After pilot testing of the questionnaire it was administered face to face by the researcher. The questionnaire measured both dependent and independent variables. The independent variables in this study were gender, age, marital and employment status and education level, while the dependent variables were time of day for visiting the park, preferred activities as well as dimensions of accessibility and cultural,

security, spiritual and recreational factors. In this paper the focus is on the time patterns and their relationship to different demographic variables.

The self-administered questionnaire was randomly distributed among park visitors on a Tuesday (mid week day) and a Friday (holiday) between the times of 9am to 12 noon, then, after the afternoon break when parks tend to be empty, from 4pm until closing time (6pm) for the two traditional parks and up to midnight in the two modern parks. Respondents filled in the questionnaire while they were there and the completed ones were collected later. A random sample was achieved by asking every tenth person encountered to participate and if someone refused then the next person was asked. This approach meant that a high proportion of the visitors present could be sampled and the proportions of visitors proved to be highly representative of the users as a whole. Owing to cultural sensitivities the study required an instrument that could guarantee confidentiality and both male and female researchers/research assistants were used, the females being freer to approach women and to ask them to fill out a questionnaire than a male researcher. Questionnaires administered this way assure confidentiality of the respondents and may elicit more truthful responses. Very few people refused to participate and many showed a great deal of interest when the subject of the questionnaire was explained to them. A total of 308 fully completed questionnaires were collected in each park.

The data were analysed in IBM SPSS (Version 19) and a mix of descriptive and inferential statistical analyses were run. ANOVA and chi-square tests were used to analyse the degree of variability and the significance of the findings in the data. Each independent variable was cross-tabulated with the dependent variables to test the relationship among variables (the effects of the former on the latter). In this paper the focus is on the descriptive statistics, since these revealed some especially interesting patterns themselves.

RESULTS

The results showed that compared to the west, parks are used rather differently. This section examines a range of variables. All results presented in the graphs below are statistically significant according to the Chi square test ($\chi^2=13.571$, $P<0.05$). The results are presented with no attempt to explain them until the discussion section.

Demographic characteristics of the visitors

Demographic characteristics comprised gender, marital status, employment status, education status and age of the visitors.

Gender balance of the visitors

Figure 5 shows that in general more men than women visit parks, with the exception of Mellat Park.

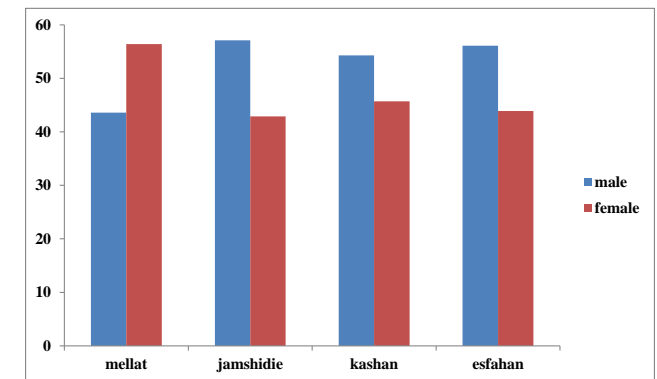


Figure 5: Gender characteristics of visitors to the sampled gardens/parks

Figure 5: Gender characteristics of visitors to the sampled gardens/parks

Marital status of the visitors and parks

Figure 6 shows that there a large majority of single visitors in Chehel-sotoun and a lesser on in Jamshidieh Park while in general in the others there was a slight majority of married people.

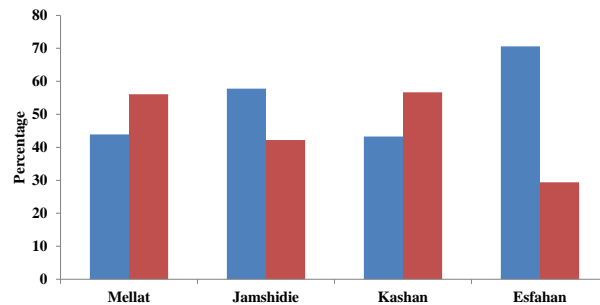


Figure 6: Marital status of visitors to the sampled garden/parks

Employment status of visitors and Parks

Figure 7 shows a diverse pattern, where most of the visitors to Mellat and Jamshidieh Parks were students and governmental employees. The highest frequency of visitors to Bagh-phin Park were governmental and nongovernmental employees and to Chehel-sotoun students and non-governmental employee. These can be considered relatively high-status social classes.

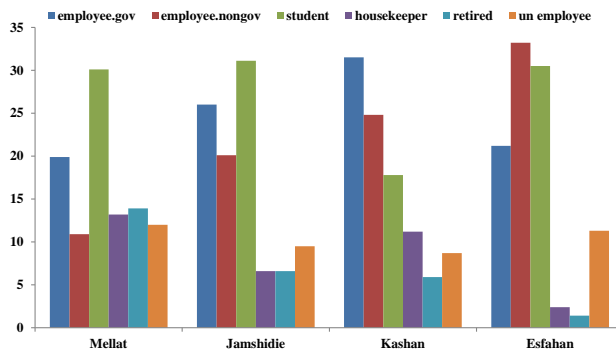


Figure 7: Employment status of visitors to the sampled garden/parks

Education status of visitors and Parks

As shown in figure 8 a small majority of the visitors in Mellat had a bachelor degree or were studying for one while in Bagh-phin the educational level was in general lower. In Jamshidieh and Chehel-sotoun graduates or university students dominated the numbers.

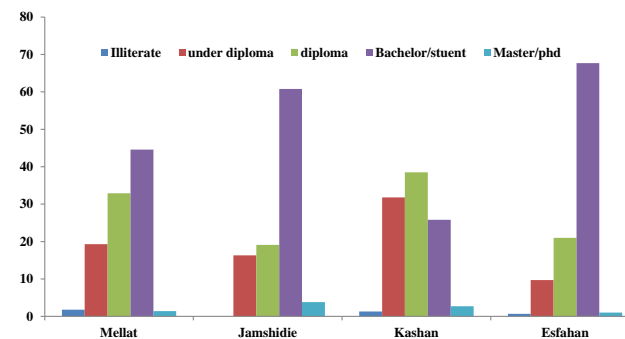


Figure 8: Educational status of visitors to the sampled garden/parks

Age of visitors and Parks

Given the results of the previous section, where graduates and students were dominant, the ages of visitors reflect this. Figure 9 shows that in Mellat teenagers and twenty-something forms a majority, in Jamshidieh it is slightly biased towards twenty-somethings. The age range is much more mixed in Bagh-phin but in Chehel-sotoun twenty-somethings significantly dominate the visitors.

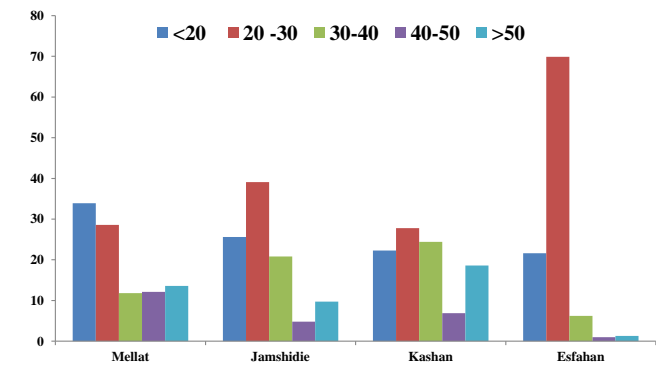


Figure 9: Age of visitors to the sampled garden/parks

Comparing the using time pattern of traditional and modern parks

This section of results compares the time pattern of park use between the traditional and modern parks. Three questions were asked: "How often do you visit this park?", "When do you visit this park?" and "How long do you stay in this park?"

Frequency of visiting parks

According to the Figure 10 the highest frequency of use was in the western-influences modern parks of Mellat and Jamshidieh Parks – daily and one or twice a week – while in Bagh-phin and Chehel-sotoun it tended to be occasional and rare visits (these gardens have entrance fees).

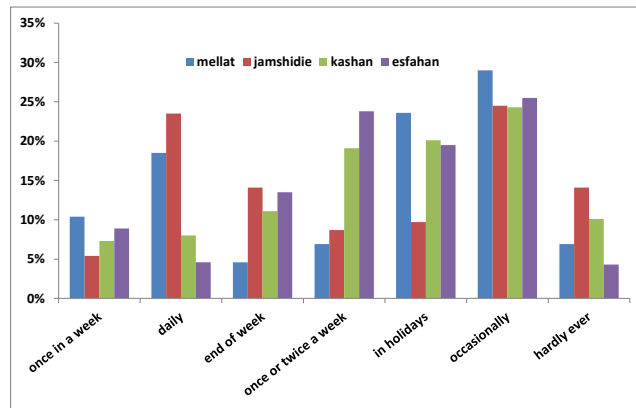


Figure 10 : Frequency of visits to the sampled garden/parks

Time of visiting parks

Figure 11 shows the different time patterns. Early morning (before the heat of the day) is the most common times to visit both Mellat and Jamshidieh, which are open all the time, while in Bagh-phin and Chehel-sotoun this was not possible due to opening times. The number of visitors late at night was also higher in both Mellat and Jamshidieh, in part for the same reason. The highest frequency of visitors to the traditional parks was observed in the morning and evening. The middle of the day and early afternoon was generally avoided in all cases

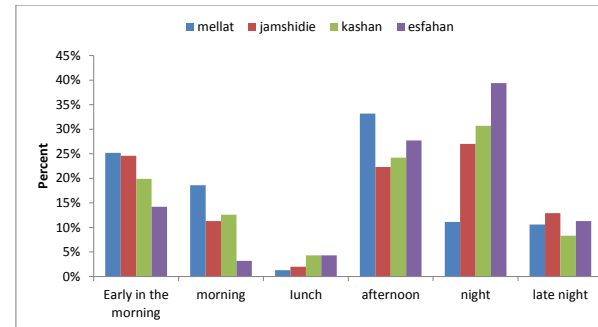


Figure 11: Timing of visits to the sampled garden/parks

Duration of visits

Figure 12 shows duration of visits to the sampled garden/parks. According to the Figure 12 the majority of use was in the modern parks of Mellat and Jamshidieh-duration of visits was more than two hours – while the highest frequency of use in Bagh-phin and Chehel-sotoun it tended to be between one to two hours.(these gardens have entrance fees).

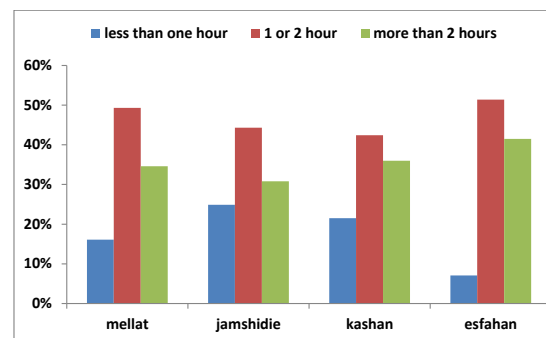


Figure 12: Duration of visits to the sampled garden/parks

DISCUSSION

The results showed that compared to the west, parks are used rather differently. The traditional gardens tended to be used rarely, mostly on holidays and week-ends, for a couple of hours in the mornings or evenings. The more modern parks were used daily or weekly in the early mornings and – most significantly – at night. The users also tend to be much younger, better educated and a mix of males and females, although in Chehel-sotoun the males in their twenties dominated. This pattern of use can be attributed to the value placed by young couples to be able to meet and date in suitable places. The dominance of students can be accounted for by the fact that Esfahan is the major educational centre in Iran. The age of the male visitors, in their twenties, can also be accounted for by the fact that most male students attend university. A major factor to note is that Iran is a young society with a higher proportion of younger people than in most western countries, which tend to be dominated in public spaces by middle-aged or older people.

The two classical parks are national monuments and while they are publicly accessible it is necessary to pay a (small) entrance fee and they are open until the late evening, The two modern parks are completely accessible at all times, day or night. Moreover, activities such as picnicking are not allowed in historical gardens, limiting the time spent there by visitors.

Iranians have historically had a special affection for gardens and had a very long history in the art of architecture and gardening design. According to Willber (1979) when talking about the relationship between Iranians and nature, many an Iranian demonstrates him or herself as a golbaz (flower lover). So it can be said that Iranian attach a special value for nature. (Hami Ahmad,et al., 2011). This is difficult to be seen in the popularity of parks in this survey, since the younger educated visitors who form the majority of users seem less interested in this aspect.

The modern parks such as Jamshidieh are used more than former parks. Because Jamshidieh is located between the city and more natural areas, it has a specific value. In designing this park Pasban Hazrat paid attention to some effective factors such as, Providing safe spaces to gather and socialise, green spaces for relaxation, contemplation, existences of open spaces, for purposes such as respect to the culture and nature has been detected (Pasban Hazrat, 2009). Then, it has this ability to benefit the residents of the city.

Due to the presence of people in parks until late evening or during the night, lighting is an important element. Jamshidieh was to some extent designed according to the taste of the 1970s and nowadays, since the predominantly younger evening users are from the modern generation who are part of the internet age, this attracts them once more. Moreover, this park is in many ways the most scenic of all parks in Tehran, owing to its origins as a royal park and its design quality probably also plays a role.

If green spaces, which are an important part of the city, are well managed, people use them more. When late evening use is so popular, feelings of safety and security must be important factors, with good management, lighting and attention to repairs and so on. In countries such as Iran, in which urban dwellers (in common with many other countries but with specific aspects here) face many mental and physical pressures, people ought to be using parks and green spaces more than they do. Iranian society places a high value on family and social gatherings as uses of parks so where these are allowed they form a larger slice of use than elsewhere. Then designing of park and green spaces must be considered as a top priority for urban planners which should be meets the needs of its users and provides community with a positive image and experience.

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LANDSCAPES OF BLINDNESS AS PERCEIVED BY PEOPLE- ESCAPING FROM VISUAL DOGMAS

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ABSTRACT

Non-visual ways of experiencing the landscape is part of the perception of all. At the same time sighted people's cognition is dominated by vision. The deeper understanding of the perception of visually impaired people is essential both to develop design guidelines and to learn from their experiences of space and integrate it to the design knowledge. As members of the Accessibility Working Group of the Hungarian Association of Blind and Partially Sighted, discussion regarding landscapes of blindness has been followed. Furthermore, site observations were done, and legislation with spatial aspects was studied. According to our observations, the manifested spatial solutions are determined by cultural and social factors. In Hungary, disability is treated as a problem to be hidden, and not as a default input of the design process. The landscape of blindness as perceived by designers is an unaesthetic global necessity, so equal access is provided only at a minimum level prescribed by law. In addition, design guidelines for visual impairments are at an early stage of development. Consequently, the Hungarian landscape of blindness is the spatial embodiment of the legal regulations. But identifying reality in analytic rules is beyond possibility. Overregulation blocks fruitful design, under-regulation provides ways for neglecting disability in the design process. Being forced to design for disabled needs – with such a poor understanding of their meaning – leads to inaccurate spatial answers. The paper discusses whether and how the analysis of the imagined ideal and the experienced real urban landscape as perceived by people with visual impairment can inform the often form- and aesthetic-based, conceptual design practice and challenge designers to harmonize the global trend of accessibility with their own individual creative ideas.

INTRODUCTION

In this research the questions raised reflect on Hungarian legal texts with spatial consequences in the urban landscape. The focus is on the sensitive relation between the deductive approach of legislation and design and the inductive force field of individual practical needs of visually impaired people. The spatial answers are determined strongly by cultural and social factors. We investigate how much freedom of interpretation is affordable in the regulations regarding disability, and how much the level of freedom depends on the well-being and social responsibility of the community. As early Wittgenstein (1922) believed natural languages (we include the language of landscape architecture) as representations of reality can be described by analytic rules and formulas. This approach failed and the later Wittgenstein (1953) realized that meanings are outlined in practice. Consequently, in an ideal situation rules are adequately represented in the practice itself, so they can be gathered from it. If it is not the case, the understanding of disabled needs is essential when spatial designers attach meanings to the various kinds of spaces.

Walkers with visual impairment experience the space via non-visual ways. The senses other than sight are part of the perception of sighted people, too, although the experience is different as they could open their eyes in an unexpected situation, and they are guided by the spatial concepts and orientation skills developed during their sighted life and by the visually derived mental map before their “virtual eyes” (Ungar, 2000). [As Downey (2013), an architect went blind at the age of 46 says: “the juxtaposition of my sighted experience up against my unsighted experience of the same places” was an “incredible experience”.] So both the sighted and blindfolded cognitions of a given space are dominated or guided directly or indirectly by vision, and are different from the multi-sensory, bodily cognition of people with visual impairment. [As Downey (2013) realized: “my unsighted experience was so far more multi-sensory than my sighted experience ever was”.] In addition, the

perception of a certain person is determined strongly by individual factors, and the difference of visual impairments makes the experiences even more heterogeneous. In summary it can be concluded that the deeper understanding of the perception of people with different visual skills is essential for both complementing the design knowledge concerning the experience of space, and developing proper design guidelines.

METHODOLOGY

One of the authors is a member of the Accessibility Working Group of the Hungarian Association of Blind and Partially Sighted (MVGYOSZ), which is a mailing group discussing about accessibility issues. This group is potent in handling this subject on a very complex and constructive way, involving many disciplines (e.g. rehabilitation engineering, architecture, technical sciences, special education, sociology, legislation) and many people living with different visual impairments. Having the opportunity to follow and participate in these discussions, questions and answers regarding landscape architecture were selected. We have visited recently renewed open spaces in Budapest (see pictures), and have analyzed if any corrections after MVGYOSZ's recommendations were done. Meanwhile, during the observation since 2009, legislation with spatial aspects has been studied.

On the other hand, we are practicing spatial designers with developed skills in the area of landscape architecture, architecture and interior design (so different scales of spatial design) with a special focus on inclusive design, and are also involved in higher education. We collaborate with colleagues, students and experts of other professions who live with disabilities or "haven't quite find theirs yet" ["I've heard it said in the disability community that there are really only two types of people: There are those with disabilities, and there are those that haven't quite found theirs yet. (...) It is certainly far more inclusive than

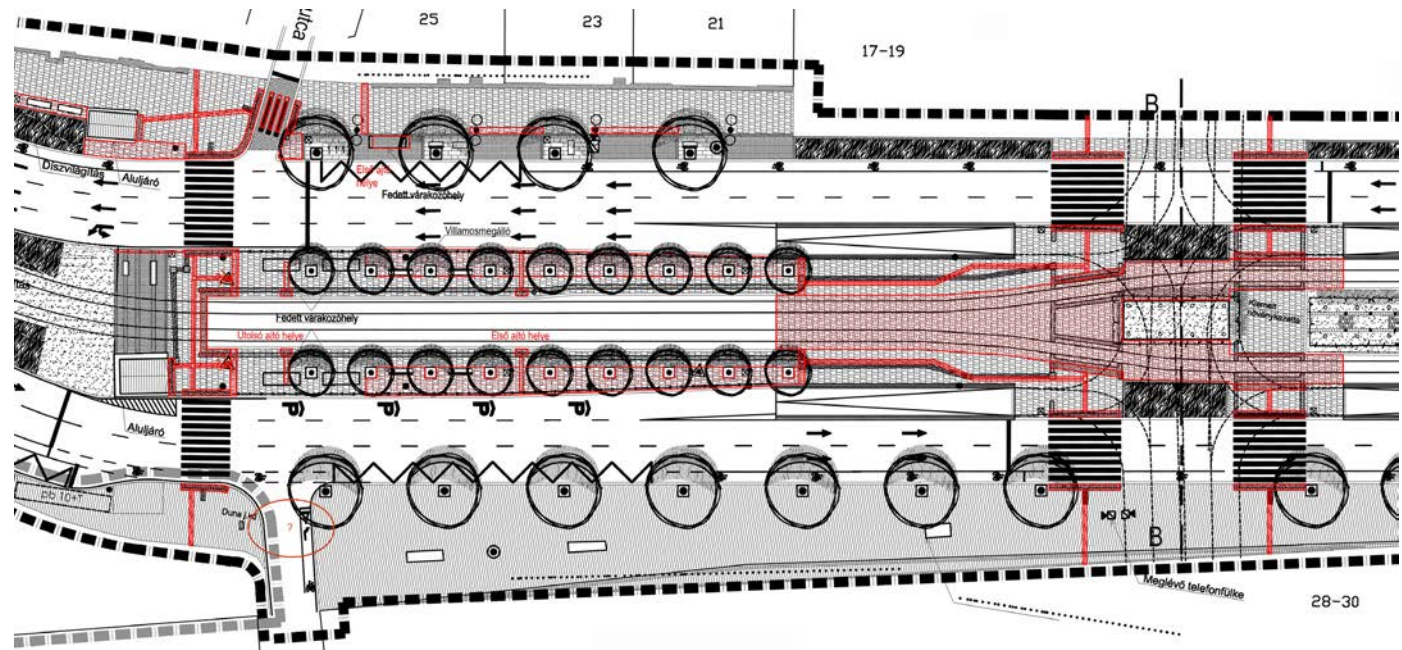


fig.1: The plans have been corrected, following the developing recommendations of the Hungarian Federation of the Blind and Partially Sighted (MVGYOSZ). (Budapest, Károlyi Boulevard) (Source: authors)

the us-versus-them or the abled-versus-disabled, and it's a lot more honest and respectful for the fragility of life.] (Downey, 2013). Via these encounters with different people we have had permanent insight to the various attitudes of spatial designers and their 'differently abled' clients toward disability issues.

REGULATIONS

The approach in the field of spatial design is architecture-dominated in Hungary. The focus is on the built environment and – regarding design for special needs – especially on public services available in buildings. Legislation concentrates on barrier-free requirements for people living with motor impairments. Urban landscapes and other disability groups get exiguous attention, and construction-related processes when

providing access to non-urban or non-built landscapes are not regularized at all by implementation laws.

In Hungary, „the built environment shall be considered accessible if convenient, safe and independent use of such areas is ensured for all persons, including handicapped persons or groups for whom special facilities, equipment or technical solutions are required.” (Act LXXVIII 1997: 2.§ 1.) The equalization opportunity law (Act XXVI 1998) modified in 2007 shifted the focus from physical obstacles and from buildings to the more complex and general concept of equal access to public services. The only implementing regulation defining how exactly these acts' principles can be put into practice is the Hungarian government decree on construction requirements (OTÉK).



Allee

pic.1: Nowadays it is a trend in Hungary to use contrasting lanes in the pavements. But if this lane should have a tactile function it became an unaesthetic necessity to be avoided or hidden. (Budapest, Allee) (Photo by the authors)



Fő utca

Pic.2: There are tactile patterns at the crossings, but they cannot be seen owing to lack of contrast. But the street furniture (e.g. the skew and edgy bollards, used only because of necessity similarly to tactile patterns) is visible and emphatic – i.e. aesthetic? (Budapest, New Main Street of Pest) (Photo by the authors)

In OTÉK (1997) there are a few guidelines – mainly for interiors – considering the needs of visually impaired people. The only one for open spaces and specially for visually impaired walkers prescribes that hanging objects over public spaces must be marked in the pavement by a warning lane (40.§ 1.). The other rule for

open spaces concerning tactile detection is that stairs with less than three steps must be marked with a sign that is perceptible for everyone at any time of the day (64.§ 5.). There are requirements for buildings – which should be extended to open spaces – about the marking of the first and last steps of the accessible stairs for disabled people (65.§ 4.), eligible information system (54/A.§ 1.) and auditory and hand-detectible information in elevators (82.§ 4.). It can be summarized that the accessibility-related concepts, features and objects (accessible stair, warning sign, etc.) are not defined properly or not defined at all and concern only interior spaces. The only exception with the hanging objects which come and go marked in the pavement which lays there for decades is over-detailed and unreal – and we have never seen this rule realized, indeed.

In the case of EU financed programs, the more detailed guidelines of Pandula (2009) must be observed. It deals with all the accessibility requirements important for visually impaired people (e.g. simultaneous tactile, visual and audible information; contrast in colour and light; legibility; moderate distance between land marks; detectable level differences) (AWARD, 2007). But during the last six years the technical background has been under progress and the requirements should be updated. The design guidelines distinguish two types of tactile patterns used in Hungary: the warning and the guiding pattern (see pic.3). The characteristics of these patterns are precisely defined, but their concrete use in spatial situations is not detailed. The focus is on the guiding pattern, although the warning pattern is said to be more important because of its function of marking features that can be dangerous when unnoticed. The guidelines also make it possible to substitute tactile patterns with a sharp change in the pavement's texture, which is not supported by the majority of walkers with visual impairments. Since 2010 MGVYOSZ has published two commitments on the form and type of tactile paving patterns and on their application in different spatial situations in urban spaces. Instead of the outdated guidelines

these non-obligatory commitments should be taken into account during the recent design process, but most of the spatial designers do not even know about them.

URBAN LANDSCAPES AS PERCEIVED BY WALKERS WITH VISUAL IMPAIRMENTS

Walkers with visual impairments experience bodily encounters with the environment, in which “movement, memory and sensations other than sight contribute to the experience of the city landscape” (MacPherson, 2007, p76). Downey (2013) says that in the lack of vision people have to rely on their non-visual senses, which may otherwise be ignored (or deluded). He states that “cities are fantastic places for the blind”, and the blind also “have a positive influence on the city itself”: the city landscape “with the blind in mind” has rich, walkable network of predictable and generous “sidewalks with a dense array of options and choices all available at the street level”; well-balanced space between people and cars; “accessible, well-connected mass transit system that connects all parts of the city and the region all around” (Downey, 2013).

According to our assumptions, there is a similarity between children's and disabled people's perception, and there is a similarity also in the way they are treated by ‘abled’ people. As Kylin (2013) says, children perceive landscape via activity, via movement, via body. So is their perspective not visual or aesthetic: among other things vegetation, terrain and distance from home are in their focus when being active outside. So when designing with children in mind, the design questions instead of “What do you want (to see here)?” would be “What do you want to do?”. Different questions lead to different design, but children's perspective is mostly not taken into account, they are separated and grownups do not even recognize (Kylin, 2013). And, as we stated, there is a similarity in the attitude toward children and disabled people in the ‘society of average people’. Children are ‘handicapped’ because they lack many physical

and mental skills for using the space, and so do people with different kind of disabilities. But the disadvantages are not derived from the lack of skills, rather they are rooted in the society: obstacles are the embodiments of this ignorant and dismissive attitude. The urban space of people with visual impairments, just like the urban space of 'under aged people' should be kept open, and the street should be democratized (Fotel, 2009).

The reports about the experience of walkers with blindness are foot-focused (MacPherson, 2007). In our opinion the reason for that is that the source of the direct information received through touch can be localized precisely. That is why tactile patterns are essential when navigating the city terrain. Until some years ago the sharp change in texture and colour was an alternative of these regular patterns, but it can cause a chaotic 'tactile noise' making it impossible to distinguish intentionally informative tactile surfaces from l'art pour l'art varied textures or pavements in poor condition. So visually impaired walkers prefer the two types of regular tactile patterns. At the same time designers try to avoid the use of these very visible and unusual elements, or at least reduce their contrast (pic.1). This aesthetic-focused approach is not interpretable for people lacking vision – and so is it not clear for young people (e.g. landscape architect students!) who socialized in a world where tactile lanes were present. [An example for that is the Heart of Budapest Program between Astoria and Deák square designed in 2006-2009, constructed in 2011. The designers' intent was to make inclusive design by using own-designed tactile paving which harmonizes with the pavement around it (pic.2), but they did not design it in the end. (Authors' comment: tactile paving should be in contrast.) When constructed no any tactile surface was laid. Later on a standard, contrasting product was used. (pic.3) / During the design process continuous consultation with MGVYOSZ was done. (fig.1) They found that, despite the mistakes, this is a successful, good example from their point of view. / According to the designers, this "ugly" (contrasting) result is not a



pic.3: The newly set pavement had to be demolished owing to lack of tactile lanes. Plans were not followed properly and some of the guiding lanes guide directly to the tramway without any attention lanes. Otherwise MGVYOSZ found this project a good example. At the same time designers find these contrasting lanes "ugly". (Budapest, Károly Boulevard) (Photo by the authors)



pic.4: Spatial features for certain functions are differentiated with different pavements. Street furniture is set in groups, outside the walking tracks. The designers use l'art pour l'art contrasting lanes in the pavements, so these must be considered aesthetical. In the case of tactile patterns, they wanted to design an individual product that harmonizes with the surrounding pavement. (Budapest, Károly Boulevard) (Photo by the authors)

good example from an aesthetic point of view (pic.4). / Students of the authors do not understand why and how accessible solutions should be integrated to the environment, because they are already there, integrated.]

URBAN LANDSCAPES OF BLINDNESS AS PERCEIVED BY SPATIAL DESIGNERS

Since the Renaissance revolution of vision the approach of landscapes and generally space became very abstract and rational due to scientific world view penetrating natural perception processes. Visual and geometrical aspects of landscapes could be projected into a very exact, therefore at the same time very reality-distant scientific system. As a result the new approach focused on visibility based, aesthetical view, ignoring all the rest of human perceptual mechanisms. Human ruling power expressed its effect on landscape and space in quite sterile, deductive ways. As Wright (1957) explains, sensitive and real fruitful design should have a very strong "from the bottom to the top" aspect to represent the detailed human and spatial factors. The pure ocular-centric deduction lacking this sensitively inductive segment of creativity leads to a design that cannot correspond with the special needs of visually impaired people. Moreover this optically dominated design attitude is ruled by a large number of useless and ephemeral visual stereotypes.



pic.5: Warning pattern used for guiding in a pavement consisting of small elements separated with wide gaps – only one of these mistakes would be enough to make the tactile pavement unusable. These mistakes have not been corrected despite the strong request of MGVYOSZ. But other designers like the aesthetics of this tactility and referred to this square when wanted to use the same layout. (Budapest, Kossuth square) (Photo by the authors)

Not only people with visual impairments but also the rest of the society by its basic character ignores the aesthetical aspect of landscape; all of us have the child-rooted affinity to evaluate spatial conditions by using the space. No doubt, we have a given visual preference to detect the surrounding landscape, which can lead to certain interpretational delusions. Designers make quite a contradictory job when, misusing this human quality, they give an overwhelming role to the aesthetical, ocular-centric perception against the rest of our basic senses. Evidently it represents their elementary interest to create 'space-consumers' who prefer easy-to-use visual patterns to understanding the complexity of the current spatial problems.

In our subject we should continuously reinterpret our aesthetic canon, always focusing on well-functioning and the totality of the human senses. We should be able to integrate the special needs of people with disabilities into a new type of transparency, where the necessary design components lose their disturbing properties by accepting them as natural, evident factors of creativity (Kecskés, 2014).

In the field of legislation we can face two extremities: over- and under-regulation. Overregulation blocks fruitful design, under-regulation provides ways for neglecting disability in the design process. To find the golden mean society should be mature enough to handle the equality problems. The fact that Hungarian society is rather badly developed in accepting and treating disability is projected to the design solutions that coincides with the anomalies described above. Being forced to design for disabled needs – with such a poor understanding of their meaning – leads to inaccurate spatial answers, which can become references for later projects spreading the wrong examples (pic.5). The solution could be to liberate all the creative factors and let the spontaneous processes of the appearing force field work (Kecskés, 2012), inspiring the design process.

CONCLUSION

It was stated that the disadvantage of people with disabilities is the outcome of the social attitude being intolerant toward diversity, and that obstacles are the manifestations of this phenomenon. The position of tactile lanes in the city is similar to visually impaired people's position in the society. Until 'average people' are forced to deal with disability issues from above and they feel they do a favour for others if they respond to these issues, adequate reflections resonating special needs will not be represented in the practice itself, and disability-ignorant meanings will be attached to the urban landscape.

Our intent was not to give particular answers, but to open up the discussion and keep it open. Spatial designers work with space: terrain, water, vegetation, objects, light, colours, harmonies and contrasts – it is a challenge to combine these elements and tools in a design that is inviting everyone to be active outside and form the urban landscape through this "embodied practice» (Ingold, 2000). Via the deeper understanding of the 'visually impaired experience' of space designers could be challenged to harmonize the global trend of accessibility with their own individual creative ideas. When designers and the people they design for collaborate during the design process and communicate their needs in order to be able to learn from each other, the understanding of space can be expanded and result in a good, inclusive design.

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EMOTIONAL WELLBEING RESTORATION OF THE VISUALLY IMPAIRED: THE ROLE OF GREEN SPACE

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KEYWORDS

Emotional Wellbeing, Preferences, Individual Motivation,
Outdoor Mobility, Walk-along Method

ABSTRACT

Green space is an important resource providing many benefits to people. However, there is a gap in knowledge on how green space can be beneficial to visually impaired people, particularly those losing their sight at a later point of life. As well as the physical disability, such people have been shown to be emotionally affected after being diagnosed with sight loss which has tended to reduce their degree of outdoor mobility and, subsequently, can lead to social exclusion. Going from being sighted and freely able to use the outdoors to gradually or suddenly becoming blind or partially sighted and unable to navigate a familiar place adds to the problem. Research was carried out into the possibilities of using green space towards the restoration of emotional wellbeing in people with Age-related Macular Degeneration (AMD) living in Scotland, United Kingdom. An analysis of qualitative data collected by interviews among 13 subjects revealed that the continued use of green space has significantly contributed towards supporting people with late-occurring visual impairment in coping with their emotional well-being in two ways: 1) as a medium to improve their individual motivation for undertaking physical and social activity and 2) act as a suitable environment for this group of people. In addition, certain characteristics were identified that made green space a good place to promote emotional restoration such as natural ambience, stimuli from nature and facilities. The results can be used as a basis for better green space design and management and also a fresh dimension of rehabilitation programmes. It is recommended that further research on the needs and preferences of people with other types of visual impairment is conducted, to get a holistic understanding about the restoration effects of green space for visually impaired people.

INTRODUCTION

Green space plays a vital role in promoting both mental and physical health and wellbeing in people generally (Ward Thompson et al. 2012; Mitchell 2013; Nutsford et al. 2013). There is also a growing body of literature that recognises the effect of visual impairment on quality of life (Brown and Barrett, 2011; Marques-Brocksopp, 2012; Nyman et al. 2010;) and there is increasing concern that the access to the benefits of green space by this group of people, especially those with late-onset visual impairment is still under-researched. Despite the fact that green space can be used as a therapeutic landscape in for people in need within health care settings, the in-depth understanding of how green space helps in promoting emotional wellbeing in people with late-onset sight loss, an group increasing in number as a result of the ageing society, remains a major challenge. Therefore, it is important to understand what role neighbourhood green space can play for this particular group of people.

Emotional wellbeing is one of the issues that frequently emerges in research involving visual impairment. This requires more attention because people with sight loss, especially at the later stage of life, are often significantly emotionally affected and exposed to social exclusion as a result of their reduced outdoor mobility (Charles, 2007). It is also often associated with a feeling of inevitability (Douglas et al. 2012) which can lead to loss of motivation and depression. A counselor who works with visually impaired people, Southwell (2012), examined the common feelings in people who had sight loss, particularly when it was recent, and concluded that these feelings are also associated with an individual's acceptance of the impairment. It was shown that the change from being able to move about quickly and freely to gradually or suddenly having to slow down, generated feelings of frustration and anger. It was also often reported that people had feelings of anxiety and sadness. Over time, these feelings eventually affect their overall quality of life.

This study aimed to contribute to the growing area of research into the restoration potential of green space and its effect on emotional wellbeing by exploring the benefits that can be extended to visually impaired people. The main objective was to understand the priorities of a group of people with late onset visual impairment caused by a particular disease known as Age-related Macular Degeneration (AMD). This disease mostly affects older people although it can be detected as early as at the age of 50. It causes central vision loss and makes recognising faces, seeing details and reading difficult or impossible. However, people with AMD will never become completely blind because the peripheral vision is not affected by the disease, so they end up in a situation where they can be extremely frustrated with this partial vision.

It is known that people with a visual impairment often feel apprehensive about being outdoors in less-predictable places due to the 'perception of difficulty' that they might have with regard to certain environmental characteristics such as sound and equipment (Gustafson-Pearce, 2005). This perception is based on changes or losses to the individual mental landscape which people once took for granted and it is consistent with the view that people with recent sight loss are more likely to claim it as an individual barrier or to have less outdoor mobility (Douglas et al. 2012). It has also been shown that the less time that sight loss has been experienced, the more people tend to be depressed and have a lower life satisfaction (Brown and Barrett, 2011) especially when they feel unable to pursue activities which they were very fond of before the impairment struck. To overcome this problem it is essential to encourage this group of people to get out of the more familiar home environment (which often leads to social isolation) and to use green spaces that can offer them emotional restoration. This kind of salutogenic environment is one that can promote general wellbeing (Ward Thompson et al. 2010) but it has to supply the affordances needed by the visually impaired in order

to support their cognitive experience. Underpinned by this concept, the study was conducted in a neighbourhood green space that was known to the participants because familiarity enhances the functional significance to the individual and hence, offers more restorative opportunities compared to an unfamiliar environment.

This paper examines: 1) the relative importance placed by people with late onset AMD on different green space characteristic found in the neighbourhood park; and 2) how this is associated with the emotional restoration provided by the green space. Understanding this should enable landscape designers to provide better landscapes that can encourage a more effective restorative effect for this group of people. Moreover, such places can also function well with normal sighted people so that it is not necessary to design exclusive places.

METHOD

A qualitative strategy structured around a descriptive social survey was chosen to investigate elderly people with central vision loss across Scotland with the aim of understanding their experiences in using their local green space. Two different methods of semi-structured interviews were used to gain an understanding of how they had experienced the same green space before and after sight loss.

The Sample

The sample for this study was drawn from participants of the Macular Society Support Group across Scotland. Thirteen individuals were studied in depth. Five participants volunteered for a walk-along interview in the park close to their home while another eight participants were more comfortable being interviewed at home due to their physical and health condition. The interviews lasted for between 60 and 120 minutes. The sample comprised participants aged from 60 to 99 years old. The sample is small due to both the limited pool

of people suffering from AMD, the need to use participants with a local green space which had been familiar to them before vision loss as well as their willingness to participate in the study, given their disability.

Data collection and analysis

The walk-along interviews were conducted in the spring and summer because the weather permitted outdoor activities in the park. The place of the interview was selected by the participants because of their familiarity and frequency of use. The home interviews were conducted at the participants' houses because their health condition did not allow them to be outside for a long period of time. However, the questions were based on the same major area of inquiry: 1) their activities and frequency of visits; 2) their preferences; 3) their feelings about their sight loss; and 4) their feelings when in the green space. The interviews were recorded with the permission of the respondents and manually transcribed. Analysis of the transcripts was done manually using descriptive coding following an inductive approach. The coding process was conducted by hand because this created more engagement with the respondents' stories.

FINDINGS

Two broad themes emerged from the analysis of the interview transcripts with four categories in each theme. The themes revealed that the green space continued to play an important role in the emotional wellbeing of the study participants by, firstly, offering a compatible environment to them. Secondly, the parks also acted as a medium to improve their individual motivation to undertake physical and social activities in the outdoor environment, thereby improving their mood and degree of outdoor mobility.

Compatible environment

This finding suggests that green space has to be compatible or fit with the functional significance of people with a visual impairment before they can benefit from the restorative effect of it. What precisely this compatibility consists of emerged from four factors which were prioritised by the respondents with regard to what such an environment must offer. These are: nearness to where they live, opportunity for various activities, a natural setting and public acceptance.

The neighbourhood park was the most frequently visited green space by the study participants because of the close proximity to their homes. The nearness was important to them because it made accessibility to the park easier despite their physical condition, which did not allow them to go very far from home and the familiar environment which they had known before they lost their sight. Furthermore, all of the respondents had given up driving, which had reduced their independence and outdoor mobility a great deal for travelling further afield. The nearest green space was used as a place to undertake physical and social activities, for example, meeting other park users. The most preferred activities were walking and sitting down, enjoying the fresh air and listening to the birds (sounds becoming more significant than before they lost their sight). Some of the respondents visited the park to do light exercise by just walking along the footpath. Very few used the green space merely as a transport route. Due to this fact, it was not surprising that a natural ambience was preferred by the respondents, such as an informal atmosphere and layout, a small stream running across the park and also the presence of the birds and other wildlife.

There was also a non-physical factor that raised concern among most of the study participants and which affected their feelings of comfort when using the local green space. This was their perception of the degree to which they were publicly accepted in the park. They

were most concerned about cyclists and dogs, and whether or not the latter were on a leash. This was due to their visual and hearing limitations, which made them less aware of approaching cyclists and dogs. To them, this can feel dangerous if they are surprised or if a sudden movement in their peripheral vision causes them to fall. This situation makes them feel intimidated when they have to share a footpath in the park with other users who are unaware of their impairment. This is because AMD does not cause any physical changes. And the sufferers appear normal to other users.

Individual motivation

The most common feelings mentioned by the respondents on being first diagnosed with a visual impairment were shock, frustration and anger, although some of them were already resigned to their condition. These feelings affected their quality of life, and the newly occurring visual limitation also caused problems. Being unable to recognise a formerly familiar face or read a favourite book or newspaper, and also their suddenly limited mobility, were the main factors that affected their emotional wellbeing. This study found that a suitable environment in a green space can offer them a restorative effect in regard to these feelings, helping them to relax and calm down and to feel less frustrated and angry. Such an environment can encourage motivation for the visually impaired to undertake physical and social activities outdoors. Four factors that tend to support this motivation emerged: self-confidence, previous memories of the green space, self-worth and support from other people.

Self-confidence appears to play an important role in motivation for undertaking outdoor activities. There are three main factors that encourage self-confidence in the visually impaired when visiting a park. These are safety, a hazard free footpath and familiarity with the space. These factors are important for this group because of their role as physical and mental affordances.

Previous memories also played an important role in the motivation to visit and use the green space. These could be either childhood memories or those of previous activities which took place before the person lost their sight. These memories were beneficial because they brought back a feeling of contentment when being in the green space. This feeling was closely related to the respondents' previous background, which automatically became a source of determination for them to use the green space as they had done before losing their sight. For example, respondents who had previously had jobs as gardeners or who had worked closely with nature tended to be more determined to undertake outdoor activities. The findings also revealed that the respondents with more determination were those with higher self-esteem and generally more optimistic. They had the ability to bounce back quickly from emotional distress. They also had strong determination to get back as close to their normal activities as possible. It seems that these internal factors were interwoven with each other and a compatible environment became a mediator.

The other factor that was no less important in increasing the motivation to visit green space was support from family members and friends. The support they received brought enjoyment to them when visiting the green space because it made them feel that they were not being left behind due to the impairment and they could still enjoy their favourite activity in the park together with friends and family. It also made them feel safer when doing activities in the park being with other people rather than being alone.

DISCUSSION

This paper explored the understanding of the association between neighbourhood green space and the preferences of people with a visual impairment. In general, the findings show evidence that people with a late-onset AMD visual impairment can also benefit from the restorative effect provided by green space and that such spaces are

compatible with their affordances. The evidence supports the body of knowledge on green space benefits, which can be extended to a different group of people. It directly reflects the attention restoration theory (ART) of Kaplan (1989), which is that the environment has to fit with the affordance of the people to avoid fatigue due to directed attention (Kaplan, 1995). An incompatible environment requires the visually impaired people who are unfamiliar with their new condition to be more attentive and consequently they avoid using such a space because it prevents them from enjoying the environment.

Furthermore, the findings also suggest that green space can form a medium to encourage individual motivation for AMD people to undertake physical and social activities outdoors. Nevertheless, this motivation does not come directly from the environment but rather from specific attributes that the people have contact with in the green space. That attribute becomes a stimulus to generate an improved mood and a feeling of contentment and appreciation of the experience. The stimuli from nature, like the sounds of birds, the sound of gurgling water from a stream and feeling the cool and soft texture of grass seems to be the most preferred attribute by study respondents. This stimulation can alter people's feelings or core affect (Russell, 2003) and, as a result, it makes them feel motivated to visit and use the space more frequently even after sight loss.

People who had worked closely with nature showed a higher self-worth and determination to get back to the normal life that they had before. They also had higher resilience and better coping strategies with regard to the emotional issues. In this case, green space played an important role in their coping strategy by becoming a catalyst for motivation to be active outdoors. The findings further support the idea that having positive emotions makes people become more resilient (Tugade and Fredrickson, 2006).

Taken together, these findings suggest that there is an association between previous memories and the motivation to undertake outdoor activities. Some people still use the park because it brings back memories from childhood or before they lost their sight. This is consistent with previous empirical evidence that childhood memories are linked with levels of visitation to green space (Ward Thompson and Aspinall, 2011). The finding also supports the idea that having contact with nature has a positive effect on people's emotional state (Roe and Aspinall, 2011). This concurs with the Biophilia model, which was introduced by Erich Fromm and popularized by Edward O Wilson (Bell, 1998). The model explains the need for people to have contact with nature and people cannot be separated from nature.

CONCLUSION

This paper has argued that green space benefits can be broadened to people with late-onset visual impairment in order to promote their improved emotional wellbeing. The study found that in general, green space plays two associated roles in helping people with a visual impairment to cope with their emotional distress. First, it offers a compatible environment and secondly, it becomes a medium to encourage individuals' motivation to increase their outdoor mobility. These findings may help us to understand that a decrease in the degree of outdoor mobility, particularly visiting green space, by people with a visual impairment such as AMD, is not due to the sight loss. Rather, it is the incompatible environment that requires them to be more attentive and thus, eliminate their sense of appreciation. Therefore, in order to encourage them to gain a restoration benefit from the green space, such a space has to fit the affordance of the person with the impairment. Finally, it is suggested that further research should be done to investigate the priorities set by people with different types of visual impairment, for example, people with peripheral vision loss caused by another type of eye disease (e.g. tunnel vision). It is also recommended that

future research should focus more on the walk-along method when dealing with people with a visual impairment or other disabilities. The method was proven to reveal more evidence of the individual feelings and experiences associated with the park rather than merely expressing the individual explanation of the feelings. The walk-along method was more relaxing for the participants and can be conducted informally in order to get people engaged with the surrounding place.

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TEACHING SUMMARY REGARDING COLOUR ASPECTS IN LANDSCAPE STUDY PROGRAMS IN THE NORDIC COUNTRIES

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ABSTRACT

The colour element is an incredibly important factor in how landscape and garden environments are experienced. Colour knowledge is thus an important element and attribute that should be highlighted in the landscape programs. The paper presents a minor overview of the occurrence of colour issues, colour exercises and chosen material and how these colour practices are communicated and presented in landscape study programs in Sweden, Denmark, Island, Norway and Finland. The summary is organized according to the following headings: 1) The frequency of colour related education, 2) Indoor colour exercises, 3) Outdoor colour exercises, 4) Specific lectures, seminars, workshops and literature seminars about colour, 5) Research on colour and vegetation in the outdoor environment. The paper further explains and discusses the used methodology and teaching processes at the studied Universities. The used methods include for instance classical colour theories and exercises based on Josef Albers theories in the book *Interaction of Color* (2009), such as “teaching in the relativity of color”, “color mixture in paper – illusion of transparency” and Johannes Itten’s theories in the book *The Art of Color* (2002), such as “The 12-hue Color Circle”. The most frequent materials used in indoor exercises are for example *coloured cardboard* and *water colours*. When analyzing and setting up exercises in the outdoor environment one of the most frequent methods used are to study the colours of nature with a standardized colour system such as *RHS-Plant Colour Chart*, *NCS-Natural Color System* or *Pantone-Colour Chart*. The paper reflects and discusses the limited time available for specific colour lectures, workshops and seminars and how these limitations might affect the capacity of the students and by extension the landscape design and the continued development of the field.

INTRODUCTION

Our outdoor environment is constantly changing through seasonal changes, vegetation dynamics and succession. The perception and feelings of these environments is something that is created by all our senses, with the vision as a central sense (Dodwell 1995). In this perspective the “colour vision” is an incredibly important factor in how landscape and garden environments are experienced. Therefore you can say that knowledge about colours in the outdoor setting is essential to all professions dealing with landscape design and that colour understanding is consequently an important element and attribute that should be highlighted and discussed in the landscape programs.

The aim of the study was thus to identify educational situations where the main focus was on colour exercises. Within the project a number of Universities in Europe have been contacted. In this paper only the Universities in the Nordic countries are included. It is important to stress that not all departments engaged in landscape programs from each Nordic country is included in this study, as all has not answered. The paper should be seen as a work in progress and the results must be viewed in relation to each University – that means not in relation to entire country presented.

The project focused on undergraduate education (bachelor level) and was conducted during the years, 2013 and 2014 at the Swedish University of Agricultural Sciences in Alnarp. Important to notice is that different projects during a student’s education also discuss colours in relation to the environment and specific project.

It has emerged that some conductive departments in Norway and Finland are not actively working with teaching in colour in their study programs e.g. in Landscape architecture program at the Norwegian University of Life Sciences in Norway and in the Landscape planning study program at the Novia University of Applied Sciences and at the University of Applied

Sciences, HAMK in Finland. Low priority of the theoretical aspects of the subjects form and colour turned out to be the reason why Norway (Norwegian University of Life Sciences) during parts of the academic years 2013-2014 did not work actively with colour exercises in the bachelor program. Finland deals with colour in terms of design, colour is this not the central issue in the bachelor programs (Novia University of Applied Sciences and University of Applied Sciences, HAMK).

On the contrary, the collected teaching material shows that the educational programs in Sweden, Denmark and Island included in this study, added relatively high importance in the area; however the percentage of hours spent on colour education could usefully be increased. Research material such as course descriptions, schedules, exercises and course literature (books/articles) has been studied more deeply and has contributed to the overview (Table 1) as it exists today. Below is a brief description of commonly occurring used methods and materials used in the colour education.

Summary of the investigated colour exercises in the landscape programs, the table is organized according to the following headings: 1) The frequency of colour related education, 2) Indoor colour exercises, 3) Outdoor colour exercises, 4) Specific lectures, seminars, workshops and literature seminars about colour, 5) Research on colour and vegetation in the outdoor environment. The relation between indoor and outdoor exercises has been preliminary estimated.

METHODS AND MATERIALS IN COLOUR EDUCATION

The studied landscape programs use various methods and materials to gain an understanding of the importance of colour aspects. The most frequently used praxis is indoor exercises when colour theory is taught, reflected and investigated at the landscape programs. The methods of the exercises include for instance classical colour theories and training

	The frequency of colour related education	Indoor colour exercises	Outdoor colour exercises	Specific lecture about colour	Specific workshops about colour	Specific seminars about colour	Specific literature seminars discussing colour	Ongoing research on colour and vegetation/ outdoor environment
Swedish University of Agricultural Sciences, Alnarp Landscape Architecture, 18ohp (30ohp) <i>Peter Dacke</i>	1.2hp	100%		X	X	X		X
Horticultural Management program with specialization in Garden Design, 18ohp <i>Petra Thorpert</i>	2.4hp	25%	75%	X	X	X		X
Swedish University of Agricultural Sciences, Ultuna Landscape Architecture, 18ohp (30ohp) <i>Malin Eriksson/Ylva Dahlman</i>	1.5hp	100%		X	X	X	X	
University of Gothenburg, Mariestad Garden and Landscape crafts 18ohp <i>Maria Henje, Eva-Lena Öhman</i>	2hp	65%	35%	X	X	X		
Agricultural University of Iceland Landscape Planning and Architecture, 18ohp <i>Helena Guttormsdóttir</i>	4hp	60%	40%	X	X	X		
University of Copenhagen Landscape Architecture, 18ohp (30ohp) <i>Richard Hair, Elzélina Van Melle</i>	2.5hp	35%	65%	X	X	X		

Table 1.

based on Josef Albers theories in the book *Interaction of Color* (2009), such as “2 different colours look alike – subtraction of colour” and “factual mixtures – additive and subtractive” and Johannes Ittens theories in the book *The Art of Color* (2002), such as “simultaneous contrast and contrast of extension”.

Theoretical exercises are visualized both in an abstract way through non-figurative images and in a figurative way through studies of the human body (figure 1). The most commonly used material in the theoretical colour exercises was coloured cardboard and water colours.

Outdoor colour exercises provided analyzes and exercises such as *Development of student's perception of colour of green vegetation on the basis of distance and species, Identification of colour and shape by using photographic images* (figure 2), *Identification of colours in the outdoor environment depending on season and light* and *Studies of humans experience of colour in an urban context*. The most frequent analyzing tool when studying colours in an outdoor setting is the use of a standardized colour system such as RHS-Plant Colour Chart (figure 3), NCS-Natural Color System or Pantone-Colour Chart. The choice of system is based on the purpose of the exercise

as well as communication preferences. For example, the RHS-Plant Colour Chart is developed with the purpose to describe colours and nuances of plants (Voss 1998) while the use of Pantone – Colour Chart and NCS-Natural Color System simplifies the transformation of the intrinsic and perceived colours into computer programs. Also photographic images, water colours and summer flowers were commonly used as analyzing objects.

The methods used aims to increase the understanding of colours and of colour as part of a conscious



Figure 1. Colour studies of the human body with watercolours. Sources: Petra Thorpert



Figure 2. Colour studies of the outdoor setting using photographic images. Sources: Helena Guttormsdóttir



Figure 3. RHS-Plant Colour Chart is a commonly used analyzing tool in outdoor colour exercises. Sources: Petra Thorpert

design approach. It appeared that the colour exercises and the theoretical colour literature used by the educational programs were very diverse. To get an overview of the literature used within the colour field at the Universities and the study programs within the field of landscape architecture and garden design the literature references are listed in Appendix I.

REFLECTIONS AND CONCLUSIONS

The study has for instance explored the frequency of colour related education elements in relation to the Bachelor program overall credits as well as the division of indoor and outdoor colour exercises. The most striking feature is how little time is set aside for colour issues compared with how much instructional time a student spends on the entire landscape education (table 1). The difference in instructional time used in the educational programs in Sweden, Denmark and Iceland between indoor and outdoor exercises is also parable and it is surprising that so little time is spent on practical outdoor exercises since the colour element is a key component in our visual experience (Fridell Anter 2008). Also the lack of research on colours in relation to outdoor environments in most landscape departments is striking.

The Universities exclusion as in Norway and Finland, or limiting of instructional time for colour exercises, is an observation worth reflecting on. I have as a professional teacher in the landscape and garden programs at the Swedish University of Agricultural Sciences in Alnarp experienced that colours have a secondary role in relation to other aspects in seminars where student projects are discussed and graded. An observation which, together with the results of this study is something professional teachers in the landscape programs ought to reflect on, since environmental colours have the ability to strongly affect people's feelings (Küller et al. 2009) and as the experience of colours is a part of the discipline of environmental psychology and the concept 'sense of place' (Grose 2012).

Main conclusions

The element of colour directed education is relatively limited in relation to other subjects in the educational programs being part of this study, and in some cases totally lacking.

With the exception for the Horticultural Management program with specialization in Garden Design at SLU, Alnarp and the landscape program at the University of Copenhagen, the indoor exercises dominates in relation to outdoor exercises in contact with living materials and landscapes.

Ongoing colour research in relation to landscape and garden design is only conducted at the Swedish University of Agricultural Science among the University environments included in the study. (Also at the University of Gothenburg until 2012 and at the University of Copenhagen from 2015).

This indicates the need of exchange of methods and experiences between the educational programs in the fields of landscape architecture and garden design in the Nordic countries and probably in all European countries in order to raise the overall quality within the colour pedagogics as well as within other fields of landscape design.

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APPENDIX I

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CONTINUOUS PROFESSIONAL DEVELOPMENT AS A TOOL FOR STRENGTHENING PUBLIC COMPETENCES OF LANDSCAPE ARCHITECTS IN THE BALTIC SEA REGION

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ABSTRACT

The concept of landscape architecture, relatively new profession and discipline in Lithuania and Latvia, is going through the general transformation of paradigms of education, changing attitudes to planning, design and maintenance processes and competences. Considering the extremely rapid technological development, exchange of understanding of natural processes and human impact on them, the deepening of the general concept of sustainability, the knowledge and related skills of landscape architects become outdated soon after leaving academic environment. Modern lifelong learning programme for landscape architects presents an important response to the necessity, the essential feature of which is setting a platform of cross-professional real-life experiences for its participants that inspires to simulate the most efficient forms of learning and teaching facilitating exchange of experience and new knowledge in the continuous professional development process. The article presents the innovative aspects and benefits of the professional upgrading framework: a personal experience of the trainers and the trainees as the basis for learning; the variety of approaches and methods employed to fill the gaps in delivering instrumental, communicative and systemic competences of landscape architects.

INTRODUCTION AND BACKGROUND

Landscape architects develop their practices in the situation of constant social changes and development of civil society. Geopolitical constraints of the 20th c. and the following break with former soviet regime in 1990 has fragmented community life in Latvia, Lithuania and the other countries of the region, also grown negligence to community life including activities in urban neighbourhoods. As a strong instruments to shape quality of public and residential environment to the way that facilitates social interaction landscape architecture could be used more to accelerate understanding of benefits of social capital growing in community life.

Numerous cases pop out when public has expressed dissatisfaction with the results of professional activities in urban development, housing and other projects. Critics on the results of development often appear after missing the opportunities to discuss the forthcoming projects in their own neighbourhoods. For this and many other reasons, public involvement into discussing landscape architecture projects in Lithuania and Latvia is still vague, episodic and fragmented. This is one of the reasons why public debate on many strategic issues of urban development including future of public spaces of our cities has to be brought to the domain of competence for landscape architects in their daily professional work on residential, public and even industrial environments.

Landscape architects are developing their practices in the context of present maturity in civil societies in our countries therefor universal and specific issues arise to the professionals in different countries. Refurbishment and upgrading of public space, development of mobility and other infrastructural solutions, specific issues of reusing the deindustrialised areas and finding the proper destination for the vast ones are the major professional challenges that landscape professionals in Lithuania and in Latvia are facing in recent years. The need for specific knowledge and working skills in sustainable site planning, water management, mobility, application

of green materials is just coming onto the agenda of landscape architecture professionals, and resolving these issues needs updated professional competences. Quality of professional services provided by public administration also faces issues of weak interdisciplinary cooperation and needs upgrading. As all that is the result of proper knowledge and skills of landscape architects, which also depends upon their ability to apply traditional and innovative solutions, modern working methods, implement research results and the other benefits of professional growth, the process of continuous professional development (CPD) is taken as a way to upgrade the needed professional competences.



Fig. 1. Phoenix West Blast furnace facility transformed into a modern landscape park (Green 2015).

PARTNERSHIP AND COOPERATION

In order to develop a more coherent approach to CPD experience of Federation of German Landscape Architects BDLA in this field is analysed. Several specific professional challenges arise to German landscape architects and they are constantly addressed in their professional events. In the context of globalising economy, that provides immense amounts of materials and services for the market further development

of national regulation and the need of standardisation in professional work is an acute topic in German landscape architecture practice. The need for new skills of teamwork and professional networking are commonly needed in the light of sustainability challenges that usually require multidisciplinary approaches. Green infrastructure topic has been recently set up as a social strategy and planning opportunity for German Landscape Architects (Green 2014). Transforming and refurbishing the formerly used industrial facilities into modern use public spaces is an actual topic for landscape architecture professionals (Fig. 1, Blast 2007). The same or similar topics are on the agenda of landscape professionals in Latvia and Lithuania, even more pointing out on the direction where to professional training and skills should evolve in the next years.

The recent activities of Lithuanian and Latvian landscape architect's associations give a perfect opportunity to review and estimate the whole scope and quality of numerous actions and events that were done in past, are done now and are planned for the next future. Annual and biannual professional events like scientific review "Landscape Forum" and municipal study trip "Space and Landscape" are complimentary to several exhibitions and informative seminars that are organised as the need arises and opportunity appears. Still more consistency and professionalism is needed if one analyses the contents of these events more carefully, how evocative, innovative and applicable they are. More, the aspects of public involvement, innovative analysis and design methods, and ICT are often missing or blurred.

Based on the joint inventory of the present activities the main goal for continuous professional development activities is to build on top of the existing experiences and to develop a coherent and flexible platform for exchange and transfer of up-to-date knowledge, skills and experiences in landscape architecture. It should also fill the gaps of the missing knowledge and skills for landscape architecture planning,

development and maintenance that would be continuous in time, professional in its contents and promote development and growth of the competence of the of Lithuanian and Latvian landscape architects associations. For this reason, the opinion of association's members in the need of training was analysed.

TRAINING NEED ANALYSIS

As present problems and challenges are similar, the joint questionnaire to identify the needs for specific competence areas was developed to survey opinions of Lithuanian and Latvian landscape architects. Specific competence topics were outlined in more detail making in total the list of 22 themes. More than 100 association members – landscape architects – have responded, and based on that the list of most required competence areas was developed. In each of these thematic areas, a more detailed list of subjects was identified. Majority of respondents have professional experience of 6 to 15 years. 92% of them are occupied in design practice and absolute majority looks positively on the CPD idea. At the same time, some other guidelines were assessed. European Parliament directive on LLL education and ECLAS guidance on Tuning of LA education programmes gave us some basic ideas for distributing the time between professional, social and legal issues as the proportion of 60% for professional themes, 20% for social and legal themes.

Self-assessment done by the Latvian and the Lithuanian landscape architects associations figured out the needs and preferences of the members and allowed drawing up the plan for turning the set fragmented events into the coherent, flexible and lasting framework for continuous professional growth. In a conceptual way, recent professional activities of landscape architects as of the other specialists that are involved into planning, construction and maintenance of the built environment has moved away from the linear "Fordist" concept of programme: project – construction – use – maintenance. The need

for advanced sustainability solutions has led to a cross-professional type of involvement and integrated flow of activity (Fig. 2) that puts programming, design, construction and maintenance professionals into one cooperative platform for the best benefit of the user. Therefore, modern CPD framework is built on this integrated approach of developing complex interdisciplinary skills.

Analysing responses to the questionnaire allowed us to see many practical aspects of training as the probable number of people involved, possible partners and potential supporters, we identified possible coordinators and lecturers for different themes also some practical aspects as the needed infrastructure and resource. As a whole, the variety of training subjects, methods and location make one coherent training framework where different subjects find appropriate methods, scale, audience and the other features (Tab. 1). Exact lecturers and locations are adjusted as to the time and preference choice of the participants.

Table 1 Themes of continuous professional training (development) in Germany, Latvia and Lithuania

Germany	Latvia	Lithuania
Sustainability, teamwork and networking	Cultural landscapes and heritage management	Landscape planning methods
Society, Demography and Participation	Relief and site management	Artistic concepts in landscape architecture
Regulation and standardisation	Landscape of residential courtyards	Public spaces and places
Green infrastructure: climate, water, energy	Roof gardens	ICT benefits for landscape architecture
Economy, Infrastructure	Project development	Legal aspects and regulation

The essential feature of the designed continuing professional development programme as learned from BDLA experience is a broad professional and real-life experience of participants that inspire to simulate the forms of learning and teaching, which in their turn

facilitate the exchange of information and involve all to participate actively in the process. The innovative aspects of the programme are personal experience as the basis for training, the examination of the tasks through the work experience, use of advanced training methods as ICT, simulation and e learning.

TRANSFER AND ADAPTATION OF METHODS AND TOOLS

The selective analysis of BDLA experience in LLL „Lifelong learning approach for landscape architects in Germany“ has identified the actual topics to take over. The main ideas from the manual guideline developed by BDLA was used for building the CPD-LA programme for Lithuanian and Latvian landscape professionals (Green 2014). Lithuanian and Latvian landscape architects associations prepared the programme containing in total 10 subject modules. Each module examines the area of interest in landscape architecture. Implementation of these subject modules has started in pilot trainings. The experience of pilot seminars, the analysis and conclusions will improve or consolidate the structure of the programme to ensure its continuity and sustainability.

Some methodological rules are followed in order to ensure the stability and to enhance the quality of lifelong learning program. First, lifelong learning should be offered continuously, the aims of the programme should focus on the challenges of the professional practices, and lastly lifelong learning is expected to develop strengths and overcome weaknesses of the trainees. What is more, the market for lifelong learning should extend by involving more professionals also from the neighbouring disciplines as architecture and engineering.

The survey of feedback shows that participants of training respond very positively about the structure and opportunity to participate actively in the process of training (Fig. 3). Link between theory and practice and training methods are

relatively less favoured, still demonstrating a good response but pointing out the need to focus on these aspects in the coming training sessions.

According to analysis of feedback results, the big array of work experience and different types of work among the participants of pilot seminars was discovered. It gives an idea of using diverse methods for presenting the contents of training and to develop CPD training programme in these pathways:

- *Personal path*: Reflection of a professional path in life, perception of myself as a landscape architect, practical experience;
- *Contents path*: perception of mission of landscape architecture in natural, urban, cultural, economic, social development and interaction of these processes;
- *Methodological path*: the flexibility and efficiency of training forms, the consistency and continuity of methods, the adaptability of knowledge and feedback.

Variety of training methods correspond to the specific skills needed by the members of landscape architect's associations involved in training. As preferred by the trainees and recommended by the professional directives practice-based methods should make the biggest share. Study trips, case study analysis and workshops are the main practical training method complemented by seminars and theory-based presentations that give the outlook of recent innovative approaches to landscape analysis, design, construction and management (Fig. 4).

TRAINING SUBJECTS AND THEMES· INTERDISCIPLINARY APPROACH

Practicing landscape architects are constantly facing a problem of continued professional development, especially those working in smaller municipalities. Considering the extremely rapid technological development, exchange of understanding of natural

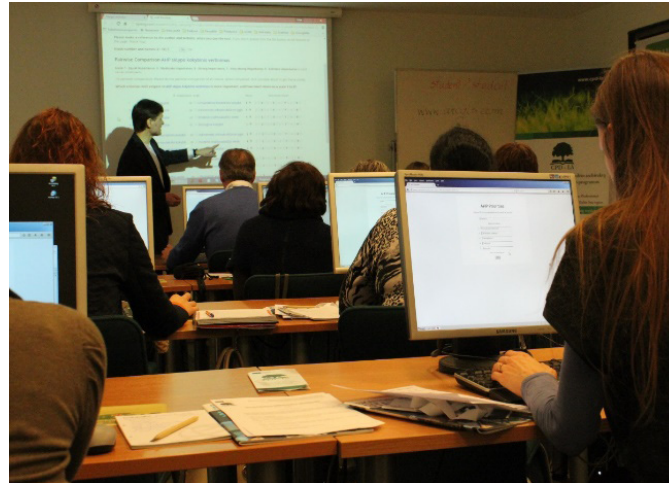


Fig. 4. Landscape architects working in a group (left.) Practical tasks for landscape architects using ICT (right).

processes and human impact on them, the deepening of the general concept of sustainability, the knowledge of landscape architects acquired at the university get “out-dated” in few years. Modern life-long learning program of landscape architects represents an important challenge and the necessity.

The CPD-LA team has set the following objectives to achieve the ambitious goals: to gain an in-depth understanding of training needs among landscape architects and their employers based on good practice of Federation of German Landscape Architects BDLA, to transfer and adapt their training experience to local cultural environments, to create training subject modules and corresponding training methods for a full training offer in landscape architecture. The program is designed as to provide professional, legal and social knowledge and skills for landscape architects.

The training subject of “*Planning Methods in Landscape Architecture*” focuses on extending the set of analysis, planning and design methods that are used by practicing landscape architects. Based on the widely acknowledged

Method of Patterns the training subject provides the framework for developing professional knowledge, understanding and special skills in enabling professional to apply and make this method work in practice. It discloses the complex impact of natural, historical, societal and urban aspects on landscapes and the applicability of Pattern’s Method for analysing and (re)creating historical and modern spaces. This training subject analyses cases from different locations, several selected cases are reviewed in a study trip and consolidated in lectures.

The training subject “*Making a Public Space*” is motivated by the debates on the concept of public space and on the principles of public participation. The challenges what we are still meeting – people do not embrace local public spaces and parks, do not feel sense of ownership over the communal spaces, design process is formal and often gets negative reactions from general public. Public participation is not used in the design process, therefore the design do not reflect on the real end user’s expectations. The public participation methods are challenging and rarely used because of lack of experience. The tasks of this topic are to raise awareness about the importance

of humanization public spaces and the role of green areas in city life, to provide knowledge about public participation methods to demonstrate the benefits of public participation in providing the needed knowledge and skills for creating scenarios and design programmes.

Visual art in public space plays an important role in contemporary urban environment representing a significant contribution also in the active life of historical environment. Art in public space fulfils a prominent role and potential in areas such as cultural geography, architecture, landscape architecture, art, sociology and philosophy (Alle, 2013:4). The training theme “*Artistic Concepts in Landscape Architecture*” includes understanding of concept of the Genius Loci of the space and its importance in each project. Professional landscape architect should be able to read the language of each site and translate it into the proposed design so emphasizing important cultural/historical/environmental aspects of the site. Successful interpretation of Genius Loci in each site is delivered through designer’s conceptual and artistic thinking. The aim of this topic is to introduce the main of principles discovering the site’s identity and expressing it as the inspiration and artistic concepts for design process. Awareness of these methods in preserving cultural, historical and environmental identity of Lithuanian and Latvian landscapes is increased.

The subject “*Relief, Coast and Slope Reinforcements*” provides the most recent information and knowledge on terrain and building design principles, technologies, soil erosion mitigation and coastal planning and design updates. Added knowledge on terrain design solutions in coastal and watershed areas, design of the terrain using a public respite options for the terrain and soil erosion mitigation, new technologies to evaluate and choose quality according to the situation of terrain layout solutions are the planned outcomes. Competences in designing coastal areas and the water edge, solving erosion problems with the use of modern technology

based on the trends and examples of international experience are developed by this training subject.

Training subject “*Roof Gardens*” is focused on information and knowledge about roof garden types, technical solutions and trends in modern environmentally friendly and safe solutions for building gardens on roofs. The analysed sub-themes are: intensive roof gardens, extensive roof gardens, green roofs and solar energy, material role in the drainage system and the safety of the roof gardens. The aim is to get knowledge about the qualitative roof garden design, using of appropriate materials, durability and safety, improving and expanding knowledge of greenery and equipment elements on intensive and extensive roof gardens, getting new knowledge about roof garden design and system stability from good practice examples. Planned outcomes are knowledge of roof garden design conditions, types and structural solutions, skills to evaluate and choose the optimal design solutions according to the specifics of open space.

The training theme “*Residential Building's Courtyards*” concerns a hot problem of ex-soviet time urban areas and blocks. This training theme provides information and knowledge about residential courtyard's development, multi-functional environment and environmental solutions providing innovative, sustainable and aesthetic quality solutions for residential outdoor space. The sub-themes are selected as environmental accessibility solutions, equipment in public open space, solutions of waste facilities, green zones in residential outdoor space, rain-water use elements, standards used in design process, building context and scale and others. Aim of learning is to provide for the trainees the knowledge about the rational organization of landscape space and design in residential courtyards, use and appraise aesthetic, ecological, and social aspects for functional importance in outdoor open space. In addition, the updates on how to use of green areas and design residential outdoor space is provided based on the good practice examples.

Landscape architects of Lithuania and Latvia are actively involved in the process of renovation of historical parks. The topic “*Cultural and Historical Landscape Inventory and Management*” gives specific theoretical and practical knowledge on cultural and historical landscape inventory processes and management, on the role of heritage in sustainable development of environment and society. This includes cultural and historical landscape characterization and value exploration, methods of documentation investigation, inventory processes of cultural and historical landscapes according the character and aim of preferable development of landscape, the relevance of management planning for 5-10 years period. Training topic focuses on different types of cultural and historical landscapes: historical gardens and parks of the rural and urban landscape, the landscape of the old towns, the landscape of historical streets and yards, the territories around the historical public buildings, and the specific methods of managing their landscapes.

The CPD-LA programme also focuses on rising awareness and understanding of legal acts concerning landscape architecture's activities, green areas design, management, and inventories. Impact of several laws that regulate this area are analysed. The other legally regulated area – public procurement and contract legislation is crucial for successful professional activities of landscape architects.

The topic of ICT in landscape architecture allows updating on the new tools for professional work. The programme covers overall understanding of integrated (information) modelling in design (BIM) until very practical applications that can make landscape architect's work more resource-efficient and faultless. In particular, the advanced tool that allows prioritising diverse aspects in planning and design are analysed by presenting the AHP Analytic Hierarchy Process engine.

RESULTS AND IMPACT

The major outcome of the activity is the Continuous professional development framework with adequate content that will be provided for the users in a conventional and easily accessible way. The coordinator who selects the methods, invites lecturers, collects the fee and delivers it all to the association runs each one of ten training subjects that are currently developed. Part of the material will be available on the open source platform so the wider scope of users can develop in time.

It is difficult to outline all and every field of impact that the programme is going to have. On the other hand, it is clear that professionals that are more competent will facilitate better position of landscape architects on the market, also involve more public interest into the upcoming projects. By acting together three associations intensify knowledge exchange on an international and regional scales.

Continuity of the programme is necessary as just sustained activities can bring long-term benefits to both the professionals and the society. For this reason, we expect to have active involvement from the member's side, involve our partners from the industry as well as local and international supporters. We are also inviting the new countries to join in and take one of the developed themes or bring up one of your own. Also we look for partners for engaging into the new regional and European funding initiatives.

Part of the impact of the drafted professional development framework lies in its creative implementation involving all possible partners and cooperating institutions. The public sphere partners are town planners and architects, gardener's, geographer's associations, and certainly our academic partners. On the other hand, ministries and agencies whose competence covers solving landscape issues are the partners linked by professional ties and daily work experience.

The impact of the developed CPD framework leads to increased competitiveness of landscape architects in Lithuania, in Latvia and throughout the EU. The increased efficiency of public and private investment into urban development through higher quality of planning and design projects in landscape architecture is expected. More than that, closer cooperation of professionals across the whole EU is evident as theories and practices are shared and adapted across the borders and across the regions. CPD in landscape architecture gives a possibility to upgrade skills for professionals from the neighbouring fields as urban planners, architects of buildings, geographers, and those who have been out of the profession for time. CPD provides all partners with the opportunities to learn and grow by exchanging good practices and experiences. Through the period of two years when collaboration of Lithuanian, Latvian and German landscape professionals is developed partners are still strengthening their network and laying a solid background for future interactions, including competitions, exhibitions and joint projects.

The analysis of experiences of Lifelong learning approach for landscape architects in Germany, training experience in Lithuania and Latvia allowed drawing the following methodological guidelines for future:

- Work with field trips and concrete examples to address experts with different professional background;
- Engage experts who assess different solutions at universities or research institutions from a professional point of view;
- Work differently with those who want to sell solutions – building contractors, engineering companies, invite users of the relevant technical solutions to share their experience;
- Build up a steady network of interested experts or those who want to become expert in the field;
- Find out types of projects that need different treatment and discuss them (architectural style of the buildings nearby, public space, function...).
- Find a municipality that can establish as a pioneer a new way of landscape inventory, monitoring and design system.
- Work in teams to get the people speaking about their ideas. Confront them with the opinion of cultural scientists.
- Inspire awareness for legal thinking, invite legal experts or philosophers, to understand legal thinking, pick out one legal innovation and discuss the relevance for landscape architecture.

CONCLUSIONS

Activities in developing of the Continuous Professional Development Programme for Landscape Architects in the Baltics in its current version is a perfect opportunity to exchange knowledge and experience between the professionals of the region. It also activates competence development of the motivated professionals that are engaged into all types of landscape planning, design and maintenance projects and regional cooperation activities. Also, it is a perfect opportunity to build very practical networks of professional cooperation across the Baltic Sea Region and beyond.

The developed CPD tool has attracted a definite interest from Polish and Estonian landscape architect's associations, and increase of the number of partners is very probable in the closest future, covering more countries with more cultural experience and diverse cases both of failure and success.

Continuous professional development plan also has a definite impact on a national education framework requiring academia to focus on important topics including continuous learning methods already at the university. As the group of landscape architect's associations, we demonstrate a pro-active approach to competitiveness and professional growth of our members on the national, regional and local scales.

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"DESERT GARDENS" VS "GARDENS IN DESERTS" – CONTRASTING APPROACHES TO ARID LANDSCAPE DESIGN

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ABSTRACT

Arid regions cover approximately 30% of the earth's land area and are home to one-fifth of its population, yet limited attention has been given to arid landscape architecture. The design experience addressing scarcity of water and extreme climatic conditions is becoming highly relevant to many other regions as they tackle decreasing freshwater supply and global warming. Arid landscape architecture provides unique solutions regarding six major facets: general character, shelter of comfort, water use, materiality, culture and maintenance. Preserving diverse landscapes' character and improving human use are potentially conflicting aims of landscape design, but in arid regions this tension is intensified since suiting the landscape to human comfort necessitates changing its identity. In this research we provide a design strategy to mediate this fundamental tension, based on studying the work of Shlomo Aronson, a leading practitioner, who introduced a personal approach to arid landscape design through his forty years of experience in the Israeli desert (Figure 1). Analyzing his oeuvre, we have developed a "spectrum of desertness" – a framework for assessing existing arid gardens and planning new ones. We differentiate between two contrasting archetypes of desert design – "garden in the desert" which is a generic green garden characterized by prodigious water use and high maintenance; versus "Desert garden" – a sustainable water-saving garden that utilizes local materials and plants and requires minimal maintenance. Between these two archetypes lies a spectrum of potential design solutions for a given site which address the six facets in varied combinations. Our framework advocates for sustainable solutions. It can either emphasize human comfort through distinction from its environment, though compact to be effective, or follow genius loci, the special atmosphere of particular place, assuming increased human tolerance to the hostile environment. Creating a modest human-made oasis is our preferred approach to mediate the aforementioned tension.

INTRODUCTION

"Arid lands", e.g. deserts or drylands, are characterized by scarcity of water and humidity, strong winds and large temperature fluctuations on both a daily and seasonal scale (Miller 1978). They are ubiquitous across all inhabited continents and becoming more prevalent due to anthropogenic climate change and desertification (United Nations 2011).



Figure 1: Arid zones in Israel and the location of projects analyzed in this work.

Arid Landscape Architecture – Characteristics and implications

The harsh conditions in drylands pose challenges for human settlement. Historically, permanent habitation of deserts was restricted to natural oases, where gardens such as the Persian "Bagh" or Sinai's "Bustan" were created. Modern arid gardens often reflect the settlers' belief that technology will conceal the environmental conditions (Wescoat 1996).

The vast literature of landscape design includes only a few guidebooks written about design in arid landscape (Eckbo 1983, Miller 1978, Aronson 2008, Golany 1983). From these sources, we identified six major facets that arid landscape designs should address:

General character is how the garden is integrated into its surrounding, and the way it

maintains its “genius loci” which is often unique and powerful, with dominant geology visible through the scanty vegetation (Aronson 2008).

Creating a shelter for **human comfort** addresses both physical and psychological aspects. Physical shelter provides thermal comfort protecting users from climate extremes, glaring reflection and dusty winds (Golany 1983). Psychological considerations refers to the contrasting reactions that the desert evokes among people: some feel threatened, lonely or lost in the wide horizons, while others are fascinated by the scenery of genesis (Sagie et al. 2013).

Water deficit is the most dominant factor in the arid landscape. Scarcity, coupled with high variability in precipitation and high rates of soil erosion and salinity, lead to low primary productivity (Maliva 2012). Human existence, as well as vegetation, rely on water, which can either be found naturally (as in oases), brought from distances, desalinated or harvested locally from runoff using dams or cisterns.

Materiality refers to the physical and biological elements in the garden, including soil, vegetation and construction materials. These can be either local for sustainable integration in the environment, or imported when more durable in the harsh conditions as radiation and heat. Plants, like humans, need shelter – a niche with a humid microclimate, natural or irrigated (Lyle 1996).

Cultural aspects refer to the native human inhabitants and their traditions, and also to cultural needs of current residents, such as recreation, wellbeing, etc.

Maintenance describes the amount of human investment required to maintain the garden over time for its continued use and evolution (Young 1996). It is a fundamental component of sustainability, when considering resources such as water and energy.







	General Character	Human Comfort	Water use & source	Materiality & plants	Cultural aspects	Maintenance
						
Limans	Many small-scale gardens, determined by natural water availability	Thermal comfort in summers, sometimes too cold in winters	Retains runoff water from drainage basin	Local soil; non-native trees	Reminiscent of Nabatean traditions	Very extensive maintenance, sustainable, resilient, adapted to local conditions
Eilat south promenade	Restores natural character with some green additions	Some thermal comfort	Minimal use of desalinated water	Both local and imported materials. Xerophytic plants	Addresses social-recreational needs	Limited maintenance, sustainable, resilient. Uses drip irrigation
Sapir Park	Richly green and verdant, resembles the nearby natural marsh and spring	Thermal comfort year-round	Local saline ground-water for lake, stream and waterfall	Both local and imported materials and plants. Irrigated	Appreciation of natural resources, a manmade oasis, recreational park	Medium maintenance, sustainable, independent local water source, uses drip irrigation
B.G.University central plaza	An abstract interpretation	Thermal comfort year-round	Medium use of water for modest stream	Both local and imported materials and plants. Irrigated	Respects local heritage and common landscapes	Medium, constant maintenance. Requires few resources. Sustainable

Table 1: Considerations of the six facets in the case studies

In arid regions, there is an inherent tension between the two first facets: restoring the genius loci and providing a thermal comfort shelter, since suiting the landscape to human comfort means changing its identity. Our research aims to explore **how landscape architecture can mediate the tension between maintaining genius loci and providing thermal comfort**.

METHOD

We chose four well documented projects of landscape architect Shlomo Aronson’s desert oeuvre, varying in scale and surroundings, where this tension was mediated. We scrutinized the considerations of the “six facets of arid landscape design” in these projects, and analyzed their suitability to arid lands.

ARONSON’S CASE STUDIES CONSIDERING THE “SIX FACETS”

Shlomo Aronson, a leading practitioner, has been working during the past forty years in arid Israeli towns and countryside. He was inspired by traditional gardens such as the “Bagh” and the “bustan” (Aronson 2008), but he applied his own interpretation to the national mission of populating the desert, considering its genius loci, and providing thermal comfort. We examined four of his desert projects (Aronson 1998, Aronson 1977, Aronson 2015) to explore the way he mediated the aforementioned tension:

“Limans” (“port” in Greek) are small groves planted in a small area with embankments within a dry stream bed (“wadi”), creating a shady summer refuge for travelers and shepherds (Figure 1). Limans collect runoff from a basin 20 times larger than their own 0.1-0.5 hectare



















Facet	Desert garden		Garden in the desert
General character Genius-loci, Integration in surroundings 	Preserving genius loci – local spirit. Gently integrated, respectful, emphasizing and interacting with the environment 	βà	A green verdant environment. Not relating to desert genius loci. Sharp contrast to the surroundings, reflecting humans ability to dominate and alter nature 
Shelter for Human Comfort in arid conditions physical comfort & psychological concerns 	Minimal or no shelter, may provide some shade and protection. No thermal comfort. Attractive in summers at sunrise and sunset, and midday winters. Restores its natural identity 	βà	Provides a green refuge on a large scale, which might limit its effective temperature reduction. Improves thermal comfort in some areas, with non-effective parts between them. Satisfies the yearning many people have for green 
Water source and use 	Limited water, if any, from local sources (natural or recycled) 	βà	Prodigious water use, transported from a distance or desalinated 
Materiality and Planting type, Irrigation 	Stone, rocks, local earth. Other materials durable to heat and radiation such as concrete and metal. No vegetation or only local-native adapted to arid climate 	βà	Diversity of materials. Planting of cultivated plants, flowers, lawns etc. Intensive irrigation 
Cultural Aspects 	Respects traditions and cultural heritage 	βà	Addresses social-recreational needs 
Maintenance 	Sustainable, resilient. Minimal maintenance, if any 	βà	Requires significant resource input (water, energy and care). Intensive maintenance 

Table 2: How the two archetypes of arid landscape design consider “the six facets”.

area, thereby sustaining a relatively humid habitat (Shachak et al. 1998). Inspired by Nabatean settlement during Roman times, it has been applied since the 1960s by the Keren Kayemeth L'Israel (the country's quasi-national forest service). Almost 500 limans were planted, introducing small focal interventions along desert roads.

South-beach promenade is an example of arid design in an urban setting. It is located in Eilat, a tourist city on the Red Sea, where a former granite quarry was turned into an attractive walking and recreational area along a narrow one-kilometer strip. Located between mountains and sea, it reflects the natural landscape using granite groundcover and sculptural elements, and includes wooden structures for shade.

Sapir Park in the Arava utilizes local saline groundwater, designed to flow from a waterfall to a narrow stream running into a lake. Created on marshland, it is sharply distinguished from its surroundings by color, cooler microclimate, and the sound of water providing a comfortable park for recreation all year round.

Ben Gurion University central plaza in Beer Sheva is an urban space that introduces abstract nature to the predominately concrete campus. It features a desert stream with circulated water, a familiar and meaningful local landscape for students from different cultures. Well-defined lawns and vegetated areas with trees, along with shading structures above paths and resting areas, create a cool, popular place.

ANALYSIS: A PROPOSED SPECTRUM OF “GARDEN DESERTNESS”

Analyzing each facet as applied in the case studies, we found that they show various levels of “**desertness**” (adaptability to the arid environment); while some emphasize the natural identity, others focus on providing a shelter from the harsh conditions. This led us to develop a conceptual model: “The spectrum of adaptation to arid lands” (Figure 2), which

differentiates between two contrasting approaches to desert design: “**desert gardens**” versus “**gardens in the desert**” and proposes a gradient between them.

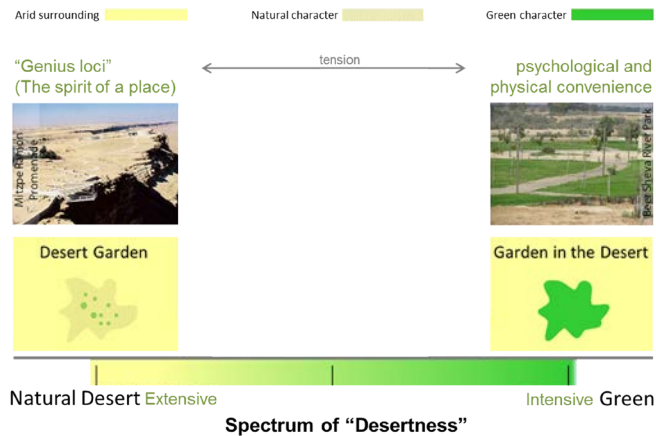


Figure 2: Spectrum of adaptation to arid lands

“**Gardens in the desert**” are generic green gardens characterized by intensive planting, prodigious water use and high maintenance in order to supply shelter and to facilitate physical and psychological comfort. This is a common design form, perhaps preferred by desert residents, for whom it may represent vitality. In contrast, “**Desert gardens**” follow the site’s spirit and natural desert character, emphasizing sustainable water-saving methods that use local materials and plants, requiring minimal maintenance.

We suggest that each archetype can address the six facets at their extremes, which have both advantages and disadvantages (see table 2): “Garden in the desert” addresses psychological yearning for green, but is not sustainable and is not effective in achieving physical comfort when spread over large areas. Alternatively, the “desert garden” design can restore genius loci, but does not offer shelter from the harsh climate. In practice, each facet can be addressed along

a spectrum of design possibilities to find the optimal solution for the site, as indicated in the case studies.

To evaluate each case study’s adaptability to the arid environment (see figure 3) we assessed the considerations of each facet in the projects (table 1) according to the facet’s level of “desertness” (table 2). Thus we could locate them along the spectrum between the two archetypal gardens, moving from “desert garden” and “garden in the desert” (Figure 4).

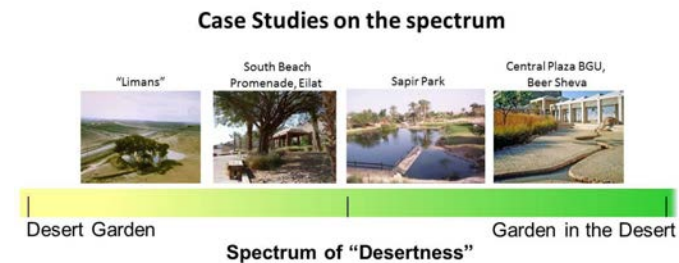


Figure 3: Evaluating the case studies on the spectrum according to each facet

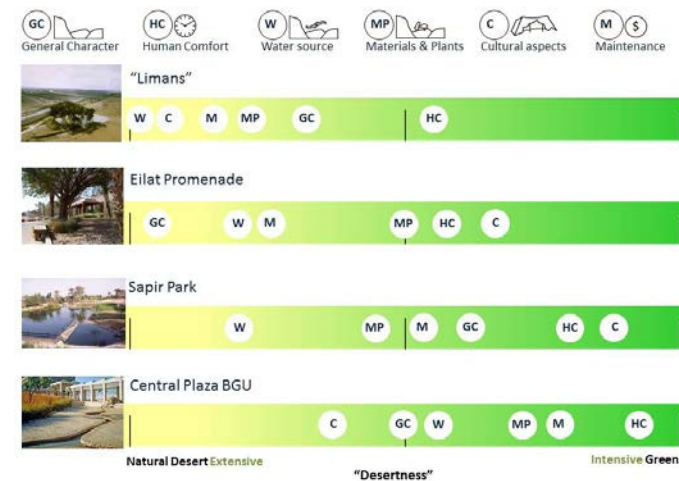


Figure 4: Relative positions of the case studies along the spectrum

DISCUSSION

Locating the case-studies on the spectrum, we suggest that Aronson’s design doesn’t fall at the extremes of the archetype’s definitions; they all span the “spectrum of desertness”, either tending toward a “garden in the desert” if human comfort is the main emphasis, or towards “desert garden” when the site has exceptional identity. Aronson attempted to mediate the tension between genius loci and human comfort and to achieve a suitable amount of both, introducing a range of “man-made oases”. Inspired by the traditional gardens of Sinai and Iran, he designed gardens that are vivid as “gardens in the desert”, but limited in size to save resources and to leave most of the surrounding area untouched. His work provides us the practical examples with which we suggest the **design strategy** below.

When conducting a new project in arid regions, we believe that identifying the desired image of the two archetypes is a good entry point towards understanding the implications of the design, whether “desert garden” (emphasizing local identity) or “garden in the desert” (providing a green shelter). To apply sustainable garden design, reduce costs and maximize benefits, adaptations may be applied in both archetypal cases. A “desert garden” requires humans to adapt psychologically and physically to achieve comfort, either by education to develop an appreciation for dry landscapes or by limiting activity hours to those of comfort, (e.g. early mornings or late afternoons). A “garden in the desert” should be compact, and thus consume fewer resources and reduce changes in the genius loci. In practice, it will become a **man-made oasis**.

In practice we find the “man-made oasis” the most useful approach to mediate this tension, since it offers an effective shelter with minimal change of the environment and a reference to traditional and sustainable solutions that were introduced historically into specific arid regions.

CONCLUSION

Our proposed strategy of the “spectrum”, based on Aronson’s approach to arid landscape design, was tested practically as a design tool to tackle multiple facets and balance between them in varied scales and arid environments. It enables us to clarify the conditions, the requirements, and the possibilities in terms that can make the design more coherent.

Simplifying the complex process of planning in reference to this spectrum, based on six clear facets, helps both researchers and practitioners to understand the essence of arid regions and hence examine the suitability of any specific design for such an environment. Broader research should examine the unique design solutions that arid landscape architecture provides to address the various constraints.

The current decade (2010-2020) was declared by the United Nation as a UNDDD – “decade for deserts and the fight against desertification”, since dryland conditions may become more prevalent with greater water deficit, climate change, desertification and growing human development into arid regions. The lesson from design strategies in arid regions could be useful to promote the UN’s purpose of the decade as “an opportunity to make critical changes to secure the long-term ability of drylands to provide value for humanity’s wellbeing” (UNITED NATIONS 2010).

The framework arising from the challenge of bridging the gap between human comfort and genius loci in a sustainable way could be applied not only to arid lands, but wherever such a gap exists, such as in degraded lands (mines, quarries, wasteland), where the landscape architect aims to restore the site’s local identity while improving its potential for human use.

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ILLUSTRATIONS AND THEIR SOURCES

Figure 1: Arid zones in Israel and the location of arid projects analyzed in this work.

http://upload.wikimedia.org/wikipedia/commons/c/c9/Satellite_image_of_Israel_in_January_2003.jpg

Cropped from original by Jacques Descloitres, MODIS Rapid Response Team, NASA/GSFC. Edited by authors.

Liman – By Dave Boimowitch, KKL archive

Figure 2: Spectrum of adaptation to arid lands

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Mitzpe Ramon Promenade –designed by Zvi Dekel, Minadd-
http://minadd.com/uploads/head_img/img_1292502928.jpg

Bagh-e-Fin, Iran – Hossein Chaychi- <http://static.panoramio.com/photos/large/43499177.jpg>

Beer Sheva River Park – Yehudit Garinkol – http://www.pikiwiki.org.il/?action=gallery&tag_id=1933#

Figure 3: Evaluating the case studies on the spectrum according to each facet

©Adi Noy Ivanir (Photos – See figure 4)

Figure 4: Relative positions of the case studies along the spectrum

Limans; South Beach Promenade, Eilat; Sapir Park; Central Plaza BGU, Beer Sheva – Shlomo Aronson Architects

* Graphic editing of the images: Adi Noy Ivanir, Yulia Langman and Rakefet Sinai.

EDUCATION THROUGH PRACTICE· LANDSCAPE RENEWAL/BUILDING

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ABSTRACT

In the past decade it has become an important part of Hungarian landscape architect training to encourage students to take part in real projects thus substantiating the principle of 'learning by doing'.

Building collectively has centuries old tradition in Hungary; it means that a community carries out a task based on mutual help or communal interest. This can be retraced in history in diverse areas (house building, grape harvest, etc.). This lives on in our days and can be observed in the shaping of the environment. Students take part in village development, building playgrounds, rural baths, for example.

The work together is a unique form of observation, where one learns through one's action. The participants – beside the students, university staff and highly qualified professionals, frequently local carpenters, stonemasons, wood or stone carvers etc. – share their experiences through their work in mixed groups. The participants investigate, protect, renew and promote old and traditional object structures and building methodologies, being part of a real, living and gainful experience. Young trainees get first-hand experience of how to use humbly and with empathy the available environment and the professional assignment. Finally, it is a great way of breaking down boundaries between different generations and developing the kind of knowledge that goes beyond the walls of the university.

This method has been tested and applied at the Landscape Architectural Faculty of Corvinus University of Budapest. At least 50 documentations and projects have been completed in this way. The method is to be introduced through a concrete example: building rural baths at Sepsibükszád (Bixad, RO).

INTRODUCTION

Numerous researches have been carried out aiming at the way to define the typical elements, character and idiosyncrasies of a place, or paraphrase it using the above features.

Landscape architecture has this as its cornerstone, because not knowing the physical, geographical spiritual etc. characteristics of a given area will lead to inability to shape it correctly. 'The spirit of the place' – as we call this, when trying to put our fingers on the indefinable. If one lacks personal experiences, then sensing, defining and the method of defining a context is, in our conviction, not viable or is questionable. This makes it important for us that the university courses provide pragmatic own experiences for the students, regarding the involvement with the "places".

LEARNING BY DOING

For the last centuries Hungary has experienced the tradition of communal work for personal use (ex. building) based on mutual help. We know of an instance from 1633 when volunteers were recruited in order to build a house (Szabó T. 1993: 26). It may be due to this that buildings of functions in squares of common use or the square or landscape itself is often designed and built by the community, with the help of professionals, at best. Inviting the students to participate in this activity can be an effective tool in education, given that processes do not only receive a professional emphasis but their inner mechanisms may also be revealed. Behind tradition both visible and tangible elements are hidden here, as well as spiritual and empathic demeanour, in some cases also self-giving are meant, because working together means regarding the other's interests, too. The 'outsider' professional also bonds into community with the locals. In the course of thinking together, the stranger becomes an organic part of the community. To these above, another traditional stratum may attach – when a past characteristic or value is to be counted with respect to a place or



Figure 1.: Vallató bath: result of the building in 2007



Figure 3.: Hammas bath: result of the building in 2010



Figure 2.: Vallató bath in 2010

function. The Department of Architecture of Budapest Corvinus University (BCE) tries to get students involved into professional tasks, using numerous current assignments. The present article is a case study from the

communal building works, namely the revitalization of the Mikes baths in Sepsibükszád (Bixad, Romania). Máté Sárospataki took part as a student at the time, his personal experience offering feedback as well.

Sepsibükszád lies on the Southern slopes of the Eastern Carpathians, some 30 km North of Sepsiszentgyörgy. There are three baths on the forestry border of the village (Vallató, Hammas, Bükki), they were built on Benedek Mikes' estate between 1860-1880 (Vofkori 2007, 343.). The area is again in the possession of the earlier family owners. The spas from the past have been free to use by the locals and visitors alike. The owners – Alexander and Gregor Roy Chowdhury – decided in 2006 to renew and develop the baths, already succumbed and enveloped by unworthy environment by then, and invited the self-government of the village and Budapest Corvinus University to cooperate. The preliminary talks resulted in the renewal process being started by the announcement of an ideation platform for students.

The aim of the tender was the complex treatment of the baths: a more efficient revealing of the

places, protection and presentation of the protected natural values, planning of the visitors' itinerary, protection and reinforcement of the landscape character with the use of the built elements etc.

Having toured and surveyed the location 750 km far from Budapest, planning started at home. During this process we could experience the dialogue focused on questions and problems to be solved regarding the real task. One member per group only being able to take part in the local inspection made the dialogue of designers even more interesting. The image concept of the spas was decided when the winner application – designers János Hómann and Máté Sárospataki – was chosen at the end of 2006. The competition work accepted in 2007 had to be processed in detail by summer due to the building of the 1st phase (Vallató bath and mofetta, Fig. 1., Fig. 2.). The construction was accomplished in the above manner, in cooperation with voluntary Hungarian and foreign landscape architects, architects, wood-carvers and the locals. In the course of the building we faced unforeseen obstacles to which we adjusted the detailed plan, together with the contributors on the premises. The compromise between the local needs and the professional views was achieved when the refinements had been the results of mutual dialogue, all along the construction. The components of the character of the place took shape thanks to this experience, thus the local identity was strengthened and influenced by the local architectural form, the typical use of material, the expertise and style of the local craftsmen, as well as the meteorological and environmental circumstances. The views – and their clashing – of the different participants mirror one of the important lines of the profession: one has to know how to join and handle together the different opinions, as well as the professional designer stands in case of a bigger and more complex jobs; to reach this, one has to be able to see the suggestions from narrower viewpoints, and a complex approach is needed, combined not the least with good communication that may aid

the simultaneous handling of field professional knowledge, approach and that of deeper local knowledge.

The small group forming a tiny community almost lived together during the construction, which gave us opportunity to better acquaint with the local people. Sepsibükszád is now in Romania but its inhabitants are mostly Hungarian. So the connection with those living in settlements of Székely Land is of national and historical significance. Beyond environmental shaping, the important result of the work was exactly this, the way the people from the same nation, though politically separated, find each other and share their common and own – regionally and locally specified – traditions. This minor detail may not seem to belong directly to the shaping of landscape, to the professional view. Taking it further can reveal, however, that the relationship between man and environment might just as well be defined very clearly by traditions, accepted habits as feedbacks that react to the possibilities determined by the natural, relief- and climatic features.

The small project also reflects the real-life situations well: how time and money influence the accomplishment of a work. Due to the reasons above, the second phase of the renewal of the baths and their environment (Hammas bath, Fig. 3.) was achieved in the same way in 2010. Local carpenters were a reinforcement of the professional side in the 2nd phase. The end result is a lovely spa that is aligned to the proportions of the place and its environment.

CONCLUSIONS

The shaping of small-scale, regularly used places close to nature often needs sensitive landscape architectural approach. Applying the learned schemes and stereotypes will not suffice here, rather

the observation and understanding of the place assume an important role, unvariably leading to the humble shaping of it. The work presented above – along with numerous tasks solved with the help of many similar student participation – offers as its greatest achievement the fact that students will understand, as members of the building activity, the essence of the connection between man and environment, at the same time promoting a tradition: that of centuries-old mutual help, communal planning and building.

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LANDSCAPE URBANISM AS “RE-DISTRIBUTION OF THE SENSIBLE”

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KEYWORDS

Theory, Critique, Ecological Urbanism, Jacques Rancière, The Politics of Aesthetics

ABSTRACT

Landscape Urbanism (LU), the landscape design movement which asserts that the landscape should be used as the medium of urban design, has recently been criticized by New Urbanism (NU), the urban design movement, which has focused on and promoted walkable neighbourhoods in urban areas. The NU theorists have denounced that LU has encouraged the spectacularization and commercialization of privileged designed landscapes, specifically the High Line in New York. However, has the LU, actually, acquiesced in that social inequity? Has it not responded to the criticism, as well as evolved in its theory and practice? This study examines social equity discourse pertaining to LU and offers an alternative way of thinking about LU in terms of political philosophy. The study starts with scrutinizing, in terms of social equity, the deployment process of adjectivally modified discourses of LU. Specifically, Ecological Urbanism has reinforced the philosophical base of LU discourse in order to rethink the community, politics, and ethics of urban ecology. Thus, LU has continued to evolve in accordance with social circumstances in flux. Furthermore, the authors offer an alternative proposition according to which the landscape in a city should be re-distributed equitably, applying Jacques Rancière's politics of aesthetics. For Rancière, authentic political art is achieved through the re-distribution of the sensible, which means a social return to those who have been unrecognized by current politics. Thus, firstly, visualization during the urban design process should reveal various aspects about the distribution of the landscape that are still persistently unequal. Secondly, on the level of physical spatial practice, LU should perform as an authentic political urbanism by re-distributing equitably rights to the landscape among society. Lastly, LU should further strengthen its theoretical and philosophical foundation responding to the criticism by NU. In doing so, it would become a more socially meaningful and mature urbanism discourse.

IS LANDSCAPE URBANISM A VIOLATION OF SOCIAL EQUALITY?

Charles Waldheim, one of the progenitors of the LU movement, asserted that it would be an alternative urbanism that would replace hegemony of NU (Waldheim and Corner et al., 2006); afterwards, advocates of NU have criticized the LU. *LU and its Discontent: Dissimulating the Sustainable City* (Duany and Talen et al., 2013), a collection of such essays, has recently been published. The range of criticisms targets both the theory and practice of LU. First, NU condemned mainly spatial inequality derived from the spectacularization and commercialization of space encouraged by LU projects. The main target of the criticism focuses on the both commercially and artistically successful the High Line Park in New York (Figure 1). Leon Morenas (2013) contends that the park's success led to the paralysis of functioning in the nearby public parks, followed consequentially by the separation between the privileged park and the neighborhood parks. Secondly, the designed landscape is a violation of the principle of Marxism for which LU theorists claimed to stand. Morenas (2013) points out that James Corner, the designer of the High Line Park, borrowed from the Marxist geographer David Harvey in order to justify his LU manifesto; however, Harvey commented that the urban policy of Michael Bloomberg, New York mayor



Figure 1: High Line Park in New York © Sim Jisoo

and a supporter of the High Line Park, is consequently increasing spatial inequality (Morenas, 2013: 297-299).

However, such condemnation of NU inversely exalts LU to a dominant and authoritative discourse in urbanism scene. Most advocators of NU, in their critical attack on LU, focus on only one example, the High Line Park. Is it appropriate to say that the High Line is a typical LU project? Another doubtful aspect of the condemnation is the controversy over the 'origin' of LU. NU theorists contend the existence of an effort to use landscape as a major means of the urban design in urbanism practices and discourses before the actual emergence of LU (Morenas, 2013). It is important to point out that the inquiry into the origin of a particular theory conceded, by implication, the essence of that theory. The condemnation based on the premise of a permanent dichotomous way of thinking, as in urban design/landscape architecture or NU/LU, simply excludes LU as the other pole and regards it as an enemy in the combat. The demarcation line – which presupposes that urban design has to belong to an urban designer and landscape design has to be in charge of a landscape designer – tends to rule out any alternative ways of thinking about social justice in urban discourses. It tends to look like a turf war between two urbanism discourses both of which strive to defend their own territory.

FROM LANDSCAPE URBANISM TO ECOLOGICAL URBANISM

Contrary to NU criticisms, LU has theoretically and practically addressed such social spatial equality. One explicit effort to address the social equality in the LU discourse is probably ecological urbanism, which substitutes 'landscape' with 'ecological' not only in its name, but also philosophically, i.e. as an alternative way of thinking about the entire urban system. Mohsen Mostafavi (Mostafavi et al. 2010) deploys a vision of the newly modified urbanism where the concept of 'three ecologies' by a French philosopher Felix Guattari is quoted as an alternative understanding of urbanism. Ecology here contains not only a physical, but also a social, particularly, ethic-political,

matter. According to Mostafavi, what urbanism scene needs is not a technological methodology, but a speculative design thinking that provides an alternative to deal with social spatial inequality. He asserts that ecosophy – which reinforces the philosophical base of urbanism discourse in order to rethink community, politics, and ethics of urban ecology – has to be a new thinking system of urbanism, the vision of ecological urbanism. Many projects outlined in the introduction and other articles in the present volume included, such as slums in Global South and poor areas as marginalized spaces, support his Ecological Urbanism thesis (Figure 2). These practices that LU previously did not consider as a major concern reveal that LU intends to address spatial inequality regarding social justice. In some sense, beyond NU attacking LU, increasing social spatial problems have already urged a reform of LU in terms of landscape practice. Before formulating a theoretical approach to social spatial justice, LU responded to these emergent issues through real projects.



Figure2: Favela in Rio de Janeiro © Lee Myeongjun

LANDSCAPE URBANISM AS 'RE-DISTRIBUTION OF THE SENSIBLE'

A philosopher Jacques Rancière considers both aesthetics and politics as a common activity with regard

to the distribution of the sensible (or sensory); thus, he re-conceptualizes the connection between art and politics (Rancière, 2000). Although Rancière does not address the tradition of urbanism discourse in his writings, his way of thinking about politics and aesthetics offers a potential reconceptualization of the issue of social equality raised by urbanism discourses.

Actually, Rancière's thought has been widely applied in recent urban theories of social justice or political aesthetics in order to interpret their urbanism discourses. Michael Rios, one of urban theorists who inject Rancière's thinking to urban discourse, intends to interpret urbanism discourses by linking them to Rancière's three distinctive art regimes: ethical, representational, and aesthetic (Rios, 2013). Specifically, Rios considers NU as a form of urbanism based on "ethos of community whose purpose is to educate the citizenry and their role in the communal body" (ethical regime), while LU, in his view, is a discipline "[that] liberates art from social norms and establishes itself as a separate domain with its own operative language and criteria (Rios, 2013: 201)" (representational regime). Rios comments that LU has overemphasized "new spatial imaginations that challenge the figural city," while NU has overstressed the "issues of common concern across different scales ranging from federal policy to building form (Rios, 2013: 201)." As a result, both urbanisms have led to an "invisibility of the most marginalized in our cities (Rios, 2013: 202)." Rios's intention to borrow Rancière's concept and his aspiration of urbanism are meaningful. Rios scrutinizes the process that urbanism discourses have been included into the agenda of sustainability; furthermore, he comments that ideology of sustainability serves as an urbanism for neoliberalism, as a means of politicalization of art (Rios, 2013: 202-206). When any of urbanism discourses is used to represent particular political intention, the urbanism regresses to politicalization of urbanism, which belongs to what Rancière conceptualized as 'representational regime'.

For Rancière, aesthetic regime of art surmounts the ethical and representational regimes; in it, representational rules are broken and art is considered as an autonomous way of being, thereby, art can become political (Rancière, 2000). The authentic political art is achieved by the re-distribution of the sensible, which means a social return to those who have been unrecognized by current politics. Art, urbanism in this case, can visualize the invisible social spatial inequality. In this sense, aesthetic regime can become meta-politics.

There are suggestions regarding the LU practice on three levels. First, the visualization of the re-distribution of the sensible through various media during design process can reveal that the existing state of politics of space that seems invisible yet still persistently unequal. In other words, one political practice of LU is a multi-faceted visualization of the existing lines of demarcation separating distribution of landscapes. Another one is on the level of physical spatial practice. LU should perform as an authentic political urbanism by re-distributing equitably rights to the landscape among society. Lastly, to become an urban discourse that can handle urban social ecology, LU has to strengthen its theoretical foundation. As NU condemned, LU tended to borrow post-structuralism and ecology, as well as Marxism, on a superficial level; specifically, it quoted post-structuralism just as a method of form generation; ecology as green media; Marxism as theoretical pretentiousness. Such criticism needs to be accepted by the LU discourse. LU has to accept the essence of such thoughtful 'ism's in depth; in doing so, it would become a more meaningful and mature urbanism discourse.

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INFLUENCE OF ACADEMIC FUNCTION TO THE TOWNSCAPE OF GLIWICE

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KEYWORDS

Townscape, Open Space, University, Municipal Policy, Cooperation

ABSTRACT

Public spaces are substantial to an urban landscape. They are shaped by the major function of the town. Gliwice is located in the southern Poland in Silesia. It is an example of an industrial and academic town. The industry of Gliwice is now in a process of structural change. Heavy industry is being transformed into light one. In contrary to a closed industrial areas, space created by university is open to citizens and as such is worthy of being focused upon. Gliwice was settled in XIII century, the industry started in XVII century. Silesian University of Technology was founded in 1945. The town of over 180 000 inhabitants and over 20 000 students is in a constant flux. In 2014 a project of public space in academic district was brought to conclusion. The communication of the town was reorganized. Those changes have influence on academic district as well as on the whole town. The landscape design of the town's academic areas transforms urban landscape into pedestrian friendly zones not only for students but for citizens too. The tendencies of the changes show how different are the needs of the town nowadays. Those changes were made in spirit of sustainable development by the authorities of the town and the university. They have decided to create interesting space that connects city centre, through the land of the university, with now being built sports' and entertainment hall for over 16 500 guests. The article poses questions about the newly designed space in the academic district. It seems the new organization of space is citizen friendly. It encourages gatherings of people, but will not that change over time? Is exclusion of the main road of the academic district from traffic a good choice? How the town space can change due to the university's activity? In Gliwice it seems to work well for now

INTRODUCTION

Public spaces are the most important elements in a city structure and create an urban tissue. All cities are built on the basis of roads and squares. Depending on the main function, the town develops in its own unique way. Every element of the structure of the city shapes its characteristic, final form.

Gliwice is the town on the south of Poland. One of the biggest cities, lying nearby Katowice, capital city of Silesian voivodship. Gliwice belong to the Upper Silesian industrial district. The townscape of Gliwice was shaped by its main functions, industry and higher education.

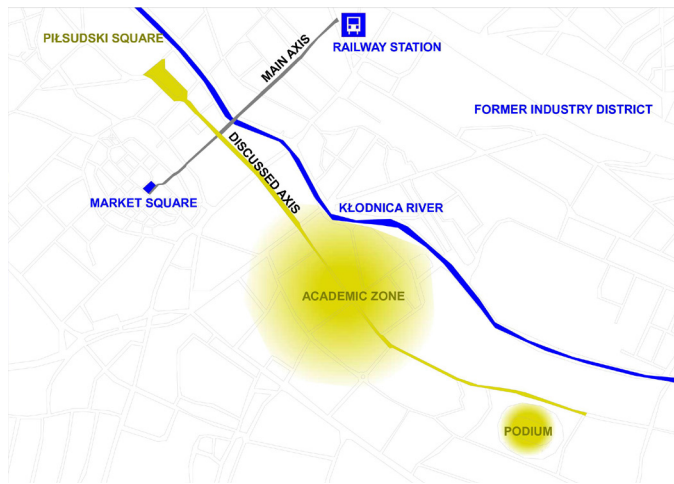
The industry of Gliwice is in constant flux. Heavy industry is being transformed into light one. The Katowice Special economic zone, was created in year 1996, that includes subzone of Gliwice, where the biggest factory is OPEL. Qualified staff works in many high technology factories and companies, providing services. Economic zone cooperates with the Silesian University of Technology and 10 other research institutes from Gliwice.

Industrial plants are closed, separated areas, where only authorized personal have entry. Restricted spaces, are very visible in townscape because of chimneys and cooling towers protruding above the horizon. Those zones do not create public spaces available for the citizens.

Compared to these specialized workplaces the university function is open and friendly for citizens. Within the city boundaries they create open public space that is worth of consideration.

In period of partitioning city was within Prussia borders (1742–1945). When the Second World War ended Gliwice was connected to Poland. Silesian culture rooted deeply into the region. In Gliwice it was softened by new immigrants, who settled on these areas as workforce for industry and mining sector.

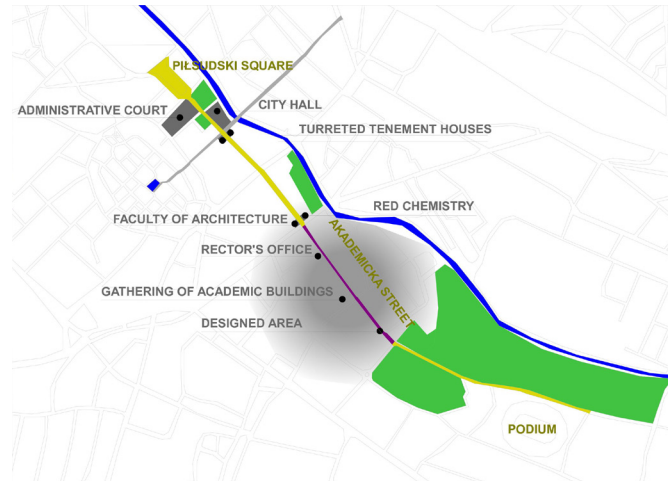
In year 1945 Silesian University of Technology started its activity. Then thoroughly educated staff of engineers stayed to develop flourishing industry. Today Gliwice is the town of 133 km² and over 180000 citizens. Every year Silesian University of Technology educates over 20000 students.



THE AXIS OF GLIWICE FROM PIŁSUDSKI SQUARE TO THE SILESIA UNIVERSITY OF TECHNOLOGY AND FURTHER

The main urban assumption of Gliwice was to build the city around a market square. Fortified XIIth century city, closed by the ramparts, over time begun to overflow those rigid boundaries. It grew around the city centre creating two axes. Main axis leads from market square to the train station. It is located downtown, 10 minutes walk from academic district.

The second and very interesting axis is perpendicular to the main one. It culminates in the campus of Silesian University of Technology. It begun to be as important as main axis. This sophisticated axis stretches from Piłsudski square, where town hall was supposed to be built. Nowadays town fountain is situated there. The axis lately has been extended by Akademicka Street, where the biggest aggregation of university buildings is located. Along the axis there are: squares, the building of



the administrative Court, former industrialists' properties head office, the city hall, and other buildings of public utilities. On the crossroads of main axis and discussed one was framed with turreted tenement houses that form a gate leading into the academic town. Buildings of Silesian University of Technology begin with neo-gothic "Red Chemistry" built in 1906-07 (architect Wilhelm Kranz) and opposite to it, recently adapted for faculty of Architecture, building from the year 1890.

The axis along Akademicka Street had only communication function with car parks. The road was very dangerous to cross because of heavy traffic. Citizens didn't come to the university district because there was no need for them to go there.

Along Akademicka Street the special public space was presented. Municipal authorities joined by rector of the university decided to create new area. In 2009 rector announced a competition for students to design a reorganization of space. The competition ended with two ex-aequo winners from Silesian University of Technology and Cracow University of Technology. On these basis in 2010 a team of architects under the leadership of PhD. Tomasz Bradecki from Silesian University, designed the final conception



shape of space². In 2014 the realization of implementation project lead by arch. Andrzej Kozielski was ended³. The cost of 14.5 million złotych was divided between town 8 million and University 6.5 million⁷.

Changes were made on distance of nearly half-kilometre along Akademicka Street. The communication of the town has been reorganized. Akademicka Street was two-lane artery with car parks along. Now is excluded from the traffic. Parallel street took over main communication function. It was very controversial for citizens to close one of the most frequented streets to create promenade. Whole complex lacks car parks. Over half of students commute for classes by car from nearby towns. The public transport is not sufficient. Along with spatial transformations functional solutions should

follow. The promenade is full of green designed by prof. Krzysztof Rostański, with representative square and a fountain. Placement of the fountain will vary space and allow grownups and children to come on hot days also to this place where they can find a moment of refreshment. New space encourages gatherings of people to spend their free time together in town public space.

The place is created for rest, relaxation and contemplation. The elements of small architecture refer to the crest of Gliwice's Alma Mater. The new lighting has been installed according to the Gliwice's Masterplan. The path of light was marked with blue led from Piłsudski square to the Silesian University of Technology and further to Podium hall. There also has been built a bicycle trail.

The concept of the main axis has been continued along university area not by chance. At the end of discussed academic area is sports' and entertainment hall PODIUM. The biggest, up to this day, investment of Gliwice. This huge building has enough room for over 16500 guests. The municipal authorities are willing to create a location competitive to the regional capital. This trans local centre will attract visitors also from other cities. There have been organized new car parks with 800 parking spaces. Currently this object is the end point of the discussed axis.

The new space is beggining to be more popular, observes can notice that more citizens are coming to this area and use the public space. They are sitting on banches, enjoying the fountain, gathering in the green area to meet and talk in a quiet place. Children are playing on lawns. No cars can disturb their safety.

The universities in central europe such as Ostrava in Czech Republic, very scattered with no axis, no promenade, lot of transport and cars. The historical old campus of Vilnius University with lack of green and full of traffic. Both universities are

separated from commonly accessible pedestrian areas, hence for the most part from life of the city.

CONCLUSIONS

Project transformed town space into more frequently visited zone. Thanks to the open character of university campus it can serve both students and citizens. Town changed from medieval town through dynamically growing industrial closed town to contemporary, neat open city, that lives in a spirit of sustainable development.

Striking is contemporary approach to the design of academic cities. Most towns and universities in Poland have problems with cars and traffic organization. The public space is dominated by car parks that are the only one element of space in front of university buildings. It seems, that the new space in Gliwice is organized directly for users such as students and citizens. But will this change last the trial of time?

Will daytime space occur to be deserted area when students finish their classes? If there is no function that brings life into this place at evenings it is possible that this space at first interesting with crowds visiting only to check what is new, will be eventually abandoned.

What if citizens will cause disturbance for university function? University rector could decide to close campus for citizens and newcomers, because they could disturb tranquillity of the place? Will it be possible for education to interact with huge, noisy entertainment function? It is also very likely that both will complete each other. The car parks created for Podium could serve also for university campus and events will bring life to academic space at evenings.

Now it looks like everything goes in right direction but will it last? I leave this matter open. The town is in constant flux.

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THE HISTORIC URBAN LANDSCAPE OF NAMSAN IN SEOUL

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KEYWORDS

Historic Urban Landscape, Namsan, Continuity, Changeability

ABSTRACT

Namsan (literally it means southern mountain) has been the center of city life as well as the symbolic locus since the fourteenth century. It has been influenced by the development of Seoul city. Recently, Seoul city promoted the city wall as the designation of UNESCO World Heritage. Therefore, any practical decision making to conserve and recreate public projects in Namsan is currently spotlighted. Namsan includes mountain, park and Seoul city wall. This study noted that Namsan has been the place of layers of time and still undergoing changes up to the present. According to UNESCO definition, the Historic Urban Landscape means “the urban area understood as the result of a historic layering of cultural and natural values and attributes”. This study was aimed at understanding the characteristics of changes in Namsan as the Historic Urban Landscape. When it comes to each change of mountain, park and city wall, it could be summarized by the keywords of the symbol, the cultural politics and the heritage respectively. The symbolic meaning of mountain, affected the change of park, which was periodically influenced by the political environment and the socio-cultural paradigm. In addition, the physical structures and the heritage values of Seoul city wall have been changed by the time. This study has come to the conclusion that Namsan, as the Historic Urban Landscape, has dual characteristics of continuity and changeability. These two features have guided the change of Namsan and still been affecting to the present. The change of Namsan is one of the significant evidences in assessing the heritage values of Seoul city wall, and therefore Namsan plays the most important role in the entire Seoul city wall.

NAMSAN AS MOUNTAIN, PARK AND SEOUL CITY WALL

Mountains are the characteristic elements of Seoul. Among them, Namsan is the representative landscape that can be viewed everywhere in Seoul and has been recognized as the symbol of Seoul throughout time (Figure 1). Namsan has been undergoing the biggest changes so far since the foundation of Joseon dynasty in the 14th century. A remarkable city wall was found recently at one of the excavation sites at Namsan; it is believed to have been constructed through different time periods in the Joseon era. The Seoul city wall is on the tentative list of UNESCO World Heritage Sites in preparation for its permanent listing. In addition, historic structures of the mid-20th century, statues and park facilities are located at various places on Namsan (Figure 2).

As shown above, Namsan has historic layers through more than 600 years of time. The changes of Namsan have been closely connected with that of Seoul and are still taking place. The diagnosis of the changes and the understanding of the characteristics of Namsan will suggest the direction of its future.



Figure 1: Namsan in Seoul (Source: Seo, Young-ai)



Figure 2: excavation sites at Namsan (Source: Seo, Young-ai)

Landscape is one of the central elements in a cultural system, for ordered assemblage of object, a text, it acts as a signifying system through which a social system is communicated, reproduced, experienced and explored (Duncan, 1990: 17). The historic urban landscape is the result of the layering and intertwining of cultural and natural values over time. Beyond the notion of a historic center, it includes the broader urban context and its geographical setting (www.historicurbanlandscape.com).

According to the UNESCO definition, historic urban landscape means “the urban area understood as the result of a historic layering of cultural and natural values and attributes. The historic urban landscape is embedded with current and past social expressions and developments that are place-based. It is composed of character-defining elements that include land uses and patterns, spatial organization, visual relationships, topography and all elements of the technical infrastructure (UNESCO, 2011).” It includes both physical elements and intangible values for which a pilot study is needed based on research and records (Getty Conservation Institute, 2009: 12-14).

The study was to divide Namsan into three sectors – mountain, park and Seoul City Wall; to understand how each sector affected one another through the change of each character; and finally, to draw the characteristics and changes of the entire Namsan.

THE CHANGE OF NAMSAN LANDSCAPE

Namsan, as a mountain, has both religious meaning and symbolic value. Koreans have worshipped the mountain and regarded it as the medium between heaven and earth, so they held it sacred and performed ancestral rites. And Namsan has been the important element as well as the core landscape of the city since the 14th century. Namsan, the southern boundary of Seoul, can be viewed from everywhere in Seoul. Since the tower was built at the top of Namsan in 1969, Namsan and its tower have been the representative landmark of Seoul. Therefore, Namsan has been an important consideration in regard to landscape management. For example, the height of construction in the city has been limited so as to allow Namsan to be viewed. The symbolic landscape affects the institutional rules.

Namsan, as a park, has changed a lot over time. Namsan has been a place that people have enjoyed since

long before modernized parks were established. During the Joseon era, Namsan was a busy place where many people visited for its beautiful landscape. Scholar-officials built their houses in the valleys with beautiful landscape and wrote of the beauty.

It was by building minimum facilities for the park naturally, not by special planners, that Namsan was changed to a park. They started to build park facilities and structures for individual idolization, anti-communism, nationalism, displays of modernization and indoctrination of the myth of childhood. It wasn't until the 20th century that a comprehensive plan for all of Namsan was established and accomplished. The conservation concept for nature and history has appeared. Recently there has been the need of a periodic paradigm shift for the park to include culture, tourism, education and the like, and the main space of the park is preparing to be changed. Namsan, as a park, is used for the place of cultural and political reformation.

The Seoul city wall was constructed in the 14th century along the ridgelines of Namsan, Baekak, Inwhang and Naksan. Among these, the Namsan section had the greatest change. There were numerous demolitions on Namsan, and recent excavations reveal what has happened in Namsan so far. The city wall was started to be artificially demolished in the Japanese colonial period for the construction of Chosen Jingu and roads. After Korea's liberation, it was broken up for power transmission towers and construction of buildings. The restoration of the city wall began in 1970, and recently in-depth studies of its excavation have been started together with the consideration of how to conserve and display the city wall and to coexist with urban cultures.

Mountain, park and Seoul city wall are summarized by the keywords of symbol, politics and heritage. The symbolic meaning of the mountain has continued, while the cultural and political character of the park and the heritage value of the Seoul city wall have

been changed by the needs of time periods. That is, the change of Namsan landscape includes the dual characteristics of continuity and changeability.

Continuity means the value that endures steadily over time. The landscape of Namsan has memorable culture and symbolism based on the land and the place continuously. There were many changes on Namsan, but there is no doubt that Namsan has been the symbol of Seoul. Namsan is not the center of Seoul on the map, but is still conceived as the central spot of Seoul.

Contrary to the unchanged symbolic value, the landscape of Namsan also has been changed by external factors over time. This changeability is the character comprehensively viewed from the Japanese colonial period and extending up to the present. Symbolism is related as the major cause of Namsan's changes. The symbolic characteristics of Namsan made the politicians change Namsan in order to show off their power. The awareness of identifying Namsan with Seoul contributed to the broad interpretation that regarded changes to Namsan as a change of Seoul and its ethnic dimension. Namsan had been changed in order for the ruling class to show off its power and ideology, and its change was effectively displayed to the public.

Even today social and cultural needs are making Namsan change to become the place with the paradigm of education, experience, culture and tourism and the like. The Seoul city wall also has been changed by the values of each period. At the present there arises a change in the concept and the recognition of the heritage, so new methods of conservation and creative intervention are under discussion. The symbolism of Namsan landscape caused the changes, but its various changes became the materials proving the value of the cultural heritage.

CONCLUSION

First, the changes and character of Namsan landscape contain both continuity and the changeability, which have been coexisting or colliding with one another. The tensions from this collision resulted in the construction of a new concept and facilities after removing existing symbols. The landscape of Namsan was displayed in the way of severance or return to the past, rather than continuously successive historic traces. The Namsan landscape in the future shall be a new place with contemporary symbols and simultaneously continue to uphold the characteristic of values. Furthermore, it must be the place of succession, not cessation, and that of newness, not return to the past. In order for this, it is necessary to keep the values, to agree on a process that is open to the new expression of the times, and to conduct discussion and research for creative interventions.

Second, Namsan has been expanding from a place of park and forest to that of the basic object of urban regeneration. Namsan as a Historic Urban Landscape shall be understood by extending its scope to the city of Seoul itself. Seoul is a historic city of construction and public spaces with the time layers in addition to Namsan. Therefore, it shall be preserved, managed and planned with the integrated concept of Historic Urban Landscape rather than in the way of individual approaches.

The research of Historic Urban Landscape helps to understand the current situations of cities across the world and suggests methods of approach. The current trend is to explore what to preserve and how to coexist with the changes of the city through various cases. The changes of Namsan should be studied together with the spatial values of Seoul.

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IN SEARCH OF NEW FORMS OF URBANITY; SUSTAINABILITY AND LIVEABILITY IN URBAN POST-INDUSTRIAL REVITALISATIONS

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KEYWORDS

Brownfield Development, Urban Transformation, Reutilisation, Urban Landscapes

ABSTRACT

The problem of brownfields has become an emerging issue in Hungary, as these urban areas offer a great potential for reutilisation, and pose major challenges for landscape architects. In the past three years I've taken part in the reutilisation project of the post-industrial site of Ózd, North Hungary. The overall goal of the present PhD research is to develop a multi-disciplinary planning and design method for sustainable urban landscape development, on the basis of the final thesis of the postgraduate training in urban planning, which was finished last year. The first part of the paper introduces the ongoing revitalisation project of Ózd, and the analysis and comparisons of the existing situation of the other 5 case studies. The aim is to understand and evaluate the different aspects of landscape; the landscape as a natural and built system, the socio-economic situation, the land use and, finally, the cultural factors. The second part of the paper focuses on the various planning and design approaches in the frame of a thorough and full analysis and comparisons. The first conclusions of the evaluation of the different projects underline the importance of an integrated approach that takes into account the landscape context, land use and social history and cultural aspects. From the sustainability point of view, the new methodology provides a better basis to give form to new interventions in their search for well-being, energy transition and integrated water management since the landscape is viewed as 'flux' in the long run.

INTRODUCTION

Commenced in 2014, my doctoral research, aims to focus on brownfield revitalisation and on the special way how landscape architects can approach this problem. The eventual goal is to develop a landscape architectural design approach for a current rehabilitation project, the 'Culturindustrie' project (Hungary, Ózd steel works). Ózd is an industrial town in North-Hungary, close to the Slovakian border, a 40 km from county seat Miskolc. The design approach is developed on basis of the analysis of the existing site, a development program and a study of other case studies both in Hungary and abroad.

The paper

This paper analyses and compares 5 post-industrial renewal projects by developing a typology of different approaches, goals and design means that have been applied. This analysis aims at creating basis for a series of guidelines for the design of the future projects. The case studies comprise of 3 post-industrial rehabilitation sites from Western Europe (Gasometer, Wien, Austria; Zollverein, Essen, Germany; Haute-Deûle river banks Lille, France) and 2 from Hungary (Millenáris, Budapest; Zsolnay cultural quarter Pécs). The selection of projects offers a good possibility for the evaluation of the role of landscape architects, because some of the projects run without special concern on the landscape approach. The hypothesis is the positive effect of landscape architects on the projects on the long run that goes beyond the architectural approach of reconstruction of built artefacts' and ensembles.

Research question and approach for this paper

In what way would landscape architects approach the problem of brownfields in general and specially for the Ózd's steel works? The research method is based on the case study approach (Zeisel, 2006).

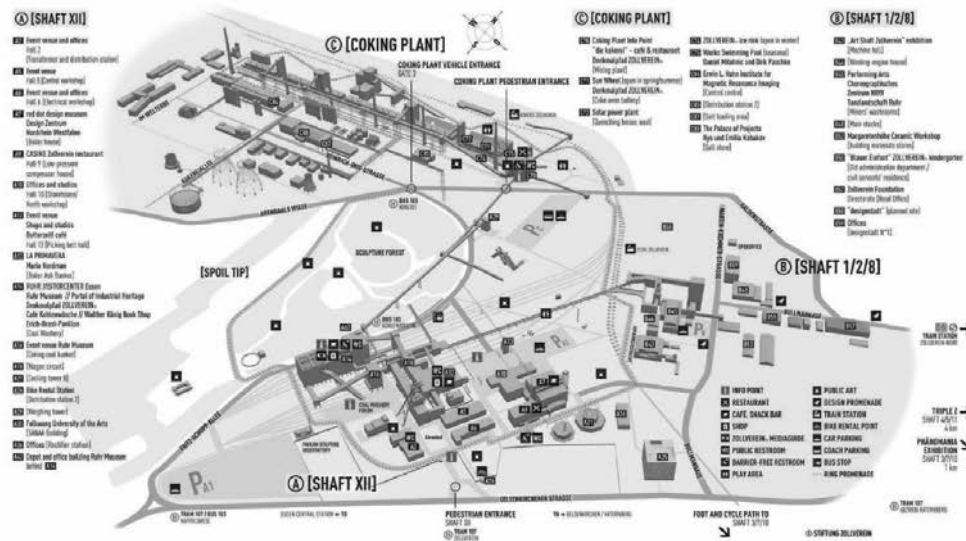


fig. 1.

Zollverein, Essen, Germany

Zollverein is a large rehabilitation project for a former industrial area in Essen (D). The plan area is 100 ha. The master plan was designed by the TER office. The site is located amidst the built up area of Essen so the designers have opened up the area for the surrounding city. It is now part of the urban open space of Essen. At the same time the industrial character has been maintained.

The Zollverein XII Coal Mine Industrial Complex is an important example of a European primary industry of great economic significance in the 19th- 20th centuries. It consists of the complete installations of a historical coal-mining site: pits, coking plants, railway lines, pit heaps, miner's housing and consumer and welfare facilities. The mine is especially noteworthy of the high architectural quality of its buildings of the Modern Movement (UNESCO 2001).

Nowadays, the former shafts provide room for cultural and educational functions. In addition, a design museum, restaurants, cafes, lookouts and several other leisure and entertainment facilities await visitors.





fig. 2.

Haute-Deûle river banks

The plan shows an approach on the structural level that is the creation and the integration of urban green network and a water system.

The Haute-Deûle canal, flowing through the city of Lille, used to play a very important role in the life of the city. The textile industry had facilities on the banks, workers dwellings were built around it and an irrigation canal system also crossed the area.

After the industrial production was discontinued, the condition of the buildings and their surrounding began to deteriorate rapidly, therefore the municipality decided to launch a rehabilitation project for the area.

The designer team working on the project described it as "a sustainable district surrounding the old textile mill". The design approaches integrate modern technology, aesthetic designs, functionality and the protection of the environment to create a welcoming space.

The project was awarded the Ecological District Prize in 2009, on the theme of 'Water'. It also received the French 2010 Prize for Urban Development Prize. In 2013, it received the National Eco-district Label, awarded by the Ministry of Ecology.



fig. 3.

Millenaris, Budapest

The history of the Ganz Works goes back to the end of the 19th century, when the capital of Hungary consisted of three independent cities or towns, Buda, Pest and Óbuda. Abraham Ganz founded his foundry on the right hand side of the Danube, in Buda in 1844, directly close to the historical city center. The small factory developed into a major industrial company within a few decades, while the residential areas of Buda surrounded it continuously.

Due to its location and the intensive urban development around the industrial site, the relocation of the factory was proposed at the beginning of the 20th century. However, the outbreak of World War I stopped the relocation plans.



The revitalisation was started in 2000, mostly because of the severe environment pollution and also because the growing economic importance and development of the area, increasing value of the development site. During the transformation process, the former industrial buildings were rebuilt into commercial buildings or spaces with cultural and entertainment functions.

The plan executed in 2001 is a winning entry of the competition drawn up by a team of young landscape architects. The design concept was strongly future oriented, originally meant as a public park for the new millennium.

The project resulted also a new public park with a strong positive impact on the life of the residential quarter and the livability of the local residents. The park proved to be a beloved meeting place and recreational area both for children, for young and grown-up or older generations. (Bardóczi et al., 2011).



fig. 4.

Cultural Factory project, Ózd

The aims and steps of the rehabilitation project are the following:

- renovation of the existing City Museum and its extension by including an outdoor industrial heritage area – public park and walkway;
- the construction of the educational building and the exhibition area of the National Cultural Digital Archive Centre in the former power plant;
- the cultural projects will be supplemented with another tourist attraction: the old steam blower house will be used for the storage and interpretation of old Hungarian film rolls, and for filming in the original scenery of traditional Hungarian movies for families and groups of friends.

A first step will be relating new functions and special features to the industrial past to strengthen a cultural identity. On the level of built structures, a collection of old artefacts of industrial history and displaying them as spatial elements in a new ensemble. Along with the cleaning of polluted soil and the use of native plants during the development of the area, these will be essential steps to begin with.



Outline

All case studies are analysed based on a number of general criteria. The next step is to take a closer look at three case studies to analyze the regular program of architectural intervention. Finally the results of the case studies are applied to the Ózd project and some short methodological inputs will be taken as a basis for plan development in the long run.

PLANNING AND DESIGN APPROACHES USED IN FIVE CASE STUDIES OF BROWNFIELDS REVITALISATION

Case studies

The five case studies are introduced on their main data and aspects of design (table 1).

In a further elaboration of the case studies, three specific projects were selected, that demonstrate an interesting approaches from a landscape architectural point of view.

- Zollverein, Essen, Germany (Die-drich et al., 2009) (fig. 1)
- Haute-Deûle river banks Lille, France (Landezine, 2012) (fig. 2)
- Millenaris, Budapest (Bardóczy et al., 2011) (fig. 3).

From a landscape architectural viewpoint the Millenaris project has an interesting feature; the site is located in a valley and air channel therefore the new park allows fresh, cool air from the surrounding mountains to flow into heart of the city improving the urban climate and contributing to better comfort especially in the summer.

If we look in closer detail to these three studies, we can conclude that all three examples show a sort of integration. In the case of Zollverein the integration of the industrial site and the city is the main point. In the Haute-Deûle project the combination of the former

industrial site and the water system is the key, while the Millenaris Park is a successful example for the integration the site as a whole into the urban landscape at large. In all three cases, set of new functions have been introduced to support the interventions from an economical point of view. Besides contemporary functions other features have been introduced and included into the plan, like the urban green network, the water system and the urban climate. These ideas are precisely the results of the contribution of landscape architects who were able to add new aspects to the reconstruction of architectural artefacts.

APPLICATION OF THE RESULTS OF THE ANALYSES IN THE ÓZD CULTURAL FACTORY PROJECT

The brownfield area designated for rehabilitation is located in the enclave-like historical centre of Ózd. The local government is planning to achieve an eco-cultural utilisation of the area with financial support of the EU. The metallurgic factory was closed in 1990 from one day to the next. The closure resulted in a 30% increase in the unemployment rate (Csontos, 2005). As a result of the revitalisation project 50 new jobs will be created in the city and tourism is expected to increase to 100 – 400 visitors per day. The master plan of Ózd town and the strategic plan of the revitalisation do not pay any attention on the urban landscape in the long run and they lack the landscape architecture approach in the present. This is the main aim of the present research, to highlight the importance of taking into consideration the landscape as a natural and a built system, both on the site and in its context. (fig. 4)

So, what makes a landscape architectural viewpoint different from other approaches?

A landscape architectural approach can take into account an integrated approach in which the natural system forms the basis for the plan. In the case of the Ózd project the main point should be to include also a

water storage and water management due to its mountainous surroundings. This approach is fully in line with the European Water Directive (Directive, 2000).

Higher elevations enable not only water storage for water consumption but also for energy production. It means that it can be combined with the energy transition. Finally health and urban climate could be greatly enhanced by fitting the site into an urban green network of parks, waterways and open spaces.

As part of the doctoral research, the analysis of the site and a series of design experiments, partly with local people. This research is an effort aims to bring out the potential inputs of landscape architecture as a strategy for landscape development in the long run and postulates effects on the living environments of people both in the short and in the long run.

CONCLUSIONS AND DISCUSSION

Qualities of the site

In the site analysis landscape architects can assess and give directions for the potentials and the qualities of the place. Especially for such large projects this can be important because in most cases there is full attention for the reconstruction and reuse of the buildings.

Relating to context

As we have seen in the case studies, all sites are more or less isolated and enclosed due to their specific functions in the past. An important aspect at the level of the master plan is to create links to the context not only as access but also as part of a green structure and water system.

Integrating qualities of the site, program and design ideas for the long term

Table 1. Main data and aspects of design

project name	area (ha)	location urban situation	renewal period	original function	main goal,new function (temporary function)	design approach	impact area
Zollverein	100	Essen, North Germany, peripheral	2010	coal mine	Regional cultural and leisure centre, culture, education, commercial, entertainment, park	The conservation and extension of pre-existing buildings, introduction of new cultural and catering functions, environmental remediation and creation of recreational green surfaces	Ruhr region
Gasometer	40	Vienna, Austria, peripheral	2001	gas tank	New liveable city quarter, culture, education, commercial, accommodation, residential (filming locations, exhibition space)	Reuse of the building stock, new functions and contemporary extensions drawn up by international star architects.	Simmering quarter
Haute-Deûle bank	25	Lille, France, central	2013	textile works	Sustainable district; commercial, high-tech industry, residential, parc	integration of modern technology, aesthetic design elements, functionality and the protection of the environment and nature to create a welcoming space	Lomme quarter
Millenaris park	5,3	Budapest, Hungary, central	2001	machine factory	New public park and cultural center; culture, park	The former industrial buildings were rebuilt into commercial buildings or spaces with cultural and entertainment functions	whole Budapest
Zsolnay Quarter	5	Pécs, South-Hungary, central	2011	china factory	Cultural Quarter in 2010, culture, education, park	The buildings in poor condition were demolished, and the rest was renovated and transformed, adding contemporary forms to the industrial-style buildings. The factory's own garden, with valuable plants and sculptures were also reconstructed. (Pintér, 2015)	Zsolnay quarter
Ózd Culture Factory	5,6	Ózd, Norht-eastern Hungary, central	2009-	steel works	Cultural Factory, culture, education, park	?	?

In most cases a program offers only input for direct use, mostly of built structures. Landscape architects should go one step further into the long term and bring in contemporary goals like water management and storage, energy transition and the creation of healthy, comfortable and liveable urban landscape for people in the long run.

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THE GARDEN OF THE MUSEUM SOARES DOS REIS – NOVEL USES FOR AN OLD SPACE.

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ABSTRACT

The 20th century was marked by rapid and dramatic changes in the urban landscape promoted by the economic growth, namely the growth of the construction sector. It was an era of large investments, both in gray infrastructure and in green spaces. The economic crisis of the first decade of the 21st century, and the lack of viable management strategies, brought negative impacts to the aesthetics and functionality of many green spaces. This led to the necessity of rethinking traditional models of green space management, but also of providing new uses to green spaces. This paper addresses these questions in the garden of the Soares dos Reis National Museum, located in Porto, Portugal. With 1 hectare, the garden is located at the rear of the Carrancas Palace, a 2 centuries old building, and occupies the entire inner core of a block. It suffered several changes during the 19th and 20th centuries, and, in the year 2000, it went through a deep intervention to extend the museum exhibition space to the outer space. However, since the completion of the works, conservation and maintenance actions were almost non-existent and the garden was ultimately closed to the public. In this research, a management model was designed based on the coordination among managers, users/visitors and the garden itself. The recovery program preserved the identity of the place, but new elements and uses (like cultivation plots and gardening) had to be introduced to attract the inhabitants of nearby neighbourhoods and encourage their participation, both in management decisions and in maintenance operations.

I. MAGANAGEMENT OF MUSEUMS GREEN SPACES

Parks or gardens poorly maintained and managed, quickly lose their aesthetic and functional qualities, falling into disrepair and becoming unable to perform the functions for which were created. All the investment made to install them and all the social, cultural and environmental benefits they could offer to the urban environment where they are inserted are, therefore, lost.

The economic upheavals that have marked this century forced to rethink traditional green spaces management models, especially with regard to the financial effort involved and the advantages of user involvement in the management process (Jansson & Lindgren, 2012).

Attracting more people and actively include them in decision making and maintenance activities may be especially important for green spaces of small to medium size, located in dense urban fabrics and framed in institutions such as museums.

Museums, and sometimes also their outdoor green spaces, are architectural and cultural icons as well as social references and, as such, must be inclusive spaces, managed taking into account the interests of all, but especially of the inhabitants living in the immediate vicinity. (Lane et al, 2006, Brophy & Wylie, 2008).

The following table (Table 1) shows four cases of museums that have implemented management models for their outdoor spaces considering the involvement of users in that process. The funding model adopted by each institution was also taken into consideration.

II. THE GARDEN OF SOARES DOS REIS NATIONAL MUSEUM

The Soares dos Reis National Museum is located in the city of Porto, inserted in a consolidated old urban area (Figure 1), close to downtown and to the historic center. This is a very dynamic area of the city as it holds central services (Hospital, University,

MUSEUMS	DESCRIPTION	FUNDING MODEL (Cabe Spaces, 2006a)	MANAGEMENT MODEL
CAM California Association of Museums (USA)	Created a GMI – Green Museums Initiative that manages the outdoor spaces of all associated museums according to SITES criteria	<ul style="list-style-type: none"> > Establishment of a non-profit association > Private donations with tax interest > Private donations without tax interest > Funding from local authorities and State 	<p>CAM uses the nonprofit association model (funded by the US State)</p> <p>Maintenance: hired teams</p>
SG Smithsonian Gardens (USA)	Manages all gardens of the Smithsonian Institution (SI)	<ul style="list-style-type: none"> > Establishment of a non-profit association > Private donations with tax interest > Funding from local authorities and State > Volunteering protocols 	<p>SG uses the nonprofit association model (funded by the US State and SI) also promotes volunteer programs and initiatives about horticulture and invasive species</p> <p>Maintenance: hired teams, own teams and volunteers</p>
PSML Parques de Sintra e Monte da Lua, (Portugal)	Manages Sintra Unesco Cultural Landscape (1995)	<ul style="list-style-type: none"> > Establishment of a non-profit association > Revenue-generating (ticket sales, space rental, stores and coffee shops) > Private donations with tax interest > Private donations without tax interest > Interrelation of different public sectors > Volunteering protocols 	<p>PSML is a non-profit association with exclusively public capital, but without funding from local or national authorities. It is entirely funded by revenue generated from the PSML services, (and applies for European funds.</p> <p>Maintenance: hired teams, own teams, volunteers and prisoners (protocol with the Prison Service)</p>
GM Garden Museum, (England)	Manages the garden of the Garden Museum	<ul style="list-style-type: none"> > Establishment of a non-profit association > Revenue-generating (ticket sales and store) > Private donations > Volunteering protocols 	<p>GM is a nonprofit Association of 'Friends of the Museum'. GM appealed to the Heritage Lottery Fund for initial funding for the management of the garden and enlargement of facilities. Currently it elaborate campaigns to raise donations and volunteers</p> <p>Maintenance: exclusively made by volunteers</p>

Table 1 – Management models and funding models of four museum institutions.

Shopping center, etc) and important historic gardens (Crystal Palace, Carregal and Cordoaria).

The museum was installed in 1942, in the Carrancas Palace (1795) which includes at its rear a garden with about one hectare (1ha), occupying the fields of an old Quinta. During the 19th century this palace was owned by the royal family, which transformed the Quinta into a sports area with a cycle speedway (1894) and tennis courts. When the palace hosted the museum (in 1942)

that area was transformed into an “Archaeological Garden” for outdoor exhibition of the lapidary collection.

Between 1999 and 2001 the garden was requalified as part of the work carried out to expand the museum. This intervention, by the Portuguese landscape architect Laura Costa and architect Fernando Távora, maintained and emphasized the exhibiting function of the garden, allowing the visitors of the museum to move through the space enjoying the works of the permanent

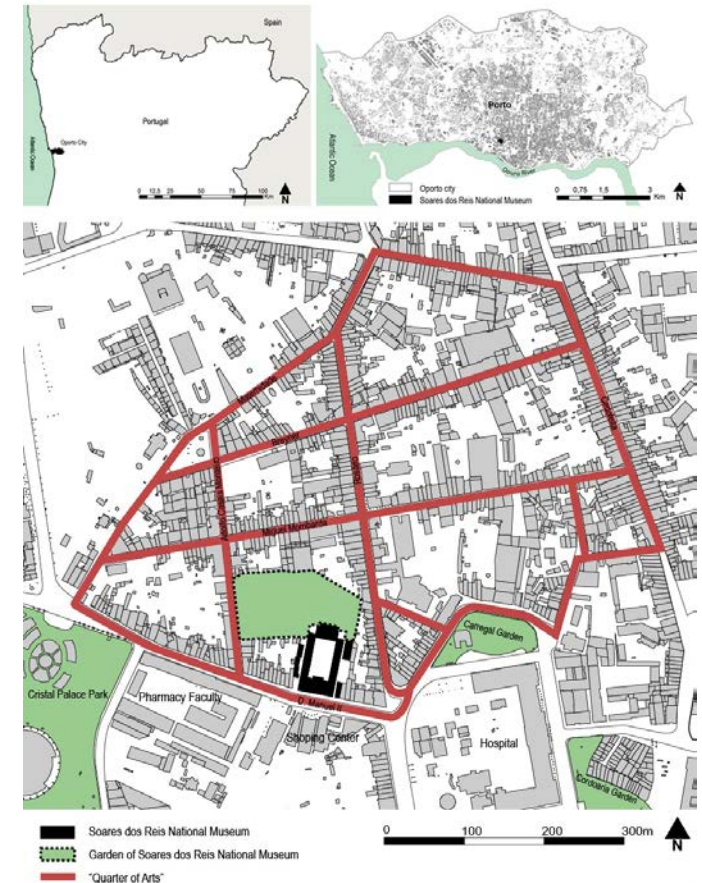


Figure 1 – Location of the Garden of Soares dos Reis National Museum.

exhibition, masterfully framed with vegetation. The project, characterized by a geometric design, implemented long and straight paths, bordered by exhibition walls; an oval path, beside the former cycle speedway; a square, a roof garden and a parking area. The garden was surrounded by dense vegetation, mainly composed by large trees, like *Pinus pinea* and *Populus nigra* 'Italica', aiming at creating a visual barrier and hinder the views for the surrounding buildings, with low architectural value.

Despite the high aesthetic and functional quality achieved with this project, in 2001 (Figure 2), the garden was almost never used, nor by museum visitors or by any other public; with rare exceptions in the period immediately after construction. The absence of users/visitors resulted in the garden obliviousness, maintenance ceased to be made and gradually the lack of care was becoming increasingly visible (see images from 2003, 2007 and 2014 in Figure 2). In few years the garden was no longer safe and ended up being closed.



Figure 2 – Photographs of the garden of Soares dos Reis National Museum in 2001, 2003, 2007 and 2014.

III. THE 'QUARTER OF ARTS'

The nominated Quarter of Arts', which includes the Soares dos Reis National Museum and its garden, is bounded by the streets D. Manuel II, at South, Maternity at North, and Cedofeita at East (Figure 1)

During the last half of the 20th century, this area of the city went through an abandonment and degradation process. However, the economic crisis and unemployment have encouraged low-cost housing

demand and the installation of small own businesses which brought people back, especially young people. Today it is a cosmopolitan and eclectic residential area, bringing together some of the proposals that best demonstrate the dynamic 'avant-gard' of the city of Porto through the revitalized traditional commerce, restaurants, entertainment venues and the creativity of shops and art galleries (Figure 3).



Figure 3 – ‘Quarters of Arts’ creativity and atmosphere. (Source of images: <https://oportocool.wordpress.com/2014/>; <http://acidadenapontadosdedos.com/2013/>; <https://miniartistas.wordpress.com/>; <http://www.pbase.com/jandrade>; <http://www.luxwoman.pt>)

The many civil society organizations installed in the neighborhood arrange frequent and much participated events like the 'simultaneous openings' that take place, at least, every six months. On this event several galleries and shops inaugurate, at the same time, new art exhibitions and new collections, always with great street entertainment.

III. A MANAGEMENT PLAN FOR THE GARDEN OF SOARES DOS REIS NATIONAL MUSEUM

The management plan developed for the garden of Soares dos Reis National Museum aims at its recovery and public opening, and to establish a financial program and an action plan to ensure its maintenance,

and the regular presence and involvement of the local community. The management plan was based on the POU-model (Park-Organization-Users) proposed by Randrup & Persson (2009), considering the relationship established by three major players: the managing organization, users and the garden itself (Figure 4).

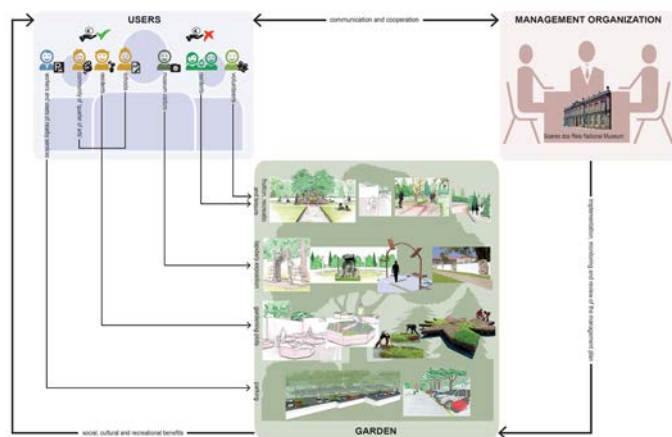


Figure 4 – Management plan proposed for the Garden of Soares dos Reis National Museum.

The managing organization (the steering committee of the museum) has the responsibility to raise funds to implement the emergency measures for the garden recovery. The model includes proposals in this regard, such as the search for patrons and sponsors. Simplest recovery tasks such as vegetation clearing and paintings can happen in targeted actions articulated with local civil society organizations and involving the community of quarter of arts. It is also the responsibility of the managing organization, the execution and revision of the management plan as well as to promote constant communication with users to adjust the set out actions to their expectations and needs.

Unlike the previous situation, wherein only museum visitors had access to the garden, the model proposes the opening of the garden to everyone. This increases the number of users and invigorates the garden. The main target audience are residents and the modern goers of the quarter of arts, which are easily mobilized; but also seeks to attract employees and users of local services such as the hospital, university and schools. Therefore, the plan foresees the implementation of new, more inclusive and attractive functions.

The garden of Soares dos Reis National Museum thus becomes accessible to all the community enabling passive and active recreation by organizing volunteer activities as part of maintenance and providing plots for cultivation. These plots are modular and portable allowing them to be combined to create shapes with different cultures. This allows performing several initiatives that will have the double purpose of boosting the spirit of community, and promoting the garden in order to capture the support of more people. The garden keeps its expositive function, continuing to be an extension of the museum, but must join the 'quarter of arts' dynamics by providing its space for artistic and cultural initiatives.

There will be two types of users: the payers, who will be the users of the parking and of the plots; and the non-payers, which will be museum visitors, volunteers and passive users. The revenues are to be mandatory channeled for garden maintenance.

IV. FINAL REMARKS

The management plan proposed for the garden of Soares dos Reis National Museum aimed at i) recover the garden, ii) develop a funding model, iii) guarantee a regular use, iv) involve the local community and v) implement a sustainable action plan to prevent being neglected once again. These targets can be achieved through the garden endowment with a set of novel uses that are not provided by any of the nearby gardens, and more than that, are much tailored to the features and needs of the resident and attendee community of the quarter of arts, in which the garden is inserted.

These strategies are in accordance with the ideas defended by CABA Space (2006b) "The challenge is ... to reinvigorate parks and green spaces with new features and facilities and with activity and community support that will put them at the centre of an urban renaissance, as well as at the centre of the life of communities. This cannot be done without a plan."

However, and as much as we would like to think that the proposed management plan will be materialized, the truth is that will not be easy. It will be necessary to overcome financial barriers but harder and more time consuming, will be to change attitudes and behaviors towards green spaces and the services they can provide. Let us work hard and give time...

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WATER TECHNICAL MONUMENTS OF BANSKÁ ŠTIAVNICA – A VISION FOR A CULTURAL HERITAGE UNESCO SITE

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KEYWORDS

Unique Water Reservoirs (tajchy) of Banská Štiavnica,
Original System, Further Management

ABSTRACT

The symbiosis of nature, architecture and technical creative mind contributes to the identity of Banská Štiavnica region. It involves not only the built environment but also features of cultivation of land left by past generations. One of the most significant examples of such symbiosis is represented by the water system of mining reservoirs that is unique in the world. Despite the passing of three centuries since they were built, the majority of the water reservoirs are still able to provide excellent conditions for multipurpose use but a lot of them are in a very poor state. In the past years water reservoirs called “tajchy” started to receive more and more attention. How can this unique place be revitalized? What can be done in order to give consideration again to the special spirit both in use and protection? Research and future sustainable development planning have started in close cooperation with decision makers, experts and stakeholders in Banská Štiavnica (including issues on natural conditions, landscape scenery, land use, architectural features, etc.). Banská Štiavnica municipality and experts have prepared a detailed management plan based on multidisciplinary analysis. Taking into consideration the national and international importance, possible means for their sustainable use should be pointed out, which have to be investigated in more detail.

INTRODUCTION

Banská Štiavnica, the oldest mining town in Slovakia, situated on the slopes of the Glanzeberg and Paradajz mountains, as well as the whole surroundings of the Štiavnické vrchy (Štiavnica Mountains) belong to the areas of unique importance from the historical, architectural, urban, landscaping and technical points of view. The landscape of Banská Štiavnica has the soft character of its volcanic origins. The gently sloping hills are partly crowned by woods providing an interesting contrast to the open agricultural areas. The flora is well mixed with conifer and deciduous woods.

An important element in the landscape is a system of artificial lakes called “tajchy” which constitute the largest coherent installations of water-supply system connected with the mining industry. The water system of tajchy originated as a consequence of industrial enlightenment and the courage of its developers – dam builders – who employed the natural conditions and the energy from the water to build the most sophisticated unique mining water system in the 18th century in the world (Pohaničová, 18). The increasingly intensive extraction of metal ore from deeper and deeper mines demanded a new source of energy. The basic precondition for the mining as well as technological processing of ore in the region was water. In the 18th century, therefore, a system of 60 manmade water reservoirs – tajchy and a network of drainage and collecting channels was developed in the immediate surroundings and beyond.

The question arises as to why this ingenious system was so original. From the hydrological and water management points of view, its uniqueness lies in the way it collected rainwater from the surrounding hills and, by using the earth's gravity, transported the water to tajchy; and they employed their cascade arrangement and were united by a system of mining tunnels and shafts. Water from the tajchy was distributed through the collecting channels to drive the mining machinery (Kladivík, 2000, Švihran, 2002)).

The use of water from “other fluvial sources” is also unique. The dam builders realized Banská Štiavnica's difficult hydrological conditions and small area of *tajchy*. Accordingly, they decided to make use of a widespread system of collecting channels and drainage ditches by collecting rain water which would otherwise disappear in other fluvial sources and would not fill up the *tajchy*. The dam structures were also technologically unique because of their earthwork constructions, which achieved unforeseen parameters in the world of that time. The total volume of reservoirs built from the 16th to 19th centuries was approximately 7 million m³, the lengths of collecting canals 72 km and of connecting canals approximately 57 km. 40 of these reservoirs were used for mining activities, the rest for fishing and the supply of drinking water.

These artificial lakes with collecting and connecting canals and streams enrich the landscape with historical elements of the mining activities of the region, also well suited to swimming and fishing and provide the area with an additional attraction. Parts of a system are in a bad state which makes investment and research necessary if these advantages are to be exploited.

Water reservoirs (*tajchy*) as cultural heritage in the city development – critical analysis and evaluation

Despite the passing of three centuries since they were built, the majority of the water reservoirs are still able to fulfill their water-management function. This is one of the reasons why the water system of the Banská Štiavnica reservoirs belongs among the world's unique technical accomplishments. Along with the urban, architectural, natural and technical monuments in the vicinity of Banská Štiavnica, it was listed in 1993 on the UNESCO World Cultural and Natural Heritage List. At the same time, the reservoir system is a proof of the symbiosis of nature, human skills and technical creative mind of our great builders of dams and reservoirs who managed to exploit the water in favour of advancement of human civilization (see Figure 1 -2).



Figure 1: The Vindšacht reservoir (J. K. Hell, 1765).
Source: Belčáková, 2012 by Matej Kornel Hell

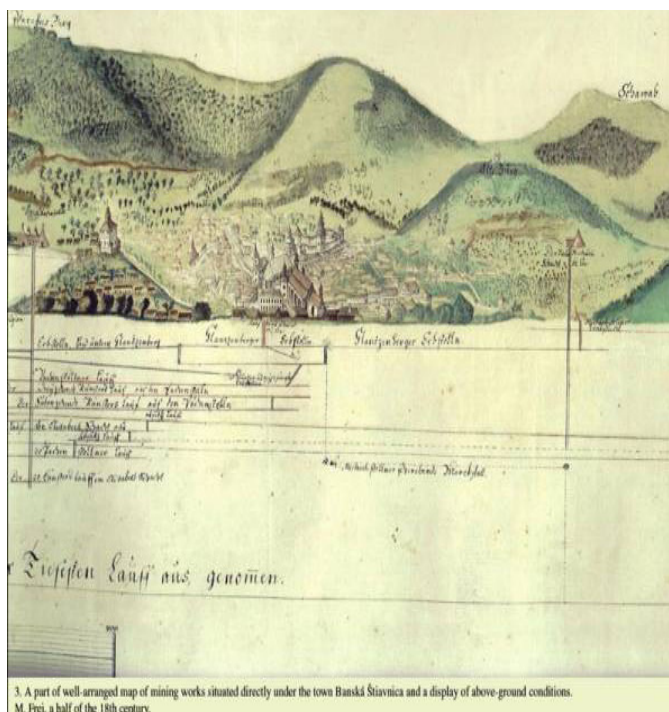


Figure 2: A plan of water reservoir made.
Source: State Central Mining Archive in Banská Štiavnica

Water reservoirs in Banská Štiavnica represent multiple values for both landscape and urban structure. However, the requirements towards their use and its roles in the urban structure are changing during the history. Formerly used as sources of water, as sources of energy often changed and lost their former historical functions. Today the water reservoirs are often transformed and rehabilitated to fulfill their new contemporary roles in the environment, most often to fulfill recreation, aesthetic, and ecological functions (Belčáková, 2002).

Nowadays, when the industrial age seem to be coming close to an end, or, at least, to be entering an absolutely new phase, the industrial traditions of Banská Štiavnica with their unbroken links to Medieval roots are of great importance to European history and experience. The technical monuments form a cultural fund together with the beautiful landscape which must be used in a way worthy of its value (Council of Europe, 1991).

A large area surrounding the „*tajchy*“ is protected by law as a landscape reserve. The pleasantness of the landscape combined with the many ancient monuments and physical traces of history, offers interesting opportunities for creating educational paths which can be informative both on nature and history.

Furthermore, there is a problem with accumulation and transfer of sediments mainly depending on changes of land cover in the watersheds leads to the loss of retention capacity and reduced life of reservoirs. The results of a comparison of two 3D models (based on both the past and the present documentation in the field) have shown a reduction in the volume of water totaling 274200 m³, i.e. 12.17%. Causes of sedimentation were searched in watershed changes over time. These were identified by comparison of historical aerial imagery (1949) with existing aerial photographs. After comparison of historical data and research outcomes we can state that all the reservoirs experience gradual accumulation of sediment load either in a

larger or in a smaller extent. The dynamics of erosion-accumulative processes in case of water reservoirs has an increasing pattern controlled by the intensity of anthropogenic activity in the watershed (Kubinský et al., 2014). We assume that intensive urban planning and development of adjacent residential areas and numerous changes in the country's exploitation have shown on the last cascade stage of water reservoirs Bank zones of water reservoirs are, especially in the days of growing tourism, exposed to anthropogenic pressure and thus strongly underlying sediment load because of the change in exploitation or removal of vegetation cover. It is mainly a matter of eroded banks with a short grass cover or built up areas. There is a probability that the tendency to progressively build-up and change the reservoir surrounding into intravillain will continue in the watershed areas of tajchy.

CONCLUSIONS

Research and future sustainable development planning have started in close cooperation with decision makers, experts and stakeholders in Banská Štiavnica (including issues on natural conditions, landscape scenery, land use, architectural features, etc.). Banská Štiavnica municipality and experts have prepared a detailed management plan based on multidisciplinary analysis.

Water reservoirs (tajchy) can represent a wide range of values. They play their historical roles in formation of Banská Štiavnica scenery. The perceptions on the roles and functions of these technical monuments in both landscape and urban development of the city influenced the manmade adjustments of the waterreservoirs during history. Benefits of their revitalization are most often associated with restoring to more natural conditions, or with the aim to pursue their ecological worthiness. Our research points out the need to preserve the waterreservoirs as historical and cultural heritage, and presents the need to interpret the cultural, historical, social and urban spatial values that they represent

for city structure. Protection of the „tajchy“ in the city structure, appreciating not only their ecological values, which are often hardly achievable in the contemporary urban conditions, but also their cultural and historical values, values of their urban open space and landscape architectural values, can create a base for their multiple use as attractive tourist, pedestrian, bicycle, and green corridors with recreational and environmental functions and can create the possibility of their future revitalization with recovery of water. Revitalized attractive public spaces and green spaces along waterreservoirs, enhancing local specifics and identity, are able to increase the residential and recreational values of the adjacent areas, serve as stimulators and facilitators of urban regeneration and redevelopment, and represent multiple benefits for a city structure.

The historical water-management system was mapped and interpreted within the framework of the project GEOPARK (2009) and, subsequently, an educational path was created in the terrain. The knowledge on water management system have been summed up for the first time, and the system of trenches and tajchs was interpreted in panels within the framework of an educational path. However, the state of the trench preservation has not been identified, some tajchs are overburdened by tourism, some of them have ceased to exist in nature.

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ANCIENT TREES- STORYTELLERS OF A METAMORPHOSING LANDSCAPE

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ABSTRACT

The city of Porto, Portugal, has an important collection of historic gardens and squares filled with old trees of monumental sizes and wide range of species, some of them legally protected. This paper analyzes the urban metamorphosis of a part of the city from the unusual perspective of one ancient and protected tree. The research methodology included: 1) delimitation of the study area according to the density of historic gardens and protected trees and using physiographic landscape features; 2) selection of the oldest protect tree in the study area as narrator; 3) definition of the timeline of analysis; 4) examination of historic cartography; 5) historic research about socio demographic and economic events. The chosen narrator was a majestic *Liriodendron tulipifera*, located at the center of the study area and referenced has being approximately 250 years. In the 18th and 19th centuries, landscape changes can be related to the rapid population increase, mainly driven by the economic growth supported on the port wine trade. The conversion of agriculture fields into residential areas and the evolution of the urban matrix are presented and discussed, as well as the emergence of the first public green spaces, and the implementation of the road network. In this period, the detected changes had a positive impact on the urban forest since much of the current patches were planted at this time. In the 20th century, especially in the second half, the property speculation and the transports revolution were the main transmutation causes, out by estimating the loss of many trees, especially those located in private spaces. Today the landscape of the study area is consolidated and stabilized. If there is a “moral of the story” is that ancient trees are truly faithful spectators of history and can act as barometers of landscape fluxes.

INTRODUCTION

Ancient trees, because of their age, special features and old tales and legends, are loved by communities and nurture uncommon social bonds (Passola, 2010, Beth Moon, 2014). The rapid growth of cities creates many challenges for the survival of ancient trees but those that endure are live and rare witnesses of the history, evolution and transformation of its surroundings, with many stories to tell...

The city of Porto, a medium size city (circa 240 000 hab and 42 km²) located in Northwest Portugal is, since long, a city of trees (Araújo et al, 2006). Three main, interrelated, reasons can explain it: 1) the warm climate, very friendly for the tree growth; 2) the commercial nature, mainly driven by Porto wine trade that brought many foreign people and facilitated the exchange of species; and 3) a secular tradition in the art of gardening, owing some emblematic historic squares and gardens, were the exhibition of exotic ornamental species was a tradition (Andresen & Marques). Today, Porto has an important collection of ancient trees, of monumental sizes and belonging to a wide range of species, some of them legally protected.

Since 1938, Portuguese legislation has a specific classification for remarkable trees, classifying them as ‘Trees of Public Interest’, aiming at its preservation and protection (DL n.º 28 468, 15 Feb. 1938; L. n.º 53/2012, 5 Set.; P. n.º 124/2014, 24 June). This classification is granted by a public organism, the Institute of Nature and Forest Conservation (ICNF), and its applied ‘to forests, woods or groves, arboretums, alleys and gardens of botanical, historic, scenic or artistic interest, as well as to isolated specimens which by their representativeness, rarity, size, age, history, cultural significance or scenic backdrop, might be considered of relevant public interest and recommend its careful conservation. In Portugal there are 471 isolated trees protected by this law (102 tree alleys and arboretums are not



Figure 1 – Procedure for the delimitation of the study area and location of the storyteller tree.



Figure 2 – *Liriodendron tulipifera* (Tulip tree) of Tait House. From left to right: in the last decade of the 19th century (Tait House archives photo), in 1957 (Teófilo Braga photo) and in 2015 (authors photo).

included in this count). Trees under legal protection in the city of Porto are showed and described in Table 1.

In this research, the urban metamorphosis of a Porto area, is presented and discussed, from the perspective of one ancient and protected tree.

METHODS

The study was developed in five sequential steps:

- 1) Selection of the study area by overlapping the map of historic gardens (higher density) and the map of protected trees (higher density) (Figure 1);
- 2) Screening of the oldest protected tree to act as narrator, and definition of the study area boundaries according to its visual watershed;
- 3) Definition of the timeline of analysis according to the estimated age of the narrator;
- 4) Historic research about the socio-demographic and economic events occurred during the timeline previously defined.
- 5) Analysis of the historic cartography of the predefined timeline searching for all land use and landscape changes namely in the urban fabric and road network.

FINDINGS

The distribution pattern of classified trees matches the distribution pattern of historic gardens. Both are more abundant in two areas of the city: the historic center and its closer surroundings, expanded during the 17th and 18th centuries; and Foz, a more recent area, developed mainly since the end of the 19th century (Figure 1). In Foz three main historic gardens can be identified (Passeio Alegre – 1890, Homem do Leme – 1929

Scientific name		Sort	Location	Classification date	Estimated Age
<i>Metrosideros excelsa</i> Soland ex Gaert.	55	Tree alignment	Homem do Leme garden	10/01/2005	50
<i>Metrosideros excelsa</i> Soland ex Gaert.	33	Tree alignment	Av. de Montevideu	10/01/2005	77
<i>Platanus x acerifolia</i>	37	Tree alignment	Cordoaria garden	10/01/2005	140
<i>Phoenix canariensis</i> Chabaud	63	Tree alignment	Passeio Alegre garden	10/01/2005	114
<i>Liriodendron tulipifera</i> L.	1	Isolated tree	Tait House	01/09/1950	250
<i>Cedrus atlantica</i> (Endl.) Manetti ex Carrière	1	Isolated tree	Primo madeira House	30/11/2004	100
<i>Liriodendron tulipifera</i> L.	1	Isolated tree	Primo madeira House	30/11/2004	100
<i>Platanus occidentalis</i> L.	1	Isolated tree	Primo madeira House	30/11/2004	100
<i>Araucaria bidwilli</i> Hooker	1	Isolated tree	Cordoaria garden	10/01/2005	130
<i>Ginkgo biloba</i> L.	1	Isolated tree	Virtudes garden	10/01/2005	200
<i>Metrosideros excelsa</i> Soland ex Gaert.	1	Isolated tree	Passeio Alegre garden	10/01/2005	70
<i>Metrosideros excelsa</i> Soland ex Gaert.	1	Isolated tree	Passeio Alegre garden	10/01/2005	70
<i>Cedrus atlantica</i> (Endl.) Manetti ex Carrière	1	Isolated tree	Gardens of the North Regional Section of the General Medical	22/08/2011	100
<i>Liriodendron tulipifera</i> L.	1	Isolated tree	Gardens of the North Regional Section of the General Medical	22/08/2011	100
<i>Camellia japonica</i> Thumb.	1	Isolated tree	Church Square of Paranhos	11/02/1992	200
<i>Camellia japonica</i> Thumb.	1	Isolated tree	Church Square of Paranhos	11/02/1992	200
<i>Liriodendron tulipifera</i> L.	1	Isolated tree	João de Deus street	02/12/1939	300
<i>Magnolia grandiflora</i> L.	12	Group of trees	S. Lázaro garden	10/01/2005	100
<i>Araucaria heterophylla</i> (Salisbury) Franco	28	Group of trees	Passeio Alegre garden	10/01/2005	114
<i>Liriodendron tulipifera</i> L.	4	Group of trees	Pedro Nunes Square	10/01/2005	80

Table 1 – Trees of Public Interest of the city of Porto

and Montevideu – 1929) holding one hundred and eighty one classified trees. The historic center and surroundings comprises five historic gardens (Quinta da Macieirinha – 1835, Virtudes – 1863, Cristal Palace – 1865, Cordoaria- 1867; Tait House – 1900,) and forty classified trees: 37 *Platanus x acerifolia* (London plane), one *Araucaria heterophylla* (Norfolk Island pine), one *Ginkgo biloba* (Maidenhair tree), and one *Liriodendron tulipifera* (Tulip tree). These results appointed the historic center for landscape change evaluation.

From all the classified trees in the study area, the oldest and longer protected tree was selected as narrator – the Tulip tree living in Tait House (Figure 2).

The classification of the Tulip tree, made in 1950, estimated its age in 200 years, placing its plantation in the mid-18th century. So, the story of our narrator began more than 250 years, when Tait House was still part of Quinta do Meio, an agricultural farm in the outskirts of the city. At that time, how it would be surprising to find this still young, exotic and ornamental tree, near crops and orchards. Possibly built by Joseph Taylor (Sellers, 1899) the house was the residence of several English families including the Rev. Edward Whiteley who directed, until 1871, a Catholic school for British boys and is not hard to imagine them playing around a mature and robust Tulip tree. At the end of the 19th century the estate was acquired by William Tait, a Porto Wine related person and a lover of plants and birds. Fond of nature, he would enriched and expanded the gardens near de house, already visible in Telles Ferreira plan (1892). Thus, our narrator, gets the company of many other exotic and ornamental trees and shrubs, including many camellia and magnolia species. In 1978, Tait family sells the property to the city hall with the condition that it become a cultural space with public access. Finally, the ancient and majestic Tulip tree could be appreciated by all! Initially located in an agricultural setting in the outskirts of the Porto burg,

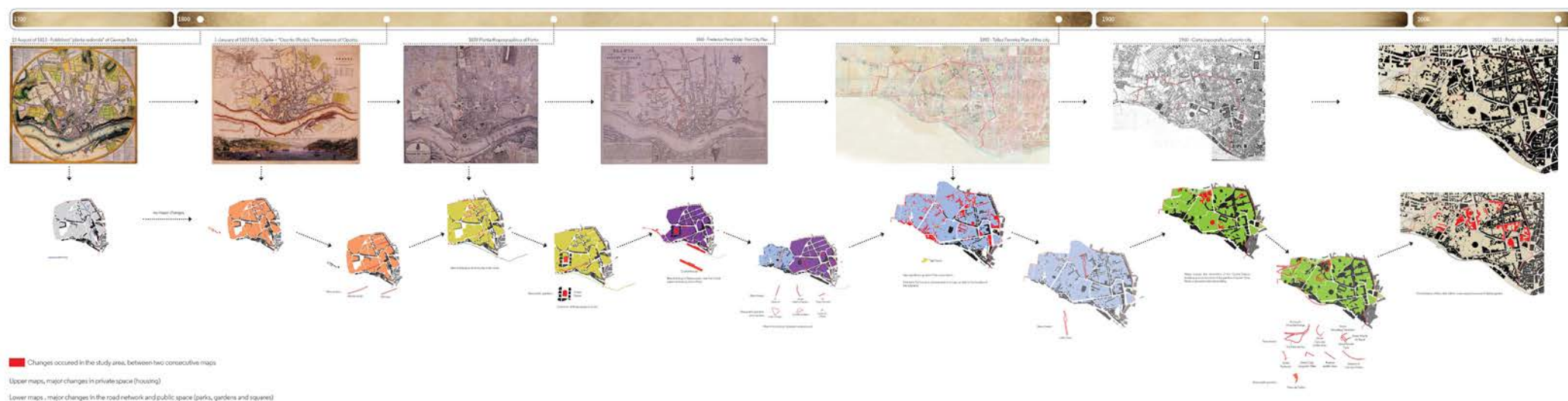


Figure 3 – Landscape changes in the study area between 1813 and 2011.

Tait House is, today, a public garden in the heart of the city, with an overwhelming view over the Douro River.

Faithful spectator, this Tulip tree witnessed, in its surroundings some major historic events and followed the growth and transmutation of Porto. In the first half of the 19th century it stand up to the French invasions (1809) and absolutist troops during the Portuguese Civil War (1828-1834). These were difficult times for trees, especially during the 'Cerco do Porto' (1832-1833), when thousands of trees of the city were felled to produce wood for heating. However, these social upheavals do not seem to have influenced the study area layout since no major changes could be detected in the analysis of the cartography. The following times were more peaceful and prosperous, with more expressive landscape changes to be pointed. The economic growth fostered by the port wine trade led a rapid increase of the Porto population with a consequent conversion of agriculture fields into residential areas and the implementation of a more suitable road network. Those were good times to the urban forest, since many public green spaces (Cristal Palace, Cordoaria

and Carregal) were planted at this period, as well as lot of private gardens, visible in Telles Ferreira Plan (Figure 3).

In the 20th century, especially in the second half, the real estate speculation and the transportation revolution were the main transmutation causes, out by estimating the loss of many trees, especially those located in private spaces. The Arrábida Bridge, inaugurated in 1963, can be pointed as an example once its construction reduced the Botanic Garden of Porto to one third of its original size. Today the landscape of the study area is consolidated and stabilized without major changes to report in the first years of the 21th century.

CONCLUSIONS

Ancient trees can be effective barometers of landscape fluxes, accurately detecting the more subtle patterns of change.

In the timeline of analysis, the Tulip tree of Tait House witnessed two moments of major changes in the

landscape. The first happened in the second half of the 19th century and reinforced the presence of the urban forest, with the farmland being converted into residential areas with backyard gardens and with the construction of some iconic public parks. The second, with negative effects in trees assets, happened in the second half of the 20th century and is characterized by an intensification of the road network (highways) and densification of urban fabric, which reaches large volumes occupying previously gardened spaces. At this stage it is estimated the loss of tree heritage that cannot be quantified once there are no available data regarding private gardens. These changes put in evidence the role of public green spaces in the preservation of ancient trees, since the public use triggers emotional bonds and the community involvement in their protection.

Legal instruments to protect remarkable trees, like the ones in force in Portugal can also be an important tool for trees protection. However, its effectiveness could increase if they were more reported to the common citizen and its fulfillment more regularly monitored.

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CULTURAL LANDSCAPE AND INFRASTRUCTURE DEVELOPMENT- WAYS OF COEXISTENCE

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KEYWORDS

Heritage, Road infrastructure, Sustainable development, Coexisting landscape.

ABSTRACT

The complex nature of the cultural landscape has been discovered as its most valuable source.

It generates large synergistic forces around, giving rise to new forms of landscape with many added values. The social reluctance to incorporate new transport systems into cultural landscapes has led to the acceptance of those projects that are sensitive to the environment. In addition to giving a service, these examples enable an educational and an aesthetic approach of man to landscape.

There are coexisting landscapes, which have managed to evolve admitting the incorporation of new elements without suffering any damage, retaining each one their own identity. It can be summarized into three different ways to carry out this situation from the most controlled aptitudes with landscape, to more interventionists ones.

The first one can be illustrated with the subtle introduction of Millau viaduct over the Tarn River, where infrastructure is integrated seamlessly into a landscape of established values.

Sometimes, infrastructure can be at the service of the cultural landscape on a clearly way, as we can see in the design for the access to Mont Saint Michel in France by Dietmar Feichtinger Architectes. It is established an active dialogue between the bridge and the cultural landscape, leading visitors across an almost initiatory path. Other times, the landscape has to evolve to adapt to a new situation developing new ways of understanding their own existence. A representative sample is Bernard Lassus project for Autoroute-837 as it passes through Crazannes, in the south of France. At the end, it could be confirmed the possibility to adapt these models of intervention to nearest cases. LABPAP footbridge for Camino de Santiago in Puente Villarente, Spain, is a good

example in which the pedestrian is offered to have a ride with a high cultural landscape content.

NEW LINEAL INFRASTRUCTURE IN CULTURAL LANDSCAPE

Human process of adaptation to the presence of new lineal infrastructure is a very complex process. On the one hand, there is a clear social reluctance to territory transformations at all those places that have some sort of landscape value. On the other hand, it is indisputable that human fascination by progress of industrialization advances exists, and it goes back far back in time. Landscape painting history demonstrates it, as we can find images of various infrastructures since ancient times, above all we find it in the romantic painters of s. XIX as in the case of Carl Blechen or largely in William Turner work. It can be said that these great transformations of man have artistic and aesthetic interest.

There is no landscape without the action of man, as the French writer Alain Roger said, "there is no natural landscape" (Roger, 2007) so it requires of human appreciation and artistic mediation. In this respect, France is an excellent example of state that has protected and made possible the conjunction between landscape and development of road infrastructure. In 1998, the Ministère des Transports et du Tourisme, established a group of diverse professionals: landscape architects, sociologists, philosophers, historians and politicians, led since 1990 by the landscaper Bernard Lassus, Coordinator of the College of Experts Landscape and Environment. The common intention of all interventions was to optimize routes and integrate new pathways in the territory healing the "wounds caused in the landscape" (Roger, 1994: 34). Thus, the impact of new infrastructure turns into project material you can use to get new benefits.

Thanks to early inquisitiveness and the extensive subsequent development, it can be said that France is a country leader in landscape studies integration of new infrastructure in the territory. In order

to analyze their strategies, they have been chosen three examples of French landscape architectural projects that facilitate the integration of new infrastructures in cultural landscapes in three very different levels of impact, from the most controlled aptitudes with landscape to more interventionists ones.

Each example chosen shares three aspects that helps dealing with cultural landscape: a correct choice of their location, providing the most integrate way to create a new line in the territory; a studied promenade given to the visitant in order to understand the landscape around; and finally, they all bring a discovery moment to make time and heritage present into the intervention.

SLIGHT INTERVENTION FOR THE BIGGER INFRASTRUCTURE. MILLAU VIADUCT.

Despite the wide range, it is commendable the subtlety exercise developed by Foster and Partners and the structural engineer Michel Virlogeux when designing the Millau Viaduct on the A75 motorway in France.

The most important and successful decision taken was to define the exact altitude and location to cross the valley, prioritizing the integration of the infrastructure in the valuable landscape against other concerns like economy or constructive simplicity. The bridge is incorporated like a beautiful background of the River Tarn valley, providing a solution that allows cultural landscape not to be radically modified to incorporate a new infrastructure.

The most impressive facet of the itinerary occurs while you are coming into the bridge. The great infrastructure turns up beside a hill, graceful shape, hung lightly on the landscape. It becomes an element that seeks its fading with the clouds of French sky, coming to belong to the air environment rather than the terrestrial one.

The discovery moment happens when the visitant of the valley face the bridge for the first time, beside the cultural landscape, like a background that measure the hugeness of the gorge.

The road deck crosses the valley at high altitude, on top of the tallest cable-stayed, masted structure ever built in Europe (2.46 km long and 245 m maximum height). These slender columns are broken into two to make a flexible joint with the road. At the same time it reminds us the image of large sewing needles (Foster and Partners, 2009: 72) as if it were a huge sculpture of Claes Oldenburg, which helps to emphasize the lightness of the infrastructure. The bracing structure continues to rise into the sky, increasing the slenderness of the assembly and giving a gesture that takes us on cloudy days to a second metaphor as a structure reminiscent of naval candles. (Figure 1)



Figure 1: Millau Viaduct. View taken from the village of Peyre. It can be observed how the viaduct appears into the valley as an integrated element more. Photography: www.donchristophe.be

MEDIUM INTERVENTION. DIALOGUE BETWEEN INFRASTRUCTURE AND MONT SAINT MICHEL.

The project designed by Dietmar Feichtinger Architects to restore free access to Mont Saint Michel in the estuary of the Couesnon River in Lower Normandy, is a clear example of interventions where it is inserted a new element in active dialogue with the heritage into the landscape.

The Mont is an amazing heritage landscape listed by UNESCO as World Heritage since 1979 and it is composed by the medieval town of Mont Saint Michel topped by its ancient abbey, both constructed over the rock inside the bay. The site is neither an island nor a peninsula because of the severe tides effect that makes it a very special place.

In 1880, the site was connected to the mainland through an access dam built which seriously damaged to the natural ecological environment of the bay by the heavy sedimentation. The project to solve the situation required on the one hand removing this artificial barrier and sand accumulation and on the other, solving the access back to the island. The architects proposed to create a curved longitudinal pier over a large number of light pillars to prevent clogging of the bay. (Shannon et al., 2010: 134-35). The chosen point to cross is the previous one, guaranteeing the service but understanding it in a new way.

The promenade of arrival at Mont Saint Michel changes from the ancient perpendicular road through the old dam to a new one by tracing a tangentially path. In a certain way, a scenic tour very attractive for visitors is generated, accentuating the shape of envelope curve of the pier.

The vision is separated from the axis of the tour at all times to discover the beauty of the site specially when Saint Michel is an island, while the image is continuously silhouetted against the sky and the bay, apparently free of any link with the continent.

The viewer makes a real initiatory journey through all the different points of view that gives you access, discovering the cultural landscape guided through the design of the infrastructure itself. (Figure 2)



Figure 2: View of Crazannes Quarries crossed by 837 Highway in France. The route brings us the heritage image. Photographer: Cobber, 2010.

STRONG INTERVENTION. CRAZANNES QUARRIES DISCOVERED BY THE HIGHWAY

The project developed in 1995 by Bernard Lassus in the A 837 as it passes through Crazannes, southwest of France, between Santes and Rochefort sur-Mer, constitutes a situation where the landscape is forced to reinvent itself to achieve integration of new infrastructure.

The route coincided with the presence of stone quarries active since the times of the Roman Empire until 1955 and many historic buildings were built with this stone, such as the Germanic Arc de Triomphe (Conan 2012: 349). These circumstances far to make Lassus change the itinerary of the route, changed the possibilities for

the project becoming a vital determinant: to deal with pre-existing and its relationship with the landscape. Lassus decided to come across some of the structures (never damaging the ancient ones) to let the motorist have a real approach to this special territory.

The main objective was to rescue motorists from the monotony of the road and to offer them a promenade to become part of the intervention. In this way, full and empty spaces of the quarries were enhanced to compose an attractive landscape from a mobile point of view, estimating their average speed around 100 km/h. Outcrops, with its presence and absence of cut mass, generated chiaroscuro of great chromatic beauty. Lassus interventions by cutting, insulation, shells, etc., generated an attractive spectacle from the highway.

The traveller now has discovered the presence of this cultural landscape and is tempted to stop at rest areas, linked to the quarries to see the compound space. This situation is adequate, but for Lassus it is not the purpose of his project. The landscape is nature transformed through human experience and begins to be understandable by a wide range of experiences. That is why landscape emphasizes its own presence through this highway. (Figure 3)



Figure 3: Mont Saint Michel and its new pier for high tide. The curved line allows the free contemplation heritage. Photographer: Mathias Neveling, 2014

COMPRESSED LANDSCAPE EXPERIENCE IN CAMINO DE SANTIAGO

LABPAP project to build a footbridge to the Camino de Santiago in Puente Villarente (León, Spain) arises from the need to offer pilgrims a safe alternative to cross Porma River, because of the narrowness and the volume of traffic registered on the existing medieval bridge.

Like our first example, the most important and successful decision was the choice of the exact altitude and location to cross the river, prioritizing the integration of the infrastructure in the valuable landscape before other concerns like economy or constructive simplicity. It was decided to go across downstream because it was the better location to see the bridge and on a lower level, in order not to introduce an element in visual competition.

With the new footbridge, it is established an active dialogue with cultural landscape around, leading visitors across an almost initiatory path, like it happened in our second example. Vegetation has been preserved almost entirely in the riverside so as the route brings a complete shelter to visitor as the pilgrim descends to the river. He approaches the water to walk the first section of the

bridge, which takes place in parallel to river movement. After that, a first change of direction occurs and the pilgrim discovers unexpectedly the presence of the medieval bridge at the back of the footbridge. The tour continues axially, approaching the heritage element, enjoying his encounter with water from a vantage point of view, the bridge is observed near the water in all its magnitude and scale. The current is crossed almost entirely to reach the last turn, leading the pilgrim again to look towards the village, heading back the direction of the next stage of route to Santiago de Compostela. A global landscape intervention is designed to transform the act of crossing the river into a broken line course that integrates the landscape potential of the riverbank with the presence of the old bridge of great heritage value.

The late motive of the footbridge is not only to cross but to discover the presence and the magnitude of the ancient bridge. In this way, it is chosen the construction of a ford capable of flooding, a timber and prefabricated concrete element, silent and poetic at the same time. It's a line that breaks gently playing with the horizontal planes and slopes to accompany the movement and the spectator, gliding across the landscape of the place. (Álvarez, 2010: 100).

This broken pass over the river Porma builds a metaphor. When descending towards the river, pilgrims get away from the real world, focusing on the path they are going through. They are abstracted along a stretch of nature to discover at one point the great experience of all the memories of the place (Álvarez, 2010: 100). On the one hand, they find out the previous history of the path, the bridge where pilgrims have made their way since at least medieval times. On the other, it is reopened before them, the continuity of their route to Santiago. The different breaks introduced on the catwalk are actually living the condensed metonymy of all Camino de Santiago, they conform a part of the journey where we can reconstruct the entire route. (Figure 4)



Figure 4: Footbridge for pilgrims of the Camino de Santiago in Puente Villarente. The broken line gives us way into the landscape. LABPAP, 2010.

COEXISTENCE THROUGH SENSITIVE INTERVENTION

There have been presented different aptitudes leading with integration of line infrastructures into cultural landscape, from the more controlled and subtle strategies, that are present but in a more distant way from the heritage elements, to the more interventionist ones, changing with care and sensibility, some aspects of the heritage landscape.

To conclude, it has been demonstrated that it is possible, with a wide and deep study of each situation and a sensitive approach, without forgetting the responsibility we have to take care of the environment and heritage landscape, to come to good solutions far from the determination of the gradient of intervention in heritage. Cultural landscapes have their own characteristics that are the most important aspect to be considered.

Finally, the cases studied had three strategies in common: the reflective choice of the exact location, an attractive and complex promenade and the

intention to discover something new for the visitor. They are not the only causes involved in these good practices cases studied, but have demonstrated that are very important strategies to consider to provide better solutions for the integration of new line infrastructures into our cultural landscape.

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FROM SERRALVES FOUNDATION TO THE RIVER AVE VALLEY – A PROSPECTIVE LANDSCAPE ITINERARY

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KEYWORDS

Industry, Cabral, Ferreira, Heritage

ABSTRACT

The Serralves Foundation is an icon of the city of Porto, Portugal, and a tourist attraction of high heritage value, listed as 'National Monument'. Originally a private villa, which park was designed by Jacques Gréber, in the 1980's it became a Foundation that now hosts the Museum of Contemporary Art. This estate was the home of Carlos Alberto Cabral and Delfim Ferreira, two figures who were part of pioneering families responsible for the industrialization of the Ave Valley, north of Porto. In 1845, Cabral family founded the factory that marked the beginning of the industrial revolution in the region. Industrialization was a major landscape changing factor due to the replacement of farmland by factories and the manipulation of the river to power industrial mechanisms. These changes inscribed a new character to this valley. The main goal of this work is to explore a methodology to design a Landscape Itinerary that interprets the landscape that once was the support of substantial fortunes. For this, an archive and field-work research was carried out in order to identify and assess the built and landscape heritage of these two families. A selection of a few places was accomplished to serve as points of connection in the layout of the route, according to the historical importance and location. The Itinerary proposed departs from Serralves and crosses the valley almost from the source to the mouth of the river emphasizing landscape characters. This tour aims to tell the story of the industrialization of the valley by reading, interpreting and appreciating the landscape. The Itinerary has not been put into practice yet. The main goal is that in the future, after being improved by a group of professionals of the Foundation, it can boost the Ave Valley and its heritage and unique landscape.

THE INDUSTRIALISTS, OWNERS OF SERRALVES ESTATE

Carlos Alberto Cabral (1895-1968) and Delfim Ferreira (1888-1960) were among the greatest industrialists of northern Portugal, during the first half of the 20th century.

Living in Porto, Cabral family developed a considerable fortune investing in the textile industry, being somehow responsible for the beginning of the movement of industrialists from Porto to the Ave Valley. The Ferreira family, native from there, played a major role in the industrialization of it. They were pioneers in the early 20th century.

Carlos Alberto Cabral inherited the Serralves estate, in Porto, in 1923 and shortly afterwards began a process of buying and exchanging land that led to its enlargement to 18 hectares, as it is today.

The gardens were designed in 1932 by Jacques Gréber (1882-1962) an influential architect, garden designer and urbanist, author of a significant number of impressive beaux-arts gardens.



Figure 1: House and gardens of Serralves (1930/40). [http://EMUSEUM.SERRALVES.PT/acac/eMuseumPlus?service=direct/1/ResultDetailView/result.inline.list.t1.collection_list.\\$TspTitleLink.link&sp=14&sp=Sartist&sp=SelementList&sp=0&sp=2&sp=999&sp=SdetailView&sp=0&sp=Smodul&sp=SinlineBlock&sp=0&sp=T&sp=0&sp=SdetailList&sp=0&sp=T&sp=1](http://EMUSEUM.SERRALVES.PT/acac/eMuseumPlus?service=direct/1/ResultDetailView/result.inline.list.t1.collection_list.$TspTitleLink.link&sp=14&sp=Sartist&sp=SelementList&sp=0&sp=2&sp=999&sp=SdetailView&sp=0&sp=Smodul&sp=SinlineBlock&sp=0&sp=T&sp=0&sp=SdetailList&sp=0&sp=T&sp=1)

In a post-war scenario, Carlos Alberto Cabral was forced to sell his property, in 1953, to Delfim Ferreira who preserved it. In 1987, the estate was bought by the Portuguese State. Today, the Serralves Foundation is a cultural institution at the service of the community, whose mission is to raise public awareness for contemporary art and the environment.

LANDSCAPES: SERRALVES ESTATE AND THE RIVER AVE VALLEY

Serralves is located in Porto but the wealth that allowed its greatness was originated in the River Ave valley, where the Cabral family built the Factory 'Rio Vizela' in 1845. It was a major landscape changing issue, because of its size, the roads and housing estates built around it and the railway that was constructed into the factory, connecting it to Porto.

In mid-19th century, industrialists of Porto were aware that the raw cotton was very important for the international markets. Therefore, the textile industry began to grow and there was a dissemination of the industrial activities, changing the urban landscape. But the city did not have enough resources to support competitive factories. This reason drove industrials to the Ave River Valley, where there were water resources and flat fields next to rivers.

At the turn to the 20th century, the textile industry was growing fast. In 1905, electricity was introduced in industrial mechanisms with the launching of the Electric Textile Company founded by Narciso Ferreira, father of Delfim Ferreira. This was the first factory in Portugal powered by electricity.

It is comprehensible that the Itinerary should integrate the Ave valley, allowing visitors to get to know the landscape and its evolution from a land of agricultural fields and woods to a more industrialized region that supported cultural, social and artistic realizations.

THE LANDSCAPE ITINERARY – DATA GATHERING AND ANALYSIS

The methodology used was based on three main phases: analysis and information gathering, synthesis and a proposal.

The first task was to make an inventory of the heritage, which included the factories, houses, and gardens of the families. The research was conducted through consultations at several libraries, online research, visits to the Municipal Archives of Porto and field visits. It was, then, possible to register the assets. Once the researched data was gathered, the information was analysed and organised according to its location and type.

A study of the landscape of the Ave region was also carried out: old maps, ordnance survey maps from different periods and old photography were analysed and site visits were carried out.

In the synthesis, a guideline for the Itinerary was chosen – the Ave River. It was the main reason the industry moved from Porto to this Valley and gave the industry the strength to avenge. Thus, the selected points are located within a buffer of three kilometres from the Ave River. The one exception is the Textile industry Museum, included for the didactic value that enriches the visit. The most important heritage is included in this area. The houses and private gardens were excluded of the selection. At the time of the Proposal, they were difficult to visit and the owners were not open to receive group visits. Therefore, the itinerary was composed with the most important factories and energy central associated with the families.

THE LANDSCAPE ITINERARY – PROPOSAL

The landscape demands reflection about its basic layout, which should echo the diversity of scales under study. Infrastructure, urbanization, energy production and consumption are keywords to frame geographically the proposed itinerary.

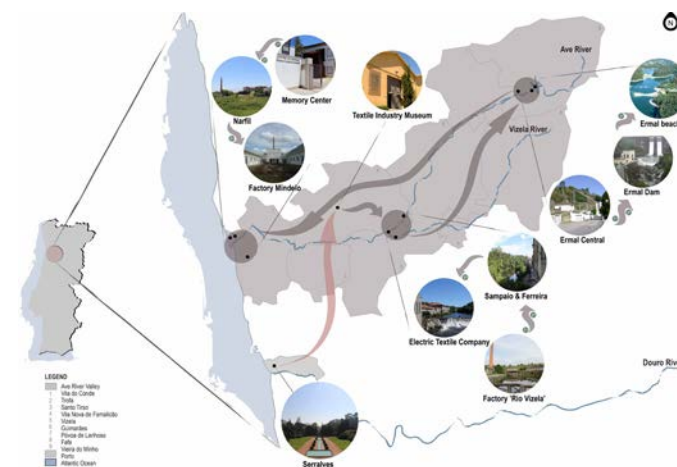


Figure 2: Proposal – Landscape Itinerary Map by Maria Inês Veludo Pinto

The Itinerary presented is not a finished work, but a guide of how to visit the landscape according to the story portrayed. It is important to note that there are other places of interest and that in a different approach they could have been included. The Serralves property is the starting point in the city of Porto and the link between the Cabral and Ferreira families.

The proposed Landscape Itinerary begins at Serralves. This visit presents a major opportunity to know one of the most important gardens in Portugal, built in the transition to modernism but still incorporating classical and vernacular influences of former periods.

In the Ave Valley, a quick visit to the Textile Industry Museum can be done. The Museum is located in the valley region corresponding to the Middle Ave, where the three main factories of the families are located:

The Factory 'Rio Vizela' is crucial. Its dimension and integration in the landscape, namely the close relationship with the Vizela River, a tributary of Ave River,

makes it worth a visit. Another interesting aspect of this factory is the Cabral's house and gardens, revealing a clear association between production and leisure area.

Founded in 1896, the Factory 'Sampaio, Ferreira & Lda.' was the first factory of the Ferreira family and the starting point of this family's wealth.

The Electric Textile Company, like the Factory 'Sampaio, Ferreira & Lda.', has a privileged visual and physical relation with the Ave River.



Figure 3: Electric Textile Company (today).
Photo by Maria Inês Veludo Pinto

Regarding the Ferreira family, several recreational estates in the Ave Valley can be pointed out, even though they were not included in the proposal. They are symbols of an industrial elite, where the garden represents a space of sociability and power. Most of these estates assemble a succession of spaces of different typologies, from formal gardens to agricultural fields, reflecting the dichotomy of the territory in which they are placed, where the idea of progress is associated with traditional and functional values.



Figure 4: 'Quinta da Lameira', Riba de Ave (today). Photo by Maria Inês Veludo Pinto

We will find the hydroelectric power station of Ermal at the upper part of the Ave Valley. This power station was built by Delfim Ferreira and supplied several populations and factories with electricity. This part is marked by a reduction of the urbanized areas, a more rugged topography and a deeper and embedded valley.

Approaching the mouth of the river, it is possible to observe the changes in the landscape. There are many abandoned factories, others still in operation and equipment, such as electricity distributors, which are a consequence of the industrialization. Without the intervention of industrial entrepreneurs there might not have been such a big investment in energy production. The railway network was also influenced, with extensions of the lines to send merchandises to Porto.

CONCLUSIONS

During the research, there were found many materials, which should be collected and studied more deeply in a future work. It is also important to talk to the population and collect the material they might have, since they work in these factories for generations.

Serralves, as an institution of culture and arts that is visited by thousands, is a good spot for the dissemination of these stories by presenting the heritage in relation with the natural characteristics of the River Ave Valley landscape. The interest in the Ave Valley should increase gradually, as people begin to understand how connected this region is to the city of Porto. Since this city is becoming an important tourist destination in Europe, it is possible to ambition a connection between Porto and the Ave Valley.

As a consequence, attention should be given to rehabilitation of spaces with architectural, cultural and natural significance, preserving the physical elements and the intangible identities and memories.

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OUTDOOR ENVIRONMENTS FOR PRIMARY SCHOOL TEACHING AND LEARNING: AN EXPLORATORY STUDY

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KEYWORDS

Affective Domain, School Grounds, Children, Motivation

ABSTRACT

Research suggests that children perform better in school assessments when learning is integrated with the surrounding environment. There are also positive changes within the affective domain, i.e., motivation and attitudes towards learning. A small scale study in Scotland investigated the impact of outdoor education on children's learning of curriculum content, motivation, social relationships, perceived bodily activity and exploration of the environment. It aimed to examine how outdoor school grounds can be designed to enhance children's learning and attitudes to school. The study explored how different settings in their school ground are used by children for learning and play and by teachers for teaching of different curriculum content. It also looked into the impact of the outdoor setting on teachers' perceptions and attitudes towards teaching in the outdoors, barriers and opportunities and how these can be overcome or maximised. How the present school ground can be developed in order to most effectively facilitate teaching, learning and play was also a concern in the study. Focus groups with children, observation of children in the school ground with behaviour mapping, in-depth interviews with teachers and a questionnaire survey with children were the methods chosen. The outdoor environment was found to have a positive impact on children's motivation, perceived bodily activity and peer relationships. Positive change in teachers' attitudes was also observed. The findings from this initial study can guide recommendations of how to most effectively design a school ground for teaching and learning.

BACKGROUND

Taking children to the outdoors in Scottish primary schools for teaching part of the curriculum content is encouraged by the Curriculum for Excellence adopted by the Scottish Government (Learning and Teaching Scotland, 2010). The benefits of outdoor learning are manifold. According to Moore and Wong (1997), a primary school outdoor environment can support all three types of learning i.e. formal, informal and non-formal. The outdoors of a primary school in Australia with rich and diverse settings afforded children's interaction with nature or environmental learning opportunities like construction activity, close interaction with nature, exploring nature etc. (Tranter and Malone, 2004). Children in some forest schools in the UK showed improved knowledge and understanding of the lesson content, better language and communication skills, increased motivation to learn, and improved social and physical skills (O'Brien and Murray, 2007, O'Brien, 2009, Swarbrick et al., 2004).

This small study was conducted as part of a PhD research project which aims to formulate some design guidelines for the development of school grounds as a context and tool for learning. The main case study area of the PhD research is Bangladesh but the researcher wanted to explore how outdoor learning is practiced in Scotland so that the findings could help in the design of a school ground in Bangladesh. Using three different methods and tools piloted in this school the study portrayed how teachers and children thought and felt about learning in the outdoors and how the insights could help in design a school ground elsewhere.

METHODOLOGY

The study was conducted on 40 children of primary classes P3 and P6 (8-12 years old), 2 teachers and 2 teaching assistants at a primary school situated in the city of Edinburgh. This school was selected as outdoor teaching had been practiced here and the

teachers agreed to co-operate. The children of P6 were taken outdoors by their teacher once a week (every Wednesday) at 1:15 PM after lunch. They were taken to a nearby woodland or, in case of bad weather, the school grounds. The children of P3 were usually taken out into the school ground for their outdoor teaching twice a week on Wednesdays and Fridays. The school has a large and diverse school ground consisting of a grassy hill, a small climbing wall, a tarmac play area with loose parts, a small woodland, some garden beds and a linear circulation area (see Figure 1). There is also a playground but this was not included in this study as it was closed for construction work at the time.

The children were observed during their formal outdoor class in the woodland and school grounds and during informal play in the school grounds. The questionnaire designed to measure children's motivation, exploration of the environment, social relations and perceived bodily activity was piloted with both P3 and P6 children for further modification in order to be applied in the primary schools in Bangladesh. Three focus groups of 5 children were conducted. One teacher was interviewed. In addition, informal discussion with the teachers and teaching assistants during observation of the formal outdoor class and informal play was also a rich source of information.

FINDINGS

Place Experience

Some places are more favoured by children than others. How children use different settings of the school ground (demarcated with lines) for different activities is portrayed in Figure 1 (the number of dots refers to the approximate number of children in each setting). The children like to play head stunt, hide and tag, to climb trees and to play with loose materials. The top of the grassy hills with the soft grassy surface is a good place to practice head stunt. Close to the grassy

hill is the woodland which provides the opportunities to play hide and tag, climbing and interacting with friends. The children often start playing on the grassy hill and continue to the woodland and the flat circulation area. The less preferred area is the point at which the tarmac area turns to become the linear circulation space. The boys like to play football at this part and they often collide with the children who play with loose parts in the tarmac. According to the children, different settings of the school grounds should be demarcated and easily identified so that the activities in one setting does not disturb the other.

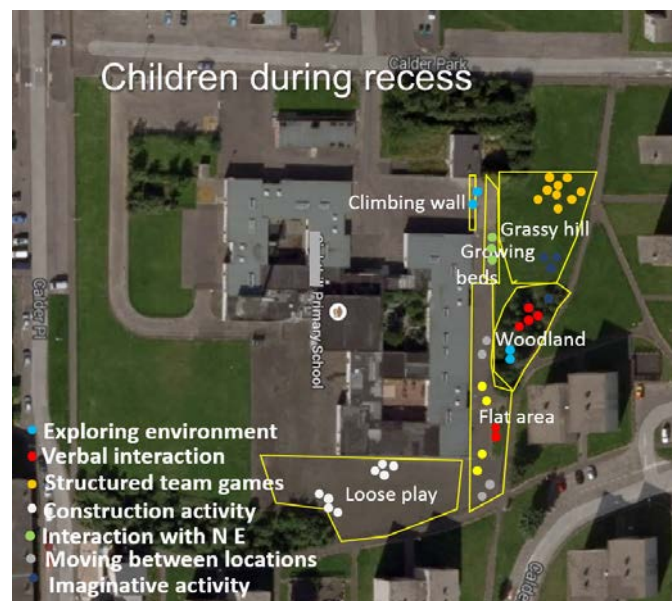


Figure 1: Children of the Primary School during recess period

Every setting is used for teaching curriculum content in different ways (see Figure 2). The grassy hill is used for demonstration in front of the whole class at the beginning and end of a session and the children use this place for different activities during the sports class. They carry out mathematical tasks such

as measuring of the trunk of a tree and they look for obtuse and acute angles in the woods; they also collect twigs, branches and leaves for studying geometry. The area with the loose parts is also used intensively for den building and counting activities. The children grow different vegetables and flowers in the growing beds and learn about plants. According to the teachers, a school ground should have different types of area which will provide richness and diversity in order to accommodate different types of activity.



Figure 2: Children of the Primary School during formal outdoor classes

Formal learning in the outdoors

The children learned about geometry, natural science, story-telling, archaeology, mathematics and biology outdoors. The teachers are able to teach the same content in a much bigger space in different ways. According to the P6 teacher, some of the content of every subject

can be taught outdoors. For example, the children can learn about compass directions in the classroom, yet it's different when they use the compass in the school grounds. "You can explore the environment yet be safe" said a student of P6. For better learning outcome, it is advisable to combine both indoor and outdoor teaching.

Change in behaviour, attitude and motivation

"Learning in the outdoors is fun. You can be free and happy" said a student of P6 when asked about their experience while learning outdoors. According to the teachers, children look forward to the day when they are taken out. They are more motivated and engaged, which also makes the teacher feel relaxed. According to the students, their teacher also looks happier in the outdoors. The questionnaire survey of 40 children revealed statistically significant differences in perceived bodily activity, exploration of the environment and the behavioural factors of motivation. There were significant differences in the following areas (see Table 1): how much children reported being physically active outdoors compared to indoors: $t(38) = 3.81$, $p < .01$, how much children reported having opportunities to explore in the outdoors compared to indoors: $t(33) = 3.51$, $p < .01$ and differences in behaviour were also reported: $t(38) = 2.71$, $p < .05$. However there were no differences in children's reported motivation (value=0.856 and expectancy=0.145) or peer relation (0.536).

DISCUSSION AND CONCLUSION

The study has described the relationships between different school ground settings and children's activities. The study found that rich and diverse school ground settings can offer multiple affordances to children both for

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Value in O - valueclass	.05263	1.76983	.28710	-.52910	.63436	.183	37	.856
Pair 2	expecout - expectclass	.52632	2.17774	.35328	-.18949	1.24212	1.490	37	.145
Pair 3	peerreout - peerreclass	.22500	2.28133	.36071	-.50461	.95461	.624	39	.536
Pair 4	bodilyacout - bodilyacclass	1.02564	1.67783	.26867	.48175	1.56953	3.818	38	.000
Pair 5	explorationout - explorationclass	1.38235	2.29644	.39384	.58109	2.18362	3.510	33	.001
Pair 6	behaviouralout - behaviourclass	1.05128	2.41649	.38695	.26795	1.83462	2.717	38	.010

Table 1: Paired Sample t-test of the responses of children of their experiences in the classroom and the outdoors

their formal and informal learning. This is also supported by Wan and Zulkiflee (2012) who found that diverse landscape settings possess qualities that can meet children's needs for rich and stimulating environments.

The children preferred natural settings more over artificial settings. Therefore they asked for more grass and plants to be provided in the school. Manufactured equipment is the area where vigorous physical activity takes place but the greatest number of children were found to spend their time in the green areas, as also found by Dymont et al. (2009). The reason is that natural or naturalistic environments provides high diversity and offers a wide range of educational opportunities (Frost, 1992). Teaching in different ways in these diverse settings make children more engaged in their study and thus help to increase their motivation.

The area with 'loose parts' offers opportunities to experiment and create new things. The 'loose parts', as termed by Nicholson (1970), are materials which are open to manipulation; children can change these and build something from their imagination. The Primary School is developing the play ground to include more settings. However, the existing settings already offer many affordances which may be considered while designing a school ground for better learning of children.

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THE AESTHETIC PERCEPTION OF SKI RESORTS IN THE UKRAINIAN CARPATHIAN MOUNTAINS

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KEYWORDS

Visual Impact, Landscape, Good Design

ABSTRACT

In recent years there has been a great increase in the popularity of skiing in the Ukrainian Carpathian Mountains resulting in an expansion of resort complexes without much planning or evaluation of their visual impacts. Roads, resort buildings and car parks have some impact but the huge expansion in runs and lift capacity has had an impact on the natural-built landscape interface. An increasingly important factor is that these resorts are also used in summer when some landscape elements are most visible, since they are not under snow. These elements have resulted in significant modification to the otherwise relatively natural scenery. The aim of this research was to evaluate the visual impact of a sample of existing ski resorts in order to try to find some principles for future development and mitigate the present impact. The study used a range of visual/aesthetic principles e.g. unity, diversity, coherence, spirit of place, mystery, multiple scales and strength and applied these from a series of typical viewpoints experienced by visitors in winter and summer conditions. The assessment showed that two main elements in the landscape had most impact. In winter the pattern and shape of the ski runs cut through the forest is very visible. Applying good design to reduce the geometric appearance and hard edges could mitigate this. The damaged ground vegetation cover on some ski runs can be seen in summer, caused by grading during their formation. It was concluded that grading is also ecologically damaging and that clearing rather than grading should be used to create ski slopes.

INTRODUCTION

Visual perception is the sense that provides the greatest amount of information, especially about more distant scenes and it is the sense in which we think (Bell, 2012: 60). There are two aspects of (visual) perception: physiological (the 'senses') and psychological (the 'brain'). In this research there is an attempt to investigate one of the psychological aspects of perception, namely aesthetic perception.

According to Bell, aesthetics is an all-embracing, multi-sensory engagement with our environment within which we are a natural component. Therefore perception is central to our sense of beauty and the pleasure we may obtain from our environment. (Bell, 2012: 104, 64). Exploration and implementation of aesthetic principles of landscape perception by a human is a very important aspect and guarantee of the successful planning solutions for sustainable development of our landscapes. And because of the great interest to ski resorts planning and significant modification of natural landscapes in the Carpathian Mountains brought by ski resort creating it is a very important topic to discuss.

The development of ski resorts in natural mountains environment, as any other proposal that results in a change to the landscape, affects both the landscape as an environment resource in its own right and people's views and visual amenity (Landscape Institute and Institute of Environmental Management & Assessment, 2013:4). Based on this definition, the main objective of the study is to evaluate the visual impact of ski resort on the natural-built landscape interface, to find principles for future development and mitigate the present impact.

METHOD

Among existing approaches to landscape perception investigation the expert-approach is used in this research, which essence is in evaluation of the visual landscape by experts and trained observers



Fig.1A: view from the helicopter



Fig.1B: view from the neighboring mountain.



Fig.1C: view from the top of ski run.

Fig.1D: view from the foot of the mountain, the lower part of ski run.

(Nijhuis, Van Lammeren, Antrop, 2011). For the evaluation process two ski resorts, which are the most popular in Ukrainian Carpathian Mountains, were chosen. The process was carried out under the Guidelines for landscape and visual impact assessment (Landscape Institute and Institute of Environmental Management & Assessment, 2013). By visiting the places and routes of people's concentration there were identified main viewpoints for the evaluation of visual impact of these ski resorts. The analysis of the visual impact was conducted on the basis of the photo images, taken from the main viewpoints in winter and summer periods, as these ski resorts are four-season operated.

RESULTS AND DISCUSSION

To estimate the aesthetic features of existing ski resorts in the Ukrainian part of the Carpathian Mountains, basic

spatial characteristics and the conditions of perception of the landscape of two resorts in the Carpathian Mountains were revealed. Different points of viewing the landscape of ski resorts were identified: from the foot of the mountain, from the top of the ski run, from other mountain to the mountain with trails, from the sky (fig.1). The estimation of aesthetic quality of the landscape is based on the picturesqueness of natural landscapes of certain sight. The picturesqueness of the natural landscape is characterized by three basic elements: relief, water objects and vegetation (Shulha, 1990). It was revealed that the vegetation is the most sensitive to the impact of ski resort development and the haphazard intervention in its natural pattern may cause the negative impact on aesthetic perception of mountain landscapes. The basic principles that were used in this research to evaluate the aesthetics of the existing ski resorts are: diversity, coherence, spirit of place, mystery, multiple scales and strength (Bell, 2012).

Comparison of the winter and summer views of the same resorts showed that ski runs are more contrasting in the winter due to "black" trees, which cut the hills covered with wood into stripes. On the one hand it indicates the space as the ski resort and helps us to take our bearings in the locality but on the other hand it interferes with the integrity and coherence of the natural landscape, which are one of the basic characteristics of aesthetics. In the summer we don't see such an expressive feature of the hill because of less noticeable contrast range of it due to dark green trees and green grass (fig. 2–3). So, as it was noted above, the predominant factor of the quality of visual perception of ski resorts in mountains is vegetation, and taking into account this suggestion, the most harmonic natural view is more pleasant to observe on the slopes without trees or when they are partly planted, in order to avoid clear cuts. But it causes the conflict, because the best places for ski resorts development are located at the heights 600–2061 m above the sea level in the Ukrainian Carpathians. This altitude zone of mountains is almost

Figure 1: Different points of view from which we usually observe ski runs in resort Bukovel (Polyanytsya village, Ivano-Frankivsk region, Ukrainian Carpathians, photos from: <http://bucovel.com/>)



Figure 2: Comparison of visual views of the Bukovel ski resort in winter and summer period (Polyanytsya village, Ivano-Frankivsk region, Ukrainian Carpathians; photos from: <http://bucovel.com/>)

Fig. 2A: view in winter period.

Fig. 2B: view in summer period.



Figure 3: Trostyan Mountain in winter and summer period (Slavske village, Lviv region, Ukrainian Carpathians).

Fig. 3A: view in winter period.

Fig. 3B: view in summer period (photo from: <http://ua.vlasenko.net/slavske/index.html>).

always covered with forest, so we can't do without cutting trees. But to make the urbanized mountain landscapes more diverse, coherent and help them not lose the spirit of place it is preferable to achieve the natural irregular edges of the tree groups by planting some bushes or lower trees in the edges between tree groups and slopes with grass. It will protect the high trees (eg. pine trees) from the harmful effects of wind and will create more smooth and irregular switchover between dark trees and white slopes or green grass and will bring about the effect of mystery, during downhill skiing.

Another problem was revealed – the damaged herbal cover of some ski runs that one can see in the summer. It is harmful for the mountains ecosystem and also for the psychological perception of such damaged slopes in the summer. Visual expressiveness gives the contemplator the information about the damage of ecosystem and according to ecologically based aesthetics based on land ethic of Aldo Leopold (as cited in Bell 2012, p.82) it is perceived as less aesthetic. One of the possible reasons for grass vegetation damage is the construction method of ski runs. According to research of Jennifer W. Burt et al., ski runs may be established either by clearing (cutting and removing tall vegetation) or by clearing and then machine-grading (leveling the soil surface with heavy equipment) (fig.4). Because of the fact that grading is more damaging to multiple indicators of ecosystem function, Burt suggests that clearing rather than grading should be used to create ski slopes wherever feasible (Burt, Rice, 2009).

CONCLUSION

The research revealed two main negative visual impacts that were caused by negligent planning and maintenance of ski runs in the Ukrainian Carpathian Mountains: in winter the pattern and shape of the ski runs cut through the forest is very visible and the damaged ground vegetation cover on some ski runs is visible in summer. There were proposed good design



Figure 4: Bukovel ski resort (Polyanytsya village, Ivano-Frankivsk region, Ukrainian Carpathians).

Fig. 4A: ski run constructed by clearing and the harsh edge between ski run and the group of trees (photo from: <http://horizont-al.com/index.php?id=104&tab=37>).

Fig. 4B: ski run constructed by grading.

practices based on aesthetic principles to mitigate the negative visual impact in the winter and summer periods. But it should be noted that the results of the research need to be checked by public preference testing and also some more examples of ski resorts should be investigated in the future research. As ski resorts designing and operating process involves different stakeholders, it would be preferable to engage all of them in evaluating visual impact of the development.

The problem of visual perception of mountain slopes which are used for ski runs organization is only a part of the problem of perception of the whole ski resort. Ski resort is a complicated urban formation, which alters the mountain in different respects, for instance the structure of the foot of the hill, since almost all facilities for skiers are constructed there. This part of ski resort is commonly called the recreational village and it is perceived more like an urbanized zone than the natural one. And it is one more big topic for discussion, which wasn't highlighted in this article.

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WILDERNESS, CAMERA, ACTION, CONSERVATION, COMMERCIALISATION AND CHANGE IN NATIONAL PARK LANDSCAPES

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KEYWORDS

Landscape Management, Values, Film, Stealth, Blue Mountains.

ABSTRACT

How is wilderness defined, and how do such definitions change over time? It has long been recognised that the idea of wilderness and perceptions of nature in general, are socially, politically, culturally and legally constructed. In this paper, a high profile legal dispute over filming rights in the Blue Mountains National Park (Australia) is discursively analysed, exploring the way that different stakeholders perceive, value and portray wilderness landscapes. By comparing the discourses of commercial film producers, environmental protesters, politicians and law makers, this case study reveals how variable and fluctuating the idea of wilderness is. The dispute in question arose in 2004 when Hollywood action film *Stealth* was granted permission to film in the national park, a decision later overruled in court based on the assertion that 'wilderness areas are sacrosanct'. In response, the government created legislation that overrode this decision, allowing future filming and stimulating further environmental protest. *Stealth's* story illustrates how landscape ideas on film, and the legal instruments governing their production, prompt heated battles where the symbolic and economic value of wilderness landscapes are subject to debate, and where the landscape's status shifts according to which stakeholder dominates the discourse.

WHAT IS A WILDERNESS LANDSCAPE?

It has long been recognised that the idea of wilderness, and perceptions of nature and landscape in general, are socially, politically, culturally and legally constructed and contested (Hansen and Machin, 2013). Historians and philosophers describe how relationships between people and nature have evolved over time; from pre-historic humans' continuity with the natural world, through to a 'dawning distinction between nature and culture' as our ancient predecessors developed agricultural techniques and technologies like writing, leading to the modern world's increasing dominance of nature as a resource to exploit, and most recently a conception of wilderness as inherently valuable and in need of preservation (Oelschlaeger, 1991: 4-5, 32). Ironically, the 'received view' of wilderness as pristinely free of human interference is in fact a cultural concept that only exists when humans discursively construct it (Vannini and Vannini, 2015). One way that wilderness landscapes are formulated is through legal designations, such as the International Union for Conservation of Nature's definition and others (IUCN, cited in Vannini and Vannini, 2015: 42). Such definitions, and their various interpretations, determine how landscapes are managed, controlling what humans can or cannot do there.

The following case study of *Stealth* explores the way that different stakeholders define, value and represent one particular 'wilderness' – the Blue Mountains National Park, NSW, Australia – illustrating how variable and contested the idea of wilderness is, and what impact these ideas can have.

'WORLD HERITAGE WILDERNESS OR HOLLYWOOD'S PLAYGROUND?' THE STORY OF STEALTH

In 2003–2004, the National Parks and Wildlife Service (NPWS) and the Department for Environment and Conservation (DEC) granted approval to AFG Talons Productions to shoot scenes for a big budget Hollywood commercial film, *Stealth*, in the Blue Mountains



Figure 1: A protest rally against filming of the movie 'Stealth', convened by Blue Mountains Conservation Society (BMCS) and the Colong Foundation for Wilderness, held at Govetts Leap, Blue Mountains on April 26, 2004. Photo courtesy of Ron Withington.

National Park, including land designated as wilderness under the state's *Wilderness Act 1987* (NSW).

A synopsis of the film reads:

Henry, Ben and Kara are hands down the world's best tactical fighter pilots. But a new member joins their team, a state-of-the-art, fully-automated, pilotless,

super stealth warplane – inhuman and invincible. But once this stealth goes up it's never coming down, wreaking destruction in seconds across the globe, leaving the team with one last no-fail mission: to stop it – no matter what (Sony, c. 2004).

It seems inevitable that filming fictional scenes of futuristic war and destruction in a National Park

would be opposed by conservation-minded Blue Mountains locals, especially when the area is considered the birthplace of the conservation movement in Australia. Perhaps anticipating this, the media release announcing that approval for filming had been granted attempted to reassure the public, stating:

DEC is committed to protecting the values of the World Heritage Area and declared wilderness, and would not approve any application which threatens the integrity or condition of the area. Strict conditions have been applied to this activity [...] to ensure environmental impact is minimal [...] The permit approval was a public process and we have answered concerns of the community by applying such strict conditions (DEC, 2004)

Nevertheless, when filming was imminent a public protest rally was held by local conservation groups (see figure 1). These conservationists particularly opposed filming because of the risk of damage to the area's sensitive ecology, including the habitat of an endangered giant dragonfly. Soon after, fifty people blockaded the entrance road to the filming site, several being arrested and prosecuted by police. Direct actions seeking to defend the physical environment were thwarted and the film crew went on to access the site; however, a concurrent battle being waged in court saw conservationists gain a decisive victory and prevent filming. On the day before shooting was to commence, a legal action mounted in the New South Wales Land and Environment Court successfully challenged the validity of the filming permit. In this battle, lawyers from the Environmental Defender's Office (EDO), a non-profit community legal centre representing Blue Mountains Conservation Society, argued that it was not the physical landscape or dragonfly larvae that were under threat from Hollywood's presence, but the landscape's very purpose and value as 'wilderness' that was being trespassed upon.

In his judgment (Blue Mountains Conservation Society, 2004) Justice Lloyd affirmed that

the area in question was declared as wilderness under the *Wilderness Act 1987* (NSW), which stipulates that it shall be managed so as:

- (a) to restore (if applicable) and to protect the unmodified state of the area and its plant and animal communities;
- (b) to preserve the capacity of the area to evolve in the absence of significant human interference; and
- (c) to permit opportunities for solitude and appropriate self-reliant recreation

Justice Lloyd then affirmed that the area is part of the National Park, which makes it subject to the NPWS *Filming & Photography Policy* (cited by Justice Lloyd in *Blue Mountains Conservation Society*, 2004) which states:

The service will not normally permit commercial filming and photography in wilderness and wildlife conservation areas unless the subject matter of the proposed film or photography is consistent with the management objectives and policies for those areas.

As the management objectives and policies for National Parks are derived from (and answerable to) the *Wilderness Act*, Justice Lloyd found that any filming permit issued by NPWS would have to be in accordance with that Act. He concluded that it was 'self-evident that the proposed activity in the present case could not be said to be consistent with the management objectives' set out in the Act, and so permission to film was deemed invalid. He concluded that 'In my opinion the governing consideration in the present case is this: declared wilderness areas are sacrosanct'.

This case is remarkable because it demonstrates the protection of landscape integrity at a symbolic / narrative level. By winning this legal case conservationists successfully claimed that shooting a war film in

a National Park wilderness, when the film's plot has nothing to do with wilderness preservation, was 'completely antipathetic' to the purpose for which the land was designated (Environmental Defender's Office, 2015). Justice Lloyd's decision upheld the legal status of wilderness areas as places dedicated solely to what can be loosely called conservation values. He did not deem the filming licence unlawful on the basis that such activity might cause physical damage to the ecology – he made no comment about environmental impacts of the film crew conducting their operations – rather the decision affirms that wilderness areas are not allowed to be used to tell stories unless they are about wilderness per se. The content of the landscape representation was fundamentally important in this context; if the film had a message that reflected the park's management objectives, instead of being about warplanes and violence, the court would have more than likely allowed filming to proceed. From a landscape management perspective, this suggests that National Park 'properties' be consistently managed in a double sense, both as intellectual property (by promoting public understanding of nature) and as physical property (by preserving nature).

Stealth's action scenes were eventually filmed in alternative locations outside the National Park wilderness, but the story did not end there. The government at the time, who was actively promoting the economic benefits of international film industry activity, was extremely critical of the legal decision and took action of its own. It proposed new legislation, the *Filming Approval Act 2004*, which once again enabled filming in National Parks while spelling out that wilderness areas could only be filmed 'for educational, research or tourism purposes'. Wilderness was subject to further interpretation, as definitions of educational, research or tourism purposes came into play. After rigorous political debate, and further environmental protest, this legislation was passed in Parliament. It appears that the film industry may have lost the battle over *Stealth*, but it did not entirely lose the war.

WHO DECIDES WHAT WILDERNESS IS ... AND WHY IT MATTERS

The battle over *Stealth* illustrates how landscape ideas on film, and the legal instruments governing their production, reflect underlying tensions between the symbolic and economic value of wilderness landscapes. It shows how wilderness areas are passionately contested spaces, and that the landscape's status can shift according to whose values dominate the discourse. Notions of wilderness are continually in flux, and should remain open to ongoing debate if they are to reflect and balance a full range of values; environmental and cultural, not just economic. This case also reminds us landscape representations and narratives are themselves important parts of the conservation story, and are subject to control and management just like physical landscapes are. Landscape fictions on film can reflect and influence cultural values, as can factual legal declarations. In this sense, landscape managers, policy-makers and film-makers all play a part in constructing what a wilderness can or should be (Porter and Bull, 2013: 181).

Postscript – The war over filming rights turned out to be far more engaging than the film itself: *Stealth* spectacularly 'bombed' at the box office, and is ranked as one of the ten worst financial flops in cinema, with net losses (adjusted for inflation) estimated at \$US 111.7 million.

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A SENSE OF PLACE- REVISED!

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Tripartite Model, Process Orientated Model,
Network Analysis, Landscape Attachment

ABSTRACT

A “Sense of place” is often used to convey the relationship that people have to the place where they live, while “place attachment” can refer to a significant place in a person’s life or a place of inspiration, as well as the place where they may live. These are just two of the terms used by many different disciplines, such as human geographers, psychologists, sociologists, urban planners, landscape architects and so on, to convey the connectedness of people to a specific place or a type of environment. The terms have become confused, as each discipline brings with it its own understandings. A review by Scanell and Gifford (2010) brought some clarity to the topic and they proposed a tripartite model to take the concept further. Whilst this model brings coherence to the subject it suffers by dividing the concept into people, place and process as separate entities. It is proposed in this paper that the concept would be better viewed holistically, with people and place connected through the process, with landscape at its heart. By redesigning the tripartite model it is possible to demonstrate the process of people affecting the landscape and vice versa. Although in using this process orientated model the questions generated would essentially remain the same, how they are viewed and integrated would change however.

“Sense of place” is used to convey the relationship people have to the place where they live, work or spend their leisure time, yet it “is a paradoxical concept with a meaning that is readily grasped, but difficult to define” (Morgan 2010:11). Some authors have divided the concept into different components, such as place identity, place attachment, and place dependence, illustrated here by interviews organised by the author and examples in literature.

Place identity is the relationship between a person’s own identity and their physical environment, for some people this plays an important role in their own sense of self (Zenker & Rütter 2014; McCunn & Gifford 2014). The idyllic scene of an old farmstead with a pond, an orchard and storks nesting nearby (Figure 1) is intricately entwined with the Latvian sense of identity, albeit a fast disappearing one (Bell et al. 2008). Interviews with the Seto people of South East Estonia highlighted their strong cultural identity connected to the regional wild places, characterized by the hills and the valleys that make large-scale agricultural enterprises difficult, an identity that is said to stretch back for a millennium.



Figure 1: A typical Latvian scene linked to the Latvian identity with the essential elements of old buildings, a pond, an orchard and a stork’s nest

Place attachment maybe an attachment to where an individual lives or an inspirational place and can refer to a physical environment or the social bonds associated with a specific place (Zenker & Rütter 2014; McCunn & Gifford 2014). Investigations into networks within Latvian and Estonian villages demonstrated significant attachment to place through family connections, family events and cultural activities. Individuals living away frequently return to these rural places for family events connected with *Ligo* (midsummer celebrations) in Latvia or *Paasapäev* (a church holiday) in Setomaa, Estonia, demonstrating how strong social bonds draws them home (Figure 2).



Figure 2: Combined religious and church events held in the Setomaa region of Estonia strengthen community and family bonds.

Place dependence is the perceived association to a particular place related to activities individuals undertake in a particular area (McCunn & Gifford 2014). For instance a fisherman from Tüja, Latvia explained how his dependence on the sea ties him deeply to the place. Many rural inhabitants interviewed describe the peace and tranquility as necessary components of their life, away from the city rush. This was not

connected to a specific place, but the tranquility afforded by any sparsely populated rural area.

These are some of the many terms used by many different disciplines, such as human geographers, psychologists, sociologists, urban planners, landscape architects and so on, to convey the connectedness of people to a specific place or a type of environment (Scannell & Gifford 2010). The terms have become confused, as each discipline brings with it its own understandings and the terms are used interchangeably (Lewicka 2011; Haywood 2014). However, these issues demonstrate the multi-layered and over-lapping aspects of the concept that can be applied in different ways to different studies (Raymond et al. 2011; McCunn & Gifford 2014; Lewicka 2011). These are not mutually exclusive terms and individuals can reflect various forms of attachment and in varying intensities (Lin & Lockwood 2014), with each form anchoring them to the place where they live.

A review by Scannell and Gifford (2010) brought some clarity to the topic and they proposed a tripartite model of place attachment to take the concept further (figure 3). They define place attachment in this context as “a multidimensional concept with person, psychological process, and place dimensions” (Scannell & Gifford 2010:2) and so equally it could be argued applies to the term “Sense of Place” defined here. The tripartite model seeks to structure the varied definitions into an effective framework to aid understanding and stimulate research. Understanding the connection of environmental behaviour or desire to participate in development plans to individuals’ and communities’ attachment to a place could enable landscape architects and planners to facilitate greater participation by tapping into identities rooted in the landscape.

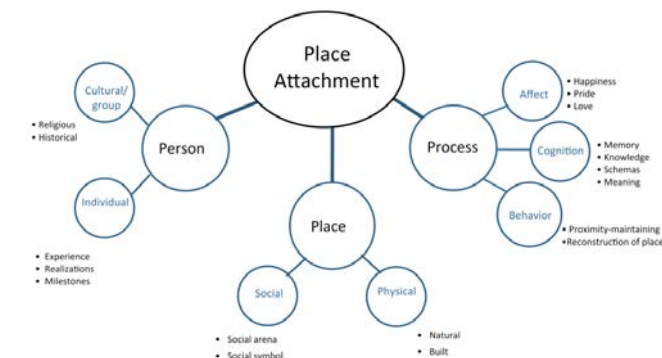


Figure 3: Scannell and Gifford's (2010) Tripartite Model of Place Attachment

Whilst the tripartite model brings coherence to the subject and much needed emphasises on incorporating the many facets, the model suffers by dividing people, place and process into separate entities (Lewicka 2011). It therefore does not adequately encompass the dynamics of a Sense of Place, where it is sometimes difficult to separate out the cause and effect of the landscape on the individuals and community and vice versa (Haywood 2014; Lai & Kreuter 2012). For example pride in the village of Lustivere, Estonia lead them maintain the village in a tidy state, resulting in the Village of the Year Award 2013. This in turn spurred on inhabitants to maintain the village. Conversely the dereliction of the landscape in terms of abandoned fields and derelict Soviet era buildings negatively affects some inhabitants, adding to a sense of hopelessness. It could equally be said that the hopelessness may lead to abandonment and dereliction. One feeds the other.

A stable place attachment can bring a sense of security and familiarity to individuals, but is rarely static and often deepens over time, although negative experiences can also weaken it (Lai & Kreuter 2012; Morgan 2010). Many interviewees expressed a grudging acceptance of modern agricultural practices because they preferred to

see managed fields to encroaching forests, but mourned the loss of society togetherness of working the fields.

The concept “Sense of Place” has suffered though through a lack of research into the process whereby people become connected to their landscape, thus studying each part separately means the interplay between the different aspects could be lost. It is proposed in this paper the concept would be better viewed holistically, with people and place connected through the process, with landscape at its heart (Figure 4).



Figure 4: A process orientated model of a Sense of Place, depicting the dynamic processes of the concept

By redesigning the tripartite model it is possible to emphasise the dynamics of the process of attachment to a place more effectively. Although the questions generated in this process orientated model would essentially remain the same, how they are viewed and integrated would change. This will, therefore, help to focus research on to the neglected aspects of place and process that Lewicka (2011) highlights.

For some sense of self is deeply rooted in “Sense of Place” for others it has little bearing (Morgan 2010) however understanding the processes enables the anchors connecting people to place and behavioural outcomes to be recognised. It could reveal possible mechanisms to strengthen attachment or how to utilise attachment to promote positive actions in the environment. Linkages could be generated through the use of linguistic tags and images related to the landscape that people and communities use, thus connecting individuals’ and communities’ constructions of events and beliefs related to the landscape where they live and work, to those qualities needed to build resilience and sustainability (Cantrill 2011).

A strong Sense of Place is often connected with a strong desire to stay in that place (McCunn & Gifford 2014) but how this is manifest in the highly mobile modern society is poorly understood, especially in Latvia and Estonia, who are portrayed as a people having a strong connection to their country and yet leaving for employment in large numbers (Bell et al. 2008). Maybe in this case, citizen satisfaction strongly influences place attachment and the desire to stay (Zenker & Rütter 2014)? The “Sense of Place” enquiry has potential to aid understanding of how people connect with the landscape where they live or work and the outcomes of that connection. Focusing on the process opens up new avenues of understanding to enable people to connect to their landscapes in a positive way (Haywood 2014).

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HERBARIUM 2.0

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Abandon, Infrastructure, Taxonomy, Botanic, Device

ABSTRACT

Nowadays, both public administrations and private institutions account neglected areas, brown-fields and abandoned buildings as a factor of major urban degradation, often looking for temporary solutions and low-budget ideas as an answer to very problematic issues. But in many cases, these re-generation actions are long-term processes, requiring big investments and granting no certain outcomes. Nevertheless, such abandoned areas –colonized by a sort of “second-hand nature”– are often fundamental oasis of biodiversity; if intended as a network, they represent a concealed green infrastructure spread out across the whole urban landscape and it is as such they should be conceived and designed. Herbarium 2.0 aims at inspiring new strategies in order to trigger effective changes in such contexts, starting from a tool that introduces an alternative taxonomy for plants and green-devices. Herbarium 2.0 is a collection of sample species, catalogued according to specific features and pragmatic implications. The strategy adopted by many plants to spontaneously grow and develop in particular environmental conditions is firstly analysed in order to identify their best use and to address specific tasks. Plants are capable of drastically decrease the quantity of metals in the atmosphere, capturing CO₂ and other greenhouse gases and fixing them through photosynthesis. Some of them bring nourishment to depleted soils, cleaning contaminated lands and accumulating earth in ruined and rocky areas, growing and spreading across asphalt and concrete. Under this perspective, it is not important whether these species are autochthonous or allochthonous, overriding or invasive, but rather the extent to which they respond to environmental needs and to the landscape project's targets. Herbarium 2.0 aims at being a compendium of tools and actions capable of strengthening latent or underway processes dealing with temporary and evolving landscapes within the urban environment. In this framework, vegetation becomes the main

element of broader transformations opposing the widespread idea by which “nature” must be kept under control, and disorder is equivalent to decay.

HERBARIUM 2.0

In its original form, “herbarium” is an analytical collection, or a figurative compendium, of preserved plant specimens aimed at studying their botanical features and healing properties. It represents an essential tool for studying plants taxonomy, their geographical distribution and the analysis of their morphological changes over time.

During the Middle Ages, the herbarium had its spatial counterpart in the Benedictine monastic garden (the “hortus conclusus” meaning literally “enclosed garden”): originally being a place for learning, working and meditating, with no ornamental characterization.

The herbarium was conceived to virtually reflect the structure of an idealized garden so much that was also called as “hortus siccus” (i.e. dry garden). The analogical relationship between the herbarium – as an investigative tool – and the garden – as a space of empirical verification – has constantly been renewed over time up to the great examples of the botanical European gardens during the XVII and XVIII centuries. Somehow, between the herbarium and the garden, it has always been a kind of correspondence capable of “producing” new landscapes. Such correspondence starts to change with the advent of the industrial city, ceasing to evolve beyond the already encoded models. Some recent examples, as the “Eden project” in Cornwall, still goes towards this direction, emphasizing nevertheless that sort of historical detachment from the urban context typical of botanic gardens.

The proposal of a “Herbarium 2.0” aims at inspiring new strategies in order to trigger effective changes in the field, starting from original interpretations of landscape

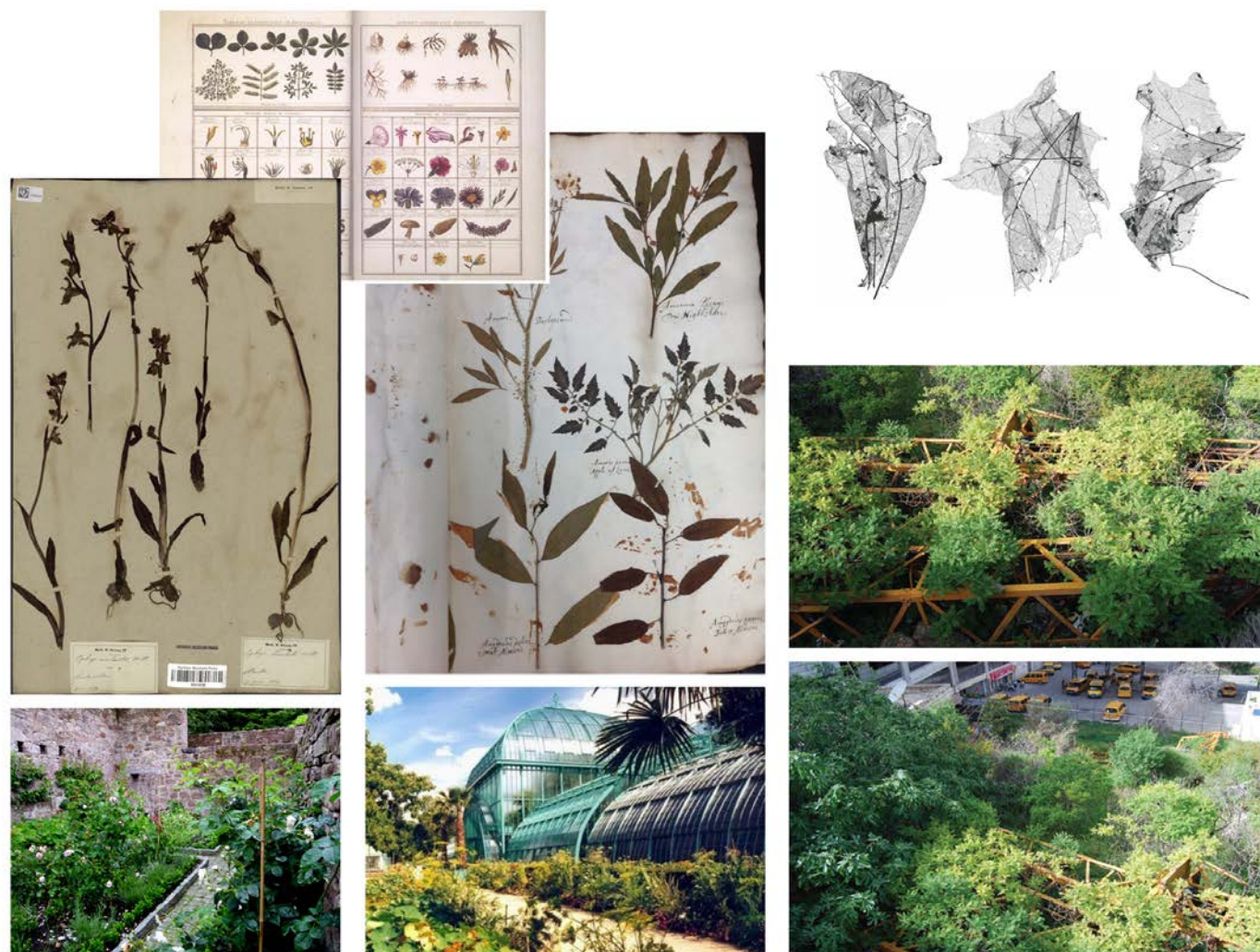


Figure 1: Collection of herbaria and their "homologous" gardens.

in the contemporary city as the concept of "Third landscape" by Clément (2004). The frayed nature that characterizes the post-industrial city – in its infrastructural interstices, neglected areas, brown-fields and abandoned buildings (David, 2000) – represents an opportunity to revive the relationship "herbarium/garden" under a

different perspective. Such urban spaces colonized by a sort of "second-hand nature", as defined by the artist Lois Weinberger (Zanfi, 2009) are often fundamental oasis of biodiversity: regulated by precise growth and propagation criteria, associated with specific boundary conditions, they eventually correspond to different

biotopes of the urban ecological habitat. If intended as a network, they might represent a concealed "green infrastructure" spread out across the whole urban landscape, a "widespread garden" with its own logic of development, an experimental laboratory that matches an updated plant species taxonomy: the "Herbarium 2.0".

To achieve this goal, a shift in the perspective is necessary in order to carry out the transition from a static (i.e. 1.0) to a more dynamic (i.e. 2.0) model. "Herbarium 2.0" aims at being a compendium of tools and actions capable of strengthening latent or under-way processes dealing with temporary and evolving landscapes within the urban environment. In this regard, two main objectives should be pursued simultaneously: defining the new taxonomy criteria and developing the new herbarium spatial homologue.

TAXONOMY CRITERIA

Reaching this first objective involves to catalogue plant species according to specific features and pragmatic implications that their proliferation induces on the surrounding environment, rather than considering their own intrinsic properties. The strategy adopted by many plants to spontaneously grow and develop in particular environmental conditions can be analysed in order to identify their best use and to address specific tasks. Some plants are capable of drastically decrease the quantity of metals in the atmosphere, capturing CO₂ and other greenhouse gases and fixing them through photosynthesis. Some of them bring nourishment to depleted soils, cleaning contaminated lands and accumulating earth in ruined and rocky areas, growing and spreading across asphalt and concrete.

Starting from the extensive scientific literature on this matter it is possible to collect a great amount of data on plants skills, but the main challenge is how to organize them so that can be used within design actions. In the framework of this brief dissertation, it

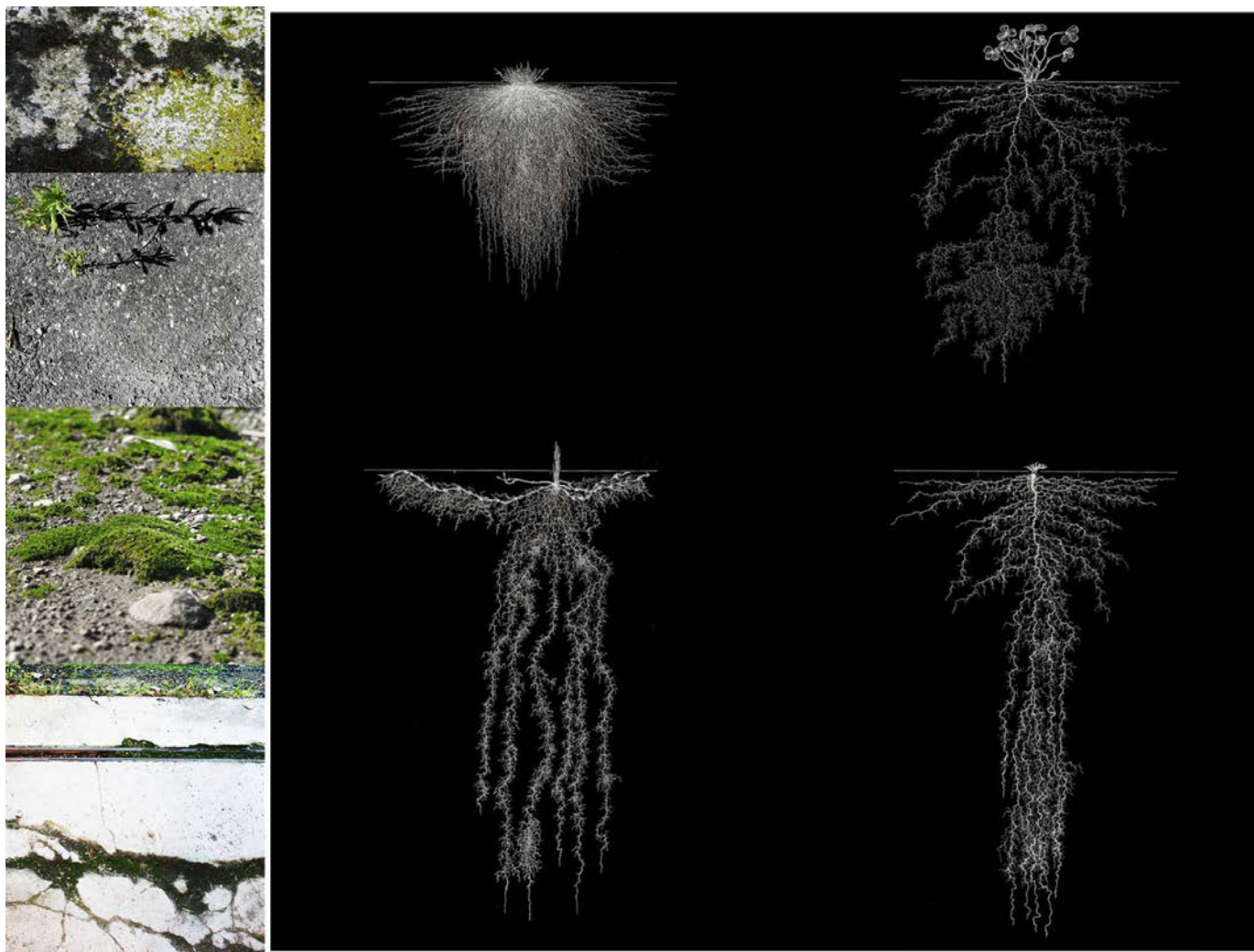


Figure 2: “Vectors”: different steps in colonizing process by pioneer flora and its anatomy.

is only possible to suggest some elements hypothetically composing a first hierarchy level of this taxonomy. In parallel with chemical reactions components, the following main categories have been identified:

- “Reagents”: as plants or plant specimens that directly affect changes within the physical and/or chemical characteristics of the environment in which they are introduced. This category may include high-performative plants as the so called “hyperaccumulators” (Sarma, 2011) or more common species whose

morphological features affect, for example, soil temperature (through the plant habit, foliage density, etc.).

- “Vectors”: as the ones whose skill consist in colonizing new habitats, beginning a chain of ecological succession that ultimately leads to the arrival of more complex species. The pioneer flora is an example: these highly specialized plants develop anatomical and physiological responses to harsh contexts and conditions (due to salinity, dryness, etc.). Thanks to the small exposure surface and their disproportionate root system, they are able to escape the pruning and reach the water at great depths increasing effectively the soil fertility, starting new naturalization processes.
- “Catalysts”: as for chemical, their task is to affect the rate of a reaction saving the overall dispersion of energy. In this sense mutualistic relationships can be highlighted between plant roots and fungi, for example in mycorrhizal associations (Ollerton, 2006). More simply, the herbaceous plants act as catalysts for the fertilization maintaining soil moisture and spinning the growth of more complex organism in specific contexts.
- “Indicators”: as vegetal species whose function is to revel the qualitative status of an environment or an ongoing process. These bioindicators can tell us about the cumulative effects of different pollutants in the ecosystem and about how long a problem may have been present. A good example of that are lichens, mosses and specific parts of trees as their bark, rings or leafs. Generally, indicators don’t affect considerably the ecosystem but provide important clues about its health giving feedback on its development direction.

These proposed categories, far from being exhaustive, represent a first input to build the Herbarium 2.0 aiming to set an alternative taxonomy under a performance-based classification.

SPATIAL HOMOLOGUE

As already mentioned, Herbarium 2.0 requires a physical testing field, a spatial homologue. This potential garden has been identified within all the existing neglected urban spaces that should be connected in order to form a single network, a “widespread urban garden”. Before analysing some possible strategies that may be carried out to create such spaces, it is useful to clarify through an example what a testing field is intended to be within this dissertation. The installation “Revival Field: Projection & Procedure”, developed from 1990 by artist Mel Chin with scientist, Dr Rufus Chaney, tested some plants (i. e. hyperaccumulators, able to draw heavy metals) in detoxifying a soil. The contaminated earth was enclosed with a chain-link fence and divided by paths that formed an X; the project’s boundaries were marked by a square. Chin conceived these overlays as a target, a metaphorical reference to the work’s pinpoint cleanup. The divisions were also functional, separating different varieties of plants from each other. This project was all about the conceptual realization of scientific processes brought forward through art, about the possibility of integrating landscape design, green remediation and ecological consciousness.



Figure 3: Mel Chin, “Revival field. Projection and procedures from toxic soil to revived area”. Minneapolis, Minnesota, 1990. A bird’s eye view.



Figure 4: Joseph Beuys, “7000 Oaks – City Forestation Instead of City Administration “. Documenta VII, Kassel, Germany, 1982. A photo-story.

The diverse topics and purposes of this project should evenly address the strategy behind the development of the Herbarium 2.0 spatial homologue. In this perspective, 3 main procedures can be mentioned whose final goal is to connect wide-spread areas in a single networked garden:

- “physical connections” involving propagation means and conductors such as, for instance, “green corridors” and all the good practices facilitating seeds transportation (by water, wind, animals) throughout the city (Galí-Izard, 2006). Moreover, encouraging all those environments subjected to time variations (periodic, erratic and sequential habitats);
- “data connections” represent –in the forthcoming future– a powerful tool to unify green areas in a single ICT infrastructure and make them operate as “wired objects”. Some experiences have shown the potential of RFDI (Radio Frequency Identification Devices) in trees protection and management and interesting applications may come from that in order to implement a diffused biomonitoring system for the urban setting (Luvisi & Lorenzini, 2014);
- “community-based connections” lie in the latent desire of citizens to interact with public spaces leading and participating to urban transformations. Starting from artistic projects like the Beuys’s “7000 Oaks” for Documenta VII (Kassel, 1982) until more recent experiences promoted by municipalities, collective approaches are building awareness of a latent “green infrastructure” spanning the city.

Herbarium 2.0 obviously leaves some open issues concerning, for instance, the debate around “ecology restoration” and the utilization of certain plant species. Anyway under this proposition’s perspective, it is not fundamental whether these species are autochthonous or allochthonous, overriding or invasive, but rather the extent to which they respond to environmental needs and to the landscape project’s targets. The introductory essay to the book “Imperfect Health” (Borasi & Zardini, 2012) points out all the contradictions rising from the belief that “well-being lies in nature”. By demonstrating that, historically, the conception of “nature” itself changes continuously, the authors underline how our feelings and perception of nature shape our attitudes and means of intervening in it. In this perspective, Herbarium 2.0 aims at being an interpretative tool of this constant changes, assuming both vegetation features and relapses as markers of possible outlooks in urban transformations.

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ECOLOGY AS A FORM OF MEDIA IN CONTEMPORARY LANDSCAPE ARCHITECTURE

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ABSTRACT

Landscape is a representation of the ecological and cultural value of its own place. Ian McHarg suggests that natural landscape is rooted in ecological value and each form of landscape is created through ecological interactions. In addition, Denis Cosgrove asserts that humans relate to the environment through the process of seeing landscapes and give meaning to their world through ways of seeing. Accordingly, the environmental values of a region provide opportunities for a new understanding of ecological contexts in the landscape. However, disagreements about the definition of ecological landscape design and its practical applications have compromised design challenges, which resulted in the design of less unique and more uniform landscapes. To address this problem, it is necessary to make aesthetic conceptions feasible in landscapes by applying the characteristics of regional ecology. This study proposes that 'ecology' can function as a medium rather than as an isolated entity in landscape design. This concept emphasises the processes of recognition and expression through the connection of contents and forms in landscape design. Once a landscape design achieves its ecological representation, it can be classified and interpreted by an appropriate framework of its visual-ecological characteristics. The classification criteria were based on Ian McHarg's 'layer cake', which is composed of elements such as climate, wildlife, soils, hydrology, and physiography. Considering ecology as a medium suggests an alternative approach to ecological landscape design. It departs from conventional expression, such as organic and winding forms. Ecology in the design process can be considered an effective way to display the characteristics and immanent order of the site. Visualised ecological characteristics can also serve as a medium to connect region and designer, as well as shaped landform and appreciator.

1. INTRODUCTION

Since the publication of Ian McHarg's influential *Design with Nature* (1969), ecology has played an important role in landscape architecture, with his advancements including the conception of a novel relationship among nature, design and science (Herrington 2010: 1). This mid-century concern for environmental issues unfolded through a diverse range of landscape design practices, such as 'scientific' restoration ecology and site-specific 'artistic interventions' (Meyer 2001: 187).

In the years since McHarg's publication, ecological landscape design practices have evolved to include environmental concerns, receiving mixed reviews as to whether the design outcomes are truly ecological or whether they are merely symbolic gestures (Lister 2007: 35)(Fig. 1). Polarized views on using ecology in landscape architecture undermine the possibilities for aesthetic representation, which are essential to design.



Figure 1: Yorkville Park, Toronto (Nina-Marie Lister, 2007: 34).

After all, these design approaches tend to render indigenous regional landscapes invisible through the

repeated appearance of 'nature pictorialized' (Crandell, 1993). Girot comments on this as follows: 'Landscape is no longer considered a main structural element but rather as the cherry on the cake, the last green frill on some built tract of land' (Girot 2006: 91–93).

2. LEGIBLE ECOLOGY IN THE LANDSCAPE

The following are two dominant views of landscape. First, McHarg uses the term 'ecological determinism' to suggest that the natural landscape is rooted in ecological value, and that ecological factors determine the forms of the environment (McHarg 2006: 34). Second, Denis E. Cosgrove (1988) observed interactions between landscapes and the people who perceive them, asserting that humans relate to the environment through assigning meaning to landscapes based on what and how they see. As such, Cosgrove believed that close attention should be paid to the association between visual forms and their internalized meanings. McHarg and Cosgrove's theories both concern the possible associations between landscape and its value. Cosgrove emphasised the communicative and social role of landscapes while McHarg emphasised the importance of inherently knowing ecological value and its utilization in landscape.

3. ECOLOGY AS A MEDIUM

In *Understanding Media*, Marshall McLuhan famously said that 'the medium is the message' (McLuhan 1964: 23), implying that media affect people's awareness and facilitate their acceptance of the outside world or information about it (Park 2003: 135). This means that changes in media are interlinked with changes in people's awareness, and that media are carriers that enable communication, essentially serving as intermediaries with tangible and intangible properties that enable sensory thoughts and activities.

Another important aspect of McLuhan's media theory (1967) is that form and content do not exist separately,

and delivered information is affected by form. This means that when the medium changes, the message itself is different, because form is closely connected to the intent to communicate (Lee 2006: 34–35). Media in McLuhan's formulation include all tangible or intangible constituent factors that connect communication. Further, media's content composition affects the form and, thus, engenders varying sensory reactions.

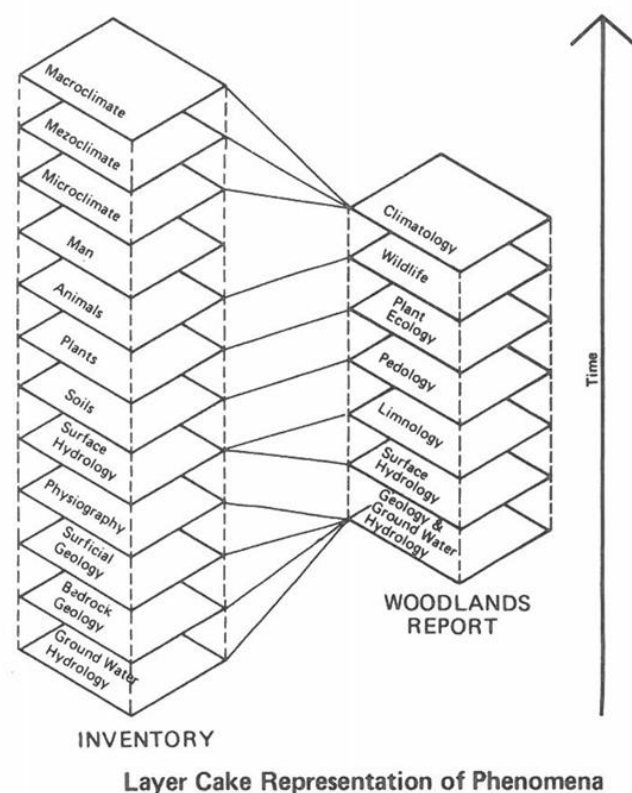


Figure 2: Layer-cake representation of phenomena (Ian McHarg, 1996: 258).

4. MORPHOLOGICALLY DESIGNED SITE ECOLOGY

Works that form or reform the ecological values of a site provide opportunities for a new understanding of ecological contexts. In this process, the landscape's inherent ecology is connected with local people. In selected or classified landscape design, ecology functions as a medium while the environmental values of the region are visualised to solidify the concept. The classification criteria used in this study (Fig. 2) were derived from McHarg's 'layer-cake' model of ecological inventory, such as climate, wildlife, soils, hydrology, and physiography (McHarg 1996: 258). We identified interaction between his model and the characteristics of media; specifically, ecological effect creates one landscape while ecology as a medium creates another (Tab. 1). The following are five case studies that illustrate the use of various media and channels to communicate through landscape.



Figure 3: Candlestick Point Park, San Francisco (designed by Hargreaves Associates ©).

Climate• Candlestick Point State Park, San Francisco

Regarding the climatic conditions of the area, the sea breeze is enabled by a wind gate, which functions to encourage wind blowing off the sea rather than sheltering the park from it (Fig. 3). In this site, the sea breeze functions as a medium to enhance visitors' understanding of the various microclimates

Table 1. Morphologically designed the site ecology and its communicative role as a medium.

Layer-cake	Works	Ecology of the area used as a medium of communication	Works that form or reform the ecological values of a site	Content that the appreciators recognise
Climate	Candlestick Point Park	Strong wind derived from coastal site	Wall structure expresses the wind's formidable forces	A strong wind from behind and a whistling sound emanating from the gate's wall
Wildlife	East Scheldt Storm Surge Barrier	Wild birds	Organises dark and light mussel shells and the corresponding flocks of similarly shaded dark and light birds naturally adapted to feed from them	Perception of the ecosystem of birds via the automobile
Soils	Yanghwa Han River Park	Water and mud accumulated on existing topographies to create a series of delicately tilted, water-facing public spaces	Mud-mitigation landscape; gentler topographies to create a series of delicately tilted, water-facing public spaces	The soil condition of waterfront spaces
Hydrology	Thames Barrier Park	Flood and overflow of the London Dockland/construction of the Thames Flood Barrier	Creating a flat, raised plateau with a deep, colourfully planted and wave-shaped 'green dock' cut through the centre	Hydrologic history of the area
Physiography	South-East Coastal Park	Sand dunes of coastal areas	The forms of artificially generated topographies through a mediated integration of rigorous modelled orders	A material organisation of sand shaped by wind

that have created diverse habitats of both native and planted grasses and wildflowers (Meyer, 2001). The park's ecological characteristics provide a channel through which design inspiration can communicate with region-specific environmental values.

Wildlife- East Scheldt Storm SurgeBarrier, East Scheldt
The East Scheldt Storm Surge Barrier was built in the 1970s to connect mussels whose shells mirror

the colour of the birds who feed upon them (Fig. 4). The shells function as a key factor in this project because they draw birds to the barrier, where they arrange themselves by shell colour according to a 'self-similar attraction' (Pollack 2006: 137–138). The wildlife function as the medium through which visitors see and recognise the ecological landscape.



Figure 4: East Scheldt Surge barrier, East Scheldt (designed by West8 ©).

Soils- Yanghwa Han River Park, Seoul

The mud that would accumulate on the riverside areas after the monsoon season had become a costly burden to the city due to the labour and other resources required to clean up the site. In this 'mud-mitigation landscape', the mud – which interrupts the use of the park and is visually hazardous – serves as the medium to reveal its own ecological characteristics (Park et al. 2012: 157–158). The mud deposited on the gentler slopes gradually transforms into an ideal soil for plants; therefore, people can recognise the environmental uniqueness of the site's soil condition(Figs. 5a, 5b, 5c).



Figures5a, 5b, 5c: Yanghwa Han River Park, Seoul (designed by PARKKIM©).

Hydrology- Thames Barrier Park, London

The Thames Barrier Park design project was intended as a historical identity reminder of the London Docklands (Brown, 2000). The design concept recalls the site's history of the waves that came from the docklands with a colourfully planted 'green dock' located at its centre (Fig. 6). The plants symbolise the shape of the waves created when the floodgates were opened, and is intended to structurally and visually connect the flood barrier to the north area of the site (Yoon, 2005). This strategy visually draws on regional ecology to emphasise the region's hydrology characteristics.



Figure 6: Thames Barrier Park, London (designed by Groupe Signes, Patel Taylor Architects ©).



Figure 7: South-East Coastal Park, Barcelona (designed by Farchid Moussavi Architecture©).

Physiography- South-East Coastal Park, Barcelona

South-East Coastal Park overcomes its differences in elevation using manufactured sand dune shapes as regional environmental values. This physiographic feature serves as 'a material organisation with little internal structure, merely sand shaped by wind' (Mies Van Der Rohe 2005: 192) (Fig. 7). The design was inspired from the sand dunes and expresses an organically generated topography that reflects the characteristics of the region.

5. CONCLUSION

The site examples discussed above all visualise the ecological characteristics of their respective landforms through design. In addition, their design strategies allow people to experience unique ways of seeing the landscapes where they live. In these sites, ecology functions as a medium to multilaterally communicate, involving region-specific environmental values, the design, and the visitor. Furthermore, the quality of the medium determines the form of the design and serves to visualise ecological characteristics of the site and displays the characteristics and immanent order of the site, thereby connecting the region and the designer. Applying site ecology to design by recognising it as a medium is a challenge that landscape designers face in expressing aesthetic diversity. However, it also gives designers a wide range of opportunities to communicate through the landscape in the process of creating scenic diversity, which, in turn, raises visitors' awareness of regional ecological values. In our lives, 'ecology' is the acknowledgement of environmental values, and 'ecological design' is the aesthetic pursuit of environmental values.

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RESORT ALLEYS ON THE BALTIC SEA SOUTHERN COAST IN THE 19TH CENTURY

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KEYWORDS

Alley, Functional Link, Greenery, Health Resort, Urban Planning.

ABSTRACT

In the beginning of 17th century, the significance of planting increased in European cities. In the 18th century according to Western European models the first public gardens and alleés of Dutch linden-trees were implemented in provincial towns across the Russian Empire. In the first half of the 19th century natural resources such as sea water and mud started to be used in healing. Resorts with appropriate buildings for medical treatments and relaxation were built on the coast of the Baltic Sea. Resort-towns were developed in Prussia near the port of Königsberg, Memel and Danzig. In Russia the development of health resorts was given national significance: the planning of Haapsalu and port of Libau (now Liepāja) and Pärnu was supplemented with resort areas. In Russia the first railway line Saint-Petersburg–Warsaw was opened. Railway traffic contributed to the growth of health resorts and led to urban transformations in cities. Areas of natural greenery decreased but were supplemented by man-made cultivated parks, roadside, alleés and promenades for walkings, which provided a functional link between the greenery and areas of various significance, uniting parks and squares into one system. Resort alleés with their seemingly humdrum planting became not only a component of the natural landscape, but also create contrasts of colours, forms and lines; those have been studied insufficiently. The aim and the basic methods of the research is to determine the most typical features of alleés in each health resort on the Baltic Sea Southern coast dating from the 19th century, using the method of field-work and photo fixation, inspection of alleés in nature, comparison and analysis of archival materials of the 19th century urban planning. Study results shows the impact of health resort structures and greeneries on urban planning and landscape, where alleé as planting of rhythmically arranged elements took the most important place in eclectic urban landscape and functionality of urban green system in the 19th century.

INTRODUCTION

On the Baltic Sea coast the first public urban green areas were established in the 18th century. Dutch linden-trees from Amsterdam, suitable for urban conditions, being resistant to pollution were used, mainly in row plantings. Its foliage made even plantations – the trees of the alleé come into leaf and shed their leaves at the same time. In 1713 in Reval (now Tallinn) the first alleés of linden trees were planted, but in the middle of the 18th century in Riga the first public garden – the Tsar's Garden (Latvian: Ķeizardārzs, now Viesturs' Garden Park) was laid out.

In the 19th century establishments for healing were also built on the Baltic Sea coast: in Haapsalu the first bath-house was built (1805) and the first mud baths (1825) were established on the initiative of Dr. Carl Abraham Hunnius (1797–1851). In the 1830s an embankment was built along the shore. In Kadriorg near Reval entrepreneur Benedikt Georg Witte opened a bath-house (1813). Tree-lined avenues and parks were created, to provide protection against the forces of nature.

History of Urban Modifications and Urban Green System in Baltic Towns and Cities in the 19th Century

In Riga the Suburban Greenery Committee was founded for the arrangement of the urban environment (1813). The art gardener Johann Ludwig Schmeisser started to make promenades (Pūka, 2010: 43), which joined Old Riga (still surrounded by walls) with the newly-built outskirts. On June 8, 1817 in Riga the second public garden – Wöhrmannscher Garden (now Vērmānes Garden Park), designed by the gardener Schmeisser, was opened.

On the southern coast of Riga Bay small fishermen's villages were built, and bathing places were made on the 20-kilometre long spit of land from the Lielupe River mouth to Schlock (now Sloka). In Kemmern (now Ķemeri) the balneological resort developed and a sulphur spring was researched (1801). The forester

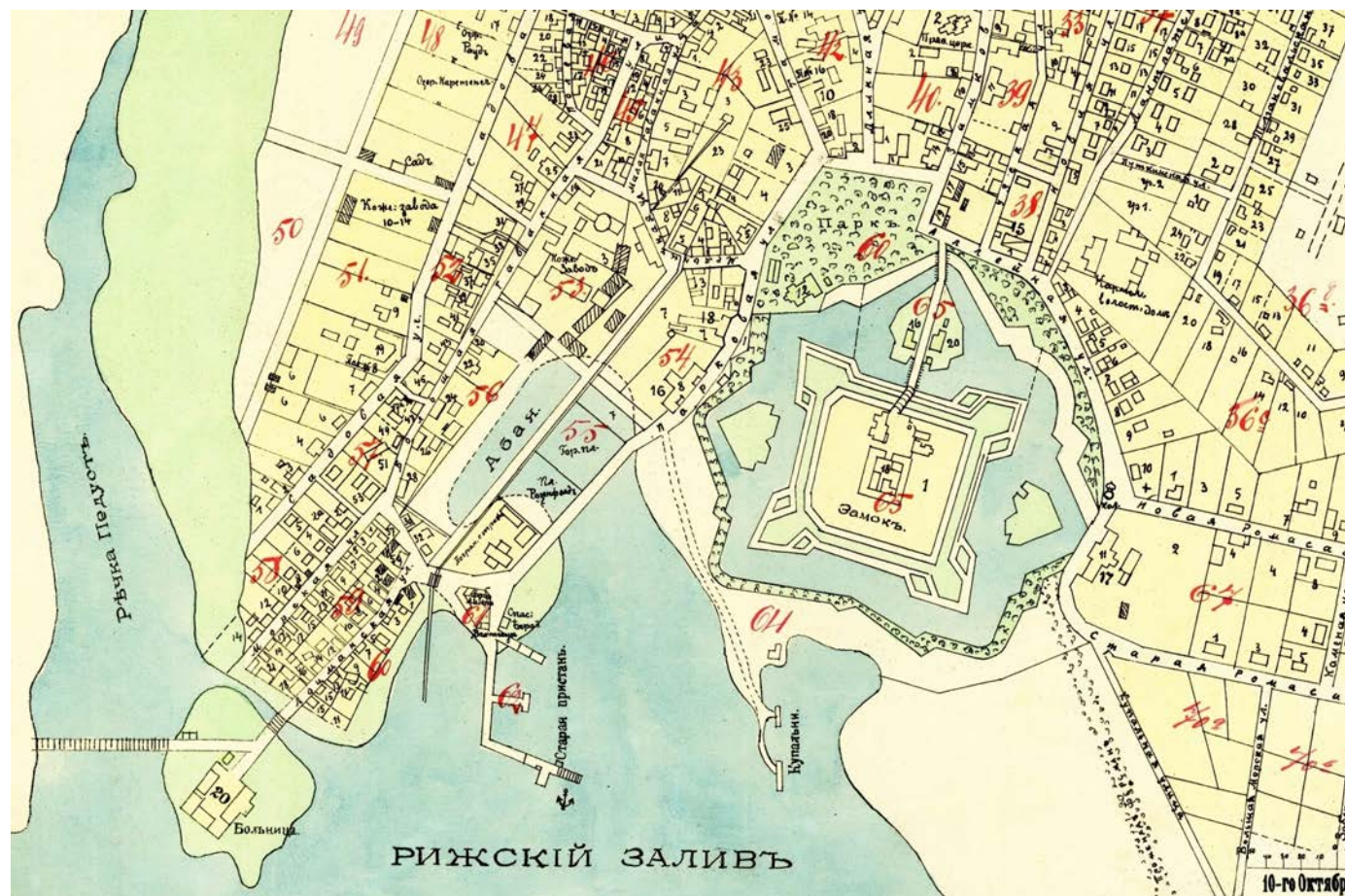


Figure 1: Arensburg health resort area layout. 1911. [The Latvia State Historical Archives, LVVA, Fund 6828, Description 4, Case 525].

Feihtner built a long one-storey building with a bathing department Formahiva (1825) (Belte, 1935: 259). In 1834 plots of land were allocated to build summerhouses and the first state bath-house was opened in 1838. Gardener Carl Heinrich Wagner (1785–1846) designed and built, at his own expense, Kemmern Resort Park (Pūka, 2010: 48). The fishermen's villages on the coast of Riga Bay transformed gradually into an area of summer houses with a regular layout.

On January 4, 1857 the chief architect of Riga City, Johann Daniel Felsko (1813–1902), and architect Otto Dietze (1832–1890) devised a project for the reconstruction of earthworks and esplanade – it was planned to replace the city walls and to surround Old Riga with city canal and green areas shaped in a semicircle, which would separate the old part of the city from the newly-built housing districts (Lāce, 2012: 92).

On November 8, 1860 the first railway line St. Petersburg-Pskov-Vilna-Warsaw was opened. Riga obtained a railway link in 1861 and a passenger railway station. Single row planting along the boulevards of waterfront parks were replaced with double rows of linden trees, but in the Alexander Boulevard, from the canal bridge up to Grosse Park (now Merķeļa) Street. William Weir (1828–1908), an engineer of Riga City, planned a four row tree plantation in 1863. Educational establishments were built on the intersections of the boulevards (Bākule, 2009: 162, 175), recreation opportunities and traffic were improved, and green elements were used to connect the functionally different areas. Alexander (now Brīvības) Street connected the two separate parts of the city, from which Nicolay (now Krišjāņa Valdemāra) Street extended northwards, but southwards the functionally different areas were separated by Suworow (now Krišjāņa Barona) and Marien Streets. At the point, where Alexander Street and Todtleben (now Oskara Kalpaka) Boulevard meet with Kalk (now Tērbatas) and Grosse Park Streets, a square was planned, but Theatre (now Aspazijas) and Bastei (now Zīgrīda Annas Meierovica) Boulevards, perpendicular to Alexander Street, along the external border of the Old City was straightened as much as possible. Thronfolger (now Raiņa) Boulevard and Grosse Park Street parallel to the Daugava River made the link with Old Riga. In the green plantations of Riga Centre linden trees dominated, but horse-chestnut, elm, ash trees and pyramidal poplars were used less (Kavere, 2007: 24). The street space was made similar to the interior, environmental continuity and saturation was achieved. The boulevard ensemble achieved a clear, unified structure of the planning and three-dimensional shape.

Due to the sea receding in Libau the coastal land extended. The heir to the throne of Russia, Grand Duke Nikolai Alexandrovich opened "Nikolai's Cold and Hot Water Bathing Establishment" on the coast in 1860 (Vegners, 1925: 25–26). Alderman of the Great Guild Carl Gottlieb Sigismund Ulich (1798–1880) suggested

that the city council make a Seaside Park and offered a project – for therapeutic mud baths. Around 1867 a bulwark defended Libau from the seashore sand, separating urban building from the beach area. In the vicinity of Royal Prussia a resort was planned to comply with the most sophisticated guests' requirements. In 1870 "Nikolai's Warm Seawater Bathing Establishment" was opened on the seashore, and the first Seaside Park trees and plantations, planted on the shifting dunes and wet meadows, were consecrated (Barons, 1970: 2). In 1871 Paul Max Bertschy (1840–1911) from Prussia became the architect of Libau. The same year a railway from Libau to Kaišiadorys (near Vilnius) was opened and a passenger railway station was built.

The green elements in Pärnu were randomly scattered spots among the regularly built blocks, surrounded by fortifications. Police-burgomaster Carl Weinhold Goldmann decided to develop a park (1831) on the crossroads of Karja and Kuninga Streets and near this place, on Aleksandri, Aia and Karja Streets, the first alleés were planted. People started to use sea water and curative mud for healing. In Pärnu a bath-house (Badeanstalt; 1838) started its work (Vana Pärnu, 2006: 34). In 1860 Pärnu City received permission to demolish the fortifications. Firstly, it was planned to demolish the fortifications on the east and north sides in order to make promenades, warehouses and a rectangular market place, surrounded with alleés, instead of Jupiter's Bastion. Then it was planned to demolish the fortifications in the west and south side, keeping the bulwarks against the wind to create on the seashore "a footpath decorated with alleés." William Weir developed a plan for the bulwark demolition – the ditch of the bulwark in the eastern and northern part of the city was filled in, but on the southern bulwarks on Rütli, Pühavaimu and Kuninga Streets alleys were planted. In the Old Park the Musse lounge of the relaxation society was located (Kavere, 2007: 44). In Pärnu the promenade separated the resort area from the city building.

In Haapsalu a modern house of healing (1845) was built and regular boat traffic with St. Petersburg was introduced (Vana Haapsalu, 2006: 7–8). City architect Carl Artur Hunnius (1825–1893) laid out a park on the castle ruins. Social life in the resort revolved around the Great Promenade with the Orthodox Church, the Kursaal and the bandstrand, yacht club and the piers.

From 1870 till 1872 a Baltic railway line from Paldiski through Reval and Narva to St. Petersburg was built, which promoted the development of resorts along the coast of Gulf of Finland. Pärnu and Dorpat (now Tartu) were included in the All-Russian railway system. The Riga-St. Petersburg mail route became the main street of Dorpat. In 1876, with the railway connection, a boulevard was made from Dorpat Railway Station down what is now – J. Kuperjanovi Street (Kavere, 2007: 52–54).

In European cities green areas were appearing everywhere, based on the developing of natural science. Riga Municipality, being aware of the versatile role of green elements in the formation of urban landscape, life conditions and cultural processes, established Garden Bureau (1879), whose secretary announced that Georg Friedrich Ferdinand Kuphaldt (1853–1938), from Plön, who had studied at Potsdam Royal Horticultural School from 1876 till 1878, agreed to become the director of Riga Gardens and Parks from January 1, 1880.

BOULEVARDS IN THE SEASIDE RESORT PLANNING IN THE 19TH CENTURY

In the Russian Empire in the early 19th century provincial reforms implemented. Polangen (now Palanga in Lithuania), situated east Memel was added to the Province of Courland in 1819. In 1825 Russian Army colonel, Count Mykolas Juozapas Tiškevičius (1761–1839) bought Polangen Manor. After a fire (1831) and reconstruction Polangen became known as a health resort. Palanga Park (1843) reconstruction was started, and a wellness-house (1875–1876) was built. A plan for the

resort area was made. At the end of the 19th century a regular network of streets was formed in the balneological health resort. Felix Tiskevicius got to know German architect Franc Svechten (1841–1924) and the garden architecture professor of the Versailles Gardening School Édouard François André (1840–1911). André and dendrologist Buysen de Coulon worked out a project for Palanga Park (1897–1907). The road which went through Polangen was turned into a boulevard.

In Narva City there were no public green elements: the Dark Garden (1853) was made instead of Victoria's Bastion, but the Peace Bastion was turned into a square. On the left bank of the Narva River a promenade and stairs with 93 steps (1876) were constructed under the guidance of City Head Adolf Hahn (1832–1914). On the coast of the Baltic Sea 14 kilometre away at the Narva River mouth Hahn built a summerhouse in 1 Aia Street (1874). In 1875 roads were planned and a place for a park was reserved, whose territory was extended in 1877. In 1879 in the fishing villages of Magerburg and Hungerburg, which were situated on shifting sand, a town of gardens and balneological resort, Narva-Jõesuu created. Mere Avenue led towards Narva from the seaside: its beginning at the railway station was emphasized by a little garden and fountain. On the crossroads of Mere Avenue and Meriküla Street a well-house was built (1881–1882), next to which a garden and pavilion for an orchestra was also built (Kavere, 2007: 49). Next to Meriküla Street on a sunny meadow a tennis court and croquet area were laid out. The Villa Capriccio Garden (1881) was made by Director of St. Petersburg Botanical Garden Eduard August von Regel (1815–1892), but the regular landscape garden of Ugolok Summer Manor with a fountain surrounded by vases of flowers and lawns of geometrical patterns was designed – by Alois Riegel. After the fire of 1886 the architect Aleksandr Novitski (1848–1905) worked out a plan with a regular street network for the resort – twelve streets leading to the sea. On both sides of the alleés, which took to the park, streets with a pavement on one side were placed like sunrays.

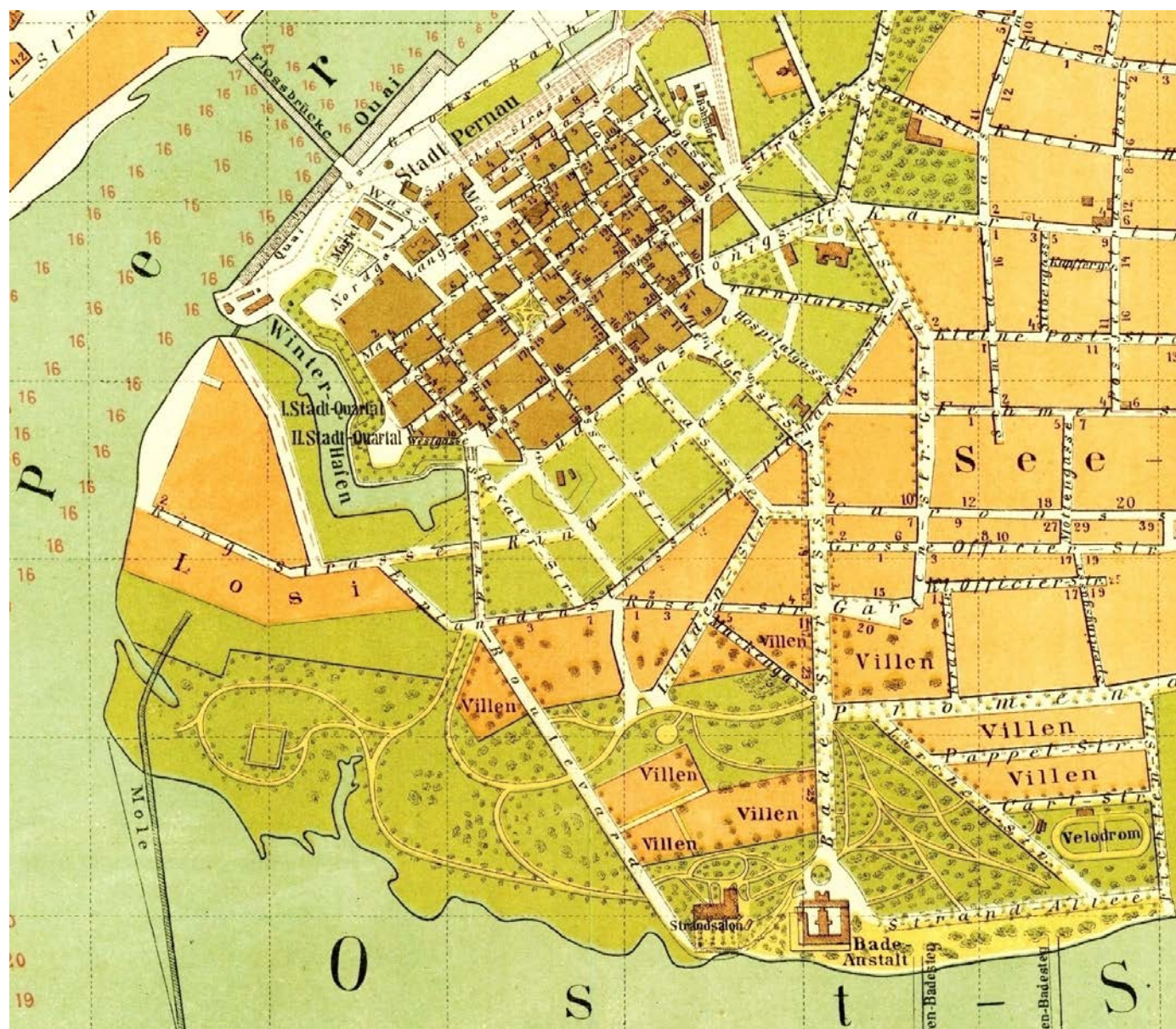


Figure 3: Pärnu health resort area layout. 1898. [LVVA, Fund 6828, Description 4, Case 553].

familiar with Pärnu and the programme “Extension and Adornment of Urban Parks”, Riga City gardener Kuphaldt worked out a project for the extension and adornment of Pärnu parks in 1889 (Kavere, 2007: 75), in which the Bathing Park and seaside parks, urban alleés with the villa district, Mercury’s Bastion with the Reval (now Tallinn) Gate and Winter Port surrounding parks, green zone with promenades and parade grounds around the Old City were included (Kavere, 2007: 113).

In 1889 on Pärnu Bay coast the formation of a public garden was started, which continued until 1892. From the Reval Gate, Sea Avenue (Mere puistee) a bulwark extended to Strandsalon and well-house garden with a music pavilion, but the nearby existing Heilbadeanstalt created an architectonic closing to the wide Supeluse Street (Supelus tänav), which linked the city centre with the beach. From 1893 till 1895, on the sea coast the existing public green spaces were supplemented and new ones were developed. On October 5, 1896 the Pärnu-Valga narrow-gauge section of railway was opened, and Pärnu was connected to the rail network of the province. In the east of the city the railway station was built at the end of Rütli Street. In 1895 the City Council leased the land next to the park to build summerhouses (Figure 3). A block of summerhouses closely connected with the Seaside Park was created (1897). Strandsalon was extended and in front of it four lines of trees were planted in 1899 (Kavere, 2007: 115–117).

Construction of the port of Libau (now Liepāja) extended closer to the beach, and swimming in the sea became popular. In 1812 the City Council of Libau made a decision setting up swimming places: separate sections were created for gentlemen and ladies. Merbi, a private bathing institution, started work in 1834 (Vegners, 1925: 25). The road along the Līva River bank had become Korn (now Graudu) Street and extended to the port, while the former river branch to the sea along the footpath to the bathing institution and Seaside Park, where during the bathing season the centre of social life formed,

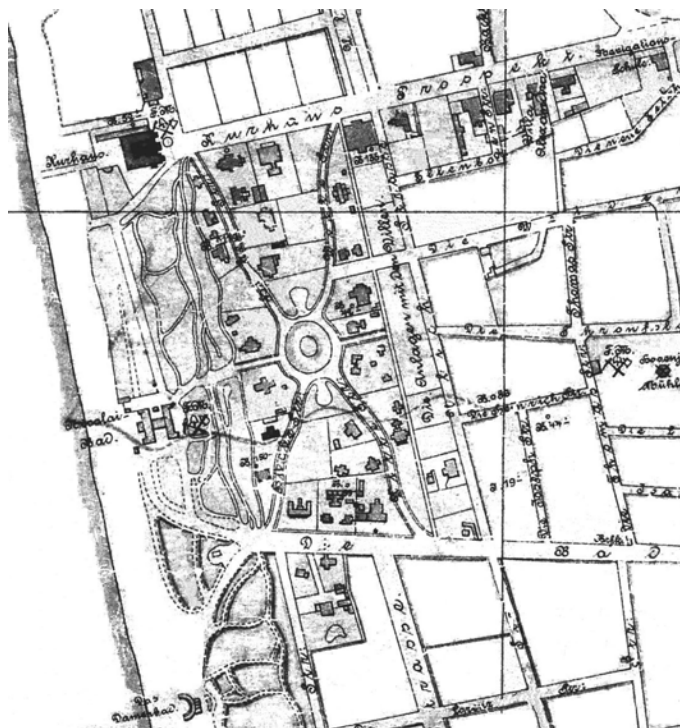


Figure 4: Libau health resort area layout. 1887. [The National History Museum of Latvia, LNVN, VN 9210].

was retained. At the end of the future promenade a well-house, designed by Bertschy, was built. Healing and relaxation opportunities promoted further building near the well-house: a block of summerhouses was established on the trapezoidal marshy piece of land between the pedestrian promenade to the sea, Baden Street, a sand rampart and bathing institution (around 1875), whose symmetrical planning was determined by two cross diagonally placed streets (Figure 4) with rows of trees and alleés (Figure 5) (Cinovskis, 1994: 3). In the centre of the quarter of summerhouses a Swan Pond was dug to drain the territory (Lancmanis, 2011: 79), from which a wide footpath led to the bathing institution. The first summerhouses were built



Figure 5: Libau health resort linden-trees alleé and pedestrian trail to the beach. Around 1910. [Funds of Liepāja Museum, photo LM 18845].

in Kurhaus Avenue, Baden Street and near the sand rampart (1877–1878). A birch-tree alleé was planted on the west side of the sand rampart up to the pedestrian promenade (Figure 6), but it was planned to connect the footpaths on the ramparts with a cast iron bridge.

Resort development in Libau promoted a purposeful improvement of planning: boulevards and streets with Dutch linden and horse-chestnut alleés linked the park green spaces with home gardens in a united green system. The Navigation School (1876), projected by Bertchy, emphasized architectonically the beginning of the main city promenade – Kurhaus Avenue with trees planted in three rows (Figure 7). Around 1880 two promenades – Kurhaus Avenue and Baden Street, where boarding homes and summerhouses were built, provided a functional link between the resort area and finance and trading centre in Grosse (now Lielā) and Korn Streets and public transport in the neighbourhood of the Old Market and St. Anna's Church. On November 8,



Figure 6: Libau health resort birch-tree alleé after the First World War. [Photo from postcard collection of Eriks Huns in Liepāja].



Figure 7: The meeting point of Kurhaus Avenue and birch-tree alleé. The beginning of the 20th century. [Postcard from the Baltic Central Library in Riga].



Figure 8: Kurhaus Avenue with trees planted in three rows and a street electric railway line. The beginning of the 20th century. [Postcard from the Baltic Central Library in Riga].

1890 Libau City passed building regulations: it was planned to build in the Seaside Park and its neighbourhood summerhouses. Green elements had to be planted on the piece of land in front of buildings (Sāne, 1991: 97).

In 1895 the Board of Libau City made a decision to make a park in the area between Baden and Ufer Street (Sāne, 1991: 89). In 1899 in New Libau a street electric railway line was built from the railway station, which provided a comfortable access to the well-house and city centre (Figure 8). In 1899 a project was developed for the Seaside Park (Rāte, 1995: 3): the information has not still been proven, but only on the basis of the comparison of the stylistic techniques of the park plan, the range of the planting material and park arrangement, the theory is that the author could be Georg Kuphaldt (Sāne, 1991: 89; Pūka, 2010: 66), who started formation of biological plant groups, where the local trees were compatible with lots of foreign plants.

CONCLUSIONS

In the 19th century transport and the building of industrial enterprises changed the urban environment. Building regulations determined the perimeter of the building blocks. The street space was made similar to interior, where, taking into account the natural laws of artistic composition – rhythmic arrangement of elements, forms and details, the façades were placed next to each other, forming a continuous “street wall.” The evenly rhythmical plantations of alleés and boulevards were appropriate for the urban eclectic style, which, preserving the link between the form and function, emphasized the scenic and functional significance of traffic arteries. In Russia, the coastal resorts of the Baltic Sea became a component of urban planning. Boulevards and alleés linked the urban green elements in a united system.

At the end of the 19th century eclecticism in the parks, formed according to German traditions, was expressed not only in landscape, but also in the composition and structure of green spaces. Picturesque and decorative green elements were cultivated in resort parks. Symmetric compositions with alleés or decorative tree rows and flower carpets with geometric patterns were made for pedestrian promenades. Birch, ash, horse-chestnut and linden tree groups and alleés were used in picturesque parks. With the diversity of plants and plantations it was possible to reach a compositional unity.

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THE MOTIVATION OF PARTICIPANTS IN A COMMUNITY GARDEN IN HINO CITY, JAPAN

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KEYWORDS

Community Garden, Urban Gardening, Open Space Planning, Aging Society, Focus Group Interview

ABSTRACT

Nowadays community gardens have gained in popularity among developed countries. To understand the reasons why current urbanites need them, this study aims at elucidating the motivation of participants in a community garden in Hino City, which is located in the western part of Tokyo. This paper focuses on a method that divided the participants into three clusters focusing on the extent of their commitment. The most hardworking cluster consisted of senior men and women, whilst the other clusters consisted mostly of younger women. Based on these previous results, subjects were selected from each cluster and the focus group interviews were conducted. The subjects discussed why they started participating in the community garden in connection with their personal history. The preliminary result of the interviews showed that the subjects from the most hardworking cluster were eager for social participation with a sense of contribution using their abundant leisure time and skills. It also turned out that the activities of community gardens reminded them of their childhood in a nature-rich countryside. Moreover, the promotion of their health was referred to. In contrast, the subjects from the other clusters started to come to the community garden especially for their children though they did not have much time to be committed to the activities there. They also mentioned that they had lived in urban areas and therefore the experiences in the community gardens were new to them. Thus, this case study suggests that urbanites participate in a community garden with motivation specific to each generation. Other than traditional allotment gardens in Japan, which are used mostly by the elderly, community gardens can be a more suitable place for intergenerational exchange, which is important in an aging society.

INTRODUCTION

Community gardens are currently found in many developed countries. There seems to be various reasons for the increase of the number of community gardens. First of all,

they can provide participants in community gardens with several effects. For example, community gardens were perceived by participants to grow their health physically and mentally (Wakefield et al., 2007). As another example, it is said that they can restore environmental justice and equity (Ferris et al., 2001). Aside these universal effects, community gardens can also contribute to the solution to social problems peculiar to their location. Detroit is known as a city in ruins with a large number of vacant lots because of the decline of the automobile industry. The many low-income African American residents which remain there have difficulty in the access to healthy food (Zenk et al., 2006). But it is indicated that urban farms and community gardens utilizing vacant lots can contribute significantly to the supply of fresh foods (Colasanti and Hamm, 2010). Furthermore, as in German cities, some community gardens called “intercultural gardens” have been creating a stir since the mid-1990s and considered successful integration projects (Müller, 2007). Thus, the multi-functionality of community gardens is making them popular worldwide.

In Japan, allotment gardens have been developed under the influence of Europe and recently community gardens started also getting popular referring to American and European examples. However, the motivation of participants in community gardens has not yet been clarified and thus it is not obvious what community gardens are for. Considering that Japanese is the fastest aging society among developed countries, community gardens might play important roles for creating a place for elderly people.

Based on the abovementioned problems, this study aims at elucidating users’ motivations for participating in a community garden in a suburban area of Japan.

METHODS

“Seseragi Garden”, a community garden in Hino City, Tokyo, was selected as the study site. Hino City is located about 40 km away from the center of Tokyo and its land consists

of mainly paddy fields on lowlands and hilly areas. It had a population of 27,300 in 1955, but has reached 182,000 in 2015 (Tokyo Metropolitan Government, 2012) as a result of the rapid development in the 1960s and 70s. This indicates that there is a certain generation which migrated to Hino City and caused an imbalanced population composition. In fact, it is expected that the ratio of people over 60s will be around 25% in 10 years (NIPSSR, 2013).

Referring to the previous study, the 65 participants in Seseragi Garden were divided into three clusters focusing on the extent of their commitment; the most hard-working cluster (cluster A), the mid-hardworking cluster (cluster B) and the less commitment cluster (cluster C) (Shimpo et al., 2014). The cluster A consisted of only senior men and women, whilst the cluster B and C consisted mostly of younger women in their 30s and 40s.

Several subjects were selected from the cluster A and the focus group interview with them was conducted at the rest space in the garden in November 2014. The author let them discussed why they started participating in the community garden in connection with their personal history. On the other hand, although the focus group interviews with subjects from the cluster B and C have not been conducted yet, the semi-structured interviews with five subjects from the cluster B were conducted as preliminary investigations in October and November 2011 to obtain working hypotheses. The prepared questions were: Q1) What made you start to come to the garden? Q2) What are reasons for coming to the garden on a regular basis? Q3) What activities do you engage in the garden? In addition, their personal attributes like their age, gender, job, and mean of transportation, were asked as well.

RESULTS

Motivations of the hard working cluster (cluster a)

The subjects of the focus group interview indicated two topics related to their motivation; 1.

Subject number	No.1	No.2	No.3	No.4	No.5
Interview date	13 October 2011	4 November 2011	4 November 2011	13 October 2011	13 October 2011
Age	30s	40s	40s	60s	70s
Gender	F	F	F	M	F
Job	Unemployed	Unemployed	Unemployed	Self-employed	Unemployed
Means of transportation	5 min by bicycle or car	10 min by bicycle	15 min by bicycle or car	12 min on foot or 15 min by car	10 min by bicycle
Frequency of visit	More than once a week	Once a week	Once or twice a week	Once a week	Once a week
Q1) What made you start to come to the garden?	Invitation by a participant, who was the mother of a friend of her child	An event held by a children's library and the garden	Invitation by the leader of the garden, who was an acquaintance already	Invitation by the leader of the garden while walking around the garden	Invitation by the leader of the garden, who was already an acquaintance
Q2) What are reasons for coming to the garden on a regular basis?	- Communication: to get new acquaintances - Learning: to obtain tips for living - Children: to let Children play on the earth	- Food: to get vegetables - Children: to let children communicate with other generations and play on the earth - Social inclusion: to find a role in community	- Interests in agriculture: to do agricultural activities - Learning: to enjoy a potluck lunch and teach how to cook dishes to each other - Communication: to get local information especially on children	- Communication: to avoid being alone and enjoy talking with someone - Learning: to try new things - Food: to eat vegetables grown without pesticide and stay healthy	- Interests in agriculture: to do agricultural activities - Communication: to avoid being alone - Food: to get organic vegetables
Q3) What activities do you engage in the garden?	- Follow an instruction by someone - Hard to find something to do by herself	- Do something spontaneously if finding it by herself - Otherwise ask someone about what to do	- Do a paid work on Tuesday (collect organic waste from surroundings) - Decide what to do depending on her health condition - Use a cultivator	- Do just simple stuff - Follow an instruction by someone	- Pull weeds or put organic waste into the field - Follow an instruction by someone and do something with other participants

Table 1: Result of semi-structured interviews with subjects of the mid-hardworking cluster (the cluster B)

Nostalgia and childhood memories and 2. Outside activities for their physical/mental/social health. The remarks related to each topic are as follows:

First, one of the subjects, who teaches how to grow vegetables, said that he had been born into a farming family and wanted to try agricultural activities after his retirement from a company. He was reluctant to help his family with their agricultural works in his childhood, however, this was not because he disliked the works but because he just wanted to play with his friends after school. Some of other participants also sympathized with his story. They lived in the countryside in their childhood and had experiences in running and playing on hills and fields. Now they live in a residential area, which was rapidly urbanized in the 1960s and 1970s, therefore they yearn for an environment rich in nature. They said that the activities of Sesaragi Garden helped them in touching nature.

Second, they said that they should go outside to take exercise and talk with someone because they tended to stay at home with their retirement. The agricultural activities like weeding in the garden were considered as a good exercise by them. In addition to the physical advantage, they also mentioned that talking with other participants made them energetic.

Motivations of the mid-hardworking cluster (cluster b)

The answers for the three questions by the cluster B and C are shown in Table 1. From the answers to Q1, it can be said that most of them started to join Sesaragi Garden because they were invited by people who had already participated in Sesaragi Garden. On the contrary, the answer to Q2 diversified. The younger subjects, No.1, 2 and 3, answered a reason associated with growing their children in a better environment, while the elderly subjects, No.4 and 5, wanted social interaction instead of staying at home alone. In addition, they also wanted vegetables cultivated in a healthier and safer

way. This result indicates that there are reasons peculiar to each generation. The answers for Q3 shows that there are no significant differences between the subjects other than No.3. The four subjects engaged mostly in simple works instructed by someone, while No.3 was doing complicated works relatively spontaneously.

DISCUSSION AND CONCLUSION

Through the tentative investigation so far, participants showed the inclinations peculiar to each generation. Elderly participants need social interaction to avoid staying all the time at home alone and life to stay healthy. Younger participants, on the other hand, seemed to be motivated not only by social interaction but also by the education of their children and engage in simple works in the garden. Thus, it can be said that the different generations come together into one place but each has their own motivations. To support this finding, the further investigation is required.

Community gardens should be an important place for all participants in that different generations can come together there, although their motivations diversify. In suburban areas of Japan, the ratio of nuclear families is large comparing to extended families. Therefore, in an aging society, elderly people tend to stay at home alone without other family members. Community gardens can contribute to providing them with a place for social interaction and making their life healthier with outside activities and fresh vegetables. The younger generation can also get a merit of making their children learn various things on the earth while elderly people watch them. Providing a place for intergenerational social interaction will be an important role of community gardens for Japan, and also countries with similar problems.

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A PATHWAY FOR THE CREATION OF AGRICULTURE PARKS IN MATOSINHOS, PORTUGAL

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KEYWORDS

Agriculture Park, Recreation, Landscape Rehabilitation, “campo-bouça” Landscape, Agri-puncture

ABSTRACT

The municipality of Matosinhos, in the Porto metropolitan area, Portugal, has a landscape matrix dominated by patches of agricultural fields intertwined by forest patches, the so-called “campo-bouça” system that characterizes the agricultural landscape of Northwest Portugal. In Matosinhos, this landscape occurs together with more or less consolidated urban centers and with a continuous urbanized strip in the Atlantic coast. Due to the lack of landscape planning, there is no functional relationship between the urban areas and their neighbour agricultural areas, the latter being perceived as the “backside” of the urban. Aware of the necessity to protect and qualify the “campo-bouça” landscape, and promote its recreation potential, the Matosinhos municipal master plan proposes the creation of two agriculture parks: one along the Leça river and another along the county’s western coastal area. An agriculture park can be defined as a park that combines private agro-forestry activities with recreation. While its implementation can be quite complex and involve multiple agents, the current proposal follows a simple and low cost approach. It consists essentially in the creation of a network of pathways, for bike and pedestrian use, which allow the discovery and experience of the “campo-bouça” landscape and provide the lost connection between the urban and agricultural areas. It is complemented by a system of signs to facilitate exploration and orientation in the landscape, and the creation of small resting and observation areas in key points. While this approach focus mainly on the recreation dimension of agriculture parks, it fosters landscape conservation and rehabilitation, namely the rehabilitation of watercourses and riparian galleries, hedges, stonewalls, and the reconversion of forest patches. It also creates opportunities for further developments of the agriculture park, such as the creation of allotment gardens, farmer markets, agro-tourism units, local origin denomination brands, and the adoption of best management practices.

MATOSINHOS AND THE “CAMPO-BOUÇA” LANDSCAPE

The municipality of Matosinhos is located in the Porto metropolitan area, in the northwest of Portugal. The Matosinhos municipal master plan, like other Portuguese municipal master plans, subdivides the county territory into Operating Units of Planning and Management (OUPM). The agriculture park model presented in this paper was developed, for OUPM1 and OUPM2 (figure 1), by two students of the Master in Landscape Architecture of the University of Porto during their curricular internship in the Matosinhos city council.

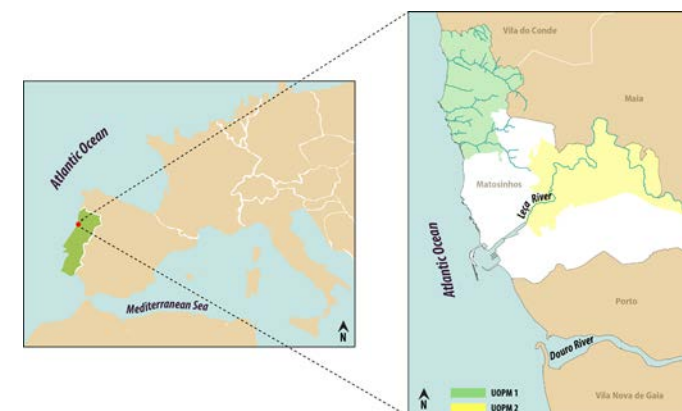


Figure 1: Location of Matosinhos municipality, and corresponding OUPM1 and OUPM2

The Matosinhos County landscape has a predominant peri-urban character. More or less consolidated urban centres and a continuous urban strip along the Atlantic coast occur together with the “campo-bouça” landscape. The “campo-bouça” landscape is an agro-forestry landscape matrix dominated by patches of agricultural fields (“campo”) intertwined with forest patches (“bouças”) in a reticulated pattern (Cunha, 2012). Agricultural fields are mainly occupied with corn and vegetables, and forest patches with *Eucalyptus globulus*, *Pinus pinaster* and invasive species of the genus *Acacia*. Patches of the native oak (*Quercus robur*) are scarce.



Figure 2: The “campo-bouça” landscape

The “campo-bouça” landscape characterizes the agricultural landscape of northwest Portugal. (Figure 2).

Despite the peri-urban character of the Matosinhos County, OUPM 1 and OUPM 2 have distinctive characteristics. The OUPM1 is located along the Atlantic coastal area, being characterized by a clear cut between the dense and continuous urban strip on the seafront and the inland “campo-bouça” landscape. It presents a gentle slope and is crossed by several streams running to the Atlantic (Atlantic streams).

The OUPM2 is dominated by the presence of the Leça river valley, alternating gentle and steep slopes. It presents a heterogeneous and fragmented mosaic of natural, agro-forestry, and urban patches.

Due to the lack of landscape planning and landscape management, there is no functional and visual relationship between the urban areas and their neighbour agro-forestry areas, the latter being perceived as the “backside” of the urban. The lack of connectivity and integration between the urban and the agro-forestry patches prevents the urban dwellers to take advantage



of the social amenities and services provided by the “campo-bouça” landscape, contributes to the degradation of this landscape and associated natural and cultural resources, promotes the segregation between the urban and the rural, the consumers and the producers.

THE CONCEPT OF AGRICULTURE PARK

To restore the connectivity between the urban and agro-forestry landscape, the Matosinhos municipal master plan proposes the establishment of two agriculture parks, one in OUPM 1 and another in OUPM 2. The adopted concept of agriculture park is a simplification of the concept of agropark, “an area where agriculture is clustered with other activities, in such a way as to provide the greatest possible benefits for the environment, the landscape, people and animals” (Innovation Networks, 2006). An agriculture park can thus be defined as an area that combines private agro-forestry activities with leisure activities in an attractive rural setting close to an urban area.

The model of agriculture park proposed for Matosinhos intends to conciliate the productive and recreational

functions of the “campo-bouça” landscape, and to stimulate its conservation, restoration, and improvement. The private agro-forestry spaces of the “campo-bouça” landscape are used to provide recreational and aesthetic experiences to the urban population. These experiences are made possible through the establishment of a network of pathways that grants access to and circulation in the “campo-bouça” landscape. This circulation system is articulated with small resting and observation areas in key points (articulation nodes), and complemented with a system of signs to facilitate exploration and orientation in the landscape. This recreational use will require maintenance and management actions that will foster the protection, restoration, and enhancement of the “campo-bouça” landscape. the implementation of Agriculture Parks in matosinhos

After an analysis of the two OUPMs, the main strengths/ opportunities and weaknesses/threats for the implementation of agriculture parks in Matosinhos were identified. The main strengths and opportunities are: i) the presence of large stretches of the “campo-bouça” landscape in close vicinity with urbanized areas; ii) the abundance of cultural (watermills, windmills, stone walls) and natural (water streams, native vegetation, natural viewpoints) features in the “campo-bouça” landscape; iii) the presence of public green spaces (OUPM 2); iv) the existence of paths that provide access to agricultural fields and woods; v) the possibility to access the agriculture parks via public transportation; vi) the proximity to the city of Matosinhos, the coastal area (OUPM1), and the Leça river (OUPM2); and vii) an increasing demand for recreation areas.

The main weaknesses and threats are: i) the pollution of water courses; ii) the lack and/or degradation of riparian woods; iii) the presence of garbage in the fields, woods, riparian margins, and paths; iv) the degradation of some natural and cultural features; v) the deficient maintenance of public green spaces; vi)

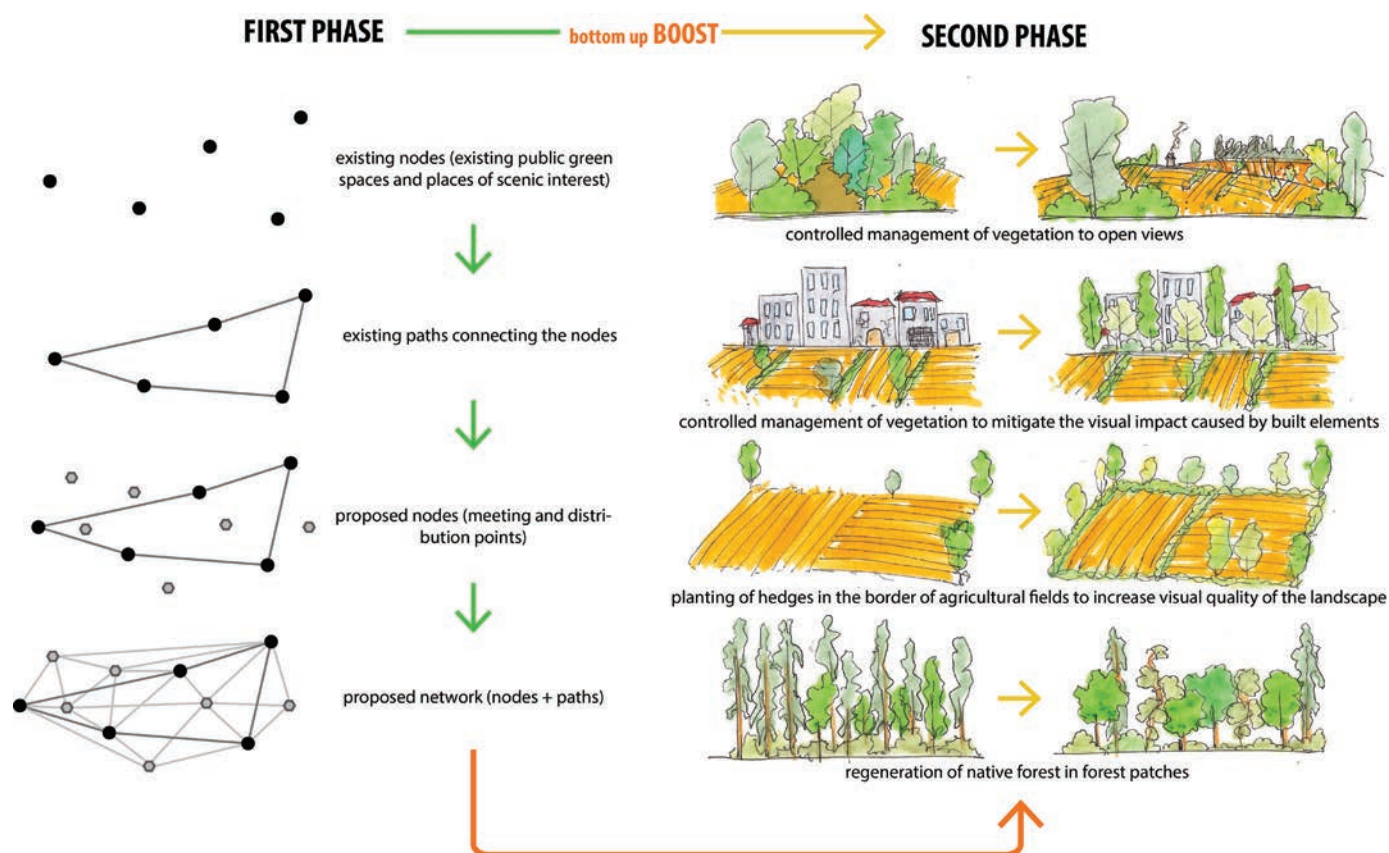


Figure 3: Conceptual model of the agriculture park

the existence of areas with no access; and vii) the short budget available to implement the agriculture parks.

Due to budgetary constraints, the proposal for the Matosinhos agricultural parks was divided in two phases (Figure 3). The first phase main goals are to provide access and facilitate enjoyment of the “campo-bouça” landscape of the two OUPMs to the inhabitants of nearby urban areas, establishing the desired functional relationship between the urban and agro-forestry areas.

The implementation of this phase is based on the establishment of a pathway network that takes advantage of the already existing paths only offsetting the gaps. While there are paths that can be used by motor vehicles, most paths are soft mobility paths designed to be used by pedestrians and bikes. Paths will connect nodes. Nodes can be existing public green areas, small resting areas, areas around cultural or natural features, observation points, and places of scenic interest (natural viewpoints). Areas with small car parks and bus and metro stops were chosen as strategic entrances to the parks.

Access and circulation in the agriculture parks is aided by a system of signs that informs visitors about accesses to the parks, the location of nodes (points of interest), and the length and destination of paths.

Together with these actions, the implementation of the first phase of agricultural parks requires the removal of garbage from paths and adjacent areas, and the eventual opening of some main viewpoints.

The implementation of the second phase will depend on the success of the first one. An intense use of the first layer of agriculture parks will require complementary interventions to provide greater comfort to the visitor and to restore and improve landscape character. (Figure 4). This second phase follows a “bottom-up” approach where the degree of intervention depends on the needs of citizens and visitors (Vidal et al., 2008). Predictable second phase interventions are: i) the installation of equipment such as picnic tables, benches, observation platforms and bike racks on nodes; ii) controlled management of vegetation to open views and mitigate the visual impact caused by built elements; iii) the planting of hedges in the border of agricultural fields to increase biodiversity and the visual quality of the landscape; iv) actions to promote the regeneration of native forest in forest patches; v) the restoration or requalification of riparian woods; and the vi) the depollution of stream waters.

Construction materials for paths, equipment and furniture, and signs should be low cost, sustainable and adapted to the landscape character.

CONCLUSIONS

The model of agriculture park proposed for Matosinhos aims to establish a connection between the urban and the agro-forestry areas of the county, allowing the experience of the “campo-bouça” landscape. It has been developed as a two-phased, low-cost,

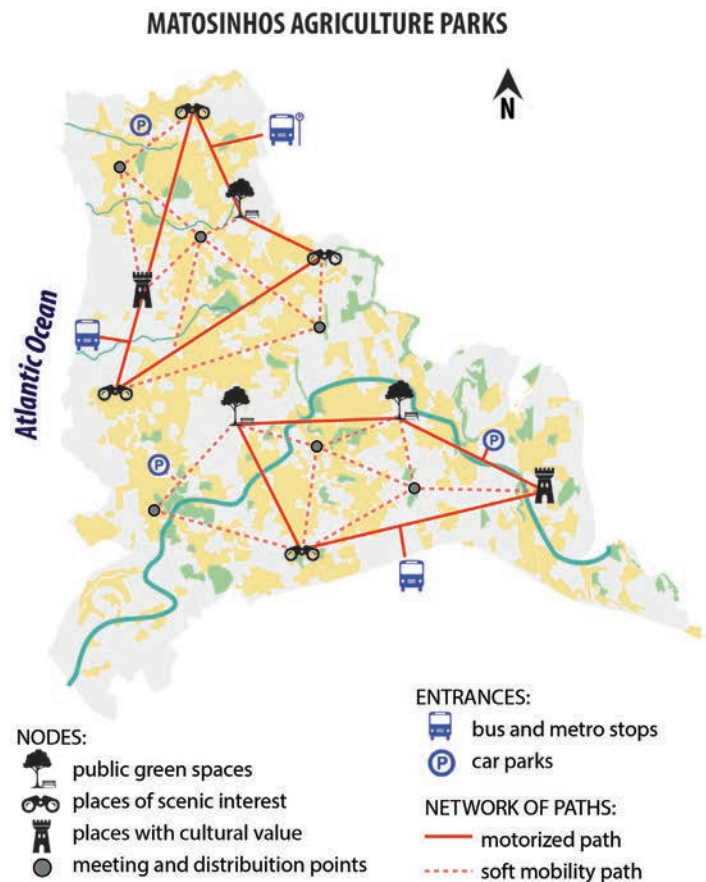


Figure 4: Proposal for the Matosinhos agriculture parks

bottom-up and “agripuncture” model. The first layer of the agriculture parks consists of a network of pathways connecting nodes and taking the maximum advantage of pre-existences. The second layer provides equipment for better enjoyment of the appropriated landscape and restores natural and cultural features. Its degree of implementation will depend on the success of the first layer (bottom-up approach).

The developed model can be considered an “agripuncture” model as it seeks to achieve the larger systemic

benefit with the smaller number of punctual interventions in the territory (Stobbelaar et al., 2011). While the proposed interventions were designed to stimulate the recreational function of the landscape, the conservation and restoration of the landscape can also be achieved in the long-term through the management of the agriculture parks. The model also provides opportunities to approach producers and consumers, as it can stimulate the creation of allotment gardens, farmer markets and agro-tourism units, among others.

VISUALIZATIONS



- 1: Soft mobility path through the “campo-bouça” landscape;
- 2: Observation platform on a natural viewpoint;
- 3: Soft mobility path in a place with cultural elements;
- 4: Picnic park in a sparse forest.

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USING A PARTICIPATORY APPROACH TO INTRODUCE ZERO-ACREAGE FARMING TO THE CITY OF BERLIN

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KEYWORDS

Urban Agriculture, Innovation, Rooftop Farming, Participatory Research

ABSTRACT

In recent years, urban food producers are focusing on urban farming activities that are taking place in and on urban buildings. The term “Zero-acreage farming” (ZFarming) describes all types of urban agriculture characterized by the non-use of farmland or open space. Such production types might include the installation of rooftop gardens, greenhouses, edible green walls and innovative forms as indoor farms or vertical greenhouses. In past years, ZFarming has become a topic of interest across a range of diverse local stakeholders in Berlin, even though it faces several uncertainties. During a participatory process, the participants (activists, representatives from lobby groups, planning and construction, research, sales and distribution, policy and administration), established a stakeholder network (of around 50 participants) called “ZFarm- Urban agriculture of the future”. The aim was to find possible farming models in or on urban buildings for the metropolitan area of Berlin and to identify the options for their sustainable implementation. The stakeholder workshops were held between 2011 and 2013 and jointly decided to focus on rooftop greenhouses, as the most promising type of ZFarming. They identified potential benefits in all dimensions of sustainability (e.g. resource savings, social cohesion or opportunities for new business models). They also defined risks and uncertainties related to rooftop greenhouses (e.g. legal and technical challenges, social acceptance or high energy needs). Jointly, a manual, that addresses those potentials and risks, was created to enable administration, politicians, citizens and future operators to deal with rooftop greenhouses in Berlin. The establishment and investigation of a pilot project would be the next step. In sum, the participatory process contributed to knowledge generation, the building of new cooperation and networks and the identification of common goals for the introduction of ZFarming in Berlin. As a result of the workshops, key challenges lie in the economic and technological realisation of projects and the social acceptance of new forms of urban food production.

ZFARMING- BACKGROUND AND DEFINITION

In recent years, new types of urban food producers have been focusing on urban farming activities that are taking place in and on urban buildings. Nowadays, all over the world, projects can be found that are set up to produce food in or on top of urban houses (Thomaier et al., 2015). The most famous examples are the rooftop farm of the New York based start-up “Brooklyn Grange”, and the rooftop greenhouses of “Lufa Farms” in Canada and “Gotham Greens” in the US. In terms of indoor farming, “The Plant” in Chicago was one of the pioneers, whereas multi-story greenhouses for urban food production can be found at “Sky greens” in Singapore as a prototype for Asian megacities.

Existing studies have evaluated the potential benefits and limitations of those new forms of urban agriculture through literature reviews (Eigenbrod and Gruda, 2014; Specht et al., 2013), analysis of present practices (Thomaier et al., 2015) and by applying LCA (Life Cycle Assessment) approaches (Sanyé-Mengual et al., 2015a, 2015b, 2013).

The term “Zero-acreage farming” (ZFarming) describes all types of urban agriculture characterized by the non-use of farmland or open space. Such production types might include the installation of rooftop gardens, rooftop greenhouses, edible green walls as well as such innovative forms as indoor farms or vertical greenhouses (Specht et al., 2013). During the past years, ZFarming has become a topic of interest across a range of diverse local stakeholders in Berlin, even though it faces several uncertainties.

THE PARTICIPATORY “OPEN INNOVATION” APPROACH

The aim of the project “ZFarm” (www.zfarm.de) was to identify the major potential benefits and challenges of introducing ZFarming in the city of Berlin and to find the most suitable farming model for the City of Berlin. In order to explore these issues, a participatory approach



ROOFTOP GREENHOUSES ▲ Idea ▲ Planning ▲ Implementation



called “Regional Open Innovation Road mapping (ROIR)” was applied (Schwerdtner et al., 2015; Specht et al., 2015).

During the participatory process, the participants (activists, representatives from lobby groups, planning and construction, research, sales and distribution, policy and administration), established a stakeholder network (of around 50 participants) called “ZFarm- Urban agriculture of the future”. The stakeholders met in a series of workshops between 2011 and 2013 and jointly decided to focus on rooftop greenhouses, as the most promising type of ZFarming for the city of Berlin (Specht and Siebert, 2014).

OUTCOMES OF THE PROCESS IN BERLIN

As an outcome of the process, the stakeholders developed guidelines for the planning and implementation of rooftop greenhouses as the most favourable type of ZFarming in the City of Berlin. They identified potential benefits in all dimensions of sustainability (e.g. resource savings, social cohesion or opportunities for new business models). They also defined risks and uncertainties related to rooftop greenhouses (e.g. legal and technical challenges, social acceptance or high energy needs). The application of the participatory process itself contributed to knowledge generation, the building of new cooperation and networks and the identification of common goals for the introduction of ZFarming in Berlin. The workshops highlighted that key challenges lie in the economic and technological realisation of projects and the social acceptance of new forms of urban food production. Jointly, a manual addressing all identified potentials and risks was created to enable administration, politicians, citizens and future operators to deal with rooftop greenhouses in Berlin in the future (Freisinger et al., 2015). The establishment and investigation of a pilot project would be the next step.

ACKNOWLEDGEMENTS

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LANDSCAPE PLANNING. FROM THEORY TO TEACHING

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KEYWORDS

Planning, Land Use, Green Infrastructure,
Multi-disciplinary. Education

ABSTRACT

Following the signing of the European Landscape Convention by different Spanish regions, landscape became a specific and necessary issue in regional and local planning. However, and after almost ten years, the results remain unclear and a constructive review, affecting also education, might be convenient. This paper analyses primarily the framework and the most relevant concepts in Landscape Planning, defining its main objectives, general background, challenges and positive interactions with other disciplines. Secondly, the text studies how Landscape Planning was introduced in the Spanish academic context, illustrating this process with some specific examples in the Valencian Region, that since the year 2004 promoted a deep and proactive integration of Landscape in regional and municipal planning.

1. FROM THEORY...

1.1 The goals

Landscape planning could be defined as the branch of landscape architecture which tries to establish the conditions for the most harmonic and sustainable relationship between the different land-uses, elements, interests, demands and actors which coexist in any territory. In order to do this, it needs to integrate environmental, cultural and visual factors and create the sustainable conditions for social, economic and individual development.

1.2 The boundaries

By considering landscape as the perceived dimension of any territory (European Landscape Convention, 2000), landscape planning will have to deal with the wide group of natural and human systems and processes which create, maintain and modify any territory and subsequently its human perception. This wide task requires necessarily a holistic approach in which the traditional compartmentalization of professional and academic fields or the physical boundaries between urban, rural and natural areas are inevitably questioned. Landscape Planning tends to escape the strict academic or geographical zoning and it is precisely in this transversal quality where rests the most important educational challenge.

1.3 The background

The European Landscape Convention remains as a permanent and essential reference for all those interested in understanding the motifs which justify Landscape Planning. As a road map, it succinctly defines the key objectives, terms and necessary concepts, leaving to the international, national, regional or local signers the freedom to define the most adequate ways for its implementation.

1.4 The challenge

Although the goals of landscape planning tend to be unanimously supported, it often remains at the sphere of good intentions due to its transversal character, its long run projection and the need of getting a shared vision for the future.

The main challenge in landscape planning is therefore overcoming those difficulties by finding the right mechanisms to make of landscape a proactive element rather than a passive result. In addition, landscape planning should respond to the common argumentation that landscape quality is just a question of personal taste, to the general prevalence of short run thinking and, last but not least, to the professional and academic compartmentalization, which tend to advocate for specific and punctual solutions in the belief that their addition will necessarily produce a positive global result.

1.5 A travel partner

Sustainability shares with landscape planning its transversal, systemic, long run and inter-scalar character and also the fact that, in spite of being publically supported, cannot be achieved without a holistic approach.

Actually, a sustainable and a well landscape planned territory seem to be complementary since both of them are, by definition, based in a positive relationship between the human being and the environment and both of them need necessarily to work with fluxes, processes, “elusive” indicators and systems rather than with isolated elements or spaces.

This convergence can also be extended to the teaching sphere, where sustainability and landscape planning seem to exceed the limits of the existing curricula and where the creation of bridges between sustainability, landscape and ecology, seems at the very least, promising.

1.6 The concepts

Landscape planning has generated its own concepts in order to rationalize the analysis, diagnosis and definition of proposals:

Landscape characterization is understood as the identification of patterns, elements and dynamics which explain the origin and evolution of any landscape. The bibliography about this subject is quite abundant but the British experience has become a worldwide reference with its hierarchical system of “character types” and “character areas”, defined at national, regional, county and local levels (Landscape Character Assessment, 2002). In the same line, “Landscape Units” are understood in the Valencian planning system as continuous pieces of land sharing similar patterns, potentials, problems and processes and, by considering not only their physical conformation but also their dynamics, they are expected to become functional and management entities. (Reglamento del Paisaje, 2006).

Landscape Assessment is concerned with the highly controversial topic of assessing landscape quality and it could serve a triple function, firstly it can guide the rational and justified prioritization of actions and measures, for instance giving preference to those areas with lower landscape values; secondly it permits monitoring landscape changes and thirdly it can become a design tool by detecting which aspects contribute more significantly to landscape value. The vast research developed in this field has permitted us to know better how we perceive, process and give preference to some landscapes (Steinitz, 2008) but the final equations explaining landscape quality remain still unveiled in the undecipherable array of physical, cultural, social and individual factors which are attached to landscape.

The methodology developed in the Valencian Region for the assessment of landscape units and landscape resources assumes this challenge and calculates those values by combining people’s

preferences and experts’ judgments (landscape preference and landscape quality). (Figure 1)

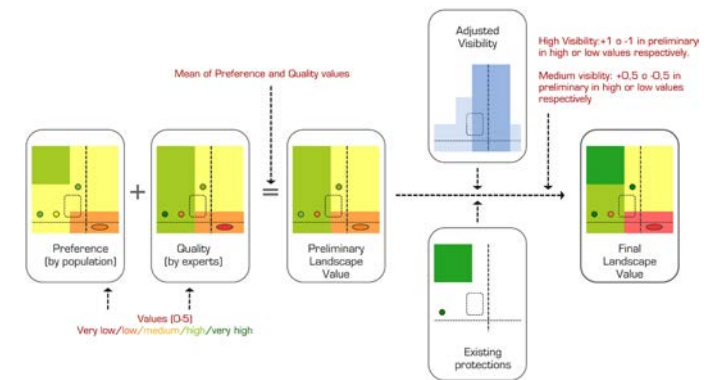


Figure 1: Assessment of Landscape Units and Resources according with the Valencian methodology

Visual Analysis: Landscape visibility is understood as the physiographical visibility of one area adjusted by the position and amount of possible observers. This analysis identifies the most exposed areas and permits to concentrate the attention on them.

Landscape Quality Objectives are defined by the European Landscape Convention as “the formulation by the competent public authorities of the aspirations of the public with regard to the landscape features of their surroundings”. They are the keystones to pass from the analytical stages to the development of landscape policies and proposals. Following this idea, the Objectives are expected to envision a new and improved scenario for Landscape Units and Resources.

Landscape Policies can be defined as the “expression by the competent public authorities of general principles, strategies and guidelines that permit the taking of specific measures aimed at the protection, management and planning of landscapes” (European Landscape Convention, 2000). Those measures can include

specific projects, **landscape programmes**, **landscape regulations** or even **physical demarcations** (figure 2). Landscape policies and their associated measures are by definition **proactive** and **propositional**, surpassing the descriptive or intentional approach which has often been associated with landscape planning.

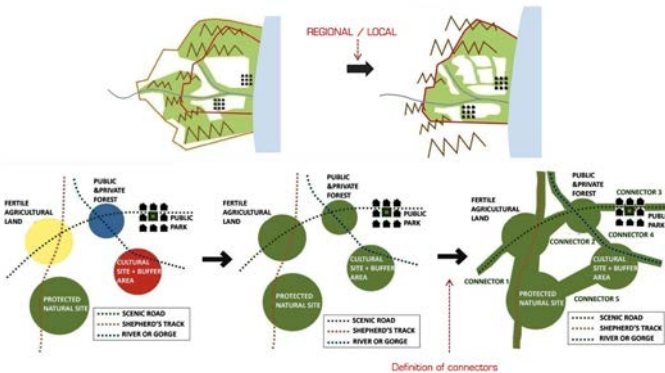


Figure 2: System of open spaces or Green infrastructure according to the Valencian methodology

Landscape Tools: As stated in the European Landscape Convention, landscape protection, management or planning should be firstly backed by the **legal recognition of landscape** and should be implemented by integrating “landscape into regional and town planning policies and in cultural, environmental, agricultural, social and economic policies, as well as in any other policies with possible direct or indirect impact on landscape” (European Landscape Convention, 2000). This last requirement opens a crucial disjunctive, either to incorporate landscape into other policy sectors or to create specific landscape tools and policies. Thus, in the Netherlands, with a long tradition of multidisciplinary collaboration, “landscape policies are integrated into several other (secondary) policy sectors of which spatial planning must be considered the most important” (Wascher & Schröder, 2009). Conversely, in Spain, with a strong division of professional

REGION	VALENCIAN REGION	PUBLIC PARTICIPATION	CATALONIA	PUBLIC PARTICIPATION
TOOL	LANDSCAPE PLAN (ESTUDIO DE PAISAJE)		LANDSCAPE CATALOGUE (CATALOGO DE PAISAJE)	
SCOPE OF APPLICATION	SUPRA REGIONAL..... REGIONAL LOCAL Hierarchical implementation?: NO		SUPRA REGIONAL..... REGIONAL LOCAL Hierarchical implementation?: YES	
METHODOLOGY AND PHASES	CHARACTERISATION & DIAGNOSIS - Landscape Units - Landscape Resources (environmental, cultural and visual) QUALITY ASSESSMENT - QUALITY: by experts + PREFERENCE: by people - Adjustments by DEGREE OF VISIBILITY - Visual Analysis based in observation points/lines LANDSCAPE QUALITY OBJECTIVES (LQO) - 3 general LQO for the VALENCIAN REGION. - LQOs for each Landscape Unit and Landscape Resource DETERMINATIONS - SPATIAL: System of Open Spaces (Green Infrastructure) - PROGRAMMATIC: Landscape Programmes - NORMATIVE: Landscape Regulations - General Regulations - Specific Regulations (for all the scope / for the System of Open Spaces / For the catalogued areas or elements)		CHARACTERISATION & DIAGNOSIS - Landscape Units - Special Landscapes QUALITY ASSESSMENT - No included LANDSCAPE QUALITY OBJECTIVES (LQO) - 10 general LQO for CATALONIA. - LQOs for each Catalogue's Area - LQOs for each Landscape Unit DETERMINATIONS - CRITERIA (for each LQO of the Catalogue's Area) - ACTIONS (for each LQO of the Catalogue's Area) - DEFINITION of Specific Areas for: - Landscape protection - Promotion of Landscape management - Possible Landscape transformation	

Figure 3: Contents and Scopes in Valencian Landscape Plans and in Catalanian Landscape Catalogues.

scopes, the tendency has been to create independent landscape tools like the Landscape Plans in the Valencian Region or the Landscape Catalogues in Catalonia.

1.7 Some frameworks

Following the signing of the European Landscape Convention, the Valencian and the Catalanian Regions developed their respective legal and

normative contexts in order to integrate landscape into their planning systems (Figure 3).

In the Valencian Region, Landscape Plans were supposed to be developed simultaneously at different scales (supra-regional, regional and local), whilst in Catalonia, Landscape Catalogues were just prepared at the regional scale following a prefixed time schedule. In relation to their enforceability, the determinations included in the Valencian Landscape Plans have to be automatically

assumed in the regional or municipal plans whilst, the determinations of the Catalanian Landscape Catalogues have a guiding character and could be later adjusted or adopted in regional or municipal plans.

2. TO TEACHING

After having highlighted some of the most important theoretical aspects of landscape planning, the current paper analyses how this discipline can be integrated in the academic world, focusing the attention in the Spanish context, where the signing of the European Landscape Convention by some Autonomous Regions, opened a promising new scenario.

2.1 Landscape planning in study plans•

The teaching activity in Spain during the XXth Century cannot be fully understood without noticing the traditional separation between “humanities” and “polytechnic” universities. In the first ones, researchers have usually analyzed the landscape in a descriptive way and quite often in the big scale. In contrast, the polytechnic schools have tended to focus their attention on safe and efficient land-use planning, and, very punctually on landscape integration, especially in sensitive or protected environments.

The introduction in the 1980's of the Environmental Impact Assessment (EIA) marked a clear threshold. Somehow, the Spanish universities had to respond to this new legal and administrative context, and although most of the courses which were created at that time were mainly concerned with landscape integration, a consistent and more open reflection about landscape also took place.

In a second stage, the signing of the European Landscape Convention by some of the Spanish Autonomous Regions provided a more transversal and proactive vision of the landscape which crashed with the existing

professional and university structures. Firstly, it was difficult to be transversal in the very specialized university system; secondly, it was hard to be proactive in a discipline that had been traditionally approached in a descriptive or preventive way and thirdly, Spain did not have any specific public university degrees in landscape architecture, design or planning. Due to this, landscape planning was optionally taught in complementary subjects and, only at master level, it was possible to find some titles partially related with that matter.

This situation was partially improved when some regional governments and some professional associations became increasingly interested in landscape planning. However, the expansion on landscape education that took place during those years was basically implemented through monographic courses and through some new or existing masters, which were generally very influenced by the “humanistic” or “polytechnic” character of their own universities. Since then, and with some remarkable exemptions, the education on landscape have tended to readjust the academic background of their students (architects, engineers, geographers, sociologist, biologists, environmentalists, etc.), in the general belief that the transversal character of the landscape required multidisciplinary teams rather than multidisciplinary individuals.

2.2 Some academic experiences

The following examples are based in the personal experience gained as teacher and coordinator of the Master in Landscape and Garden Design and as teacher of the subject “Landscape and Environmental Planning”, included in the Master in Advanced Architecture, Landscape, Urbanism and Design (Polytechnic University of Valencia).

In both cases, the subjects and master thesis were designed to support from the university the implementation of the Valencian Landscape Policy by

teaching the methodologies and basics for the preparation of “Landscape Plans” (the landscape planning tools required by the Valencian Legislation in any regional or municipal Plan).

About territorial analysis

The understanding and graphic representation of the natural and human systems, patterns and processes was always the first step. This stage was also particularly important to introduce the students in those aspects which were unfamiliar for them (agricultural and natural areas for architects, urban fabrics for engineers, etc.).

About landscape characterization•

The definition of Landscape Units and Landscape Resources required the intentional integration of all the layers developed in the previous stage. It was particularly important to show how land uses and land covers do not necessarily correspond to landscape units and how the working scale can modify the characteristics of the unit. Additionally, it was essential to integrate processes, tendencies and dynamics in order to create functional landscape units which, by sharing the same systems, problems and potentials, could receive similar treatments. (Figure 4)

About landscape assessment•

In this point, the very same concept of landscape quality opened very fruitful discussions. The methodology proposed in the Valencian Region for the assessment of Landscape Units and Resources was found particularly interesting and lead to the need of considering relative or local values rather than absolute or universal ones. (Figure 4)

About visual analysis-

This step was particularly demanding since the calculation of visual basins with GIS programs had to be always adjusted with onsite visits. The selection of observation points or lines was also a critical issue since it determined completely the whole structure of the visibility map.

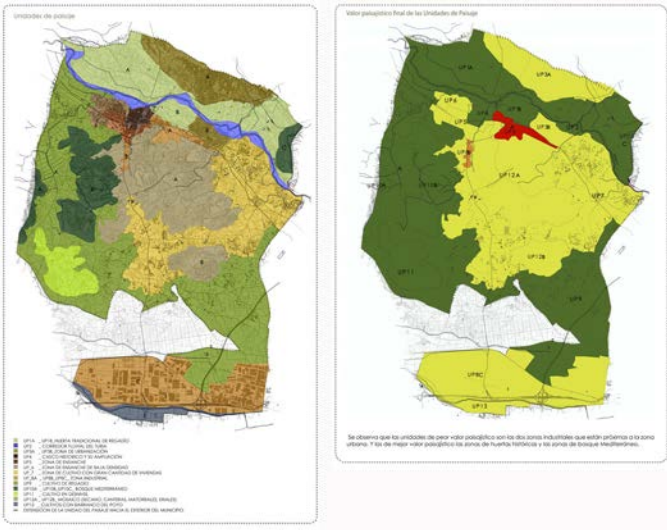


Figure 4: Landscape Units and Values in Ribarroja del Turia (students: CAO, Y., FALQUI, R., FERRANDIS, E., PÉREZ, M. I.)

About landscape quality objectives-

Due to its abstract and intentional character students tended to forget the importance of this stage. In order to highlight its importance, they were asked to enunciate them very synthetically and to represent them graphically, generating also new territorial models. (Figure 5)



Figure 5: Landscape Quality Objectives for Moncada (student: RIPOLL, M. J.)

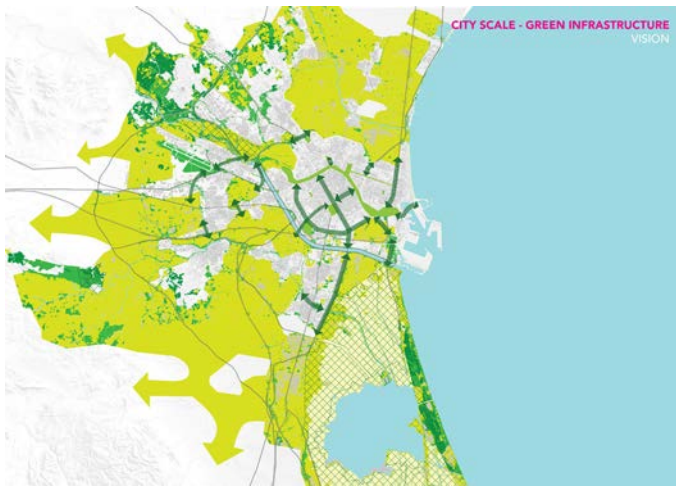


Figure 6: System of Open Spaces or Green Infrastructure for the Metropolitan Area of Valencia (students: NORROS, I., VARPIO, M., JUURINEN, I., KAUTO, E.)

About landscape programmes-

In addition to the geographical demarcations associated with the System of Open Spaces and to the guiding character of Landscape Regulations, Landscape programmes included the construction, management and societal actions or projects to fulfill the landscape quality objectives. (Figure 7).

About landscape regulations-

Landscape regulations were organized in geographical scopes (urban, rural and natural) and were understood as the guidelines that should be followed by different collectives (planners, constructors, farmers, etc.) to protect, manage or create a more consistent, harmonic and identity based landscape. (Figure 8)

About public participation-

The definition of meaningful participation processes is one of the most challenging issues in landscape planning. At this point, the students had to define the methods, schedule, stakeholders and demographic samples that should be considered in their public participation plans and, additionally, test them by assuming different roles.



Figure 7: Landscape Programmes for Moncada (student: CANO, Laura)

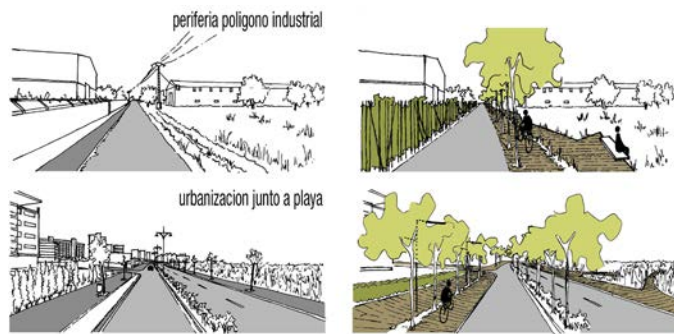


Figure 8: Landscape Regulations for El Puig (students: BELDA, E., MUEDRA, R., MENDEZ, S., SALVADOR, N.)

3. CONCLUSIONS

Landscape planning shares with other disciplines or concepts (land use planning, ecology, sustainability) a highly transversal character which seems to be difficult to integrate in an increasingly specialized academic system.

The education of multidisciplinary landscape planners, trained to understand the wide variety of human, natural and visual aspects involved in the creation, protection and management of landscapes, should be based in an adequate knowledge of all those aspects and in the capability to use and combine them in a proactive way. The study plans serving those purposes should therefore compensate the specialized profiles that most of the students tend to have and should provide the transversal basics at the very early stages.

In addition to this, the study plans should incorporate and support the wide range of landscape planning concepts, tools and methodologies which are already available and that can be reformulated by advanced students. This explorative attitude should be always kept in mind in order to promote a creative analysis of the territory, the generation of models and future scenarios, and the definition of imaginative but well justified proposals.

These conclusions are partially supported by some positive academic experiences that showed the benefits of working hand in hand with the European Landscape Convention, of enhancing a holistic perception of the territory by promoting a global understanding of urban, agricultural and natural areas, of reading processes and patterns and, specially, of emphasizing the proactive character of landscape planning tools by overtaking formal description and by producing new models and clear spatial or normative determinations which could be conveniently introduced in the planning context.

Also in those cases, multidisciplinary work, effective use of classical or new concepts like landscape unit, landscape assessment or green infrastructures, and a general understanding of the socio economic forces involved in the management or transformation of any landscape, proved to be all useful tools to create both imaginative and realistic proposals and to provide the global vision that landscape planners are expected to have to establish the most harmonic possible dialogue between all the elements, interests and actors coexisting in any territory.

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LANDSCAPE ARCHITECTURE; DESIGN AS TRANSFORMATION OF THE EXISTING

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KEYWORDS

Design methods, Flexibility, Structure, Procedural theory, Continuity

ABSTRACT

Design as transformation of the existing is in line with the procedural theory as developed by Murphy (2005). Key point of his theory is the dynamics of landscape as object of planning and design. This is also one of the key differences with architecture in which the making of buildings is the core of design. Design as transformation of the existing is common among practitioners however its theoretical implications are not yet elaborated. Here we use Murphy's study for that. The main research question is how the different types of transformation are related to design practice and what that means for procedural theory. In the research approach we have made use of the case study method, text analysis and fieldwork. In the first part we analyse the nature of transformation in landscape architecture by distinguishing between different types of transformation; of form, nature and appearance. In the second part we take a closer look at some case studies to analyse how different types of transformation play a role in the design process and how they relate to program, site and use. One of the results is the key role of structure as level of intervention. It relates the materialisation of form to the strategy of the landscape development in the long run. The structural level enables on the one hand a flexibility of use over time and on the other hand continuity of the existing. The conclusion of the paper leads to a further elaboration of Murphy's 'procedural theory'. In his approach to 'evidence-based design', the concept of design as transformation gives further insights into the different types of research before, during and after the design process.

INTRODUCTION

The concept of transformation

The Oxford Dictionary gives as core of the definition; 'A marked change in form, nature, appearance (...)'. The term is applicable to people, objects and phenomena, so it is rather wide in meaning. It is also amply used in various sciences like mathematics, physics, chemistry, biology, medicine, computing as well as in the arts.

In biology it is used to describe the metamorphosis during the life cycle of an animal but also for the modification of a cell. Probably best known is the process of transforming in electricity from lower to higher voltage, used in transport and distribution networks. In design disciplines the term is not so commonly used and most of the time in different meanings. Ching (1996) uses the term in the context of architecture: 'The process of changing in form or structure through a series of discrete permutations and manipulations in response to a specific context or set of conditions without a loss of identity or concept'.

Diagrammatic overview of the outline of the paper

His definition is interesting because it refers to the change of form or structure of an element while the identity or concept remains the same. It fits into the broadness of the meaning of the term and shows at the same time possible variations which could also be comprised in the term.

In landscape architecture the term is not often used but its overall concept is well known also from related terms like metamorphosis, transfiguration, translation, transcendence, palimpsest. For instance the term 'transfiguration' is used by Landecker (1997) to describe the work of Martha Schwartz, in 'transfiguration of the commonplace'. It refers to the design approach of Martha Schwartz, a US landscape architect, who draws attention for what she calls the 'commonplace' like

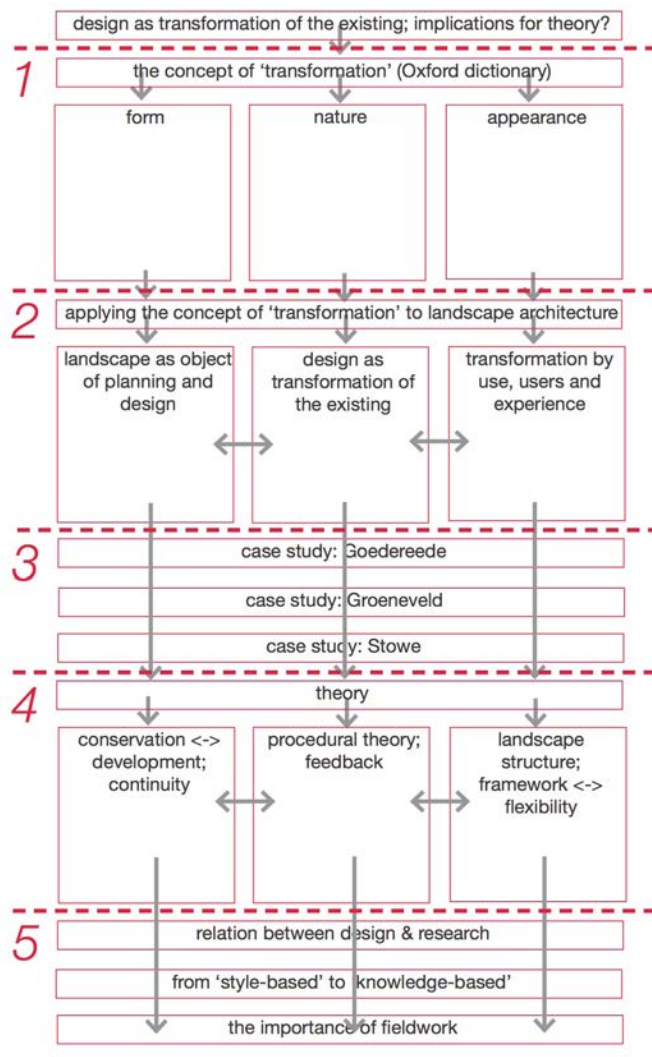


fig. 1
Diagrammatic overview of the outline of the paper

fig. 1: Diagrammatic overview of the outline

parking lots; problems that landscape architects have a tendency to not pay attention to. Diedrich (2014) in her study on European port cities, puts forward the

concept of 'design as transformation' for landscape architecture as opposed to architecture, which she describes as 'design as creation *ex novo*'. She frames this concept of design to the landscape architectural practice of the 20th century. Murphy (2005) does not use the term 'transformation' but describes the difference between architecture and landscape architecture as 'the world of being' vs 'the world of becoming'.

THE NATURE OF TRANSFORMATION IN LANDSCAPE ARCHITECTURE

Because in the landscape the natural forces can bring changes independently of human intervention, the concept of transformation is a key concept since the natural system is anywhere and thus transforms landscapes permanently. In this paper we use the term to describe the dynamics of landscape form and design as a characteristic of landscape architecture as design discipline.

• Landscape as object of planning and design

A first characteristic of landscape architecture is that the landscape is seen as 'state of flux'. Design as intervening in that 'state of flux' means the redirection and reorganisation of processes and developments. The processes are related to the forces behind the form in the landscape; natural forces, socio-economic forces, cultural forces. It means that developments in the landscape are based on natural forces, human interventions – not only designed – and design interventions. In the Oxford definition, this refers to 'form'. The French landscape architect Michel Desvigne is explicit about design as transformation of the existing. To enable that, he draws attention to the key role of the earth sciences and geography to get to know the site as object of planning and design (Desvigne, 2004). So here, the focus is on getting to know the landscape as object of planning and design.

• Design process as transformation of the existing



fig. 2
The map of Goedereede by Van Deventer (1550-1600). At the end of the Middle Ages the port still had a direct access to the sea. Note the ideal position for a sea port; on the lee-side, the North Sea is on the western side of the island with predominantly western winds.

fig. 2: Map Van Deventer (Map Room, TUDelft)

A second characteristic of landscape architecture is that all design is a form of material transformation of the existing. In landscape architecture 'tabula rasa' does not exist since there is always an existing site. This means that the existing landscape is always part of the design process and secondly the dynamics of the existing landscape form are the core of all design. Desvigne & Dalnoky (1995) in a publication on their work use the term 'induced transformations' for their approach; the act of design induces change in the existing situation based on the relation of program and site. This second characteristic puts the focus on the design process; the different types of interventions at different levels. In the Oxford definition, this would refer to 'nature'.

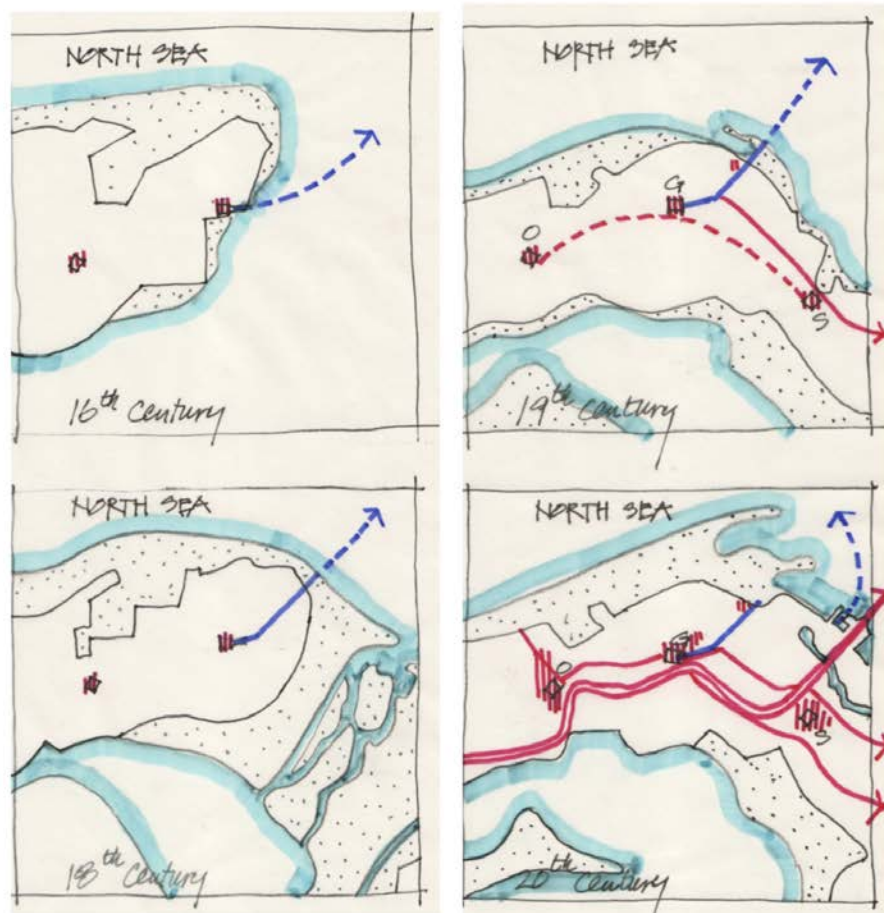


fig. 3: Four diagrams of port development of Goedereede (author)

• Use, users and dynamics of perception

A third characteristic of landscape architecture is the perception of the everyday environment always comprises different types of users. Moreover, the way we perceive our daily environment is not only determined by the type of use but also by the dynamics of perception and the speed of movement. Here is the focus on users and experience. In the Oxford definition this refers to ‘appearance’.

Note that we use ‘function’ to refer to working of a landscape as a natural, socio-economic and cultural system. ‘Use’ – or land use – refers to the direct use by people or groups of people. ‘Meaning’ is referring to how people can attach personal values to environments, places and objects in the landscape. The study of Bell (1999) is one of the rare studies that incorporates all characteristics in a comprehensive approach; see for instance ‘4. Where should the understanding of pattern and process based planning and design be applied?’ Moreover he departs

Fig. 3

From the 17th century on, the silting up made the port inaccessible for ships from sea. It meant first of all the construction of a new canal connecting the former port to the sea. In the 18th century the contour of the island had already changed dramatically by making new polders south-east of the new canal. Between the island of Goeree – where Goedereede is located – and the next island to the south-east large mud flats had already been formed. The process of silting up continued to such an extend that by the 19th century the two former islands Goeree and Overflakkee were already connected by land. We see a footpath between Ouddorp (O), Goedereede (G) and Stellendam (S). Around the beginning of the 20th century the size of the fishing boats was such that the old port in the village no longer could accommodate the fleet of fishing boats and made the creation of a new port at the end of the canal, necessary.

from the landscape as a natural system and shows its implications and effects for planning and design.

THREE CASE STUDIES ON TRANSFORMATION

If we take the definition in the Oxford dictionary and compare the content to different aspects of form in landscape architecture, it would lead us to different types of transformation. First of all the transformation of the landscape, secondly the transformation by design interventions and finally transformation through difference in use and experience. In the three case studies we elaborate further on the three characteristics of landscape architecture.

The map of Goedereede by Van Deventer (1550-1600).

At the end of the Middle Ages the port still had a direct access to the sea. Note the ideal position for a sea port; on the lee-side, the North Sea is on the western side of the island with predominantly western winds.

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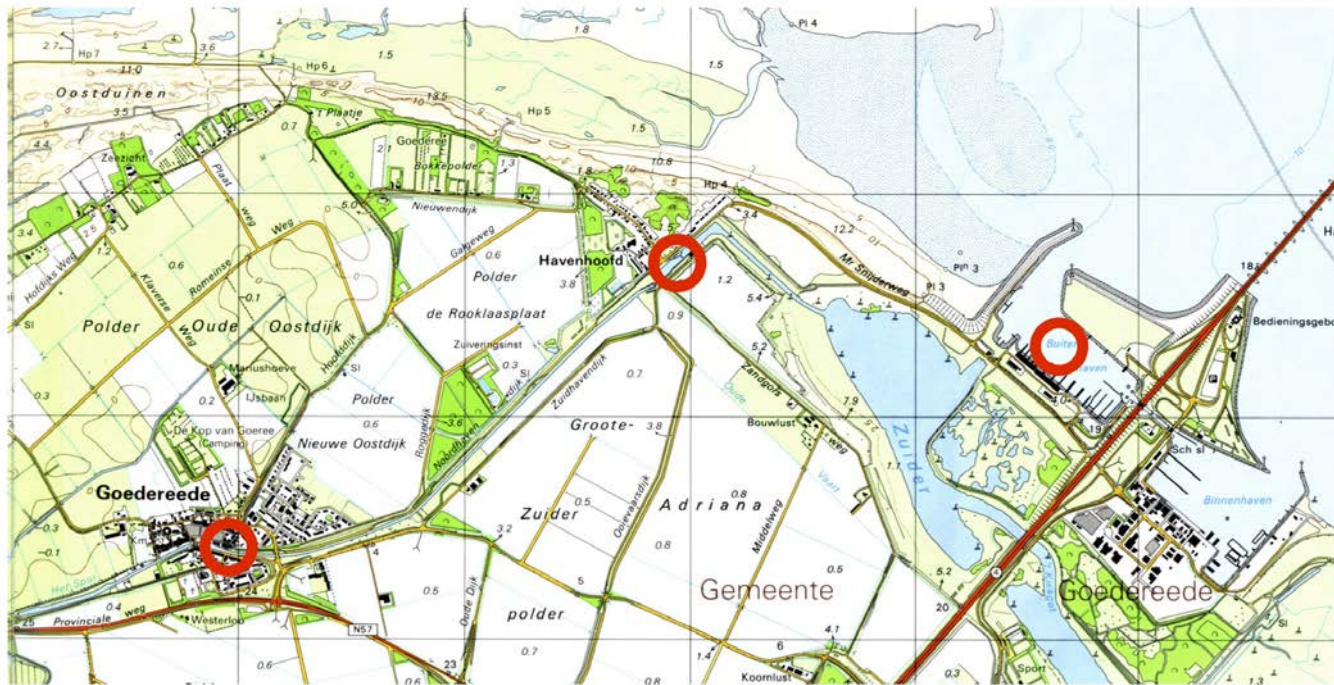


fig. 4
The contemporary situation of Goedereede on the topographic map 1:25000 (Map Room TUDelft). The three stages of port development are marked with red circles. From left to right; first the small port in the village of Goedereede with — in the 16th century — still direct access to the sea. The second stage is the construction of a canal from Goedereede to the sea. By the end of the 19th century the ships were of such a size that a new port was needed, due to the silting up of the access of the old port, at the end of the canal (the second red circle). In the 20th century with the Deltaworks new dams were constructed and for Goedereede and Stellingdam new fishing ports were created with direct access to the sea outside the dam. From that time on port and village have become physically totally separated although all fishermen and their families still live in the village.
Goedereede is now a place that is visited by tourists while the fishermen are at sea. The process of silting up of the port or the entrance to the port did also take place in other places in the delta; Middelburg, Zierikzee, Brughes in Belgium.

fig. 4: Topographic map of Goedereede (Map Room, TUDelft)

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- Goedereede, HOLLAND; the landscape as object of planning and design

Goedereede is a small village, a former fishing port on the North Sea. Its development is determined by the influence of natural forces; the silting up of the port.

Over a period of only 400 years, landscape development and port development changed the landscape dramatically in form, functioning and use.

Note that principle of port development in this case is basically the same as for the port of Rotterdam and Flushing. Upscaling of ships in general urged for the creation not only of larger ports but also of deeper water for access. The physical setting of the land and its marine and fluvial processes makes that in each case the contemporary situation as a result of these natural processes and technical requirements for upscaling ships, are quite different.

Understanding these series of related processes and forces behind landscape development forms a necessary basis for being able to read and understand the contemporary landscape form.

- Groeneveld, Baarn, HOLLAND; the design process as basis for transformation

Groeneveld is a former mansion from the beginning of the 18th century (Oldenburger-Ebbers et al., 1996). Between 1981-1991 a renovation and reconstruction was realised based on a plan by Michael van Gessel. The development of Groeneveld is influenced by socio-economic forces; the property was acquired by the Ministry of Agriculture because it was too expensive for private use, especially in terms of maintenance.

The structural development of the mansion and its grounds between 1700-1880 in four stages (Twaalf, 1991). The first stage (1700-1730) shows the baroque layout of the plan. In this early stage there is also a part across the road in front of the building. In the second stage 1730-1775 the park is extended and enlarged by creating a second axis more or less parallel to the main axis. In the third stage (1775-1830) the baroque layout is gradually changed into the landscape style. The main axis remains visible and still defines the overall structure of the ensemble. The part across the road is no longer part of the ensemble. In the fourth stage the structure is becoming less and less visible mainly due to lack of maintenance. In first image of the lower series we see a simplified soil map on which the axial structure is projected. Note how the cross points in the axial layout of the baroque were positioned at slightly higher locations. Curiously enough the house itself is not on a higher position. The soils in this area are mainly sandy soils from the glacial ridge of the Utrechtse Heuvelrug.

In the lower series we also see that at first there was only a garden part around the house. Later on the park was extended into the surrounding woods. It looks as if the cross-points have not played a special role in the design of the park later on.

The situation of the mansion and its grounds before and after intervention between 1700-1880 (Vroom, 1992). Core of the plan is the transformation of a historical ensemble of grounds, house and context for contemporary use as museum, conference centre and public

park (Twaalf, 1991; Vroom, 1992; Bertram & Jong, 2008). The overall strategy for the development is historical continuity. Part of the design strategy is also the creation of differences between the front and the backside of the park by creating a 'busy' front side and a 'quiet' backside of the building. Based on the analysis of the structural development over time (fig. 5), Van Gessel first of all restored parts of the historical structure as linear plantations. Secondly he recreated a series of different viewpoints, mainly in relation to the water bodies, from which the house could be seen from different angles and settings. In front of the house he replanted the great entrance avenue in beech (*Fagus sylvatica*). This avenue is not meant for cars and other motorised traffic. Next to the avenue, but well separated by hedges, he created a new parking and entrance for cars. Composition is based on the existing structure of the main axis and newly added elements like the parking lot parallel to the entrance. The design approach is based on the idea of continuity and 'readability'. In this case it means that the stylistic development over time can be 'read' from the contemporary plan. Restoration and contemporary use are integrated into a unifying composition that reflects both history and the situation nowadays. It is amazing to see how Van Gessel with so few but carefully chosen interventions has created a new unity that reflects the historical development and at the same time can accommodate contemporary functions and use.

Michael van Gessel once remarked that landscape architecture is 'process-management' ('proceskunde') and makes landscape architects perfectly equipped for all projects where a time aspect is crucial like restoration projects, regional plans (Dosker & Hoogstraten, 2001). This principle is perfectly visible in this plan.

- Stowe, ENGLAND; transformation by use, users and the dynamics of perception

Stowe dates back from the 17th century and was redesigned several times, a practice not

uncommon in landscape architecture. The development of Stowe is decisively influenced by cultural forces; the redesigning of an existing plan by different designers (Reh, 1996; Turner, 2011).

The development of Stowe 1675-1749 (Reh, 1996).

In one of the few carefully analysed historical transformations, Reh (1996) distinguishes six stages in the development over time. Reading from left to right and from top to bottom; top left, starting with Stowe House I in 1675. Note first of all the house and its axial system that crosses the Roman Road (from lower left to upper right). The house was rebuilt at a higher elevation, while house and axis were oriented on the tower of the church of Buckingham in the south. The next stage (second to the right, upper row) shows the situation in 1694 where new elements are added to the home park like the temple of Venus in the south (the small triangular shape). In the third stage (upper row, third to the right) Bridgeman created the Elysian Fields in 1719 by making use of the river Alder. In the fourth stage (second row, first left) Bridgeman created in 1723 Hawkwell Field with a series of new pavilions. In the fifth stage (second row, second to the right) Kent takes over from Bridgeman in 1739 and creates the Grecian Valley again with pavilions and monuments. In the final stage (second row, far right) both Kent and Brown have intervened and it shows the situation in 1749. This time not only new pavilions are introduced but also bridges and avenues were redesigned.

Stowe in a larger time frame; between 1739 and 1980 (Turner, 2011);

Even with the meticulous historic analysis of Reh (1996), the actual situation is so complex that it will be difficult to read as a series of transformations. Turner (2011) remarks on Stowe: 'It lacks cohesion but the design history is intriguing'. Whether we disagree with Turner or not; the design problem remains

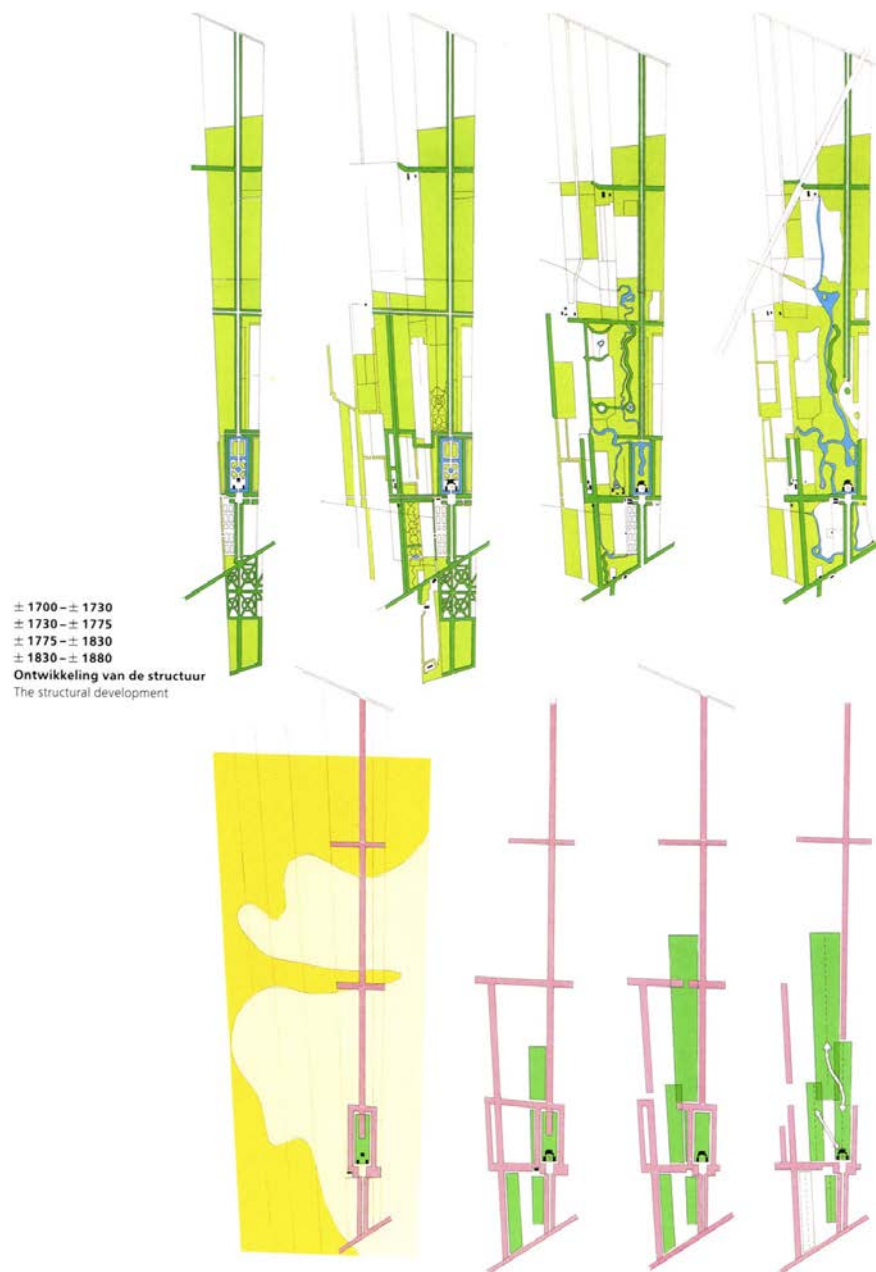


fig. 5

The structural development of the mansion and its grounds between 1700-1880 in four stages (Twaalf, 1991)

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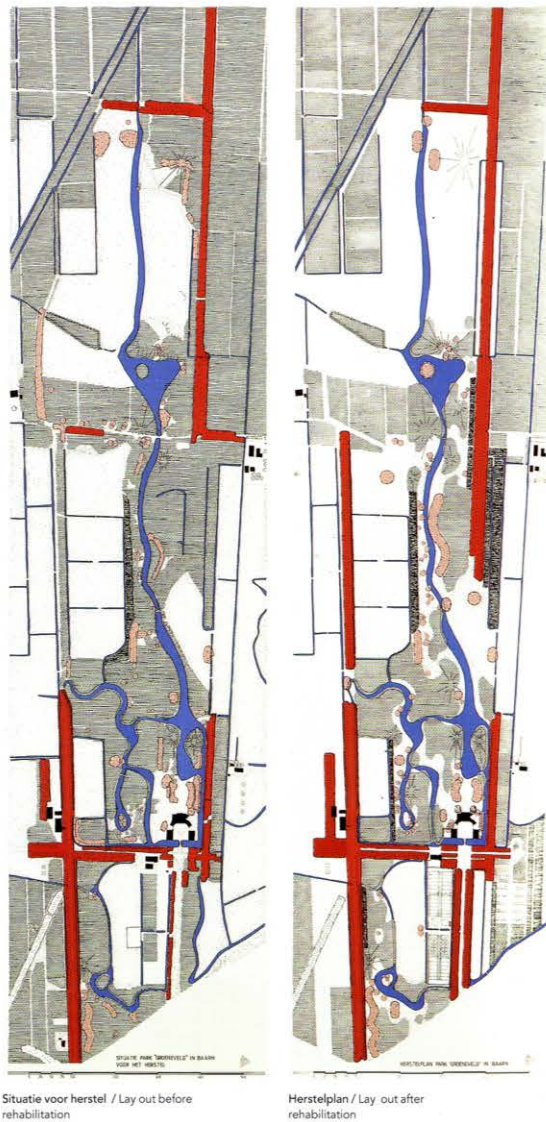


fig. 6

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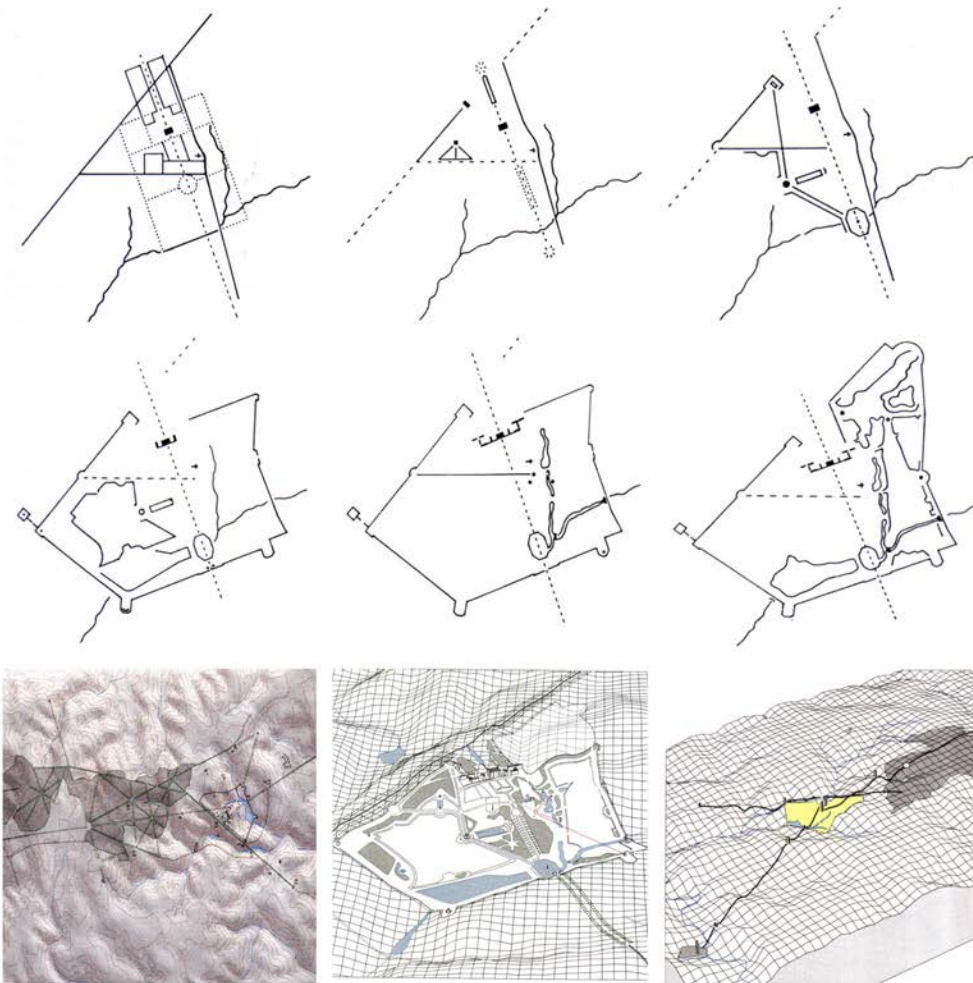
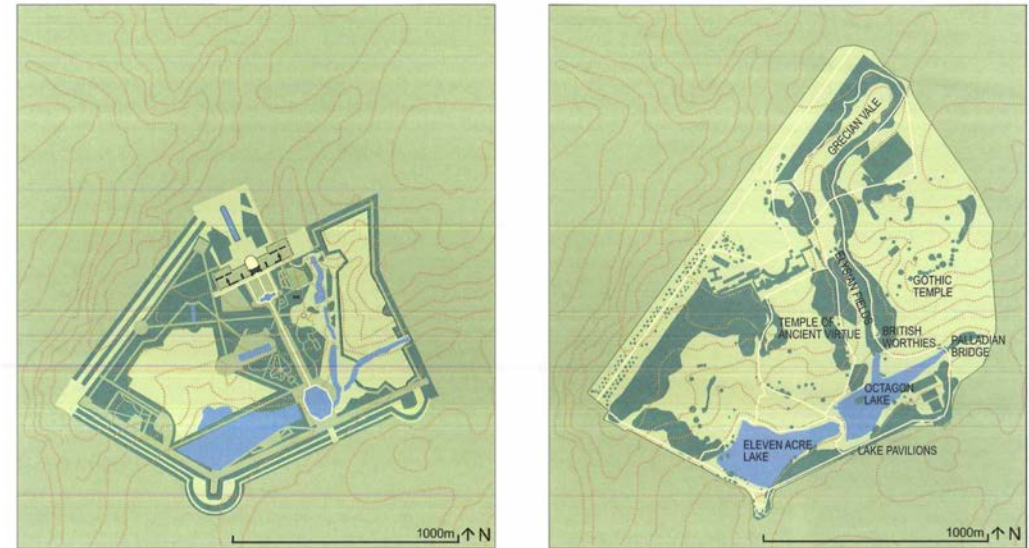


fig. 7

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8.58 a, b The landscape park at Stowe, England, in 1739 and 1980.

fig. 8

Stowe in a larger time frame; between 1739 and 1980 (Turner, 2011)

Even with the meticulous historic analysis of Reh (1996), the actual situation is so complex that it will be difficult to read as a series of transformations. Turner (2011) remarks on Stowe: 'It lacks cohesion but the design history is intriguing'. Whether we disagree with Turner or not; the design problem remains that by adding change upon change, it gets more and more difficult to maintain a meaningful unity. What still can be experienced is the idea of the viewpoints to landmarks and landscapes outside the ensemble of house and grounds. Historic plans like in the case of Stowe afford for attaching new meanings to places by generations to come; the experience of designed landscapes and their atmosphere in a historic setting.

• Conservation and development

The concept of transformation means that the viewpoint of conservation vs. development plays a role in any landscape architectural project since the existing is always point of departure. The concept of design as transformation implies the fundamental question in the start; what to conserve and where to develop? In the case studies on Groeneveld and Stowe we have seen how this question had been worked out quite differently. In the case of Groeneveld the creation of a new unity was an explicit goal. In the case of Stowe, it seems that changes have been made to fulfill the viewpoints of the clients in combination with the different design approaches of individual designers, resulting in what Turner (2011) refers to as '(...) lacking cohesion (...), while still 'intriguing'. Tricaud (2011) — a French landscape architect and researcher — uses the term 'evolution' to distinguish between landscape development and human intervention. Thus viewing any landscape development in the long run as an evolutionary process in which conservation and development of cultural landscapes differs fundamentally from the conservation of buildings and monuments where in fact development stops.

• Procedural theory

From a theoretical point of view, transformation as design approach comprises procedural theory as design theory and design methods (Lang, 1987, Rowe, 1987, Murphy, 2005).

Lang (1987) focuses on architecture in a broad sense and puts forward the importance of social factors in design in general. In the case studies this is reflected in the changing role of use and users like in the case of Stowe. Design methods as part of procedural theory are one of the ways of developing a design theory according to Lang.

Rowe (1987) focuses on the design process and design thinking which is relevant for all design and designers. For landscape architecture his concept of 'problem space' is interesting as a way of analysing the contours of what could be done in the start of a design project. We distinguish three aspects as point of departure for any project; program, site and first design idea as a basis for the first design concept in the design process. The analysis of site and program as we have seen in the case study on Groeneveld, fits into the concept of 'problem space' as put forward by Rowe (1987).

The US landscape architect Michael Murphy has elaborated procedural theory in the context of landscape architecture (Murphy, 2005). He views the landscape as a system based on different cycles. For design theory it means that the issue of feedback becomes even more important since the role of research has changed the contemporary design approach fundamentally.

• Continuity and landscape structure

As we have seen in all case studies, the structural level is a key level for landscape architecture in the sense that it relates the material form of the landscape to the strategy for landscape development in the long run. In other words; the structural level connects time and space in the landscape, hence its key role in landscape architectural design with its dynamics of landscape form and design. On a more abstract level structure forms the basis for flexibility and continuity by allowing for changes over time while the continuity of the landscape can still be experienced from the structure. Landscape structure always includes the water system and the opening up of a landscape providing access in the form of road network.

Fig. 9

Diagrammatic overview of theoretical issues of 'design as transformation of the existing'

that by adding change upon change, it gets more and more difficult to maintain a meaningful unity. What still can be experienced is the idea of the viewpoints to landmarks and landscapes outside the ensemble of house and grounds. Historic plans like in the case of Stowe afford for attaching new meanings to places by generations to come; the experience of designed landscapes and their atmosphere in a historic setting.

This careful and precise analysis of the development of Stowe by Reh (1996) is illustrating some different aspects of transformation of historical gardens.

First of all, these transformations were gradual processes that took time. They were not caused by a ‚sudden‘ change of mind or whatever other reason for abrupt change. Secondly Reh (1996) mentions that interventions were based on earlier ‚examples‘ from elsewhere which in other words on earlier typological variations. Thirdly we see the overall and dominant forces of the natural system that imposes changes over time whether man intervenes or not.

Looking back at the three cases, we see that the content of the transformation process is change of context (Goedereede), restructuring and strengthening the former structure (Groeneveld) and in the case of Stowe, adding elements, creating of avenues and creation of new atmospheres like the Elysian Fields into a new ensemble. The main design principle is continuity. By including the case of Goedereede it is clear that transformation also plays a role in general landscape development without design intervention.

A first conclusion from the case studies is that both landscape and use/users do influence the process of design; transformation is not only a matter of design interventions as such.

Secondly they draw attention to the key role of the structural level of intervention that always

includes the water system and the opening up and thus access. Take the case of adding new elements, the main task is to create unity in the new ensemble of site, existing elements and new elements. The structural level could be of key importance for creating a clear and sensible hierarchy (Toorn, 2009).

In terms of strategy for the landscape development in the long run, it is important to design with the concept of continuity while for the experience of landscape, ‚readability‘ is a key issue. In the case of Groeneveld this seems more successfully worked out than in the case of Stowe.

TRANSFORMATION AND DESIGN THEORY

What does the concept of design as transformation mean for theory? We will briefly touch upon three theoretical issues that are relevant in the context of this paper.

Diagrammatic overview of theoretical issues of design as transformation of the existing

CONCLUSIONS AND DISCUSSION

- Transformation is not only a matter of design interventions but also takes place in the landscape as such and by use and users
- The relation between design and research in the design process

We have seen in the case studies the intricate relation between design and research. From a methodological point of view, we could distinguish different types of research related to the design process; before, during and after the design process. ‚Before‘ refers to the survey and site analysis; ‚during‘ to design experiments and ‚after‘ to precedent analysis, evidence-based research and Post-Occupancy Evaluation (POE). For

all three the common feature is feedback, contributing further to the dynamics of the design process.

- From ‚style-based design‘ to ‚knowledge-based design‘

From the beginning of the 18th century on in England, baroque gardens and layouts were transformed to the landscape style. Making of gardens used to be based primarily on artistic principles. From the 18th century on this changed; first towards exoticism and eclecticism and later on towards a more programmatic approach as we can see in the ‚Volkspark‘ in Germany. All together a change from ‚style-based‘ design towards ‚program-based‘ design.

Design methods and approaches became more diverse than in the times of the landscape style because the problems that society demanded from the discipline of that time could no longer be solved by only applying the principles of the landscape style. This refers to the rise of ‚knowledge-based design‘ in which the relation between design and research gets new influxes.

- The key role of fieldwork; an underrated aspect of design education in landscape architecture

In landscape architecture there is always an existing situation, ‚tabula rasa‘ does not exist. It means that the existing landscape is always part of the design process. What does that mean for design education and learning to design in landscape architecture?

Fieldwork is not just a question of getting outside the office, the studio, or any other institution, but requires a high level of observation, a capacity to register and interpret what is being observed. Developing a level of trained observer requires a substantial part of the landscape architecture programs to be fieldwork, fieldtrips, study tours and other forms of outdoor work.

At the moment fieldwork seems highly underrated in education; especially managers in universities seem to see fieldwork as the primary goal of cuts, reorganisations and other distractions they are involved in.

Moreover in professional practice fieldwork is hardly ever presented in published project presentations. There are very few, and only in most general terms, references on this subject. Compare this to archeology, anthropology and ethnology; in those disciplines there exists a substantial body of research and experience explicitly on fieldwork, how to do that and why it should be done that way. Just as example; Clifford (1990) gives an extensive overview on the use of fieldwork, making notes, working out fieldwork in ethnography and anthropology.

- Diedrich (2014) states that before the 20th century architecture was 'constitutive for landscape architecture', thus denying that the concept of design as transformation was part of landscape architectural practice before the 20th. In the case of Stowe we have seen that transformation as design practice did take place before the 20th.

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TRANSITION MAKER: DESIGNING 'MIXED REALITIES' IN URBAN LANDSCAPES

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ABSTRACT

There are two distinctive approaches to the city in (landscape) architecture and urban planning. One method deals with designing the physical townscape while the other confronts socio-political structures and stakeholders within planning and communication processes. However, lately the lines between expert-based design and society-diffused design have turned blurry. This is largely due to its promotion by 'New (Social) Media', 'Social Design', recent developments concerning the 'self-made city' and production concepts such as 'Mass Customization' and 'Mixed Reality' applications. 'Designing Mixed Realities' refers to a methodology that integrates analysis with design, human with the non-human and physical with the virtual aspects of cities; it is seen as a multiple or hybrid assemblage. This will be further demonstrated via the interdisciplinary design project 'Transition Maker' incorporating landscape architects, urban planners and scenographers at the RWTH Aachen University. The project offers an open planning process for the transition of Heerlen's industrial estate 'Woonboulevard' in the Netherlands as a project idea aimed towards the IBA-Parkstad 2020. Instead of demolition and re-construction, innovative solutions were to be found for the old industrial zone. In order to illustrate the complex interaction of different stakeholders within multiple levels of space and time, we resort to using a popular musical technique; 'score'. The mixed-reality design project is depicted with the help of 'Actor Network Theory' and 'Assemblage' as an explanatory tool. In relation to Lefebvre's theory of the three interconnected dimensions of the production of space, designing these multiple dimensions of urban landscapes is not restricted to designing the physical form. It also takes into consideration the speculative virtual and socio-cultural interactions. Subsequently, urban landscape design is then a question of cultural responsibility in dynamic societies that require a renewal of attitudes and flexibility of methods.

INTRODUCTION

Our society and means of communication are constantly changing. Even daily activities such as jogging or shopping are being increasingly subjected to the interactions and algorithms of computer networks. As a result, apart from physical structures, life-world, socio-cultural, economic and natural-spatial processes also need to be re-considered and designed, involving new technologies. This is valid in particular for mono-functional areas like the industrial area of 'Woonboulevard' Heerlen in the Netherlands. The focus of this article will be the design project "Transition Maker" which was submitted as a proposal for the first Open Call Project offered by the IBA Parkstad 2020. Seen as a town development instrument, this example will demonstrate how a mono-functional area of an industrial character can be developed by the initiation of processes, by shaping new networks and virtual spaces to promote identity, alongside various stakeholders. The proposed design area, Woonboulevard Heerlen, is not observed as a passive element, it will instead be designed as a strategic element with options to offer and partake a dialogue character. It can be understood that one does not merely react cognitively and materially to the physical characteristics of objects and materials, but appropriate social interactions at the same time. Thus, mixed realities are designed that give rise to robust spaces as hybrid networks. When extending the understanding of dialog and participation as sharing decision-making on space by enlarging participation through action in space, the relation between planning and users need to be adjusted. This will be shown by application of the actor-network theory (ANT).

UNDERSTANDING AND DESIGNING EVERYDAY SPACES

During the investigation of typical American cities in the late 1960's, Denise Scott Brown and Robert Venturi were challenged with preconceptions of an inadequate range of methods and illustrative tools. 'The representation techniques learned from architecture and planning impede our understanding of Las Vegas. They are

static where it is dynamic, contained where it is open, two-dimensional where it is three-dimensional“ (Venturi, Scott Brown & Izenour 1977: 75). Despite public involvement and participatory architecture and planning, the everyday life and the planning world lack a connection. Professional architecture or town planning institutions consciously detach from the trivial everyday urban life and the mass culture. They deliver superordinate visionary models and built statements for the order and design of urban space as opposed to the unplanned, everyday, ephemeral and dynamic processes in the tangible production of urban areas.

Due to global migration, complex societies and the societal change processes it is no longer possible for a certain bordered territory to tell the story of a simple predictable social relation. Global migration movements, communication and transportation facilities correspondingly influence space and how it is perceived. As a result social structures can no longer be projected from spatial arrangement (Benze, 2012). Thus new research and design methods are required, e.g. film/video as a research documentation medium. With these strategies, the appropriation of space and the process of spatialisation can be illustrated and analysed (Frers, 2007).

Among the social change processes we additionally observe a rise in the number of citizens that claim the ability to design their own living space. In his recent Book “Design, When Everybody Designs”, Ezio Manzini distinguishes between “diffuse design (performed by everybody)” and “expert design (performed by those who have been trained as designers)” (Manzini, 2015). He describes how these two groups interact and encompass the ability to lead to social innovations. He questions the traditional relationships between the expert and non-expert designers and the role of designers in the current society. In terminologies such as Social Design“, „design for the other 90%“ (Smith 2007), „Gebrauch als Design “ [Use as Design] (Bredies, 2014) or „Non intentional design “(Brandes

& Erlhoff, 2006) there is a hidden demand for the design process to be pursued by the user and to be acknowledged as a creative capacity of appropriation.

Such engagements illustrate how design has risen above its functional and aesthetic purpose and has recently gained power in its socio-political importance. Design methods are required to be continuously reviewed and reconsidered in order to find adequate answers to the complex dynamic world of the daily urban life. Apart from developments in technical methods, new theoretical approaches and social processes are to be formulated. These have the potential to interlace the planning and everyday life, the built and the social, and the virtual and physical space. This generates „Mixed Realities “, which have the ability, to then allow robust areas to develop (Nowotny, Scott & Gibbons, 2001).

DESIGNING “MIXED REALITIES”.

MULTIDIMENSIONAL PRODUCTION OF SPACE AND Actor-Network-Theory

The designing of “mixed realities” preconditions an understanding of space that is orientated on the relational spatial terminology by Martina Löw: Space is a relational arrangement of organisms and social goods, which are in continuous movement whereby the arrangement itself changes constantly (Löw, 2001). With this relational understanding of space, not just physical structures, but socio-cultural, economic and natural-spatial processes should be designed (multidimensional production of space).

With the spatial turn in the 1980’s a paradigm shift took place in the cultural and social sciences.

Space was once again, along with time as a focus in modernity, seen as a cultural phenomenon and placed in the center of cultural sciences research. Reversely, the social “everyday world” has been introduced into design

processes in space shaping disciplines since the 1970’s. Furthermore, through cultural studies, material culture and the ANT (actor network theory), we have experienced an enormous depth and expansion in the theoretical concepts regarding social interaction between objects and human beings. Social interaction occurs therefore not only in communication with other humans, but also in the confrontation with things and material environments (Bourdieu, 1987). Regarded from this view, the traditional design methods change, no longer considering space as dead matter, which doesn’t steer nor affect the human behaviour (Rübel, Wagner & Wolff, 2005).

The discussion of an altered relationship between space and humans reflects itself in the debate on the relationship between science and society in research. The dichotomy of science and society and their one way communication flow – labelled as Mode-1 knowledge production (Nowotny, Scott & Gibbons, 2001; Gibbons et al. 1994) – is obtaining a new orientation to the society through Mode-2: “Mode-2 society generates the conditions in which society is able to ‘speak back’ to science; and that this reverse communication is transforming science” (Nowotny, Scott & Gibbons 2001: 54). Nowotny and others further refers to Bruno Latour who says that science and society can not be separated (Latour, 1998). This aspect reflects itself in the actor-network theory (ANT), developed by Latour and his team in the 1980s (Latour, 2005). The nuclear thought of the ANT is that the world is composed through a dynamic mesh of connections of heterogeneous entities – human and non-human – in a way that over throws the dualistic ideas of society and nature/technology. It does not regard the social and the communicative as something that merely develops between humans, but through the participation of non-human entities included. The term of the “actor” is extended to “actant”, which gives the power of action to both humans and objects. Thereby, the theory offers a way to understand the relationship between humans and technology by new theoretical means (Belliger & Krieger, 2006).

Since the mid 1990s, geographers discuss the actor-network theory with regard to a relational understanding of space; the possibility of a connection between physical and human geography (Farías & Bender, 2011, Haan et al., 2013). Similarly, there is an opportunity for the space creating disciplines to discuss an extended design terminology with the help of ANT. This design understanding would have the potential to deal with the challenges of our increasingly complex society. ANT is in this context less of a descriptive analysis method for existing networks and spaces (Schulz-Schaeffer, 2011), but rather serves as a metaphor and auxiliary tool for process orientated production of hybrid urban assemblages. The project “Transition Maker” highlights how the role of the designer changes from a relatively physical-structural character of tasks to a social-cultural processes through „Mixed Realities“.

In addition, within the project new illustration formats are looked for. The aim is to integrate human and non-human entities (ANT), their activity and its translation (Belliger & Krieger, 2006) as an ensemble. We observe which actors, actants and networks are developed from the transformation of a mono-functional space to a heterogeneous one (real mixture) and what form of interaction develops as a consequence. The incorporation of actors gives rise to malleable relations and connections. An actor-network has therefore at least three theoretical dimensions which are subdivided into levels of actor, network and process (Ibid.).

PROJECT EXAMPLE “TRANSITION MAKER”

The history of the Woonboulevard Heerlen (WBH) is a typical example of Dutch conversion politics in the second half of the 20th of century. The area of a former caravan lodge north of the Heerlen city centre was vacated and designated as a trade area with retail focused on domestic goods. Thus WBH represents a monofunctional area in a double sense: as commercial park and in its thematic focus exclusively on the



Figure 1: Monofunctional space, Woonboulevard Heerlen (Netherlands) today: business park and shopping centre for furnitures stores (source: the authors)

furniture industry. Woonboulevard Heerlen attracts approx. 3-4 million visitors annually from the Euregio (Germany, Belgium, the Netherlands) and is thereby the largest visitor magnet in south Limburg. Since the beginning of the first construction phase in 1991 the economic and socio-political framework conditions under which the Woonboulevard developed at the time have now reformed. The motive for visitors shifted thereby from functional buying to „browsing“and „relaxing“.

In order to cater Woonboulevard with a new impulse after 25 years, the economic situation and the demographic development of the Parkstad region must be considered. The necessary transformations require an integrated approach and the cooperation of different actors and stakeholders (owner and entrepreneur in the Woonboulevard, community Heerlen, real estate entrepreneurs from the region, partner from education and research institutes). Three main tasks represent the project idea “Transition Maker”: more woonBOULEVARD, more Urban Landscape Link and more Clustering Strategy.

It is clear that this essential transformation cannot be solved merely with economic instruments and physical-structural measures. In the context of the

IBA Parkstad 2020, the first international building exhibition in the Netherlands, the opportunity arises to design a future model with innovative methods. Instead of demolition and new construction, the design approach demands to consider historical relevance and integrated development as well as a multidimensional space understanding through the actor-network theory.

REFLECTION OF THE PROJECT VIA ANT

In order to keep a view on the intensity of the process and possible variables for the design, in the future vision model, social transformation processes such as “Digital Revolution”, “Mass Customization”, the concept of “Shared Space”, “Online Shopping” and “Social Design” will be integrated. The measures vary from „down to earth “ - plans (new space and business concepts) up to the application of new technologies and spatial connections between Woonboulevard, the center of Heerlen and the landscape. This is a complex task, which requires a special co-operation of different stakeholders and a process orientated approach. The term “transition” refers to a complete change of the organization form. The product will not be a “finished” redesign, instead a proposal indicating the direction and intensity of the process with different variables.

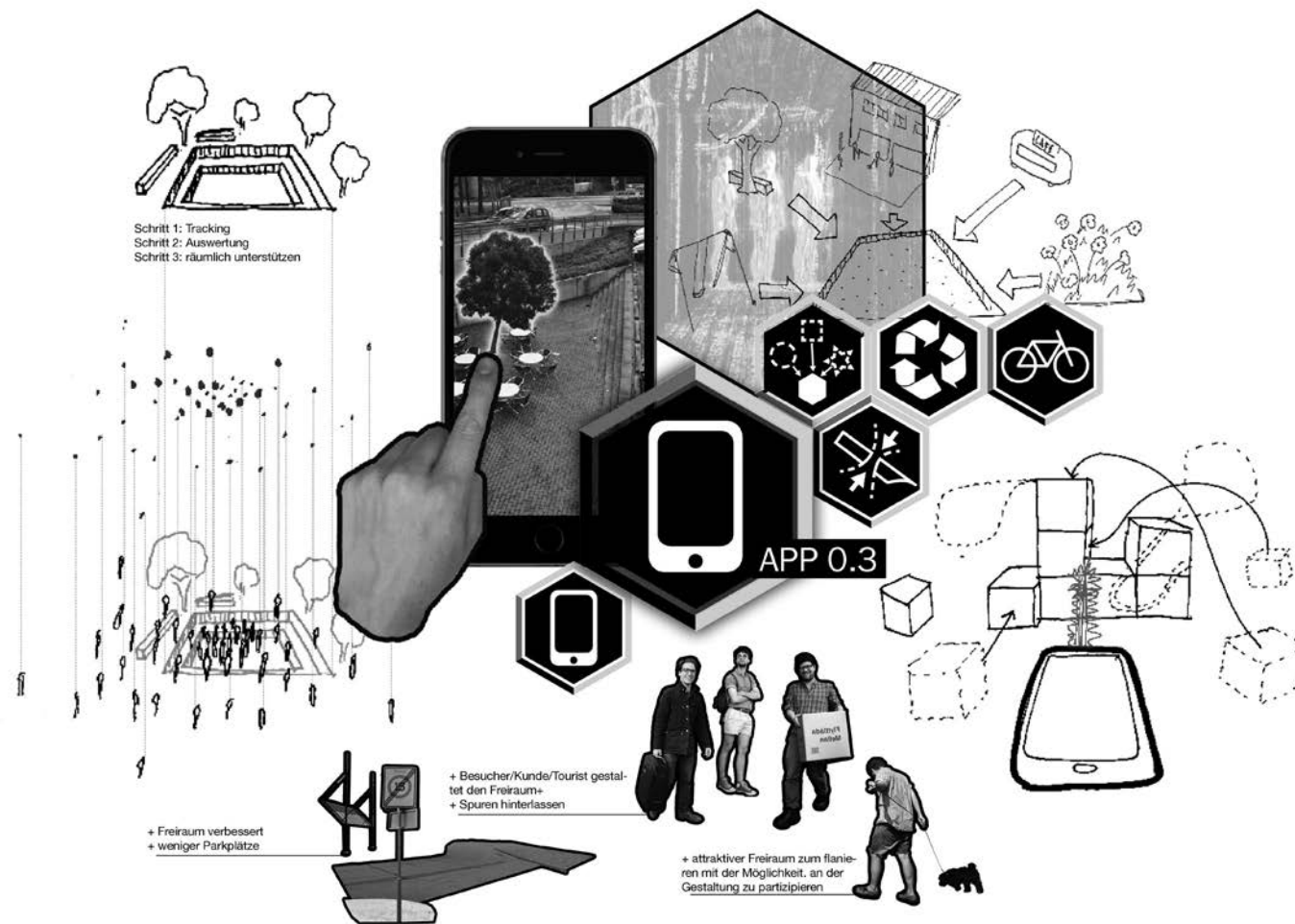


Figure 2: Cluster App 0.3 with related action patterns (source: Jan Dubsky and the authors)

These can be altered, if for e.g. a certain approach of the transformation were to be unprofitable or unrealistic.

The transformation allows business strategies to merge with the spatial changes. It forms a virtual buffer zone, in which innovative experimental ways within retail trade, open space designing, virtual reality or participation can be tested and implemented. This is made

possible by the concept of a new app, which creates a spatial entanglement between the virtual and real world and transforms shop windows and exterior spaces into useable space. Consequently, the users willingness to design is addressed; with the help of their smart phones customers can experience designing their private residential environment and public space through the individual product palettes of the stores. The app serves

as a participatory tool. To say it through ANT, anyone that has access can leave his or her individual traces as actants and separate entities behind. Customers can digitally realize their wishes and requirements while stepping into a dialogue with Woonboulevard. A record of the data can be of interest for both the customer and for business establishments. Medial and urban areas are now accessible in a new way and are thus put to the test. Pop-up actions are purposefully used, in order to set visible impulses and integrate new users. The concept of the logistics house, as well as the process of the optimization of product production, initiated over the app, will help the problem of vacancy, which highlights a significant part of the development stages within the project. Due to vacancy, conversion processes are initiated and new tenants are integrated. Innovative ideas, booths with cafés and restaurants move in and social interaction is promoted. Special business premises serve as new Showrooms, in which the digital products can be exhibited while saving space. From the warehouses that vacate, a room for events could develop, so that Woonboulevard Heerlen has the opportunity to be active in the evenings too. Additionally, the implementation of a new road network system the WBH can be connected to the landscape and to the passerby's to step into dialogue with them as actors.

The goal is it to allow objects and humans to creatively come in contact with one another, integrating the superficial economic interests that are accompanied by physical and practical knowledge and acting. According to Augé, identity is thus promoted and variety is created (Augé, 1994). "Transition maker" is intended as a multidisciplinary tool, which correlates actors, objects and situations together and locally offers the broad public and specialists the possibility to engage in dialogue with Woonboulevard while participating in the transformation of their own environment.

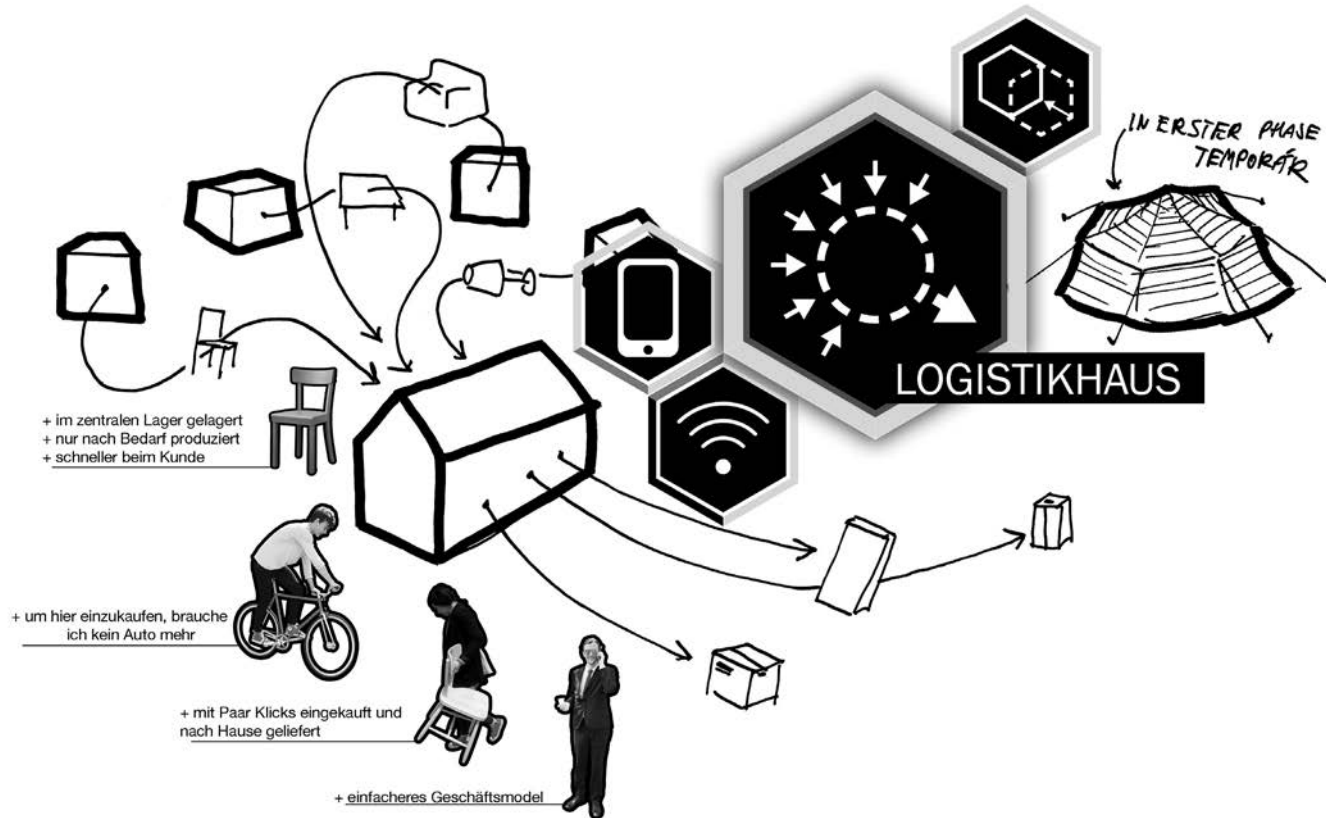


Figure 3: Cluster Logistics House, shown as an open process (source: Jan Dubsky and the authors)

CONCLUSION

Contrary to architecture, landscape architecture is familiar with dealing with dynamic complex conditions and designing multidimensionally: their weather based and seasonal dependent design entity is dynamic and changes on a daily basis. The discipline has accordingly adapted the spectrum of its design methods to these conditions. According to Prominski, design (as Mode 2 thinking) corresponds with an interdisciplinary temporary work method with an open process that

knows how to deal with a complex object like landscape (Prominski, 2004). Thus, the design aim is not an ideal solution, but a diverse relation within a spatiotemporal context. This aspect develops on the understanding of „landscape three“ (Jackson 2005), a landscape definition, which defies dualisms and regards landscape as a dynamic system (regarding human made areas), which is constantly subjected to artificial, synthetic and unforeseeable changes. Designing mixed realities takes on this notion and projects it – within a practical

application – on the design object. The requirement is to link physical and virtual space with the society and to promote it through design. This link becomes particularly clear during induced processes of appropriation, which describes a creative process of the extension of an action area as well as the change and organization of areas and situations. They function as communication and translation between physical and social areas (Chombart de Lauwe, 1977).

As a consequence, the resulting mixed realities – understood as networks – have to transform a monofunctional non-place like Woonboulevard into an “anthropological place”. This is characterised by diversity, identity, relations, and history and promotes identity (Augé, 1995). The actor-network theory is therefore not used in this context as an empirical analysis tool for describing and reconstructing existing actants or networks (black boxes) and their development processes, but rather to produce stimuli of translations to initiate new developments in the design and conditions under which new networks and spatial situations may arise.

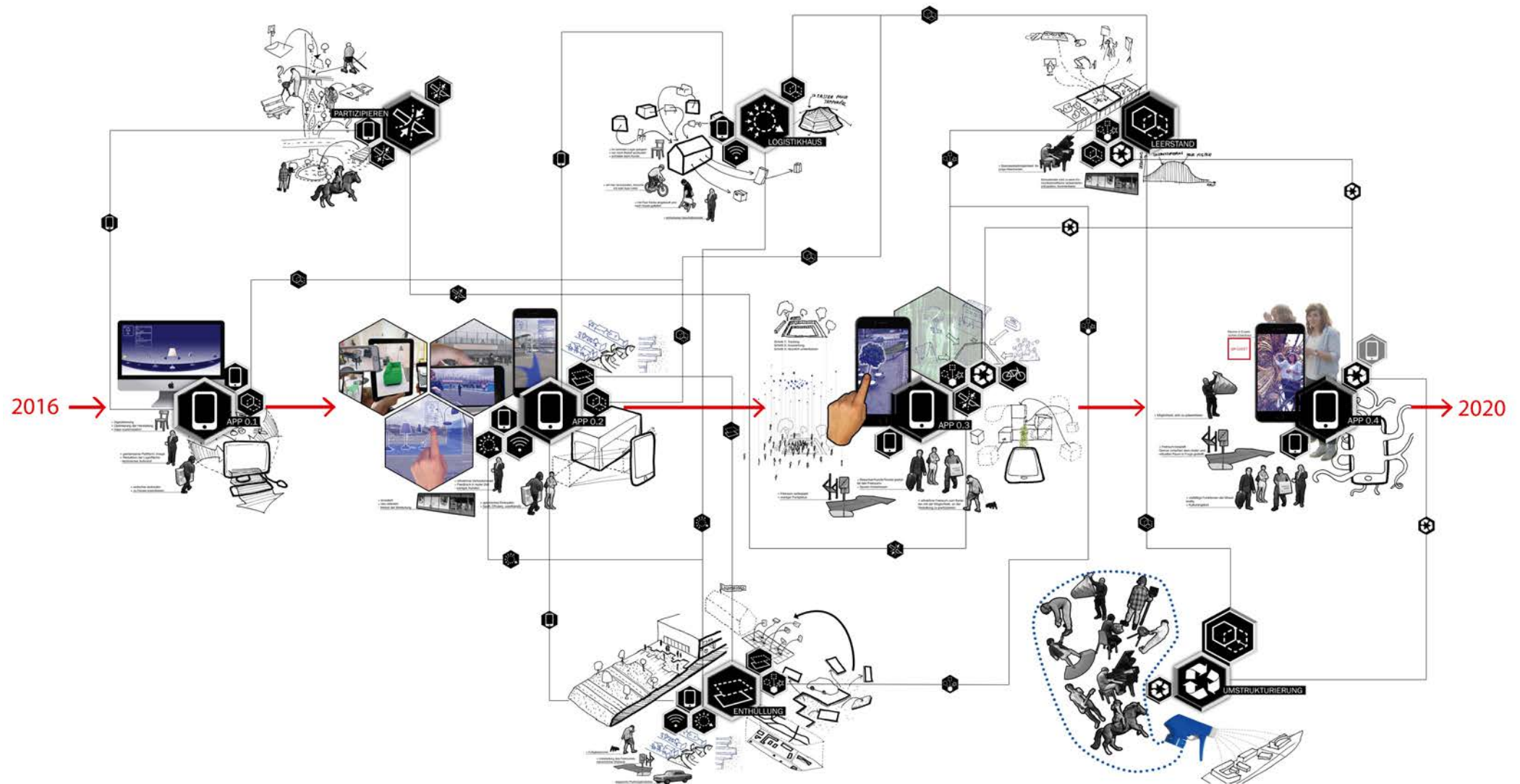


Figure 4: Transformation of concrete site WOONBOULEVARD through mixed realities: Processes and the actor-network (source: Jan Dubsky and the authors)

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CONTEXTS IN EVOLUTION- DWELLING BETWEEN IDENTITY AND INCOMPLETENESS

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Becoming, Identity/Incompleteness

ABSTRACT

The growth of contemporary cities and the expansion of its margins pushes us to face a number of conditions typical in those delicate context in evolution, through the filter of a mind-set that must aspire to catch suggestions from other disciplines: the margin, often corresponding to what we generally call periphery, is intriguing as an abstraction that defines a design character and a relational framework (Mininni, 2012) and because allows us to focus on the major challenges of the contemporary city (Sechi, 2011). There's a clear contrast between the complexity and meaning of dwelling on one side and the inauthenticity of living of the masses in the blocks of the peripheries on the other: a contrast between the mere reside and the genuine dwell (Heidegger, 1954) that intensified consistently through the progress and the abuse of techniques and which unveils that the comprehension of the deepest meaning of dwelling is the real aim of research. It is important to meditate on the essence of dwelling as the relation between human beings and spaces, and on building as the edification of places through the arrangement of spaces: isn't it clear how the pre-modern knowledge of dwelling and building produced forms, simple spaces and complex aggregations able to mediate multiple contingencies that belong to different spheres? And how can the contemporary mind-set convert the combination of the necessities into spaces and places? And how the landscape influences this mind-set? If the lifestyles of the past and their materialization are unsuitable to the actual human condition (Bauman, 2000), then it is proper to focus on approaches that consider to work within the equilibrium between the desire of community and the tendency towards individualization (Bauman, 2001): between the pre-modern being and the contemporary becoming, materializing in architecture that precarious balance between security and vulnerability, stability and unreliability, between identity and incompleteness.

INTRODUCTION

The growth of contemporary cities and the expansion of its margins pushes us to face a number of conditions typical of these delicate context in evolution, through the filter of a mind-set that must aspire to catch suggestions from other disciplines.

Too often and for too long the very notion of architecture has been referred only to what has been built within the walls of the historical city, completely ignoring that the city itself is exploding. While it is expanding its boundaries with great intensity and power, it generates prospective systems of great interest. It is necessary, to face this circumstance in an active and disciplinary way, to widen the territory of architecture; today this is possible only taking a point of view which is capable to cover the architecture of territory (Martí Arís, 2005).

The margin is an element of the space physically recognizable as a vicinity of a perceivable boundary and it often corresponds with what we generally call periphery; therefore it is intriguing both as a specific physical space and as an abstraction of a space.

As a physical entity it is inevitable to consider the margin as a complex container of urban phenomena: a space where functional, building, spatial, technical, social, economic and political factors concretize in a system of objects that are related to each other (Montaner, 2008).

As an abstraction it defines a design character and a relational framework (Mininni, 2012); looking through it, it is possible to focus on the big challenges of the contemporary city: the environmental quality, the sustainability, the rules of the flows and mobility and the new social matter (Sechi, 2011).

Urban margins are evidently unstable contexts where major weaknesses appear strongly; their vocation to be relational ambits clearly makes redesigning them and planning their requalification extremely complicated.

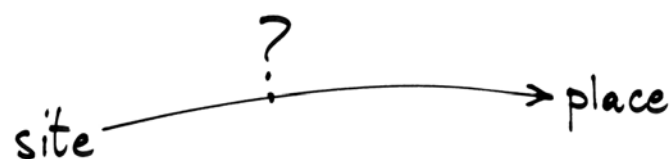


Figure 1. ideogram of the transformation of a site into a place.

The firm belief is that the built up areas of the margin -the peripheries, as interpreted in the most negative meaning- are still potential habitats and incomplete systems; therefore they can be found on an indefinite point of an hypothetical transformation line of a site towards being a place.

Dwelling can possibly be assumed as the complexity of the relations of human space and eventually as the utmost aim of architecture; the knowledge of the environment, the comprehension of its vocation and so identification and orientation are definitely crucial for it. (Norberg-Shulz, 1980). So, this hypothetical line represents the action of building towards the reaching of its aim: architecture as a media of exploration and discovery of the deep meanings that potentially are in a given a priori environment.

Looking through history of urban evolution, it is noticeable that there's a contrast between the complexity and consistency of sense in the act of dwelling on one side and the inauthenticity of living of the masses that filled up the blocks in the peripheries on the other: a contrast between the mere reside and the genuine dwell (Heidegger, 1954) that intensified consistently at the increasing of the possibilities of building, through the progress of the knowledge and the abuse of techniques (Ábalos, 2000).

For this reason the theme of dwelling occupies a central role within the debate on urban margins,

revealing that the comprehension of the deepest meaning of dwelling the margin during the contemporaneity is the real aim of this research.

It is important to meditate on the essence of dwelling considered as the relation between human beings, spaces and places, and on building as the edification of places via the arrangement of spaces: isn't it clear how the pre-modern knowledge of dwelling and building produced forms, simple spaces and complex aggregations able to mediate multiple contingencies that belong to the technical, performance, existential or social spheres? And how can the contemporary mindset convert the combination of the necessities, whether expressed or not, into spaces and places? And how this will affect the relationship between the new urban space and the landscape?

The observation of the transformation of the urban forms allows to consider whether the contemporary margin can still be the concretization of the result of the link between the necessity of settling a site and the will to dwell it, and still have a definite environmental character.

The historical connection between the economies of sustenance, the forms of colonization on the territory and the building practices is crucial to thoroughly understand what dwelling in a specific settlement is. However, it has been replaced by new dynamics that are completely detached from the historical, physical and evolutionary conditions that made possible the existence of a town and its own logic of settlement necessary.

Even if the margin is a physical element of every human settlement, it is interesting to consider the case of that category of towns that have been run over by the migration of the people from small rural villages towards the better economic leases of the city. Nowadays, most of these contexts are still dealing with the dynamics that have generated their contradictions and inconsistencies. For this reason they are

extremely important ambits of possible exploration to define of higher-quality alternatives that can hinder the loss of place identity and the environmental crisis.

As an example, Assèmini is a case that can be taken. Assèmini is a town of about 27000 inhabitants, situated 15 km away from the bigger Cagliari, which is the county seat of Sardinia and the biggest city on the island. Cagliari reaches more than 150000 inhabitants alone and, being a container of major facilities and a major attractor within the sardinian territory, its hinterland counts more than 420000 inhabitants, unequally distributed in fifteen smaller towns other than in the city itself. These towns are connected to Cagliari by three motorways that have been built during the '60s and the '70s to allow people to travel

quickly from the hinterland to Cagliari and viceversa.



Figure 2. Assèmini's position in Cagliari's hinterland.

Assèmini is obviously skimmed by one of these motorways. Assèmini's former urban fabric is a direct consequence of an economy based on agriculture as the only form of sustenance, and so it is structured by the repetition and the aggregation of the courtyard house as the only type, which is rural and introverted.

In this type, and more specifically in the version commonly found in the plain of Campidano, the courtyard and the loggia (traditionally named "lolla") are naturally extensions both of the domestic space and the work space; this shines a light not only on the functioning of the house and its arrangement, but especially on the dynamics within the family, the social balance of the community that dwells in the town and more generally in the landscape of the settlement.

The loggia, that generally faces the south, is the domestic space where the farming products are stashed first, but at the same time it is the major living space of the house, where men rest from work, women do the housekeeping and children play (Baldacci, 1985).



Figure 3. The courtyard as a traditional work/domestic space.

As the inner functioning of every unit is very definite as well as how it suits the social structure and the net of relationships necessary to the life of the community, its urban character too is unequivocally made clear by the introverted nature of the courtyard house type. While its high walls enclose the space of the courtyard, they also cast the public paths and they frame views of both the public spaces and of the rural landscape: by this, they set a strong link between the space inside the town and the rural surroundings. The aggregation of the units and the repetition of the aggregates forms a system in which the most important of the few exceptions is the square, the place where the community gathers to attend the public moments.

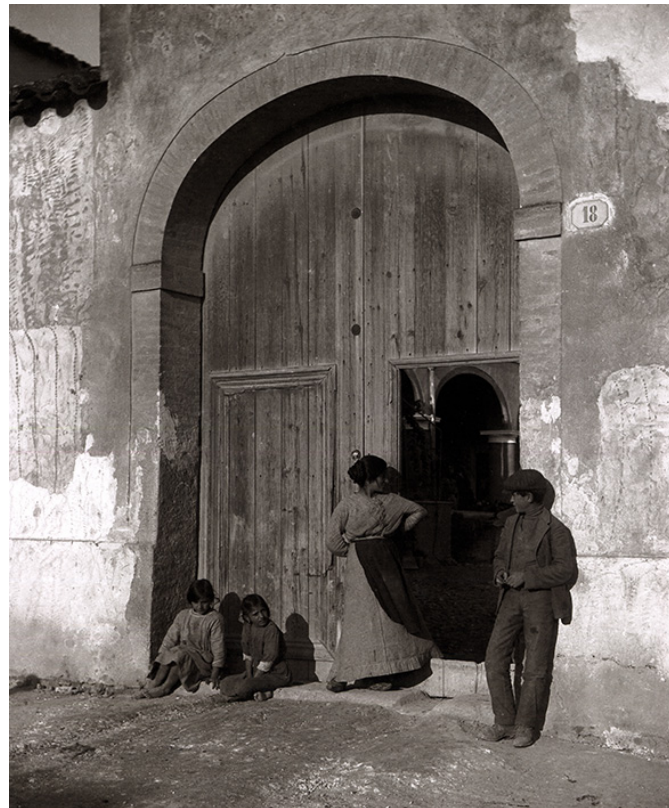


Figure 4. The threshold as a relational space and social place.

The transition of the private space of the house towards the public space of the road or the square is always mediated by a deep threshold, the only opening of the walls that surround each courtyard. The threshold of the gate then becomes an important space of encounter and welcoming, in between the public and the private space that is crucial to the social life of the community.

Analyzing the structure of urban traditional centres is the first step to do towards the comprehension of what can be the possibilities of a virtuous approach to the process of spatial arrangement: in fact they are a perfect example of the living spaces as the materialization of a synthesis of social phenomena, building solutions and performance answers. The relationship between them and the rural space surrounding is perfectly clear.

In Assèmini's example, as in every Mediterranean centre, is very clear how the combination of contingencies influences the spatial organization of the buildings, from the availability of a specific building material to the choice of a specific type and necessity of adaptation of the type outline to what the physical and climatic features of the environment are (Norberg-Shulz, 1996): only one material is used to build the architectural element that define the volumes, volumes and masses that articulate voids, voids that are at the same time the transitional spaces between the buildings, the spaces of the paths, the spaces of social relationships, the spaces through which light is modulated to control the thermohygrometric balance by the same high walls that enclose the courtyards and define the character of the town in such a clear way.

Starting from the '60s increasingly involved in the migrations towards the city, Assèmini has answered by building the first collective buildings on rural areas and farming fields, exactly like all the towns that are reasonably close to Cagliari and connected to it by the newly improved roads, turned into motorways.

This is the moment when the clear boundary that had separated the urban space the rural space starts to break: while invading the rural space, the potential urban space starts to incorporate pieces of it. Urbanity starts fading in the rural space, in some cases destroying it, and yet reinventing their relationship.

At the same time, the abandon of the traditional family in favour of the subdivision of it in smaller nuclear units, the separation between work and leisure time and the growing faith in automobile as the main mean of transportation helped the transformation of the rural houses of the rural space surrounding the town in second houses or suburban villas, the fields in lawns and gardens or often even simply in dirt parking lots (Aymerich, 2012).

Figure 5. Urban structure of Assèmini in 2015. The thick line above is the motorway ss130, and below there is the railway. The zone in darker grey is the historical centre.



This model of suburban development, which is made of very low densities and almost total lack of facilities, is the one that has characterized the incomplete and disorganized growth of the hinterland, and is the main reason why the inhabitants need to necessary drive their own cars to reach their work spaces and the facilities located in the city.



Figure 6. The motorway is a clear limit that separates the spaces of the city to the outside spaces. The rural spaces between the railway and the motor way face directly the periphery of the town, sometimes fading in it.

So, Assèmini's suburb can be seen as the contemporary presence of the individualism that characterizes the proliferation of mono-familiar types that colonize the rural spaces and the lack of planning strategies for the expansion zones, where episodes of urban speculation can be extensively found; in this scenario what appears is especially functional homogeneity, the lack of both public and private collective spaces and generally spaces of interaction between people, that are naturally in the DNA of the traditional model.

The transformation of the economic and social systems caused the perceived obsolescence of the original settlement model, too much bound to lost and abandoned activities, no more profitable as they were performed until only few decades ago.

The dynamics of the intermediate scale, strongly present in the historical systems, are here choked by an approach to planning that completely ignores the possibility to create urban life and relationships, urban systems and habitats, to chase an idea of expansion still heavily based on quantity and the number of zoning standards.

The ways of the contemporary colonization of urban margins, concretized in the quantitative allotments of modern and postmodern urbanism, not only have generated the desegregation of the continuity of urban fabrics, but they have also caused the repulsion to landscape.

Physically, this approach is based widely on considering landscape only as a geometric space (Assunto, 1994), that as an entity that is nothing more than a totally cartesian element has its main features in its dimensions: this suppresses the perception of the possible effects of the physical qualities and peculiarities on a settlement, and smoothing over the differences between sites.

The empiric confirmation of the results of this kind of approach appear undoubtedly observing the extremely boring sameness of the solutions that can be found in any housing settlement, industrial installation or tourist residential complex built in the last ten or fifteen years.

But once again, the more susceptible places to the alteration of the relationship between economies, work space and urban settlement are definitely urban margins.

In the new paradigm of urban growth, the production links with the rural space are severed, although paradoxically parts of it are incorporated within the chaotic expansion of the town, in a contradictory relationship of proximity and repulsion.



Figure 7. The rural spaces that face the periphery host a number of buildings that now don't have any relationship with them. There are already streets and lampposts that allow people to use those spaces as recreational spaces.

Similarly to what happens in other settlements in Sardinia, the transformation of the margins are based upon the addition of always new elements, simply put close to each other but that are rarely integrated with the existing building heritage. The margin loses its definition, and becomes an informal and often tentacular set of contradictory parts that lack facilities and services and in which the self-preferentiality of the new settlements leaves the landscape out.

It is important, due to this brief consideration, both to reason on what the problems bound to every specific site and to think more in general to the meaning of planning, designing, building and dwelling in the urban margin.

If it is acceptable that the lifestyles inherited from the past are unsuitable for the actual human condition (Bauman, 2000) and so their materialization, then it is proper to consider absolutely pivotal a focus on the approaches that consider to work within the equilibrium between the different spheres that the contingencies belong to: the desire of community and the tendency towards individualization (Bauman, 2001), the need to resolve the major ecological issues, the integration of the new technologies,

the need to balance the social parts and to reach the gender equality, the issue of the economic crisis...

The approach to the design of the spaces for the new human condition should not forget that also the relationship with the landscape has yet changed.

Thinking that the new settlements of the margin should cosmetically look like traditional ones is pure fantasy; instead, they should try to create a new link between them and contemporary environment.

Contemporary projects in the margin, as shown in the work by groups as MGM arquitectos, should turn every peculiarity of the environment they are set in into features of their design, while the arrangement of its space should try to create suitable spatial conditions for containing social relationships of a new habitat.

The will to create an arrangement of spaces that are suitable for a specific community and the attempt to design that very same spaces in a way that can incorporate the inputs from the physical environment, such as topography, the atmospheric conditions or particular views, just to name a few, makes the project specific to that very site, turning finally the margin into a place with its own character, a character that its dwellers can identify in.

Projects in the margin, which are necessarily segmented and dissolved, should grasp the remains of the sometimes most not-existent landscape (Morales Sánchez, Mariscal, 2005) with the result that the new spaces of the city are likely no more proper of the domesticated city. They need again to dialog with the new landscape, even if unstable or highly modified, wilder or wrecked, to incorporate topographies, climatic conditions and heterogeneous programmes as inputs for the project, while the need to explore the opportunities of a new approach that consider the deep complexity of a project in the margin is great and still grows greater.

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Figure 1. ideogram of the transforma-
tio of a urban system, from site to place.

Figure 2. Assèmini's position in Cagliari's hinterland.

Figure 3. The courtyard as a tradi-
tional work/domestic space.

Figure 4. The threeshold as a rela-
tional space and social place.

Figure 5. Urban structure of Assèmini in 2015. The thick
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OK, CITIES GROW, BUT THE TREES TOO! NOW WHAT?

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KEYWORDS

Urban Fabric Transformations, Street Trees, Conflicts, Management.

ABSTRACT

Street trees can play an important role in the urban green infrastructure. However, the rapid changes in the urban fabric that modern life imposes often have perverse effects on the structure, diversity and performance of street trees. This research explores the implications of urban fabric transformations in street trees performance and the social perspectives of this phenomenon. The study took place in the city of Porto, Portugal, and examined 863 trees and sixteen streets, located in the western part of the city, by the Atlantic Ocean. Street tree planting in this area began in the 1930's, when the urban fabric was dominated by single family houses. In the second half of the 20th century, the urban fabric went through a huge transformation, with multi story housing gradually substituting for single-family detached houses. This marked the beginning of the conflict among street trees, houses and residents, which has been increasing with the growth and ageing of trees. The working methodology included: 1) a survey and analysis for tree inventory and diagnoses, streets characterization and social concerns evaluation; 2) the production of a risk map to define a priority action plan and a time line intervention in order to avoid an abrupt change on the daily landscape perceived by residents.; 3) a designed proposal for the requalification of the streets grounded on a prior deep review on 52 trees species, evaluating 15 performance parameters. Results showed the need for an emergent intervention on one street and urgent in seven others; eleven tree species were chosen reflecting a growth of 175% in tree diversity; the selected species reveal highly aesthetic and functional quality preserving the streets character. The suitability to space and site conditions minimizes the possibility of future conflicts between trees and residents.

INTRODUCTION

Forest Research (2010: 9) defines green infrastructure as 'the combined structure, position, connectivity and types of green spaces which, together, enable delivery of multiple benefits as goods and services'. This goods and services are amplified by the presence of trees, the building blocks (Dandy et al, 2011). Connectivity is an important concept in this definition and despite the recognized importance of all green spaces that accommodate large masses of trees, linear green spaces, such as tree-lined streets, are fundamental for their communicating relationship with the city.

The value of street trees in the urban environment is widely recognized (Read et al., 2009) but, yet, people can interact with street trees differently from how they interact with trees located elsewhere. In the streets, trees are closer to a greater number of people and buildings, what increases the opportunities for positive and negative interaction.

This research focuses on street trees of the city of Porto in NW Portugal. It explores the implications of transformations in the urban fabric in the trees performance, and the public perception of this phenomenon.

Green infrastructure, urban forest and tree-lined streets in the city of Porto

In recent years, some studies have been done about the green infrastructure of the city of Porto focusing mainly on the urban biodiversity (Farinha-Marques et al, 2015a) and green infrastructure planning (Farinha-Marques et al, 2015b). Apart from parks and gardens, the individual contribution of each type of green space, and particularly of tree-lined streets, to green infrastructure has not yet been properly addressed.

The Porto trees are mainly concentrated in urban forests, parks, gardens, squares and tree-lined streets. In 2012, a municipal database of the Porto trees comprised

33 290 trees (excluding the trees of major parks), what resulted in a ratio of one tree for every six inhabitants. These trees belong to 238 species, 192 broadleaf and 46 coniferous, 129 deciduous and 109 perennial. The most represented species were: *Platanus x acerifolia* (8%, Plane tree), *Acer negundo* (7%, Box Elder), *Celtis australis* (6%, Mediterranean hackberry), *Populus nigra* (6%, Poplar) and *Camellia japonica* (6%, Camellia), adding up to 30% of the database trees. With the exception of Camellia these are also the most represented species in the 151 Km of tree-lined streets of Porto.

The seafront is one of the Porto areas with a higher density of tree-lined street and one of the most difficult to manage with a high number of resident complaints about the trees. This fact triggered this research where several questions are addressed. When were the trees planted? How were the streets, the buildings and the daily life at the time of plantation? How did the urban fabric evolved, and what were the main drivers of that change? What can be done to minimize conflict between residents and the trees?

Study area

The study area encompasses sixteen streets in the associated parishes of Foz do Douro, Nevogilde and Aldoar (Figure 1).

METHODS

The study comprised an i) historic research, ii) a field survey for streets characterization and tree inventory and diagnoses; iii) data analysis, including data on complains related with trees, reported to the city hall; iv) a survey, review and assessment of tree species suited to streets, v) and a requalification proposal.

The historic research focused on the transformations of the urban fabric and was supported by an extensive analysis of Porto historical cartography

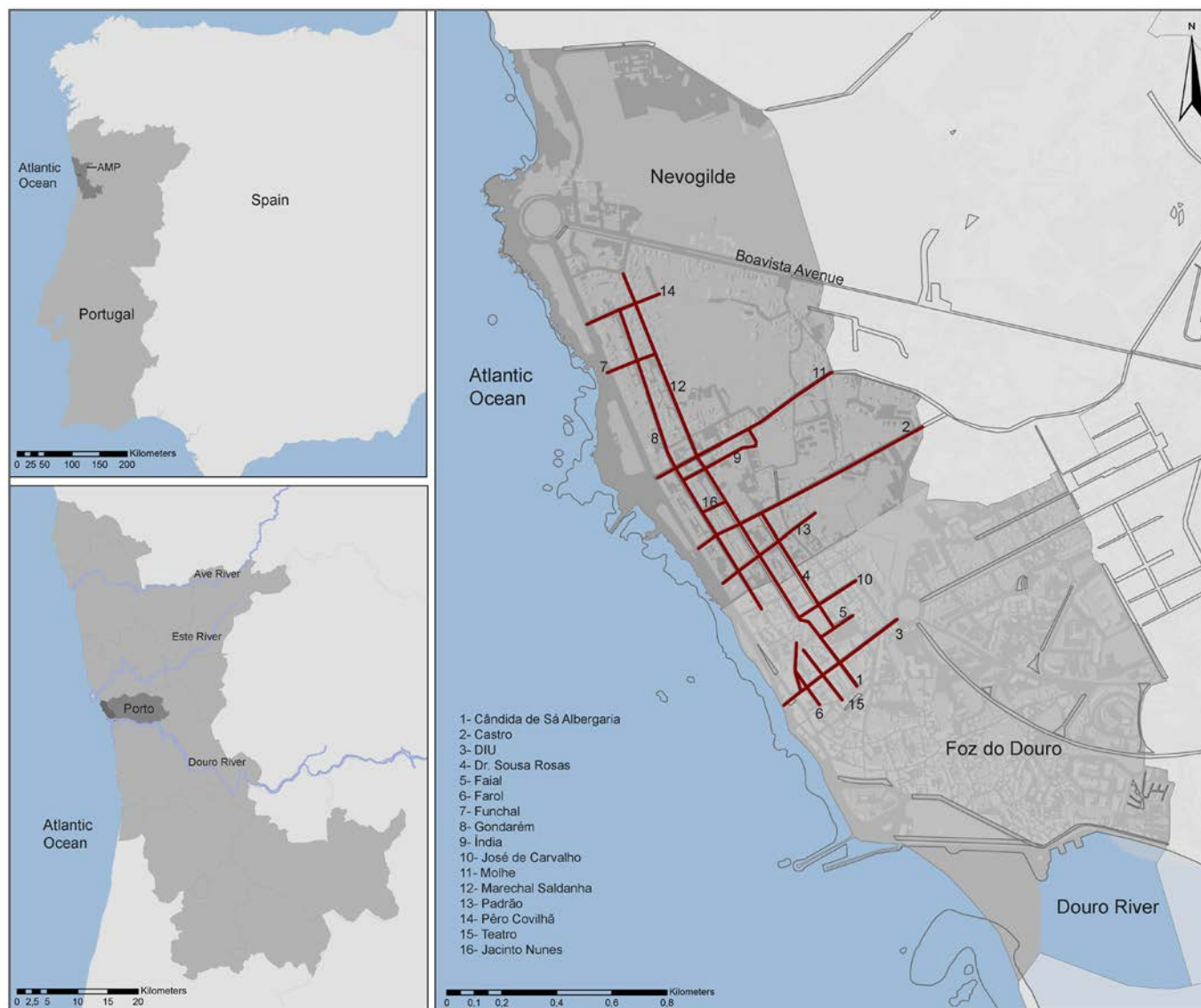


Figure 1 – Study area. 1) Portugal and the Porto Metropolitan Area; 2) The city of Porto within the Porto Metropolitan Area; 3) Streets: 1. Cândida de Sá Albergaria (CSA) 2. Crasto (C) 3. Diu (D) 4. Dr. Jacinto Nunes (JN) 5. Dr. Sousa Rosas (SR) 6. Faial (FL) 7. Farol (FR) 8. Funchal (FN) 9. Gondarém (G) 10. Índia (I) 11. José de Carvalho (JC) 12. Molhe (M) 13. Marechal Saldanha (MS) 14. Padrão (P) 15. Pêro Covilhã (PC) 16. Teatro (T).

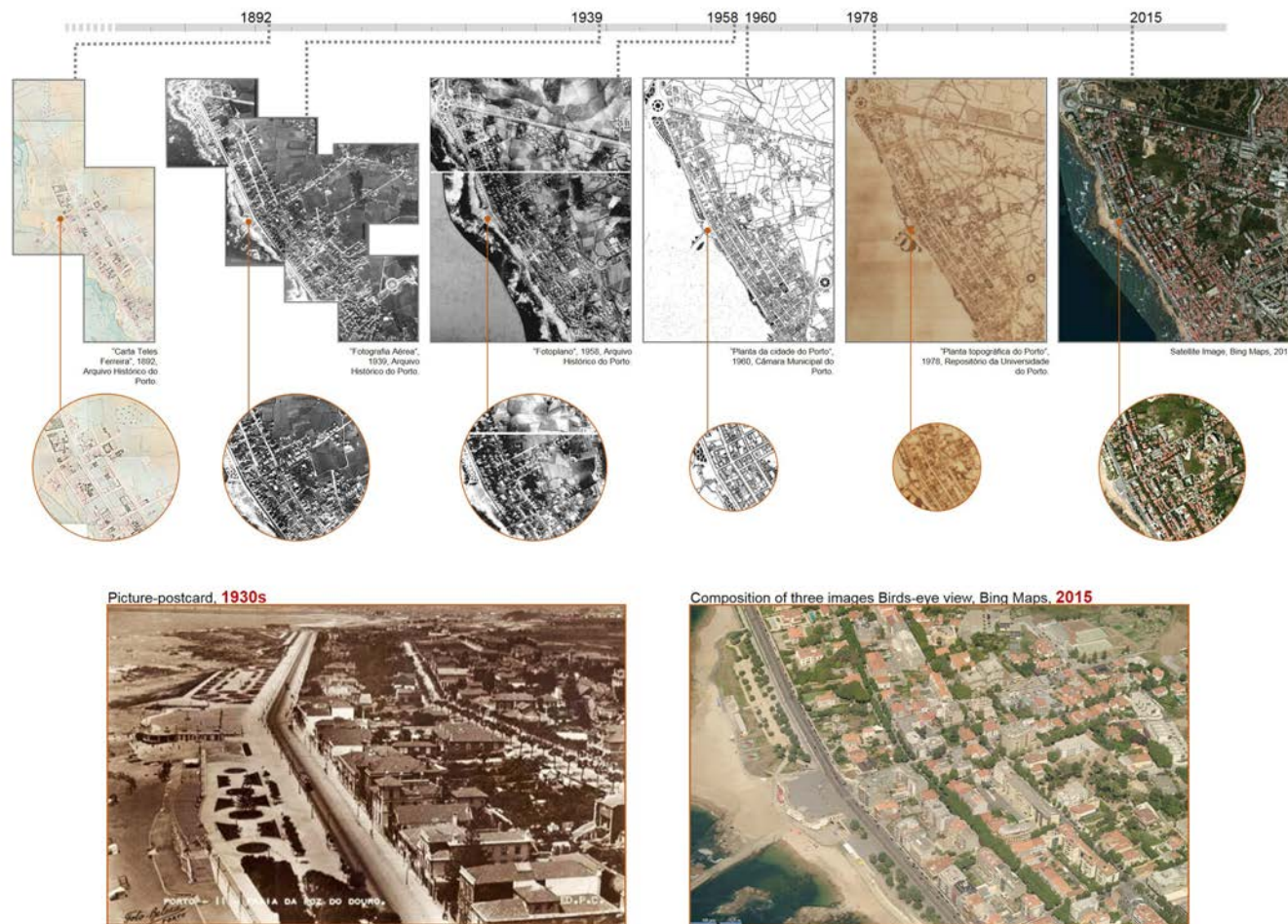


Figure 2 – Landscape changes in the study area between 1892 and 2015.

and iconography (pictures and photographs) available in libraries and municipal archives.

The field survey recorded information about the streets (street characterization) and information about the trees (tree inventory and diagnostic). Street characterization

included four classes of parameters: 1) length and width; 2) traffic, parking, sidewalks and slopes; 3) characteristics of the surrounding buildings; 4) characteristics of the street trees pattern. Tree inventory and diagnostic included six classes of parameters: 1) ID number, scientific and common name, 2) perimeter at breast height,

crown diameter, estimated age, leaf retention strategy; 3) position and planting type; 4) pruning regime; 5) tree health (according to the Visual Tree Assessment method (Mattheck and Breloer, 1994); and 6) special features. The field equipment used was a Vertex III V1.5, Transporter T3 and a resistograph. The interaction between people and street trees was evaluated by the number of complains registered in the municipal services.

The data collected in the field survey, related with tree health, conflicts and complains were used to define a risk map ranking the streets according to their cumulative score for the three criteria. For each criteria streets were listed in descending order of the problem, i.e., ranking first the street with more problems and, in the latter, the street with fewer problems. The value of the position of each street in each parameter was taken as the score of the street for that specific parameter. At the end, the scores of each street to each of the three parameters were added to obtain the final score. The streets with the lowest score will be the most urgent since lower values reflect higher positions, therefore a more severe problem.

The review and assessment of tree species suitable to urban environment and adapted to streets, near and under Atlantic influence, was done using reference literature such as Viñas et al (1996) and Trowbridge & Bassuk (2004). Potential species were gathered on a table, and then evaluated and compared according to parameters, such as: height, crown diameter and shape, strategy of leaf retention, growth rate, resistance to urban contamination resistance to shadow, and very important, resistance to sea salt breezes.

The final stage consisted in the development of a proposal for the requalification of the study area streets. Aiming to increase tree diversity, the proposal includes the plantation of several new street tree species. These species were selected according to their performance in the evaluated parameters. Special attention was given to the species suitability to the

available space and site conditions; and the adequacy of the species aesthetic to the street character.

The proposal should be implemented in a phased intervention taking into account the risk map.

RESULTS AND DISCUSSION

Landscape history and evolution

Until the second half of the 19th century, this part of the city was filled with pine forests (*Pinus pinaster*), agricultural fields and a small fishing cluster. However, the appreciation of leisure, the fashion of sea bathing, and mainly the development of the public transport ('The American', a horse-drawn carriage, was the first one, in 1872), transformed it in a privileged area of the city.

In the Plan of Teles Ferreira (1892) the rural character of the area is more evident and the streets of Gondarém, Marechal Saldanha, Molhe, Índia, Crasto, Padrão, Sousa Rosas e Jacinto Nunes are already visible (Figure 2). This plan does not reveal the presence of street trees. The majority of houses, surrounded by fine designed gardens, are facing the sea.

The 1939 aerial photography displays a road network already similar of that of today, especially in what concerns the structural axis. Compared with the previous plan, there is an increase in the number of houses facing the main roads, and the presence of street trees is already visible.

There are no major differences between the aerial photographs of 1939 and 1958, apart from the slight growth of the urban fabric (Figure 2).

In the second half of the 20th century there was a change in the urban fabric. An increase in the house demand resulted in the gradual demolishing of single-family houses and its replacement by multistory

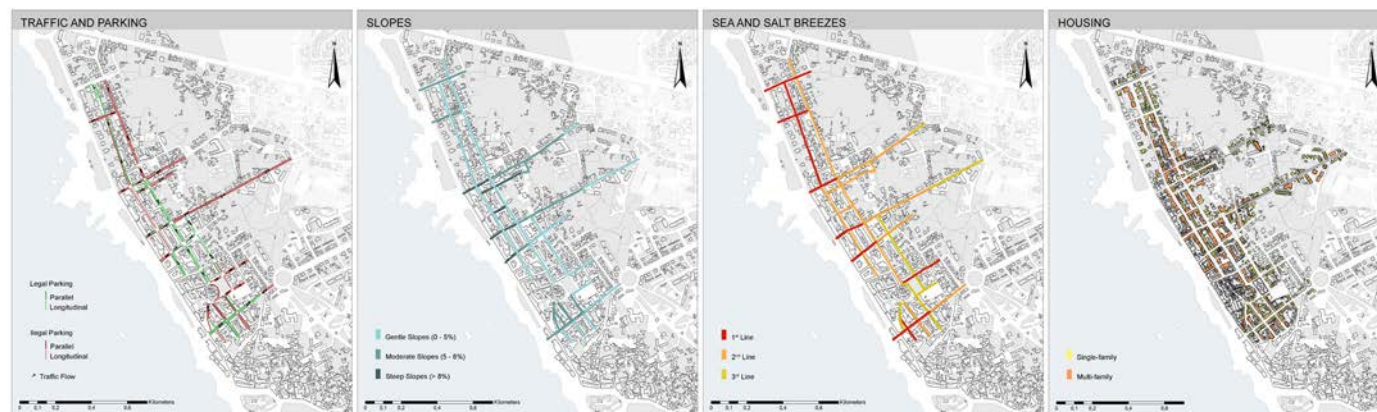


Figure 3 – Diagrams of analysis: traffic, slopes; incidence of sea salt breezes and housing.

buildings, with 3 to 5 floors. The latter apart from their higher volume have their facades closer to the street, with a consequent reduction in the space available for street trees. This changes were more dramatic at the center of the study area (Figure 2). Nowadays, the urban fabric is characterized by a mix of old and contemporary buildings, single-family houses and multi-family houses, what results in great variance of the space available for street trees.



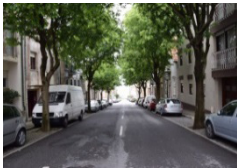

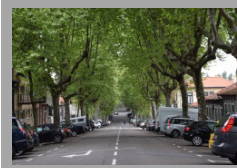
Field survey – Streets Assessment

Sixteen streets were analyzed and apart from Pêro Covilhã and Funchal all of them have trees. This two streets were included in the analysis to evaluate its suitability for tree plantation.

Results (Figure 3) show that most of the streets (80%) have only one traffic direction, half of the streets have a moderate traffic, and in 40% of the streets drivers park improperly. Most of the streets (47%) has a moderate slope (5-8%) but 35% has steep slopes, (higher than 8%) although these are also the shortest streets. The steeper streets are the ones perpendicular to the coastline. The urban fabric is more consolidated in the center of the study area that is dominated by multistory houses,

though often interrupted by single-family houses. There are more, and more continuous, single-family houses in the extreme north and in the extreme south of the area. The influence of the sea is mainly felt in the streets perpendicular to the coastline. The streets located in the North are also more exposed because the buildings are lower than in the south. This results put in evidence the importance of the trees in these streets to help mitigate frequent wind flows and the sea salt breezes.

The pattern that characterizes the Porto urban forest is repeated on these streets: most of the trees belong to a small number of species, with the remaining scattered across many different species (Table 1). The prevailing species are *Platanus x acerifolia* (Plane tree), *Populus nigra* (Poplar) and *Celtis australis* (Mediterranean hackberry). The streets with more trees are Marechal Saldanha, Crasto and Gondarém but they are also the longest and wider streets, which allows the installation of tree alleys. In the group of streets with less trees are Jacinto Nunes, a very small, narrow and steep street and Padrão a medium size street.

TREES										
Street	Length	Width	Nº	Species	Type of plantation					Place of the plantation
					SR-N	SR-S	DR	ST	R-TP	R
CSA	220	12	9	Platanus x acerifolia	
			12	Acer negundo	.	.	.	.	.
C	1200	12	20	Populus nigra	
			1	Populus canadensis	.	.	.	.	.
			122	Platanus x acerifolia	.	.	.	.	.
			3	Populus nigra 'italica'	.	.	.	.	.
			11	Populus spp.	.	.	.	.	.
D	460	14	32	Celtis australis	
			2	Largestroemia indica	.	.	.	.	.
			4	Metrosideros florida	.	.	.	.	.
			7	Other species	.	.	.	.	.
JN	73	10	5	Platanus x acerifolia	
SR	375	22	90	Platanus x acerifolia	

FL	128	12	3	Celtis australis	.	.
			29	Platanus x acerifolia	.	.
FR	240	13	28	Celtis australis	.	.
			1	Washingtonia robusta	.	.
FN	170	12	0	----	----	----
G	1186	22	130	Platanus x acerifolia	.	.
I	370	11	15	Platanus x acerifolia	.	.
JC	156	12	26	Celtis australis	.	.
			2	Populus nigra	.	.


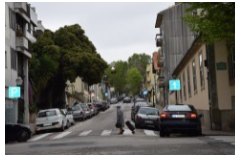



MS	1392	21	8	Platanus sp.	.	.					
			131	Platanus x acerifolia	.	.					
			11	Populus sp.	.	.					
			42	Populus nigra	.	.					
			4	Ulmus procera	.	.					
			3	Other species	.	.					
MS	800	12	58	Populus nigra	.	.					
			7	Populus nigra 'italica'	.	.					
			1	Populus tremula	.	.					
			7	Populus x canadensis	.	.					
P	430	13	1	Populus tremula	.	.					
T	235	15	34	Celtis australis	.	.					
PC	172	22	0	----	----	----	----	----	----	----	

Table 1 – Characteristics of tree plantation in the tree-lined streets under analysis: length, width, number of trees, main species, type of plantation (SR-N- single row at North, SR-S- single row at South, DR- double row, ST- single tree) and place of plantation (R-on the road, R-TP- tree pit on the road).

Field survey – Street Trees assessment

863 trees were surveyed. The bigger trees, with larger perimeter at breast height (PBH) and higher crown diameter are installed in Sousa Rosas, Gondarém and Índia (Figure 4). A direct correlation between these two

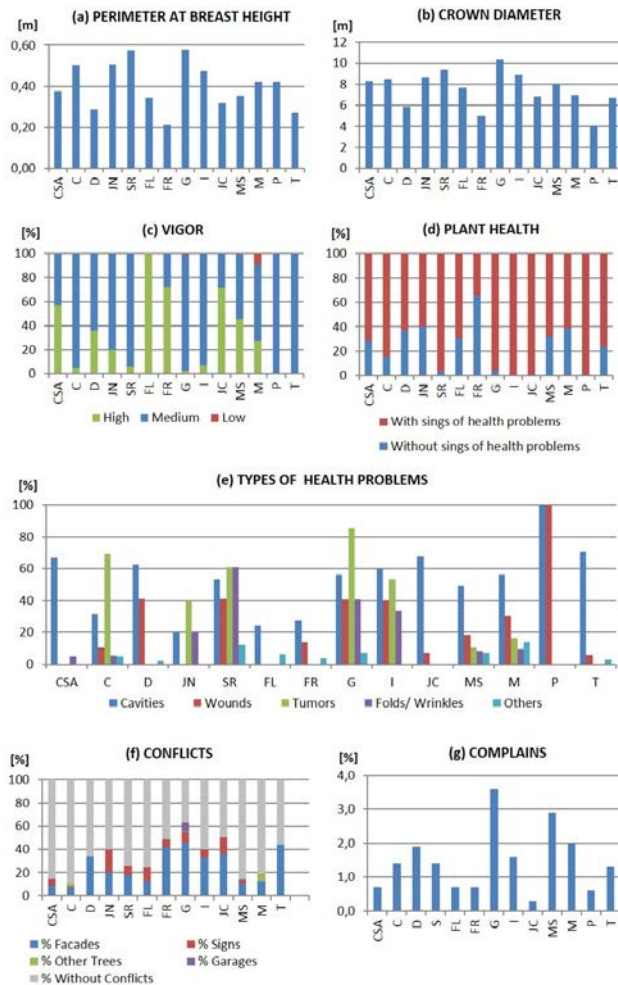


Figure 4 – Results of the field survey – Streets Assessment: (a) Perimeter at breast height, (b) crown diameter, (c) vigor, (d) plant health, (e) types of health problems, (f) conflicts, (g) complains.

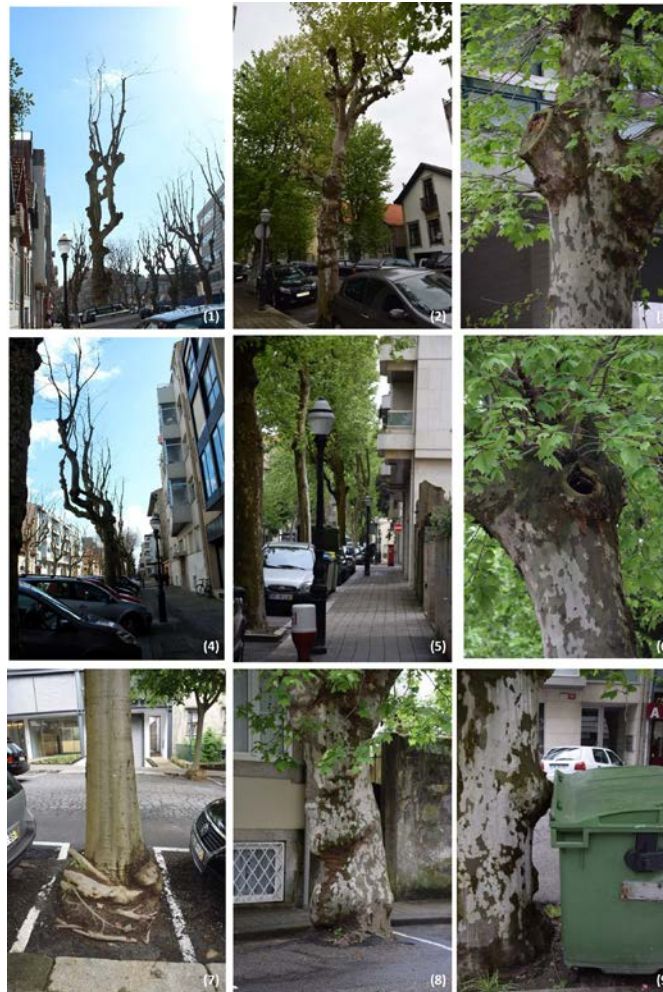


Figure 5 – Photographs of (1) and (4) severe pruning, (2) decaying tree, (3) wounds, (5) buildings with balconies over the sidewalk, (6) cavity, (7) circular roots, (8) folds, (9) tumors and trash bin conflict.

parameters is an indicator of a balanced tree. In fact, these trees reveal no major conflicts with the facades and therefore, no severe pruning was needed. An opposite scenario is evident in Crasto and Jacinto Nunes: high values of PBH but small values of crown diameter may indicate severe pruning of these trees. Faial has

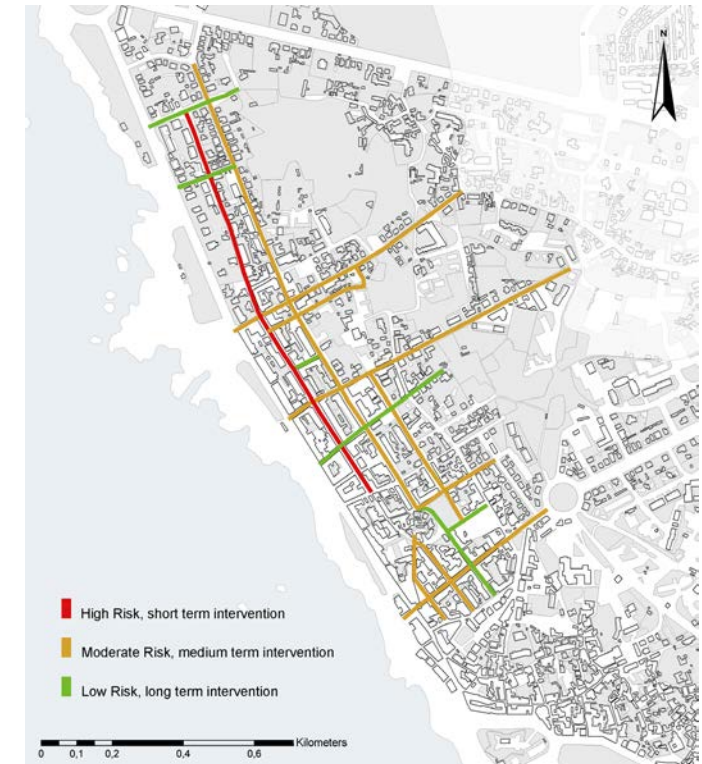


Figure 6 – Map of risk and priority of intervention (red – high risk, short term intervention; orange – moderate risk, medium-term intervention; green – low risk, long term intervention).

the more vigorous trees and Molhe the highest number of weak trees. In summary, all the surveyed trees show some signs of health problems caused limiting growth conditions (lack of space, severe pruning, impermeabilization, etc), but these are particularly evident in Índia, José Carvalho, Sousa Rosas and Gondarém. The main detected signs were cavities, tumours and wounds all related with severe pruning and car injuring (Figure 5). Gondarém leads the number of conflicts and the most frequent occurs with facades. The street with less conflicts is Cândida Sá Albergaria.



Figure 7 –Proposal: master plan and extracts of planting plan, visual simulations and cross sections.

Regarding street trees/people negative interactions, Porto city all received 695 complains, between 2009 and 2011. Of these, 133 (nearly 20%) belongs to the study area. The streets with more complains are Gondarém (3.6%) and Marechal Saldanha (2.9%).

Streets with a high number of trees with health problems, trees with more conflicts, and with a high number of resident complaints, were classified of higher risk. Results showed the need for an emergent intervention on one street and urgent in seven others (Figure 6). Gondarém obtained the lowest score revealing a higher risk has a result of a higher number of conflicts, higher number of complains and higher number of trees with biomechanical problems.

CONCLUSIONS AND PROPOSAL

Results put in evidence the existence of limiting growth conditions of the trees in the study area that prevent the normal performance of their ecological and aesthetic functions. This problem was caused by a densification of the urban fabric, which took place mainly in the second half of the 20th century, when multi-family houses substituted for single-family houses reducing the space available for street trees. To minimize conflicts with the facades trees have suffered severe pruning that accelerated its decline. The decadence and unsuitability of trees is perceived by residents who often require tree control measures.

The tree diversity is poor and the dominant species do not exhibit distinctive features in dimension,

shape, and color of leaves and flowers. This fact, together with the ageing and decline of trees, creates a dull and unattractive landscape, in one of the bustling areas of the city of Porto.

These findings, supported by the literature (Cabe, 2007; Gresham, Smtih & Parteners. 2009), acknowledged the importance of a proposal for the reforestation of the streets grounded on the following principles: at street level 1) scale, by selecting appropriate species to the available space, and 2) unity, by proposing continuous and regular alignments; at the landscape level of the study area 1) increase diversity; 2) improve aesthetic quality by introducing variety in color, shape and texture.

Eleven species are proposed (Figure 7). The proposal covers fifteen of the sixteen evaluated streets once Jacinto Nunes was deemed unfit for afforestation due to its small size, steep slope and the urban fabric (5+ story buildings facing the sidewalk). Based on the risk map, a phased intervention is recommended in order to avoid an abrupt change on the daily landscape perceived by residents (Rae et al, 2010). Gondarém should be the first to be requalified followed by Teatro, India, Marechal Saldanha, Molhe, José de Carvalho, Sousa Rosas and Crasto. The remaining streets should be monitored regularly but allow a longer-term intervention.

Traffic, parking, housing and especially street width were instrumental variables in determining the planting type: double alignment in streets wider than 20 m and simple alignment in other. Spacing was mainly conditioned by access to garages. The length of the streets and position in relation to coastline influenced the number of species by street. For very long streets, as Gondarém and Marechal Saldanha, two species were proposed, as well as for streets perpendicular to the coastline, such as Crasto, Molhe e Padrão, which have, throughout their length, distinct influence of the sea salt breezes.

FINAL REMARKS

The analysis of the historic cartography and iconography confirmed the initial theory that the buildings occupied space that belonged to the streets and trees. The streets of Gondarém, Marechal Saldanha, Padrão and Crasto had 33 meters in width when were opened, currently their widths vary between the 22m of Marechal Saldanha and 12 of Crasto. Therefore, the species that have been planted, and in particular Plane tree, had enough space to accommodate their size. However, the currently available space is much smaller and replanting with the same species (the usual *modus operandi*) is not a sustainable solution.

The high number of complaints, cause, above all, difficulties on trees management, rather than reflect an antagonistic position of residents towards trees. Not least, because the city hall also receives very strong protests whenever it is necessary to fell trees for safety reasons. So, it seems that people want trees just no longer want those trees. Nevertheless, this duality needs to be further explored, for example, using surveys and is for certain an issue to explore in future research.

Trees of the studied streets are a significant part of the tree heritage of Porto. To give up the presence of trees on these streets is not an option to consider, not only because of the positive effect on mitigating the wind flows, but also because they became an indispensable part of the daily landscape.

This work also highlights the importance of a proper and regular management. Even with smaller trees, conflicts may return and every effort should be placed on prevention.

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DOES IT REALLY MAKE A DIFFERENCE? EXPLORING CHANGES IN WOODLAND'S USE AND PERCEPTIONS

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ABSTRACT

A growing body of evidence suggests that green spaces may influence, positively, psychological wellbeing; promote physical activity and social interaction. This paper presents a case study from a project that has taken advantage of a rare opportunity, where physical design interventions (laying out and upgrading new paths; improvements to the entrances, furniture, clearing litter and tree work) were undertaken to enhance access to local woodlands in deprived urban communities in Scotland. This builds on from a pilot study undertaken during 2007-2009 in Glasgow. This paper focuses on the changes in levels of use and perception of the woodlands before and after the physical design changes made. The results are compared against woodland where no physical changes occurred. In both sites, a detailed face-to-face survey was undertaken with local residents that explored community use and perception of the woodlands in 2013 (before any changes in the woodlands (n=707)) and another one in 2014 (after the design had been implemented (n=698)). Descriptive analysis and Mann Whitney U Tests were performed to uncover any significant changes between the two waves of survey. Initial analysis shows that there has been an increase in the number and frequency of visits to the woodlands where there has been design changes ($p < 0.05$). Improvements to paths and entrances are recognised to increase access. In the comparison site there was an increase in responses pointing the deterioration of access to the woodland, with no significant changes to the number of visits. These results show that physical interventions have the potential to enhance access to woodlands in the future and therefore possibly have an impact on community wellbeing.

INTRODUCTION

From ancient times to the present day, the history of Landscape Architecture has multiple examples of the influence of the landscape on people's quality life and health (Ward Thompson, 2011). The landscape architecture profession is rooted in the understanding of the complex relationship between natural elements and manmade factors. In an increasing urbanised world, where health inequalities are become greater, the profession faces the challenge of designing for people's health and wellbeing at all scales. The appeal of the natural environment has been recognised in aesthetic and wildlife terms (Ward Thompson and Travlou, 2009). However, there has been a recent interest in proximity and exposure to green space, as an important influence on the health of local populations (Maas et al., 2006, Mitchell and Popham, 2008). The quality of public open spaces within a neighbourhood also plays an important role in increasing mental wellbeing (Francis et al., 2012). Therefore, important to consider woodlands as a potential way to improve health on wider scale for less money, economic benefits (relatively low cost interventions).

As highlighted by Ward Thompson et al (2014), there is a need for evidence to demonstrate that the plan, design and management of places can positively influence the health and wellbeing of communities. Examples of the evaluation of woodland projects are available in the literature (e.g. (Morris and O'Brien, 2011)), however these focus on already established design changes. Very often, constraints linked to economic resources, lack of time, mean that the success of a design is assessed only when the project has been completed. For example, Post-Occupancy Evaluations (POEs) are a multi-method approach commonly used to the evaluate whether the space is having the desired outcome (see (Cooper Marcus and Francis, 1998)). Although there is a great value in using such approaches, it is more difficult to track the changes in the environment, prior to the intervention and its impacts on the population. Natural experimental studies are often used as a way of

understanding the health impact of policies and other large scale interventions (Craig et al., 2012). According to Craig et al (2012: 1168), natural experiments offer the possibility to “*provide convincing evidence of impact even when effects are small or take time to appear*”.

This paper presents a case study from an ongoing larger study (Silveirinha de Oliveira et al., 2013), which takes advantage of a natural experiment. The study focuses on the evaluation of a woodland improvement programme run by the Forestry Commission Scotland (FCS). The ‘Woods In and Around Towns’ (WIAT) programme works with deprived urban communities by regenerating and improving local woods in order to provide safe and accessible green spaces in the neighbourhood. This usually takes the form of both physical design interventions and social interventions. The main aim of the larger study is to understand whether changes to the local woodlands can have a positive impact on mental wellbeing (perceived levels of stress). This paper focuses on the changes of use and perceptions of the local woodlands following the physical design changes that were made. The results are compared against a woodland where no physical changes occurred.

This paper addresses the following research questions:

- How does woodland use differ before and after the physical design changes?
- How do perceptions differ before and after the physical design changes?
- How do these changes in perception of the woodland impact on their experience of their local woodlands?

STUDY SETTING AND METHODOLOGY

In order to assist in evaluating the effect of the WIAT programme, in partnership with FCS, six woodland sites were selected within the Scottish Lowlands Forest District. Of these six site, three sites received the WIAT programme

between mid-2013 and early 2015 i.e. ‘intervention sites’, and three sites did not i.e. comparison sites (although they are eligible to receive it later on after the research study is complete). Typical physical interventions under WIAT include: clearing of rubbish and signs of vandalism; constructing and upgrading footpaths; signage; installing facilities (e.g. seating and picnic tables) and accessible entrance gateways. It also involves silvicultural work to improve the appearance and safety of trees and vegetation, including clearing sightlines along pathways to extend visibility and views. Social interventions also take place following the physical interventions. These typically include raising awareness through publicity (e.g. leaflets) and organised FCS group-based activities. Activities are undertaken with various community groups and the general public in order to encourage knowledge of the woodlands and opportunities for its use. The social intervention phase took place between 2014 and 2015 and data is not available yet to assess the impact of this second phase.

Each comparison site was paired with an intervention site matching (criteria for matching comparison to intervention sites included demographic and socioeconomic factors, as well as housing type).

This paper presents the preliminary results for one of the pairs in this large study: Linwood, South West of Glasgow (intervention) and Newarthill, East of Glasgow (comparison). As planners and designers, in this paper, we aim to assess whether changes to the physical environment made any difference to the perceptions people have of their local woodlands as well as its use.

A cross-sectional face-to-face questionnaire survey was administrated by a survey company. Households were randomly selected so that residents living within 1500 m of the local woodlands – in both intervention and comparison sites – took part in the survey which was undertaken in April/May 2013 (baseline) and in April/May 2014 (after the completion and implementation of project) (see table 1). The response rate was 50%. The

Table 1 – Number of respondents by wave and site

	Intervention site (n)	Comparison site (n)
Wave 1 (2013)	351	356
Wave 2 (2014)	346	352

survey included questions on: on respondent’s health; neighbourhood; social capital; demographics – (see Silveirinha de Oliveira et al, 2013). Questions using Likert scales were used to elicit woodland perceptions drew on previous community surveys used and use in similar urban contexts in Scotland, which had showed adequate sensitivity to variations in quality of the environment and woodland use (Ward Thompson et al., 2005).

The data was analysed using Statistical Package for the Social Sciences (SPSS) version 19. A detailed descriptive analysis and nonparametric tests (data was not normally distributed. Shapiro-Wilk tests ($p<0.05$) were performed to uncover any significant changes between the two waves.

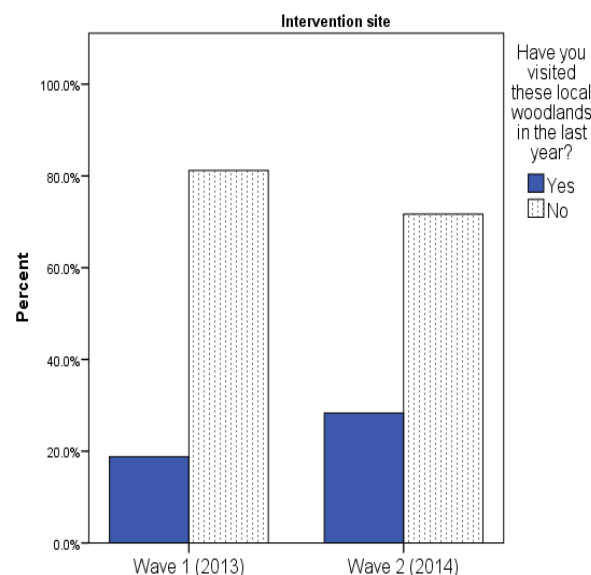
RESULTS

Increase in the number of visits

The first research question asks was whether the physical intervention was associated with greater levels of woodland use. In the intervention site there was a significant difference ($p=0.003$) in the number of visitors between 2013 (wave 1) and 2014 (wave 2) (see Figure 1). The number of residents visiting the woodlands increased from 19% to 28 %. Although there was a small increase in the number of visits in the comparison site, this was not significant.

Woodland perception and experience

Differences over time in perceptions of the local woodlands were examined to explore whether



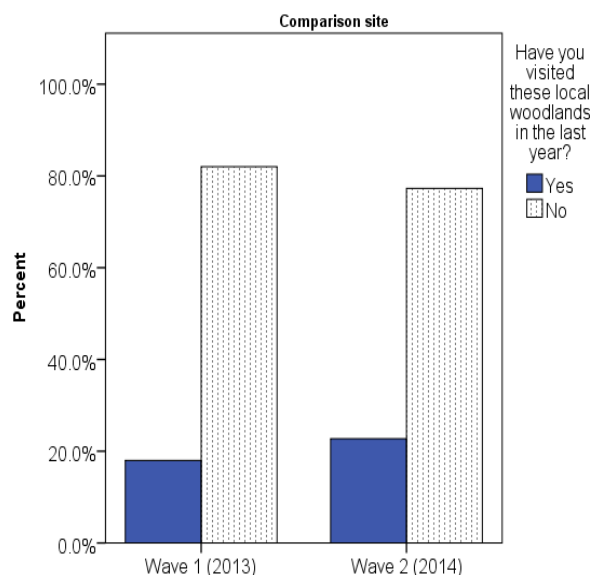
Intervention site

Figure 1 – Visits to the woodlands by site and year

the intervention was associated with any significantly enhanced visitor experience.

Respondents' perceptions of the woodlands **as free from litter** did not differ significantly over time in each site. However, in the comparison site there was an increase in the number of respondents disagreeing that the woodland was free from litter (see table 2). In the intervention site, the majority of residents' perceptions remained neutral over time.

Perceptions on difficulty of getting into the woodlands, reflecting attitudes to woodland **entrance points**, did not significantly change in the intervention site. However, there was an increase in the number of respondents who disagreed that it was difficult to get into the woodlands in from 26% in 2013 to 40%, thus suggesting that access had improved. On the comparison site, there were significant changes between waves



Comparison site

($p=0.038$). The number of respondents agreeing that poor entrances made it difficult to get into the woodlands increased from 27% in 2013 to 38% in 2014, thus suggesting was still difficult or had gotten worse.

For both sites, differences in perceptions of **woodland path maintenance** in each site did not significantly change over time. Nonetheless, in the intervention site, there was a small increase in the percentage of respondents in the intervention site disagreeing that 'poorly maintained paths make it difficult to visit the woodlands' in 2014, with 7% more disagreed with this statement than in 2013, thus suggesting an improvement in the paths. In the comparison site, the perceptions remained fairly the same between the two waves, with a slight increase in the percentage of respondents agreeing with the statement (29% in 2013 vs 35% in 2014), thus suggesting the deterioration of the paths

Overall, perception of **lack of woodland facilities** changed significantly over time in both sites. In the intervention site, there was a significant increase ($p<0.001$) in the number of respondents disagreeing that there is a lack of good facilities in the woodland (6.8% in 2013 to 23.7% in 2014). In the comparison site, perceptions were mainly neutral.

Considering varying types of woodland use, there were significant differences in perceptions of **woodlands as places to see and enjoy wildlife** in each site over time. In the intervention site, there was an increase in the number of respondents agreeing with the statement, from 18% in 2013 to 32% in 2014 ($p=0.037$). The same tendency was seen in the comparison site with the number of respondents agreeing, from 22% in 2013 to 42% in 2014 ($p<0.0001$).

Use and perceptions – correlations

Table 3 shows the correlations between the use of the woodland and the perceptions of the woodland changes in the intervention site in 2014. Apart from the presence of litter in the woodland, visits to the woodlands correlate with all the other variables. Variables associated with the physical changes were moderately correlated.

DISCUSSION

A key finding of the study is the highly significant increase in levels of woodland visits over time in the intervention site, versus non-significant levels in the comparison site, although total woodland visits remained comparatively low across both sites in 2014.

The intervention was associated with an increase in the perceptions over time that local woodlands were not difficult to get into due to entrance improvements. The path improvements in the intervention site was also positively perceived. These two variables reinforce that clear entrances and well maintained good quality paths

Table 2. Results for each statements (variable) in 2013 and 2014; note of significant differences pre- and post-intervention within sites (Mann Whitney *U* test), and variable tendency in 2014 (in comparison to 2013)

Statement (variable) 2013		Comparison site			Intervention site			
N %		2014			2013	2014		
		N %	Sig	Tendency	N %	N %	Sig	Tendency
The woodlands are free from litter	Strongly agree	0.6%	1.4%	n.s.	=/-	0.6%	0.0%	n.s.
	Agree	7.9%	8.2%			9.1%	11.3%	
	Neutral	41.9%	40.1%			65.8%	63.3%	
	Disagree	26.4%	38.6%			22.8%	24.3%	
	Strongly disagree	23.3%	11.6%			1.7%	1.2%	
Poor entrances make it difficult to get into the woodlands	Strongly agree	23.0%	23.0%	p=0.038	+	0.6%	1.7%	n.s.
	Agree	27.0%	37.5%			6.8%	9.8%	
	Neutral	40.2%	32.7%			60.1%	46.2%	
	Disagree	8.4%	6.2%			25.9%	39.6%	
	Strongly disagree	1.4%	0.6%			6.6%	2.6%	
Poorly maintained paths make it difficult to visit the woodlands	Strongly agree	24.4%	24.1%	n.s.	+	1.1%	1.4%	n.s.
	Agree	28.9%	34.7%			8.5%	8.4%	
	Neutral	39.6%	35.8%			63.5%	59.5%	
	Disagree	6.2%	4.5%			23.4%	30.3%	
	Strongly disagree	0.8%	0.9%			3.4%	0.3%	
There is a lack of good facilities in the woodlands	Strongly agree	27.0%	21.0%	p=0.014	=/+	12.3%	1.7%	p<0.001
	Agree	37.9%	34.9%			27.4%	15.9%	
	Neutral	30.3%	38.6%			51.9%	58.1%	
	Disagree	3.9%	4.8%			6.8%	23.7%	
	Strongly disagree	0.8%	0.6%			1.7%	0.6%	
I can see and enjoy wildlife in the woodlands	Strongly agree	4.8%	6.8%	p<0.001	+	5.1%	3.5%	p=0.037
	Agree	22.2%	41.5%			17.9%	31.5%	
	Neutral	38.2%	37.8%			58.1%	45.4%	
	Disagree	27.0%	13.1%			16.0%	18.5%	
	Strongly disagree	7.9%	0.9%			2.8%	1.2%	

Notes: (Sig) Mann Whitney U Test (difference between wave 1 and wave 2) p values; n.s. – non significant. Variable overall tendency in 2014: (+) agree; (-) Disagree; (=) Neutral

Table 3. Correlations between visits to the woodlands and perceptions (Intervention site in 2014)

		The woodlands are free from litter	Poor entrances make it difficult to get into the woodlands	Poorly maintained paths make it difficult to visit the woodlands	There is a lack of good facilities in the woodlands	I can see and enjoy wildlife in the woodlands
Have you visited these local woodlands in the last year	Correlation Coefficient	-.066	-.387	-.482	-.368	.169
	Sig. (2-tailed)	.084	.000	.000	.000	.002
	N	697	346	346	346	346

Notes: Statements were assessed on a 5 point Likert Scale (1 – strongly agree (...) 5 – strongly disagree). Have you visited these local woodlands in the last year: (1) – Yes; (2) – No

increase access to the woodland. The presence of facilities was also positively perceived by the respondents, and this might result from the positive response to the changes to two previous variables (paths and entrances).

On the contrary, in the comparison site, there was the deterioration of access to the woodland (poor entrances and poorly maintained paths) and the number of visits did not change significantly. Also, the presence of litter in the comparison woodland was perceived as being higher in the second wave of the survey.

The recognition of the woodlands as places to offer the opportunity to see and enjoyed wildlife increased significantly in both sites. This suggests that the great ecological value of woodlands is perceived as important despite any changes in the physical environment.

In the intervention site, although there is a general tendency to positively perceive these changes, these are not significantly different over time. The fact that the second survey was conducted 12 months after the baseline survey, suggests that more time might be required to be able to detect any significant changes between pre and post intervention perceptions. The next phase of the larger study will explore whether engagement with the local community and more time to consolidate the use after physical changes, has a greater benefit to the use and perception of local woodlands.

Overall, in the intervention site, the results suggest that an increase in use correlates with increase in positive perceptions. This echoes the results of a small-scale, controlled pilot evaluation of a WIAT study, which showed beneficial impacts in terms of health and behavioural outcomes (Ward Thompson et al., 2013).

CONCLUSION

In conclusion, these preliminary findings provide evidence that physical changes in natural environments

such as woodlands, have the potential to attract a higher number of visitors. The physical changes to the environment are positively perceived, which correlate with an increase the number of visits. These physical changes to the environment point to the potential contribution of improving the perceived quality of the woodlands. Ultimately, these changes can impact on quality of neighbourhood environment, consequently, enhancing welling and quality of life (Campbell et al., 2007).

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DEVELOPMENT OF URBAN FOREST IN URBAN AND SUBURBAN AREAS OF SWITZERLAND – SUBURBFOR

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KEYWORDS

Urban Forest, Recreation Forest, Urban Development,
Suburban Development, Design of Recreation Forest

ABSTRACT

Settlement development in Switzerland in recent decades has brought great losses of landscape. This applies both to dense urban areas in cities, as well as to growing suburban areas. The densification of urban areas leads to an increase of the population's need for attractive Green Infrastructure near settlements.

In suburban communities, the increasing needs for attractive recreation areas are predominantly met with a traditional proposals. Today, there are mainly linear and selective offers. These options are often insufficient to meet the needs of the population for extensive and intensively-usable open and green areas, even though many mid-sized communities, suburbs, and urban quarters border forests. Many places lack attractive and innovative solutions as well as the knowledge for implementation.

Based on a typology of good practice, requirements and possibilities for adapting these forest types in urban and suburban areas in the context of Switzerland are studied. The research project assumes that due to increasing density in suburban residential areas, comprehensive development of natural areas is urgently needed, and varying intensity farming systems can be developed in conjunction with the use of urban forests. Based on reference areas, new solutions for design and management in expert and stakeholder groups are developed. The results will be summarized as recommendations for the development of urban forests in Switzerland.

INTRODUCTION

The research project is part of COST Action FP 1204: "Green Infrastructure approach: linking environmental with social aspects in studying and managing urban forests". The following introduction is taken from the official COST Action website: "Green Infrastructure has recently gained prominence as a planning tool at regional and local levels. Green Infrastructure provides a range of ecosystem services, and new initiatives can build on state-of-the-art research and on delivery mechanisms such as Urban Forestry. However, greater attention is needed on integrating the environmental and social benefits produced, particularly in the context of climate change adaptation and mitigation.

The COST Action aims to: 1) increase the understanding of the role of Urban Forestry in the context of Green Infrastructure from a scientific and a socio-economic perspective, in terms of the ecosystem services provided to people and to the urban environment; 2) to identify priorities and challenges for future research in the field; 3) to provide indicators and/ or thresholds to be included by policy makers in local, national or international regulations about Green Infrastructure and Urban Forestry; 4) to develop guidelines for Green Infrastructure planners and managers on how to implement Green Infrastructure approaches with an emphasis on linking the environmental and social ecosystem services of Urban Forestry.

Undertaking a COST Action on this topic is crucial because of the diversity of Green Infrastructure and Urban Forestry approaches at European level and because of the need to create a structured interaction among scientists, citizens, policy makers and managers" (www.cost.eu, 12th June 2015).

Settlements and infrastructure in Switzerland are spreading, and the remaining areas are used intensively. At the same time, the development of public, multifunctional usable green and open areas in many suburban

municipalities is too low, and has not kept pace with the growing needs and rising population figures.

In the big cities there are historical, grown, and multi-functional used green and open areas. Most of these areas are protected and there are existing models for calculating the area needed. Suburban areas tend not to have green and open space planning like in cities, and a different situation must be addressed. The scattered green and open areas in the suburban areas have primarily a single use and consist of historical areas, rest areas, sports facilities, agricultural land, or adjacent forest areas at the edges of settlements. Green and open areas in the suburban communities are fragmented, spread over the entire settlement, and transition into the countryside, cultivated landscapes, recreation areas and forests.

Another consideration is that available building land is a limiting factor of settlement development in Switzerland. At the same time the need of the population for attractive leisure and recreation outdoor activities is increasing. Especially in high density settlements, the demand for attractive open and green areas near apartments is high. Forest or forest-like structures within or on the edge of settlements should increasingly comply with this function and offer attractive opportunities for recreation in the future. Forest owners, managers, users and planners have to handle completely new questions and challenges.

The goals of the research are to investigate: 1) different types of recreation forests in Switzerland; 2) the conditions for transfer of forest types in the urban and suburban areas; 3) special features and problems in planning and practice; 4) the existing planning instruments; 5) suggestions for planning and design of recreation forests.

STARTING POSITION

Leisure and recreational use of forests is growing and the evaluations of the importance of forest use have

already been substantiated (Bernasconi and Schrott, 2008). For example in the research project: "S5-City. Suburbs in the center", the significance and perception of natural areas is examined in a densifying settlement region (ETH Wohnforum – ETH CASE, 2010). Attractive recreation areas are crucial for the choice of residential location, belong to the "big plus of the suburbs" and should be the starting point for urban and suburban development (Rauch-Schwegler and Blumer, 2010).

METHODOLOGICAL APPROACH AND EXPECTED RESULTS

The research project has a duration of two years and is divided into six modules. Module 1 consists of an introductory literature search focussing on forests, Urban Forestry, open space planning, design and recreation, and on the different user groups. The following questions are: What types of recreation forest already exist in Switzerland, and what are typical development scenarios for the future?

In the context of a literature search, the different user groups and their needs regarding recreation forests should be determined. Furthermore, the possible relations between forest management, forest design and recreation will be compiled, and existing approaches for planning suburban recreation forests will be documented together with good examples and reference areas from Switzerland and abroad. The outcome of Module 1 should be that quality criteria is deduced from the literature report and the collection of good examples, and that a typology of the recreation forests of Switzerland is developed. In a further step, the quality criteria and typology will serve as a basis for the determination of reference areas for the development of innovative recreation forests.

In Module 2 the special requirements for recreation forests, from the standpoint of near and nearest recreation, will be examined through conducting interviews with experts, as well as by other methods. Of particular

interest are findings on the environmental (biodiversity and nature), social (recreation and environmental education), aesthetic (action and perception) and economic (management) requirements. The guided interviews will be conducted with Urban Forestry experts. The objectives are to investigate current experiences with the requirements and the target groups of recreation forests, as well as to discuss and review the quality criteria and typologies developed in Module 1.

With consideration of the results from Module 1 as well as the suggestions and experiences from the analysed interviews (Module 2), possible test sites for the development of innovative recreation forests in Switzerland will be selected. Preliminary talks with the relevant municipalities will take place. The aim of the talks is to determine the specific needs of the communities for an innovative test design for a recreation forest.

At the end of the Module 2, a first workshop will be held on the subject "Necessities" in the selected communities. The workshop is designed to determine the specific target groups, stakeholders and user groups, as well as their needs in the respective test areas. The results of Module 2 include a report with the revised requirements, stakeholders and quality criteria of recreation forests, and the revised typology of recreational forests in Switzerland.

The third step (Module 3) serves to determine specific test areas in the communities and to implement innovative test designs for recreation forests. The test designs involve feasibility evaluations, impact assessments of different approaches and strategies, will be made as sketches and offer three different versions of creative intervention (weak, middle, and strong). The innovative test designs for recreation forests pursue a high artistic standards and are used throughout the course of the research project as a basis for discussions with all stakeholders in the communities. As part

of the design based study, the test designs serve as an instrument for development of new hypotheses.

At the conclusion of Module 3, a second workshop will be held with all relevant actors in the community on the subject “Discussion of the Test Designs”. The aim of the workshop is to answer the following questions: Were the needs of all parties involved properly understood and creatively portrayed? Were the levels of intervention of the test designs, and the lowest bid for equipment and infrastructure for the recreation forests sensibly chosen? Which of the versions is preferred by the communities and what additions are there?

Of particular interest is the feedback regarding the test designs, as well as responses pertaining to the methods used and the quality criteria developed, and practical experience. The implementation possibilities and existing planning instruments will be discussed in the workshop. The aim of the third module is to compile a selection of annotated test designs for recreation forests for the communities.

The fourth step (Module 4) is comprised of a preliminary synthesis and a compilation of the findings of the first two workshops, as well as the framework conditions for innovative recreation forests in urban and suburban areas in Switzerland. The preliminary synthesis will be published as a report and contain conclusions on the planning, design, and management of recreation forests, as well as the revised test designs of the communities.

The objective of Module 5 is to study the implementation options, possible solutions, and the scope of the test designs in the communities. To this end, there will be a third workshop entitled “Implementation Possibilities”. The purpose of the workshop is to present the preferred and revised versions of the test designs and the options for their implementation.

The final workshop will include a discussion with all concerned parties of a community, and answer the following questions: Was the community’s preferred version properly presented, and what is needed to implement it?

Outcomes of the workshop are a discussion of the designs and implementation options, statements on potential conflicts, possible solutions and forest management, and the development and implementation of recreation forests. Additionally, there will be an exchange of experience between all parties involved in the different communities. The workshop will result in suggestions for immediate measures and the implementation instruments for innovative test designs for recreation forest in urban and suburban areas in Switzerland. A compilation of helpful and hindering factors regarding the implementation of innovative recreation forests, as well as conclusions pertaining to practice, will be formulated in a workshop report,

As a final step, the conclusions of the research project will be summarised and published as guidelines. The report will include a collection of good examples of existing recreation forests in Switzerland, a selection of possible reference areas for recreation forests, and a documentation of the innovative test designs.

A concluding event will be held and the research project will be presented to a large audience. As well as participants from the communities, experts in landscape architecture, open space planning, spatial planning, Urban Forestry and nature conservation will take part in this event. The objective will be to discuss and answer the following questions: How can the results and conclusions of the research project be generalised, and which of the existing planning instruments can be used? Which problems and obstacles are met in the implementation of recreation forests in Switzerland?

OUTLOOK

During the project recommendations should be generated through practical experience, discussions in a total of three workshops, and expert interviews. Conclusions about design and management for creating innovative recreation forests should be made. Additionally, necessary conditions for the development of innovative recreation forests in Switzerland should be determined. The results will be summarized as good examples and recommendations for municipal planning, implementation and development of urban forests, and will be published as guidelines in the beginning of 2017.

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TOWARDS A GREEN MEXICO CITY

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ABSTRACT

After periods of rapid urbanization, densification and the early extinction of green areas, is it possible to recover the natural landscape in the Valley of Mexico? Tenochtitlan – now Mexico City – was founded in 1325 over a limpid lake surrounded by high mountains and plenty of nature. Today, it is a city of 25 million people, with less than 2m² of green area per capita. Lack of natural elements in the city, poor air quality, floods and food shortages are serious problems of the city. Several projects such as the recovery of rivers, urban agriculture and partial revival of the lake are proposed to solve these problems. Projects that are proposed to be developed over the next 50 years- suffer from lack of interest from the authorities -limited budget, non-executed plans, and rejected projects. However, many citizens and independent groups are interested in participating with several proposals. Three projects are analyzed and discussed in this paper: The revival project for Lake of Texcoco, by the group Ciudad Futura, states that air quality will improve while a large body of water keeps the runoff retrieved from the mountains, and currently discarded through the drainage system, under control. The restoration of Magdalena and Piedad rivers – which cross the entire city and are currently cased – is the proposal of Taller 13, who bets on improving the image of the city and introducing changes in its motorized mobility. The green roofs and urban farms plan, Arquitectura Experimental's movement, contributes to improve the aesthetic quality of the city through the creation of gardens, and promotes its productivity through the cultivation of hydroponics, taking advantage of favorable conditions of expectant spaces in the city. The implementation of these projects will improve the city's green and blue infrastructure enhancing the quality of life of its inhabitants.

INTRODUCTION

The urban space is divided between the proposal of creating cities or focusing on the landscape. Throughout the centuries the man has turned towards construction schemes, urbanization and densification. Nowadays the cities are trying to adapt to different environmental conditions, but sometimes it is too late. The city suffers from lack of natural resources, poor air quality, constant flooding, food and potable water shortage.

To solve some of these problems, several groups from the civil population, who are interested in the improvement of the quality of life for the inhabitants of the city, have carried out proposals to bring back to life different environments inside the city; and some authorities have taken action relating to the ecology. Although there are mutual interests between groups, no relationship is found between both projects.

This investigation analyzes and discusses examples of three different topics from the design and landscape architecture's point of view.

- The partial restoration of rivers and lakes in Mexico City
- The recovery and expansion of its green areas
- Urban agriculture

HISTORY AND CHANGES IN THE LANDSCAPE

"The Great Tenochtitlan", now Mexico City, was founded in 1325 by nahuas immigrants who, according to the legend, built the city on islet of the Lake of Texcoco. At that time, small settlements on the bank of the river, dependent on the lordship of Azcapotzalco, already existed. A year later Tenochtitlan became the Aztec capital, one of the biggest and most powerful of its time, and the most important in Mesoamerica. The initial islet was expanded and urbanized to develop

the main ceremonial center, containing about 50 large constructions. It was, surrounded by the nobility houses and connected to the mainland by three wide roads.

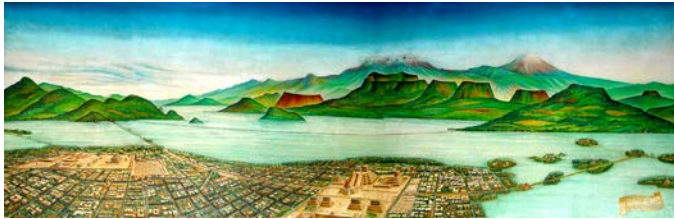


Figure 1: Illustration of Mexico City Valley (photo: Martin Gomez-Tagle, painting in the Aztec Hall of the Anthropology Museum)

On the outskirts of the capital, agriculture was practiced in the “chinampas”, floating islands for growing crops. The “chinampas” were organized in a communal system. They were planted and harvested by the inhabitants of the local neighborhoods (“calpullis”).

Transportation was made through the lake and canals. Records mention 60,000 canoes moving inside the city



Figure 2: General views of Mexico City Valley during the Aztec period (photo-realistic images: Tomas Filsinger)

area during a normal day. Most of the lake was made of salt water, but the Mexicas built dikes to contain and benefit from the water that flowed in from the mountains and rivers, which was transported by aqueducts. Dikes and lock gates controlled the lake water level and avoided the mixture of waters. They also built rainwater tanks and implemented irrigation systems.

The natural and built landscape of the Aztec capital had a unique beauty and balance between its sky, canals, lakes, vegetation, and its roads, buildings and public squares, astonishing the Spanish conquerors at their arrival. At the beginning of the XVI century, Bernal Díaz del Castillo wrote in his book ‘True history of the conquest of New Spain’: “when we saw so many cities built over the water and other big ones on the mainland we were amazed and we thought we were enchanted (...) I don’t know how to describe it, never before had I heard or seen something alike, I even couldn’t have dream about it”.

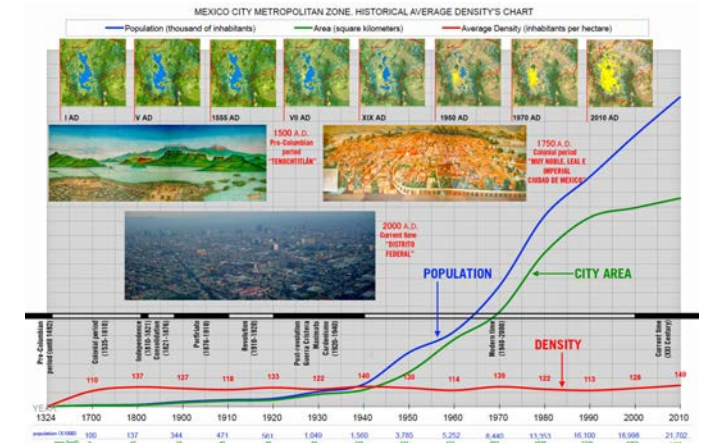


Figure 3: Mexico City Metropolitan Zone. Historical average density's chart (by: Martin Gomez-Tagle built with INEGI's data -National Institute of Statistics, Geography and Informatics)

The landscape has suffered drastic changes since the founding of Tenochtitlan, namely during the conquest and destruction by the European settlers, the reconstruction of the city during the Colonial Period, the Independence, the Revolution, and the recent modernization.

Because the islet was kept as the center of the city, it has expanded in rings, causing the drainage of the lake. Also, the roads connecting the islet with the mainland began to expand to the mountains, causing the loss of green areas, rivers and the banks of the lake. Agriculture began to disappear due to the water and land shortage resulting from the growing urbanization and impermeabilisation of the city. Only a few cultivation fields still exist in the protected areas in the south of the city.

Due to the changes in its planning back in the XVI century, the city began to suffer floods. In the XVII century, began the construction of the “Gran Canal de Desagüe”, which was, opened in the XX century. But, the management of the sewage is not efficient and floods continue. Two tunnels were built (with 50km and 10km long), and in 2008 another tunnel



Figure 4: Housing vs. floating crops (image: Google Earth), floating crops “chinampas” (photo: Gilda Arroyo)

(“Túnel Emisor Oriente”) was started. This last tunnel seeks to keep the wastewater 62km away from the city and will be ready in 2016. Unfortunately, there is not a separate system for rainwater, with most of it blending with the sewage and being lost.

Potable water is mainly imported from the basins and dams of the Cutzamala and Lerma River, 350 kilometers away.

In the early 1940's, the city watercourses began to be canalized and buried in order to avoid floods. These spaces were used to build high-speed roads for the increasing number of vehicles, for example “Viaducto Río de la Piedad”, “Río de los Remedios”, “Viaducto Río Becerra”, “Viaducto Miguel Alemán”, “Río Magdalena”, “Río Mixcoac”, “Río Consulado”, “Río Hondo” and “Río Churubusco”. In these roads the main lane has a concrete box containing the river, but even today some parts of it still get flooded.

The real-estate development ‘boom’ began in the 1970's, when the population began to grow at a faster speed than the expansion of the city. Several farmlands on the outskirts were transformed into social

housing neighborhoods, and the city green area rapidly decreased in face of the dense urban sprawl.

It is well known that the increase of population and vehicles, the poor garbage collection system and the lack of environmental education are worsening the shortage of natural resources. The Food and Agriculture Organization of the United Nations (FAO) recognizes that today there is an average of 1.94 m² of green area per inhabitant in the city, while the World Health Organization (WHO) recommends a minimum of 9 m² of green area per inhabitant, but states that the optimal area should be between 10 and 15 m².

The city faces a double problem with water resources. In one hand, there is a shortage of potable water due to the lack of groundwater recharge and the droughts, resulting in the rationing of this resource by the authorities. On the other hand, during the rainy season wastewater and rainwater floods affect many areas of the city, specially the areas over the extinct Lake of Texcoco.

Given the many environmental problems affecting Mexico City, it is urgent to develop initiatives to recover the natural habitat of the valley area, increase biodiversity,

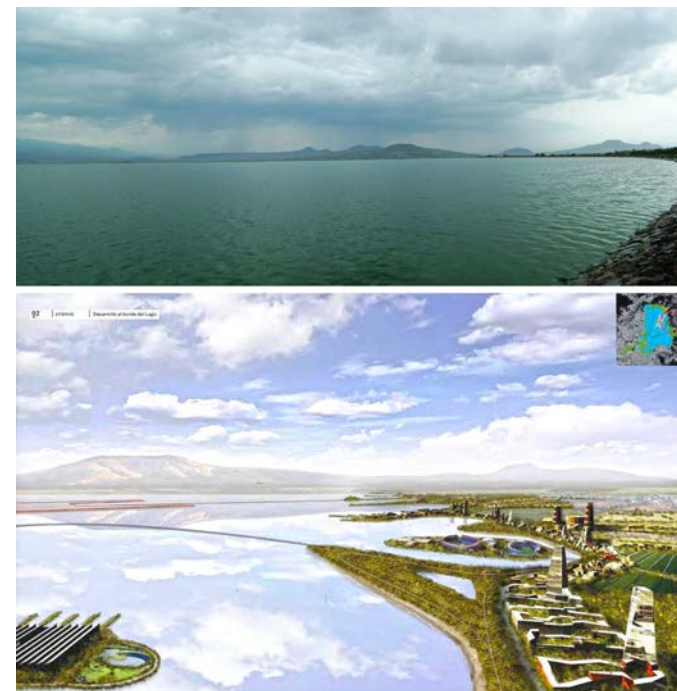


Figure 5: Nabor Carrillo lake (photo: Paola Legorreta), Ciudad Futura project (image: Taller X Alberto Kalach)

create green corridors, improve the microclimate and air quality, prevent erosion and floods, and increase the environmental and aesthetic quality of the landscape.

ENVIRONMENTAL REMEDIATION PROJECTS

For the first time in history, we are living in a time where our surroundings are changing at a fast rhythm. Even though the transformation of the natural landscape of the Valley of Mexico has taken many centuries and in the last 30 years it has been modified drastically and continues to change in an accelerated way. This leads us to believe that we can act to modify our surroundings at the same speed in order to achieve a better urban environment.

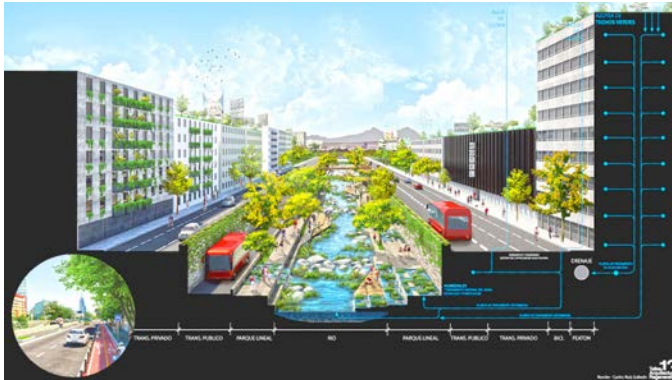


Figure 6: Project River Recovery (render: Carlos Ruiz Galindo)

As mentioned before, in this investigation examples of three different topics will be analyzed and discussed from the landscape design and architecture point of view.

The partial restoration of rivers and lakes in the city

In 1965 the engineer Nabor Carrillo began a crusade to recover the flora and fauna through the revival of part of Lake of Texcoco at the east of Mexico City. As many authors have mentioned, his strategy included ending the floods, provide the city with potable water, recharge the aquifers and clean the air. The result was a 10,000 hectares lake with a 36,000,000 m³ of storage capacity.

Inspired by this project, a group of students led by architects Alberto Kalach and Teodoro González de León proposed the relocation of Mexico City's international airport to an area that combined disused lands and garbage dumps. This area is located in the bed of the extinct Lake of Texcoco, where a reengineering of the soil can be made to receive the streams coming from the mountains and restore part of the lake.

The transformation of the area into an area of high economic potential could generate resources to help the improvement of the surrounding neighborhoods

through reforestation, with the airport becoming a green 'lung' for the metropolis. However, pressures from the owners of the land led the government to abandon the plan and decide to expand the current airport to satisfy the increasing demand of services, leaving the lake idea still pending.

Within the city there are a few watercourses remaining at surface. Unfortunately, the garbage that is informally and illegally thrown into the channels cause high levels of pollution. Recently, inspired by the river restorations in Tokyo during the 1970's and 1980's and in Seoul with the Cheonggyecheon river restoration project in 2010, the group Taller 13 – Regenerative Architecture, proposed the recovery of one of the major rivers of the city.

The "Río de la Piedad" runs from east to west piped under the ground, designing a semicircle that covers many territories in the south-central city. The idea is to liberate the river and leave it "open-cast", controlling water quality control since its origins, avoiding possible contamination points and creating a linear park along the river.

More than a mere environmental restoration, the project aims to create a semi-artificial landscape that evokes and provokes the human contact with nature, namely coexistence, respect and education towards the environment; and to be a catalyst for further projects involving vegetation, water and fauna.

An important question to be solved by the project is the huge vehicular traffic flow that transformed this "river of water" into a "fluid of cars". According to unofficial numbers, being one of the main points of communication in the city, there are about 300,000 vehicles circulating through this area every day.

The recovery and expansion of green areas

The city lacks playgrounds, recreation and leisure areas. Although they are large forested areas such as Chapultepec, Aragon, and Tlalpan's Forest, among others, they are not connected. We must recognize that a territory equivalent to 60% of the Distrito Federal is an ecological reserve located in the south of the State limits. Within the urban area, there are a variety of main roads that maintain linear parks, some accessible but mostly not. There are parks with an acceptable size almost in every residential area; there are also many unused spaces at "street level" with a high potential to be claimed as "urban parks", some of them are now being intervened under the Municipality program called "pocket parks". Many of these "parks" are located below road bridges in areas that were previously abandoned. In these new areas for the public use, more than increasing the green area of the city, recreational playgrounds for children and other equipment can be placed for people to exercise. The project aims to establish a close relationship between these areas and formal parks. While they are still not united within a continuous green, they create a grid of points that could be classified as a small network of parks for the city. Lighting and security are important issues if these areas are to be used 24 hours per day. In these spaces, the government is also providing Internet, electrical connection, parking for bicycles, benches and tables and some greenery.

Another green project in the city are the "green roofs". Traditionally, the houses located in the city downtown had "green terraces" and "backyards". Many houses also had a cloister with fruit trees, fountains, and spaces to read or rest. Due to the different types of houses and densification now, if courtyards and roofs existed, there would be shared by a large number of condominiums in the case of apartment buildings, where roofs are mainly used for the placement of building facilities (elevators, water tanks, cooling machines, etc.) reducing the space available to achieve a green roof.

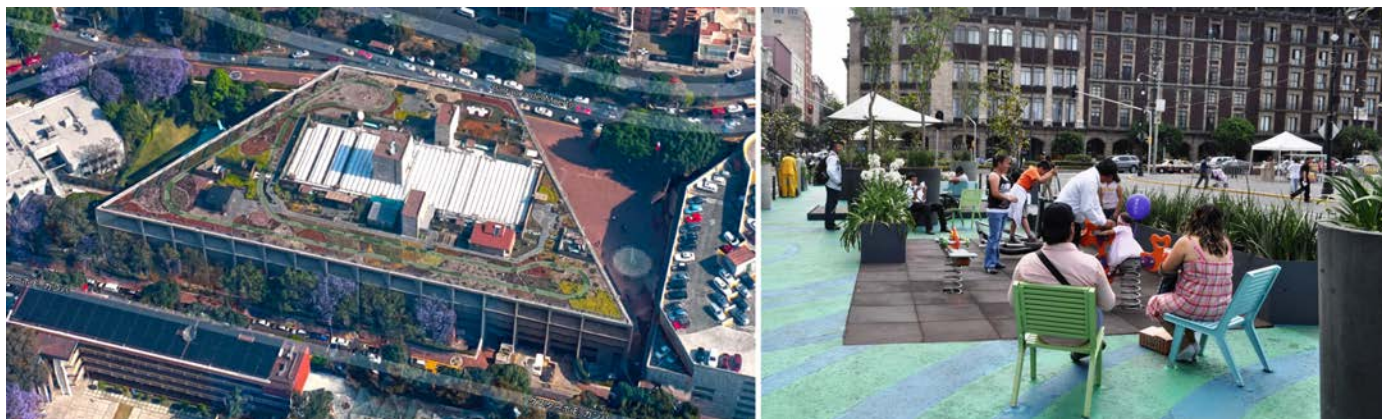


Figure 7: Pocket park (photo: Autoridad del Espacio Público), Green roof (image: Google Earth)



Figure 8: Ambient Center of Azcapotzalco (photo: Al momento noticias), Huerto Romita (photo: Alejandro Linares García), Green sculpture in Chapultepec Avenue (photo: Rodrigo Animas)

In the 1990's, the government tried to involve the population into the green roofs movement by donating potted plants. However, most of them were not used on roofs but in the gardens located at the street level. In 2010, the federal government installed a green roof with an extension of 5,265 m² on the INFONAVIT building (Instituto Nacional de la Vivienda de los Trabajadores) as a pilot project for others institutions nationwide, estimating that this would generate savings in the use of air conditioning of the building, in addition to a rainwater harvesting system and recreational and rest areas for the workers on their break time.

Recently several public and private institutions have joined the green roofs program, such as Belisario Domínguez Hospital (1,000m² of green areas), the SEDUVI – Secretaría de Desarrollo Urbano y Vivienda – (hydroponics) and the Universidad Iberoamericana (urban agriculture).

In 2012, a program for the Miguel Hidalgo's Delegation installed green roofs, some of them accessible for the public, in the so called "beacons of knowledge", which are small public libraries located in various parts of the delegation, being the first ongoing program in the city.

In several facilities, there are "botanical gardens" and "organic gardening" with the purpose of promoting environmental education among citizens, especially children.

Nowadays, the green roof program has migrated from the roofs of the buildings of some government agencies, to the roofs of families who are looking for training or support to build its green roof and its rainwater harvesting system. Meanwhile, individuals and companies are also getting involved with the greening of the city and, simultaneously, with the idea of being "visible" to the society. There has also been a movement promoting the installation of sculptures, green walls and "green elements" in various parts of the city.

Others have been charged to maintain the "ridges" green in different parts of the city, "adopting" these spaces and keeping them neat and as beautification areas through natural elements. There is a "green fund ZMVMX – Zona Metropolitana del Valle de México" supported by the Bank of Mexico and numerous companies, to promote such projects that aims to cover with plants 40% of the roofs in Mexico City by 2030.

Urban agriculture

In the Valley of Mexico, the pioneers in creating agricultural spaces within the city were the natives through the "chinampas", which were located in their lands and produced food for self-consumption and trade. Coupled with the riverine animals consumption, this complex agricultural system enabled them the control of the crop that would satisfy the food requirements of the Aztec capital.

There are also other examples of urban agriculture in past centuries. People migrating from rural areas to the city sought for houses with courtyards to grow some products of their land and keep their food taste. However, adaptation to local products was great and few areas in Mexico City were dedicated to self-consumption agriculture. Not even during wartime the urban

agriculture phenomenon was present. Even though schools and other institutions have been working in the agriculture area and have large extensions of land within the universities campus in the city, what has been more present are the vegetable productions.

There are at the moment a little over 400 small urban gardens where the owners seek an additional income in the first place, and secondly small productions for personal use or for friends who like organic products consumption.

Urban agriculture is underdeveloped due to low prices and oversupply of farm products in the city, which have a well-plotted distribution network. On the other hand, organic products can cost five times more than those found in supermarkets, so few people have affordable access to them. Urban gardens can be considered as a trend that copies the European or American cities, where the elite enjoy them. But the movement is growing in the “alternative” territories of the city.

The concept of “permaculture” is increasingly known by the middle classes (42.4%) and high classes (2.5%) of the society and it is slowly gaining ground because it unites the aesthetic of the “urban green”, offers economic savings and healthy eating. Paradoxically, the society of scarce resources (55.1% according to INEGI Instituto Nacional de Estadística y Geografía) has two trends in urban habitat: large green and arable land on the outskirts of the city or fully dry areas with little vegetation and high levels of environmental pollution.

CONCLUSIONS

The city changes and transforms quickly and constantly. Life cycles that open and close, adapting to the conditions of the time being. Rapid urbanization has created artificial environments for a natural being – the human – who now realizes that

he must turn back and look for patterns to rediscover the quality of life that has been lost.

The low value that the inhabitants give to the nature elements followed by a poor environmental education has resulted in a partial understanding of the benefits of living in harmony with the landscape. There are small groups and some governments that promote projects and programs in order to improve the ecology of the metropolis, being the most important those working in the restoration of the “green” and “blue” landscape infrastructure.

Unfortunately, the ease to enjoy extensive natural landscapes in areas close to the city, the low cost of food and bad habits created for comfort, do not allow citizens to understand that we are passing through a growing crisis in matter of environmental security and that we must work on the recovery of the natural elements still remaining.

We continue preying the ecosystem and if we want a better city, a “green Mexico City”, initiatives like “La vuelta al lago”, the recovery of rivers, city parks and urban agriculture must be carried out with greater emphasis and support in every way.

We can hardly return to the natural landscape much missed when Mexico City was part of “the most transparent region”, mentioned by the German botanist and geographer Alexander von Humboldt, referring to the Valley of Mexico in 1804. But if we carry out these projects we can live in a cleaner metropolis, with natural areas recovered and enjoying what the earth offers. We need more projects and variants – some not presented in this study and many others to be done – however, the good results that have been given in other cities, will allow us to recover and improve the “green and blue” infrastructure of the metropolis to benefit the standard and quality of life of its inhabitants.

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Figs. 1 y 3 – “A Comparative Study on Hyper Density Developments in Densely Inhabited Districts of Mexico City. Study on the urban fabric of six selected sectors using Spatial Database Engine Analysis” by Martin Gomez Tagle

Fig. 2 – <http://www.viajesyfotografia.com/blog/la-obra-cumbre-de-los-mexicas-el-templo-mayor-de-mexico/tenochtitlan-tomas-filsinger/>

Fig. 4 – Image generated by the author in Google Earth Pro & <https://ssl.panoramio.com/photo/11954328>

Fig. 5 – <http://sociologiaespaciosactores.blogspot.mx/2011/12/fotos-lago-nabor-carrillo-paola.html> & <http://kalach.com/mexicociudadfutura/proyectos/ciudad-futura/pp138.html>

Fig. 6 – <http://www.taller13.com/proyecto/rio-la-piedad>

Fig. 7 – <http://www.aep.df.gob.mx/index.php/comunicacion-social/noticias/124-aep-comparte-lineamientos-de-parques-publicos-de-bolsillo-con-autoridades-de-california> & Image generated by the author in Google Earth Pro

Fig. 8 – <http://www.agrohuerto.com/huertos-urbanos-en-mexico-df/>, http://en.wikipedia.org/wiki/La_Romita#/media/File:HuertoRomita03.JPG & <http://moduloverdeunam.blogspot.mx/>

THE RISE, DECLINE AND FALL OF LANDSCAPE ARCHITECTURE EDUCATION IN THE UNITED KINGDOM: A HISTORY

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KEYWORDS

History, Pupilage, Education

ABSTRACT

Landscape Architecture as an organised profession began slightly later in Britain than other north-west European countries such as Germany, The Netherlands, and Scandinavia. The Institute of Landscape Architects or ILA (now the Landscape Institute) was established in 1929 and the first landscape architecture course under that title began in 1930 at the University of Reading. This paper investigates the origins and outlines the growth and development of what became landscape architecture education in Britain (in the nineteenth century usually described as “landscape gardening”) using primary and secondary sources. There is a discussion of the little known about of the course in landscape gardening established in 1881 by Edward Milner (1819–1884) at the Crystal Palace. Then follows accounts of the first courses in landscape architecture in the 1930s and 1940s with outlines of their syllabuses. This is supplemented by a brief summary of developments in landscape architecture education to the present day. British Landscape Architecture education has largely grown since 1950, however, its origins are older. This paper surveys the development of landscape architecture education in the UK. It finds that a significant number of courses have closed and suggests that landscape architecture education is marginal in Britain. Remarkable too for a profession, where women are well represented, is how few female landscape architects have been involved in initiating these courses. The paper poses the question whether UK landscape architecture education is in terminal decline.

EDUCATION ON-THE-JOB

Though there was a body of theoretical writing on landscape gardening, such as the writings of Horace Walpole (1717–1797), Humphry Repton (1752–1818) and John Claudius Loudon (1783–1843), for instance, and works such as the writings of Hirschfeld (1742–92) were available in French translation, there was no formal education in landscape gardening in Britain until the late nineteenth century.

Until the 1950s, British landscape architects (in the nineteenth century known as landscape gardeners) were educated through pupilage. A contract (or “articles”), for a number of years, was signed by the pupil for on-the-job training with a professional practitioner and the pupil paid the practitioner. For example, Ian McHarg (1920–2001) left school at sixteen to become an articulated pupil to Donald A. Wintersgill (“perhaps the only landscape architect in Scotland”) while enrolling in part-time courses at art school and agricultural college. He also enrolled in an engineering school, but the War intervened and he joined the Royal Engineers and “studied military engineering as a cadet officer” (McHarg, 1996:112). Post-war he then undertook the Harvard MLA.

CRYSTAL PALACE SCHOOL OF LANDSCAPE GARDENING

There was, however, one nineteenth century course in Britain. This was the *Crystal Palace School of Gardening and Practical Floriculture and Landscape Gardening*, founded in 1881 by Edward Milner. The Crystal Palace and its 80 ha park in Sydenham was run by the Crystal Palace Company, which it had among its aims an educational and cultural mission. In 1854 the Crystal Palace School of Art, Science, and Literature was established, with a ladies’ division (music, art and the humanities) and a gentlemen’s division which included the Crystal Palace School of Engineering (Bell, 1936). Little is known of the School of Landscape Gardening (records were lost in the fire which destroyed the Crystal Palace in 1936), but the 1881 Annual Report

of the Company recorded the “cost of establishing the new school, advertising superintendence, equipping the classrooms and obtaining appropriate stationery of £519.13s.3d for the first twelve months” and “fees obtained were £277.1s.0d” (Bellamy, 1986).

How long the School of Landscape Gardening lasted is not known, but something of its educational scope, is suggested in the treatise, *The Art and Practice of Landscape Gardening* published by Edward Milner’s son, Henry Edward Milner (1845–1902) in 1890. This covered park and garden design both public and private, and also residential layout design (still a focus of the profession in North America, but far less so in Britain). With the demise of the Crystal Palace School the conventional way of becoming a landscape architect remained articulated pupilage.

TWENTIETH CENTURY LANDSCAPE ARCHITECTURE EDUCATION

Landscape Architecture education under that title in the UK began in 1930 when the undergraduate diploma course at the University of Reading was established (Jacques & Woudstra, 2009: 5), a decade after the course in Ås in 1919. The Reading course straddled the departments of horticulture and fine art. Initially the senior lecturer was Arthur J. Cobb (active 1920s–1940s), a horticulturist and founder member of the Institute of Landscape Architects (ILA). His publications include *Garden Craft, a guide to the best horticulture practice, private and commercial* (1936). In 1934 Cobb was joined by Geoffrey Jellicoe, (1900–1996), as a sessional lecturer, and lectures on the History of Garden Art began. It was a coup to attract Jellicoe. He had been a year master at the Architectural Association School and was a rising landscape architect and a founder member of the ILA. In 1934 he was working on the modernist Cheddar Gorge Cavern Restaurant and cave interpretation, with his partner Russell Page (1906–1985) whose plantsmanship complemented Jellicoe’s architecture. Page succeeded Jellicoe in 1938, when Jellicoe became head

of the Architectural Association School, until the outbreak of war in 1939 and the suspension of the course.

The syllabus of the pre-war course included:

- horticulture
- art,
- botany,
- book-keeping,
- chemistry,
- surveying and leveling, and
- building construction.

Horticulture included the study of hardy ornamental plants, but also fruit and vegetable cultivation, greenhouse work and propagation.. Frank Clark (1902–71) thought it compared in terms of emphasis on gardening and horticulture with schools at Alnarp, Versailles, “the *Gartenbauschule* (sic) in Switzerland” and the German schools of the time (Clark, 1956, p.10)

POST-1945 DEVELOPMENTS

In 1946 the Reading course recommenced with Frank Clark in charge. Clark became an articulated pupil to Percy Cane (1881–76). He assisted Christopher Tunnard (1910–79) on projects including the grounds of Bentley Wood for Serge Chermayeff (1900–1996) and helped Tunnard with *Gardens in a Modern Landscape* (1938), (Bennett, 2011).

In 1956, Clark wrote that the post-war course reflected changes in landscape architecture practice, and embraced the whole external environment rather than purely garden and park design. Clark noted

that book-keeping and chemistry were abandoned; soil science introduced and the history of garden art extended to include studies in the development of landscape and the growth of towns. (Clark, 1956: 10). In 1947 Jellicoe wrote there were five students annually undertaking a three year diploma (Jellicoe, 1947: 10). By 1960 Arnold Weddle reported there were ten students completing the Reading course each year, but that the course was closing (Weddle, 1960: 18).

WHY READING CLOSED

Clark explained the closure in his presidential address of 27 October 1959 to the ILA:

“I must first explain some of the reasons why the course was discontinued at Reading. The situation there developed

Because the Diploma became a constant source of irritation to departmental heads who had to ask their staff, already overworked, to prepare and deliver special lectures to students outside their departments.

At Reading – and this is also the situation at many other Universities at present, very great pressure on residential space and lecture rooms and on finances is exerted by other competing interests, by the sciences especially, so that unless Diploma courses can justify their existence they are likely to go to the wall, in favour of new degree courses for example.”

With hindsight it appears ironic that one of the strengths of Reading, the fact that it benefited from both horticulture and fine art departments, is seen as a reason for its demise. Additionally, Clark went on to say that

“... if we, as an Institute, had taken greater interest in our only full-time undergraduate course,

encouraged it and looked after its interests more closely this would not have happened”.

(Clark, 1959:4)

Pat and David Thirkettle were students from 1957–60 and they record:

“Frank Clark and Pat Booth provided a first class background to the students’ understanding of Landscape Architecture and its history. These were complemented by related lecturers in the sciences and fine arts. Amongst these were the contributions of Professor Betts and Mr McCance from the Faculty of Fine Art and those of Miss Hole and Miss Harris from the Faculty of Horticulture. The latter involved practical hands-on experience in the University gardens at Shinfield. Sometime during 1959 Michael Brown a practising architect/ landscape architect joined the staff and provided a useful design stimulus.” (P and D. Thirkettle personal communication 5 May 2015).

This closure was a big set-back for UK landscape architecture education when the profession was expanding and there was a growing need for formal education. In 1959 Clark was appointed to set up a new course in Edinburgh.

UNIVERSITY EDUCATION ELSEWHERE

Despite the suspension of the University of Reading Diploma, landscape architecture education had continued in wartime Britain in 1939–45. From 1943 Regent Street Polytechnic, London, advertised a four year long, “full-time day” Diploma leading to the Associateship examination of the ILA and a part-time evening course as well. (*Wartime Journal ILA*, 1943: frontispiece advertisement). Stanley V Hart and Brenda Colvin (1897–1981) were lecturers in 1943 (University of Westminster Archive: 1946). But this course appears to have ended by the 1950s.



FIG 1. The scope of the curriculum of the Crystal Palace School of the 1880s may be illustrated by Edward Henry Milner's *The Art and Practice of Landscape Gardening* (1890) here with 'Plan of Building Estate' showing residential, subdivision layout design. (photo. Robert Holden)

In 1945 a two year, evening class, *Certificate in Landscape Design* began at the School of Planning, Gordon Square, London, (University College, University of London). Its syllabus covered:

- landscape design theory,
- history of town and countryside
- history of garden design,

- geology,
- soils, ecology,
- agriculture,
- forestry,
- plant material,
- garden construction, and
- estimating and costing. (*Journal ILA* 1949: end page advert)

This appears a wider ranging curriculum than the Reading course and addressed town and countryside..

In April 1947 the *Journal ILA* announced that

"With funds given by the Cement Manufacturers Federation and Imperial Chemical Industries Ltd. the Institute has been able to establish lectureships in landscape architecture in the Departments of Town and Country Planning at the Universities of London and Durham" and that "Mr G.P.Youngman, MA, AMTPI, (A) has been appointed to the lectureship at University College, London and Mr Brian Hackett, ARIBA, AMTPI, (A), to the lectureship at King's College, Newcastle." (*Journal ILA*, 1947: 16).

These appointments led to the Diploma at Newcastle-upon-Tyne (then King's College, University of Durham) in 1949/50 (Brenikov, 1998), which began as a one year, Diploma course and became a two year Diploma in 1965 and later a Masters course (closing for new entrants in 2003).

Peter Youngman (1911-2005) at University College, University of London ran the two year, part-time Certificate in Landscape Design (Ellison, 2010) from 1949 and this continued until the 1960s. In the mid 1950s

this was recruiting " between twenty and twenty-five students", a large number for the time (Anon 1956). In the North, after 1945, a part-time Certificate in Landscape Design began at Leeds College of Art (later Leeds Polytechnic, then Leeds Metropolitan University, now Leeds Beckett University) (Woudstra 2010: 245), a full time course followed in 1961.

The *Journal of the ILA* also regularly published notices of scholarships for Harvard University (e.g. "Scholarship for Graduate Study in Landscape Architecture at Harvard University", (*Journal ILA* March 1950, p.14), and after 1954 when Ian McHarg set up his MLA at the University of Pennsylvania British graduates were welcomed.

1960S AND 1970S DEVELOPMENTS

In Scotland, Clark's appointment as Senior Lecturer in 1959, led to the establishment in 1962 of the graduate "conversion" course at the University of Edinburgh, (Catharine Ward Thompson, *History of Landscape Architecture education in Edinburgh*, unpublished paper, personal communication 17.10.2014). Clark wrote in his ILA Presidential address of 1959:

"I would suggest that it might be possible to build a course upon the foundation of the humanities which would approach the subject as a discipline in its own right. The subject of landscape architecture rests on a three-fold foundation – the development and nature of man's aesthetic sense, the nature of the environment in which that development has taken place and the materials of the environment. These might be also described as Art, Ecological Geography and Horticulture (used in the wide sense to include botany, forestry and soil science)..." (Clark, H.F, 1959: 5).

The 1960s was the main period of growth of new courses beginning with Birmingham College of Art (later City of Birmingham Polytechnic, now Birmingham City University) in 1960 (personal communication



FIG 2: Sir Geoffrey Jellicoe at Thames Polytechnic in 1980, with Michael Lancaster on his left and Tom Turner far left, nearly fifty years after Jellicoe began teaching landscape architecture at the University of Reading in 1934, (photo. University of Greenwich)

Professor Kathryn Moore, 12.12.2014); Cheltenham College of Architecture and Design (now University of Gloucestershire) in 1961 (Moore, B. 2010), and then at Hammersmith College of Building and Art in 1965 (later Thames Polytechnic, now University of Greenwich) (University of Greenwich blog nd). At 'red brick' universities, landscape architecture studies began at the University of Manchester in 1967 (Allen Ruff, personal communication 16.12.2014) and at Sheffield in 1969 (Woudstra, J. 2010: 256).

The Manchester School of Art (later Manchester Polytechnic, then Manchester Metropolitan University) set up a Diploma course in 1967 (Ian Fisher personal communication 17.5.2015). In 1974 David Skinner (1928–1989) established an undergraduate course in landscape architecture at Edinburgh College of Art (later to take over the university's conversion degree and now part of the University of Edinburgh (Catharine Ward Thompson, *ibid*).

THE 1990S AND LATER

The latest phase of new landscape architecture courses were those at Kingston (1992) (Pat Brown personal communication 13.1.2015), Writtle College (1994) (Steven Terry personal communication 5.11.2014) and Hadlow College, the BA (Hons) Garden Design in 1992. East London followed in 2006 (David Buck, personal communication 29.10.2014), and Ulster in 2008 (University of Ulster, 2011). However, ten out of 21 of these courses, which have closed (**ref table 1**).

CONCLUSION

In the UK, education in Landscape Gardening and Landscape Architecture has grown intermittently. In both the nineteenth century and first half of the twentieth century the first courses at Crystal Palace and then Reading closed as did later initiatives at The Polytechnic (Regent Street) and University College, London. Nearly half of the twenty one courses listed have closed (**ref table 1**). This pattern of courses opening and then closing after a time has continued into the twenty first century. In 2015 despite over a century of effort there is only one independent department of landscape architecture in the UK, that at the University of Sheffield. None of the heads of the joint departments are landscape architects, and full staff numbers have dwindled. In the United Kingdom landscape architecture remains a marginal subject. The suspicion is that Landscape Architecture as a university discipline in the United Kingdom has not realized its potential. Also remarkable is the absence of women involved in initiating courses.

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TABLE 1: UK landscape architecture courses by date of beginning of teaching at institutions

Institution	School or Department (where known)	Date of Foundation	Date of closure to new entrants, if applicable
Crystal Palace School of Landscape Gardening		1881	?
University of Reading	Diploma Landscape Architecture in the Department of Art and Department of Horticulture	1930	1959
Regent Street Polytechnic	School of Architecture, Division of Landscape Architecture	1943	1950s
University College, University of London	School of Planning, Certificate Landscape Design	1945	1968
University of Newcastle-upon-Tyne	Department of Town Planning	1949	2003
Birmingham City University (formerly University of Central England).	Birmingham School of Architecture	1960	-
Leeds Beckett University (until 2014 Leeds Metropolitan University)	Leeds School of Art, Architecture & Design	1950s	-
University of Gloucestershire	School of Art and Design	1961	-
University of Edinburgh (nb ref also Edinburgh College of Art below)	MLA transferred to Edinburgh College of Art 1995	1962	-
University of Greenwich	Department of Architecture and Landscape	1965	-
University of Manchester,	Department of Planning & Landscape,	1967	1992
Manchester Metropolitan University	BA and PG Diploma Landscape Architecture, Manchester School of Architecture	1967	2014 BA Landscape Architecture, MA continues
University of Sheffield	Department of Landscape	1969	-
Edinburgh College of Art (in 2011, Edinburgh College of Art merged with the University of Edinburgh)	School of Landscape Architecture (1986-2011) became part of the Edinburgh School of Architecture and Landscape.	1974	-
Kingston University	Department of Architecture	1992	2013 BA closed, PG Diploma + MLA continues
Hadlow College (University of Greenwich degree)	Dept. of Landscape, Horticulture & Design, BA Garden Design (leading to Greenwich Diploma Landscape Architecture)	1992	-
Kingston University	School of Architecture and Design	1992	-
Writtle College (University of Essex degree)	School of Design	1994	
University of Manchester,	School of Environment, Education and Development, Master of Landscape Planning and Management	1995	2010
University of East London	School of Architecture, Engineering and Computing	2006	-
University of Ulster	School of Architecture and Design	2008	2011

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HOW WAS YOUR WORK EXPERIENCE? STUDENTS' PERSPECTIVES OF THE 'YEAR IN PRACTICE'

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ABSTRACT

"Being sat on a computer all day tended to wear my eyes out, but that's part of the job and it was tiring, I remember the first month being exhausted because I wasn't used to it." (Landscape Student 1)

It is widely asserted that work experience is good for students. It can help them improve employability skills, degree grades, and get ahead of the competition for jobs. But how do landscape architecture students perceive this experience? Do they recognise the benefits lauded by researchers and policymakers, or identify others overlooked in the current focus on employability? Moreover, have they have faced issues which have adversely affected their experience and therefore undermined potential benefits? This paper draws on in-depth research interviews undertaken with final year students in the Department of Landscape, University of Sheffield. A successfully completed 'year in practice' is a mandatory requirement of the Landscape Architecture undergraduate degree programme accredited by the Landscape Institute. The findings paint a complex picture of the students' journeys: seeking work, expectations, the worst and best of times, the impact their experience has on their final year of study. It reflects on current practice in the department, and explores what can be done to support students gain the most from this important learning experience.

INTRODUCTION

This short paper discusses the role of the 'Year in Practice' (YiP) as an integral part of landscape architecture student's education in the Department of Landscape at the University of Sheffield, UK. It explores students' perceptions of this experience and the benefits they believe they have gained. Traditionally the approach to the YiP in the Department of Landscape has been 'hands-off'. Although support and advice is available, students are largely responsible for securing their own work experience and there is no formal assessed component. With many writers emphasising the importance of preparation and reflection to gaining the full benefits of work based learning (Pegg et al 2012; Newman et al 2009), this raises the question; should the Department do more to support students and what in particular would be most beneficial? In addition, although the literature strongly exhorts the benefits of work experience (Mendez 2010; Freestone et al 2006; Little and Harvey 2006; Leslie and Richardson 2000), others point to negative aspects that can leave students feeling exploited and undervalued (Neville and Mulholland 2003; Freestone et al 2006).

Despite the breadth of literature, there is very little written on the students' perspectives of this learning opportunity and no studies were found relating directly to landscape architecture. This paper is drawn from a study aimed at addressing that gap in knowledge and to gain a better understanding of landscape students' perceptions and experiences of the YiP in particular. This would help to identify how students might be better supported to gain the most from this work-based learning experience. The study involved in-depth interviews with 15 landscape students (half the cohort) undertaken during the summer of 2014. Table 1. provides a summary of the participants and their experience.

These interviews explored students' whole YiP experience: securing a suitable a work

experience placement, the placement itself, and returning to their final year of study.

Participant and 'year in practice' placement characteristics		Number students
Gender	Male	10
	Female	5
Nationality	UK	14
	International (Bulgaria)	1
Location of placement	UK	13
	International (New Zealand, Bulgaria)	2
Length of 'year in practice'	1 year (10-12 months)	13
	2 -3 years (20 + months)	2
Type of placement provider	Private sector (small-medium practice)	15
	Public sector (Local Authority)	2
	Third sector (Social Enterprise)	2

Table 1. Summary of participant information. Note that some students had placements with more than one placement provider during their year(s) in practice.

BACKGROUND

The YiP is a year of work experience that undergraduate students in the Department of Landscape, undertake as part of their five year degree programme. They must 'pass' the YiP if they wish to return for their final year to gain a Masters in Landscape Architecture (MLA). Accredited by the Landscape Institute, the MLA enables entry to the professional pathway – the Pathway to Chartership (P2C). A pass is based on a minimum period of time (9 months) spent in work experience relevant to the profession (usually a placement with a private landscape practice) and demonstration of the skills gained. To evidence skills gained students either opt to complete the 'Skills for Work Certificate for Year in Practice' (SfWC), a reflective record of skills and experience gained that has recently been developed with the University's Careers Service (about half do this), the rest completing a more basic skills record and description of roles and responsibilities held.

The YiP follows in the long tradition of work experience as a feature of higher education in the UK. Originally the preserve of vocational courses, the acquisition of 'work skills' by the wider student population and the role of Higher Education Institutions (HEI) in this, has come to the fore in response to the concerns that HEI's have failed to address the needs of employers (Neville and Mulholland 2003). The Dearing Report, published the National Committee of Inquiry into Higher Education in 1997, was highly influential in asserting that work experience, as part of students' academic experience, is crucial to ensuring the economic competitiveness of the UK (Pegg et al 2012: Dearing 1997). The reported benefits of work experience are many. Graduates become more employable due to the acquisition of work related skills that employers value and they may achieve a higher starting salary (Little and Harvey 2006: Freestone et al 2006: Leslie and Richardson 2000). The skills gained, increased maturity and a more positive approach have also been shown to have a positive impact on further study (Lucas and Tan 2007: Little and Harvey 2006: Mandilaras 2004). It is not all positive however. Although the literature is limited, studies refer to the challenges faced by students in adapting to work life and placements not being what they expect as students are unprepared. Work may be mundane, placements too short, support lacking, pay low and students may feel undervalued. Indeed, exploitation has been raised as a concern (Freestone et al 2006: Little and Harvey 2006, Neville and Mulholland 2003, Leslie and Richardson 2000).

Although approaches to proving work experience may differ, the objectives of work-based learning can be described: 'as consolidating and complementing academic learning, knowledge and skills, while integrating some aspects of personal career awareness and development' (Wilson 2009, p5). As a pedagogic approach, the general idea is that skills taught at University can only be really understood once contextualised in the workplace, in a 'real-life' situation. This is particularly true in disciplines (such as Landscape Architecture) that

involve solving complex issues, often of public interest, which may necessitate the negotiation and mediation of conflicting values to reach a solution (Askew 2004). For this pedagogic approach to be effective however there needs to be reflection and evaluation of the experience and learning (Pegg et al 2012: Askew 2004).

FINDINGS

What I gained from my year in practice...

The interviews revealed that landscape students are clear about the learning benefits that they have gained from their YiP. The skills they have acquired can be categorised according to groupings identified by Little and Harvey (2006):

- interpersonal – improved communication developed through having to deal with people in a real-life situation.
- personal – increased confidence (a result of developing interpersonal and intellectual skills), maturity, time-management and organisational skills
- intellectual – increased subject knowledge and improved technical skills.

Students stressed the personal development in particular; maturing and developing confidence in their own ability. This has helped them to define career goals. Given the type of work landscape architects undertake, that involves solving complex issues of value conflict and judgments, it is highly likely that many will also have developed higher level academic skills such as analysis and synthesis (Askew 2004). However, they did not refer to these. Although students identify benefits, they do not describe these in terms of this enhancing their 'employability', even those who had been offered graduate positions. This may be because the YiP is not optional and therefore they do not see it as giving them

an advantage over their peers in the jobs market. Indeed, several said they would not return to their provider as their experience (and compared to their peers) had led them to believe they could learn more elsewhere! The literature shows however, that students can have little understanding of the learning they have gained from a placement or how to articulate this (Pegg et al 2012; Smith et al 2007; Leslie and Richardson 2000) and this is an area where they need additional support.

The YiP has had a positive impact on students' final year studies. Improved landscape specific skills (intellectual) such as CAD, and transferrable skills (interpersonal and personal) such as time-management, have had enabled them to work more effectively and efficiently. Students had developed a more professional attitude and approach to work and their increased confidence and maturity has had a positive impact on their relationship with peers. They described being more able, and willing, to support each other. The more 'office-like' work patterns they adopted, which included them working in the studio rather than at home as they did as undergraduates, had contributed to this. Working in teams in practice had helped them to develop a more collaborative, less competitive approach (they no longer kept design ideas a secret from classmates). They also had specific experience and expertise that they could now share with each other. In addition, having made the decision to return for their MLA, they had returned with a positive attitude and motivated to work and do well. Their increased experience and having 'grown up' had also made for a more equal and beneficial relationships with staff.

But has it been a 'good' experience?

Landscape students describe their YiP as an overwhelmingly positive experience. As other studies have found however, this was often a retrospective view of something that may have presented significant challenges at the time (Freestone 2006, Little and Harvey 2006).

Starting with securing a placement; for those with previous experience of job seeking, returning to work for previous employers or securing work through known contacts this was straightforward task. For others this was a source of great anxiety. Despite guidance being given by the Department and University Careers Service on seeking and applying for jobs, it took some months after graduating to secure a placement with many disappointments along the way. Some took the first position that came along in a panic that they would not secure any work at all. However, although some students suggest that the Department should give more support, for example liaising with potential employers, the majority said finding their own placement was an important part of the learning experience.

Similar to other studies (Freestone 2006; Little and Harvey 2006) many students found the demands of working in an office difficult at first, but one that did become easier with time. The steep learning curve and building confidence through skills acquisition and adapting to a professional way of working were shared experiences. Dull and repetitive work was another aspect that several mentioned. They described that the long working hours and limited time allocated to particular tasks (due to fee charging) were stressful at times and was one of the worst aspects of their placements. Although this was something that some students had anticipated, many had only a vague or limited idea of what to expect. For others work was 'just different' to what they imagined. For example, some were pleasantly surprised at the informality of the workplace but there were also less pleasant surprises that reflected on the quality of the placement: lack of training, feeling exploited, repetitive and limited design work, and colleagues' lack of professionalism.

Students' perceptions of their placement itself appears very similar to that described in the (albeit limited) literature. As found by others there was an emphasis on the skills and knowledge gained contributing to this

being a positive experience (Freestone et al 2006). What does emerge strongly from this study is the important role colleagues play in defining the placement experience; 'the people' and an enjoyable working environment were described among the best aspects. Colleagues were supportive and welcoming. They learnt a lot from them and they enjoyed contact with clients and other professionals. This was particularly true of students who had placements in smaller private and local government practices and this may be a particular characteristic of landscape practices, that despite the long hours that many work, they tend to be quite informal in structure. Many colleagues will also have a shared YiP experience and may therefore be more empathetic.

Despite being unsure what to expect, and the disappointments or challenges experienced along the way, students rated their YiP experience as 'very valuable'. In rating their own YiP they frequently compared their placement to that of their peers, for example the type of work and hours worked, and some wished they'd worked elsewhere to gain better experience. Several commented that it would be difficult, or even unfair, to formally assess the YiP due to the variation in placement quality. This was reflected in the advice they would give to level 3 students to help them avoid the mistakes they had made. In general placements with small practices were recommended as they gave more 'hands-on' experience and the value of more than one placement to gain a diversity of experience was stressed.

The factors students describe as contributing to a quality YiP placement primarily focus on the day-to-day learning opportunities it offers, rather than the mechanics of placement delivery (such as placement agreement, support, assessment) that is the focus of much official guidance (Pegg et al 2012; DfES 2002). Qualities students value include:

- A variety of work and specifically design work.

- Supportive colleagues and the opportunity to work with others (client /professionals).
- Site visits and being able to see projects happening on site.
- Responsibility (but not too much too quickly!) from which to gain a wide range of experience and skills.
- Informal and flexible working arrangements where hours worked are not excessive.
- How can the Department help?

The fact that students believe that the YiP is a valuable learning experience might imply little needs to be done to enhance it. However, there are negative aspects and it is clear the YiP has at times been difficult for some (if not all) students. Working in an office can be stressful and demanding and is very different to being a student. Mostly colleagues have been supportive and have acted as teachers passing on 'tricks of the trade' but, as this happens in a largely informal and ad hoc way (often without induction, mentoring or appraisals), this has meant that some students have not gained as much from the learning opportunity as they might. Many students are unclear about what to expect and some are anxious and feel ill prepared. And, although students recognise skills gained many described these in a very basic way. As the SfWC is not compulsory not all benefit from this opportunity to reflect on their learning and articulate the skills and knowledge they have gained. Perhaps not surprisingly, the students experience based view of what makes for a good placement notably excludes assessment and does not consider departmental support that might help address some of their issues and consolidate benefits. Greater intervention by the Department, which might help maximise learning gains however, needs to be balanced against the independence of the YiP. Students recognise 'doing it themselves' as a valuable part of the 'real-life' learning experience.

The Department does retain a responsibility for students' well-being and learning throughout their YiP. And, although increased support needs to be weighed against available resources and outcomes, and students independence, the literature and the students themselves offer guidance on ways in which the YiP might be enhanced:

- Preparation for the YiP should describe the possible learning outcomes and benefits (skills and personal/career development) and not focus solely on securing a placement. Students should be better prepared for what to expect and be given guidance on how to get the most for their YiP, for example negotiating a mentor and appraisal, ensuring adequate induction and health and safety training. The returning MLA students have a key role to play in this.
- The regular attendance monitoring by the Department should include a 'welfare and quality check' and to advise students accordingly.
- The SfWC should be compulsory for all students and/or they should be required to submit a work portfolio alongside their skills record. This will help to facilitate student's reflection on their YiP and articulation of this. This could be further aligned to the Landscape Institute's Pathway to Chartership, and be seen as preparation for post MLA job applications rather than an unwelcome additional imposition.
- Further develop structured opportunities for MLAs to share their work and experience with each other, staff and across the year groups. This will help them to reflect on their experience, share learning and ensure their YiP achievement is recognised.

In addition, it is clear that the success of the YiP is dependent on the actions not only of the Department and students, but also the practices that offer placements. Students' experiences show that some

placements are 'better than others' and students are not supported as well as they might be. There is a need for practices to engage more proactively with Universities in developing quality placement opportunities, both YiP and shorter internships, that recognise this as integral to landscape students learning. This would help improve the student learning experience and the quality of graduates entering the job market. In the UK where applications to landscape course from UK students is falling, it may also serve, in a HE environment where employability and work experience is so highly regarded, to encourage school leavers to choose landscape architecture.

CONCLUDING REMARKS

This study has helped to provide an understanding of the landscape student's YiP experience. It has described the benefits to learning students believe they have gained and also the issues inherent in current practice, and it offers some ways in which the Department might help students make more of this experience. However it must be noted that all but one of the students interviewed were UK students, which reflected the balance of UK to international students in that cohort. This situation has changed in recent years and there are now equal numbers of UK students to international students on the undergraduate programme, most of whom are Chinese. It is likely that their expectation and experience of a YiP may be very different to that of the UK students. There is not yet the experience in the Department to give specific guidance to Chinese students hoping to work in the UK, or to know what the learning opportunity of the YiP taken in their home country will be. This is an issue that needs to be addressed and further study is proposed, both within the Department and in collaboration with the University Careers Service and other University support services.

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TOWARDS 2025- DEVELOPING A SINO-EUROPEAN APPROACH TO TEACHING SUSTAINABLE LANDSCAPE URBANISM

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Eco-town, Green Infrastructure, International Workshop, Landscape Heritage, Urban Resilience

ABSTRACT

China's leaders have announced an urbanisation target of 70% (approximately 900 million people) by 2025. Future urbanisation would be characterised not by an expansion of megacities but by growth in rural towns and small cities. Even in China's agricultural heartland, vast numbers of rural villages are becoming small satellite cities, and these forms of onrushing urbanisation are reshaping rural China – its landscape, cultural heritage, and social structures. Those diverse changes formed the basis of a workshop about “Construction of Small Towns and Villages” that ECNU School of Design organised with Sapienza Università di Roma and other European Universities, in 2014. China is a good laboratory for studying the nuance variations of how best correct the massive imbalance between urban and rural areas, thanks to its great local diversity and also because urbanisation has already proven to be one of the most impacting changes in China's 36 years of economic transition. The concept of urban resilience has so far been related mainly to climate change mitigation and adaptation. The intent pursued in the workshop has been to broaden this discussion by showing how the approach to urban resilience can also be related to wider challenges, including i) climate change and natural hazard threats, ii) unsustainable urban metabolism patterns and iii) increasing social inequalities in cities. The workshop experience represented for the author a significant test case of hypothesis and theories at the base of her research “Green Infrastructure. Traditional Knowledge and Technological Innovation for improved Urban Resilience”. She describes her experience and the different approaches and proposals for “Preserving Rural Nature and Humanity Features during Urbanisation” which emerged during the workshop. She concludes describing how landscape architecture and in particular Green Infrastructure design can take the key role in addressing the major challenges of Rural China Urbanisation.

THE CONTEXT

China's rural village landscape has been changing dramatically in the past 50 years.

The great reform of the Chinese economy began 36 years ago in 1978. The “Open Door Policy” – liberalization of foreign trade – involved a deep reform of the economy and in particular of agriculture, which entailed the dismantling of the collectives and the establishment of a family-based farming structure, the so-called “Household Responsibility System”. The rapid development of the Chinese economy (according to World Bank estimates, China had an annual growth rate of about 10% between 1990 and 2006) is mostly the result of the combined effect of those reforms. Chinese economic development has, however, been accompanied by other changes which have resulted in great regional differences, as well as enormous demographic dynamics.

Territorial disparities interest more than 30 provinces and metropolitan areas, in particular between rural and urban zones. There has been both an increase in the population of more than 400 million (National Population and Family Planning Commission of China 2009) – almost exclusively concentrated in the urban areas and an increase in urbanization. The search for non agricultural work by many members of the households of small household's farms has contributed in no small way to increasing migration by the rural population to urban areas, some 130 million according to the 2006 census (The Agricultural Census Results 2006, China Statistics Press, Beijing) of agriculture and rural zones. These workers – still resident in rural zones although working for long periods in the industry, construction and service industries in the more developed provinces – continued linking with the part-time farms and the villages. This became especially evident in 2007 and 2008 when the loss of jobs caused by the recession resulted in millions of workers – some 28 million according to some estimates – returning to their farms, which in the meantime had been run by the women of the household.

All described dynamics are dramatically reshaping rural China – its landscape, culture, and social structures, presenting major environmental, social and economic challenges. Long-term threat to continued rapid economic growth has been the deterioration in the environment, notably air and water pollution, soil erosion, growing desertification and the steady fall of water table, especially in the north.

China has also continued to lose arable land because of erosion and grey infrastructure development.

Given the size of the Chinese population, cultivatable land is already very limited, and the level of exploitation is already very high, with high yields for many agricultural products and the use of the same land for cultivating double crops. In 1980 agriculture contributed 30% to Chinese GDP and by 2007 this had fallen to little more than 11%. Moreover, China has one of the highest ratios between cultivated and irrigated land, some 50%, and this, together with increasing competition for land and water use between agriculture, industry and civic requirements, already imposes severe limits on the use of water.

The adoption of industrial technologies such as synthetic fertilizers and fossil fuels, along with other modernizations, has mostly displaced long-term traditional practices of land and Natural Capital management.

Government policies have encouraged farmers to demolish their housing and to move into communities of high-density townhouses, sometimes merging several villages in a replication of urban life aimed at providing more and more consumption opportunities needed to sustain the economy.

China's best farmland unfortunately coincides with these growing agglomerations. Food security already has become an issue with the scarcity and rising prices for food in 2008. Social issues have developed as a result of

rural migrant “*min gong*” entering urban areas in search of work – namely discrimination of ruralites in cities and psychological isolation of rural migrants. (Fig.1)



In 2007 urban households had an income of some 14,000 Yuan while rural households had an income of only 4,000 Yuan. The increase in this difference can be seen from consumption patterns. While in the middle 1980's urban households consumed 2.5 times as much as rural households, today they consume 3.5 times as much. Today the “three problems of Peasantry, Rural Areas and Agriculture” are duly still a major concern of the Chinese government.

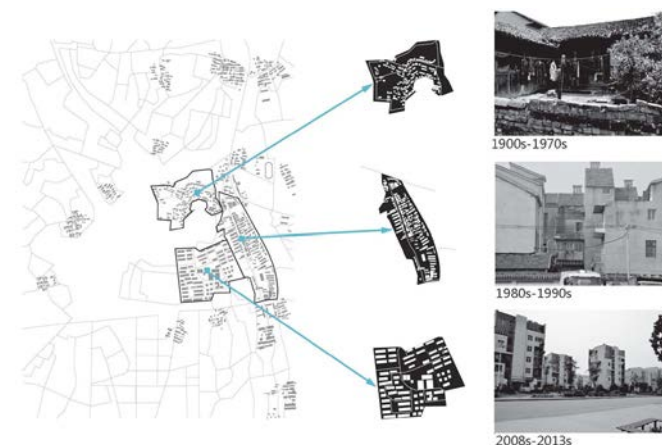
PRESERVATION AND USE OF RURAL NATURE AND HUMANITIES FEATURES DURING URBANIZATION

The International Workshop on “Construction of Chinese Small Towns and Villages” – organized by ECNU East China Normal University School of Design Shanghai (China), with the collaboration of “Sapienza” Università di Roma (Italy) and École Nationale Supérieure d'Architecture de Saint-Etienne (France) – aimed at bringing together academics and students from China, Italy and France to discuss such a key theme

and provide ideas and preliminary design solutions to reduce the conflict between urbanization and traditional rural landscape protection. This year's workshop, coordinated by ECNU School of Design, centered on the theme of «Preservation and use of Rural Nature and Humanities Features during Urbanization».

This came after three years of international cooperation in higher education that ECNU School of Design's Dean Shaonong Wei implemented in order to positively confront theoretical and practical experience among European and Chinese academics and students on key contemporary issues of mutual interest, in planning and design.

Professor Wei in explaining his choice of 2014 theme, affirmed that «The abnormal growth process that China is experiencing is comparable to a one-step aging from a 5-year-old child to a 50-year-old man», and that «insights and critical views, based on long time consolidated experiences, coming from European academics and professionals, are needed to establish a common ground of applied research aimed at preserving cultural heritage and social structure of rural China». With that respect, «China is a good laboratory for studying the nuance variations of how best correct the massive imbalance between urban and rural areas, thanks to



its great local diversity and also because urbanization has already proven to be one of the most impacting changes in China's 36 years of economic transition.

Professor Wei's idea behind the international workshop was to study the system of rural villages and landscape around the Baiquan Town, in the province of Hubei – where the pressure of urbanization (Fig.2) is threatening the surrounding countryside, with several implications in terms of loss of heritage, transformation of a unique cultural and productive landscape and displacement of local people.

Four guiding themes to be developed in the workshop were agreed upon: Eco-efficiency, Social harmony, Economic improvement and Rural Cultural heritage preservation.

The 2014 international workshop included seminars, field visits to Baiquan Town and other villages, work reviews and presentations.

The village of Baiquan covers 85 square kilometers, is located in the Northwest suburbs of Wuhan, only 17 km from the city center, in the province of Hubei. (Fig. 3)



Baiquan has a long history starting from the Shang dynasty (1600 B.C.-1046 B.C.) and is considered the cradle of Chu culture (Zhou dynasty B.C. 1042 – B.C. 205) of which a significant heritage is still in place.

Thanks to its abundant water resources – 950 hectares – Baiquan Town is known as the “Land of water” (Fig. 4) and its territorial settlement system has always been strictly linked to its environmental resources and rural landscapes and activities. Currently, the area seems to have lost this key relationship.



The natural, productive landscape is experiencing deep transformations, the ancient and rich water lands and the traditional villages' housing, once scattered along the rivers, are reducing progressively to the advantage of intensive new settlements of low quality and the inhabitants have lost their sense of belonging to the village.(Fig. 5)



New infrastructures often overlap the original paths, interrupting the ancient, efficient irrigation channels' network, with immense damage to the environment and its inhabitants.

Recent planning tried to obliterate the many small, but significant, territorial signs into a single water system to play a touristic rather than an ecological role.

The government is still actively replacing traditional homes with high-rises, paving over vast swaths of farmland, filling ponds, thus drastically altering the lives of rural dwellers.

The research work was organized into two phases of analysis and concept design, both aimed at gaining insights and understandings of the characteristics and current issues of the territorial context of Baiquan Town at different scales, and focused on the local structural setting as of today, leveraging on major cultural traditions and ongoing dynamics of the area to formulate new proposals.

Chinese, Italian and French academic groups presented their proposals to an audience of peers

and government officials in a final conference held in Shanghai on 28th September 2014.

École Nationale Supérieure d'Architecture de Saint-Etienne's proposition (Fig.6) was based on the re-interpretation of the Chinese village as "community of thought, of decision-making and land organization". A new expansion zone was defined North-East of the three main settlements and priority in solution design was given to emergencies, especially the recovery of the still existing traditional housing and villages, to densify according to new contemporary residential models. New family-based and environment sensitive agricultural models, together with the Mao Miao traditional market and public spaces general re-design, were also at the core of the French School's master plan for Baiquan Town.



Sapienza Università di Roma's design proposal was informed by the correlation among Culture, Tradition and Innovation. Comprehensive studies of current and future planning correctly framed the overall project solution, defined the «Reconnection System» (Fig.7). This terminology signify a network of integrated residential and service components, qualified public spaces and agricultural areas of various kinds, of nodal points and paths, and of Green Infrastructure (GI). This "Reconnection System" didn't imply expansion on new different areas, but involved re-establishing lost relationships among existing urban fabrics. GI, in particular, represented the medium upon which various natural, cultural, and socio-economic processes interact and were

originally articulated, always with reference to local agricultural and urban context. The key drivers were: the "Eco-wetland Park, the «Urban New Agriculture» and all public open spaces that connect the residential areas with the system of new public and private services – «Traditional Medicine Centers», «Didactic Orchards» and touristic commercial services. All this, on the one hand, wishing to preserve the local traditions and, on the other hand, having the awareness of the need to introduce contemporary Chinese culture even in inland areas and traditional living fabrics of its agricultural centers. The cultural and operational approach renowned as 'Design for Social Innovation' contributed, with this respect, to the formulation of the proposal, operating a

correct reading of the social, productive and economic context and, above all, the involvement, since the early design phase, of the people who will ultimately benefit from the expected design outcomes. A comprehensive study and understanding of the morphological and technical features, i.e. “Fundamentals” of the Chinese traditional architecture, and of that characterizing Baiquan Town, completed the Italian contribution.

The proposal formulated by ECNU School of Design (Fig.8) highlighted Baiquan communities' isolation and lack of social services and modern functions.

A “growing, emotional and integrated new-town” was presented to the audience by Doctor Wang Feng of ECNU School of Design. She described studies and projections aimed at rebalancing social structure, economic development, ecology and quality of life in Baiquan Town.

Making full use of the original conditions of the site (natural resources) and of the existing building texture, together with the improvement of town and housing interstitial open spaces, hinged this strategic approach to Baiquan reality. Specifically on the economic side, elderly housing industry and touristic resources were identified as key assets in order to accommodate migrant workers' needs. Existing residence buildings' retrofitting, soil consumption limitations, new communication networks, and Green Infrastructure widespread implementation reinforced the concept design.

Doctor Karen Li of ECNU School of Design defined Baiquan as a “Greenway city”. The Chinese group developed a comprehensive surrounding resources analysis in order to determine polar relation of city development and industrial potentialities of Dongxihu District. Levering on the optimal accessibility and efficient transportation network linking the city of Wuhan to Baiquan Town, ECNU School of Design was able to envisage a twofold business strategy. Linking the many touristic resources now scattered in the area, in order to create

critical mass for the industry, on the one hand, and encouraging elderly migration from Wuhan to alleviate the pressure coming from labor shortage, on the other. Modern urban agriculture and eco-tech industries were also considered in their “Green Wedge Plan and Green Chipset Design for Baiquan Development”.

CONCLUSIONS

All the above described positions – scientific and political – are based on most advanced research and experimentation in planning and landscape design – already well known in China – which tends to outline a pattern of development that integrates the mass migration to the big cities with the transformation of rural villages in new eco-town, through the widespread implementation of Green Infrastructure. GI project implementation already defines all over the world effective operative devices to accent basic structuring characteristics, capable of guaranteeing ecosystem services and quality of the landscape and to counteract negative tendencies, while concurrently providing sustainable means for further anthropocentric developments.

A project based on Green Infrastructure design and implementation in Baiquan would certainly represent a cost-effective and resilient approach, tools and instruments to promote urbanization in China in ways that are economically sound, environmentally safe, politically feasible, and socially desirable.

Substantial multiple benefits would be produced: environmental, social, and economic. Particularly accentuated within areas where green space has been eroded and environmental damage is more extensive. Among the estimated environmental benefits: agriculture and sustainable fish farming, habitat improvement, air quality, energy savings and carbon footprint reduction. Among the expected social benefits: leisure, education opportunities, identity places' creation, public health and safety provision, social equity.

And we all know that environmental and social benefits translate into economic benefits, not generic, but scientifically measurable. Relevant quantities, and even more significant because obtained in respect of the traditional culture of the place and of common people, their life and their daily needs.

Within this framework, at the end of the forum, Professor Shaonong Wei reconfirmed ECNU School of Design's interest in new international cooperative research projects and concluded «Cities and Villages are twin brothers, born in the process of development of human civilization» and «the development of rural areas deserves renewed greater interest, not only because this will encourage a more balanced economic development, but also because it must be seen as essential for China's long-term sustainability».

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LANDSCAPE ARCHITECTURE AND AGRONOMY: AN INTERDISCIPLINARY TEACHING EXPERIMENTATION

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Agricultural Urbanism, Designing Agro-ecology, Agronomy

ABSTRACT

This paper examines the relation between landscape architecture and agronomy, and shows that landscape architecture schools need to promote a better understanding of agriculture. For landscape architects, some of today's challenges are clearly linked to understanding agronomy: from the application of policies to the design of projects that include small-scale, local food production, dealing with agricultural issue. Consequently, the combination of Landscape design and Agronomy is a key educational issue for landscape architecture schools in Europe. That makes a combine teaching of both landscape design and agronomy as a key issue in the education. The French school of landscape architecture – l'Ecole Nationale Supérieure de Paysage de Versailles Marseille (ENSP) – has been experimenting with this combination for several years, and has developed joint research projects and teaching seminar that combine both disciplines. This paper presents , analyses and criticizes a yearly workshop and seminar organized by ENSP and the French AgroCampus Ouest Agronomy engineering department, which has been going on for last 3 years in an experimental organic farm at Domaine de Villarceaux (Vexin), north of Paris. The first years focused on the question of urban edges, but the 2014 session shifted to the Domaine's land itself and its relations with the surrounding countryside. Sixteen teams have worked on the project over the 3-year period, producing written and graphic presentations as well as field notebooks. After analyzing and sorting this material by landscape pattern and project theme, we have drawn two main conclusions. First, from an educational perspective, the students adopted a systemic approach that enhanced interactions between the fields of knowledge and led to proposals dominated by spatial multifunctionality. From a research perspective, their work highlights a shift in perspective between agriculture and the city. Often seen as a threat to agriculture, the city becomes a solution for reinvigorating the current agro-ecological transition.

INTRODUCTION

Landscape architecture schools – and the education system in general – are often accused of lacking knowledge of the agricultural world. Yet agriculture not only accounts for a big part of land occupation – whereby it shapes the challenges of regional planning – it also impacts our food supply and how we control it, both qualitatively and quantitatively. Throughout the 20th century, the urban transformation of society on the one hand and the globalisation of agriculture and the uprooting of farm communities on the other have combined to increase the mutual misunderstanding of urban and rural societies (Gorgolewski, Komisar, Nasr, 2011; De la Salle, Holland, 2010). Today, both are in crisis and in need of a revolution, or at least a transition, one that takes into account global and local environmental problems (climate change, loss of biodiversity) and the foreseeable depletion of fossil fuels. In this context, landscape and agronomic educational programmes should try to evolve and enrich their teaching through an interdisciplinary approach. It seems like a worthy challenge, considering that we are at the intersection not only of different disciplines but also very different teaching practices, between engineering schools on the one hand with their powerful scientific culture, and landscape architecture schools on the other, which combine a project-oriented culture with a multidisciplinary approach to ecology, the human sciences and the arts.

In November 2012, an original educational experiment was launched: students and young researchers in agronomy and landscape architecture were brought together to share their analysis and points of view on the outskirts of the new urban development area west of Paris. The workshop mixed a team of agronomy engineering students from the Rennes Agrocampus Ouest, and Master 2 level students from the ENSP, Ecole Nationale Supérieure de Paysage de Versailles. This experience proved to be a very fertile laboratory for sharing expertise and know-how in agronomy, ecology and landscape architecture with a focus on

creating places for urban agriculture. Our research on the outputs of these workshops focus on two points: this multidisciplinary approach and the core theme of urban agriculture. Over the 3-year period, a total of 16 teams of 5 students participated in the annual seminars and workshops, each producing a field notebook and reports comprised of diagnoses, suggestions and general strategies for land use development. Their reports, comprised of written text and iconography (drawings, charts, maps, sketches, layouts and photos), were analysed along two lines: the first looked at how they envisioned the relation between urbanism and agriculture, and the second at the influence of the agronomists' outlook on the project's positioning. We also plan to study a third aspect: how the multidisciplinary teams managed to work together, by examining their field notebooks and the "participative observations" of their supervisors. We will begin with a historical and thematic presentation of this educational experiment, before summarising the results of the different seminars based on their enrichment and contributions in terms of interdisciplinarity.

BACKGROUND AND STAKEHOLDERS IN THIS ORIGINAL TEACHING EXPERIMENT

This teaching experiment was initiated by an agro-ecology think tank responsible for managing an in-situ experimental station. The Villarceaux Eco-development Centre, supported by a Swiss private foundation (Charles Leopold Meyer Foundation for Human Progress), located on a Vexin experimental farm, conducts a technical and scientific watch and leads a think tank on agriculture's contribution to the ecological transition of our industrialised societies. Since 2004, the centre has organised an annual week-long seminar for agronomy engineering students to conduct an audit, monitoring the effectiveness of new practices introduced since 1994 at this 400-hectare experimental station (Calame, Sanson, 2014). In 2012, the agronomy teaching seminar began to run out of steam: although it was still worthwhile to conduct the audit with its chart of indicators monitoring



Figure 1 : Urban fringe between Vexin and the Cergy-Pontoise agglomeration, at Maurecourt. Photo S. Bonin, October 2013.

agro-ecological changes, the seminar continued to run up against the same negative points, notably the farm's insertion within the region. Some of the shortcomings are the site's poor readability, communications and amenities within the farm and with the exterior. For this reason, the project manager Baptiste Sanson, and Régis Ambroise, one of his advisors from the Ministry of Agriculture, asked the ENSP to join the project in order to open the seminar to students of landscape architecture. A new seminar was held in fall 2012 with the participation of two ENSP research professors, Monique Toubanc and Sophie Bonin, whose primary educational work was to study the relations between agronomy engineers and landscape architecture research and design. The urban-rural dialogue, the interaction of farm and urban objects, and comparing the different perspectives of agronomists and landscape architects seemed like a good place to start to get the different educational programmes to work together. Urban edges were adopted as the core theme for the next two years of the seminar: multidisciplinary teams of students studied the administrative districts (communes) along the urban edge

of Cergy-Pontoise, an agglomeration that borders on a large open agricultural area (see photo, figure 1). The third edition of the seminar in October 2014 concentrated on the Villarceaux agriculture farm and its insertion in the local and regional community at various levels.

DIFFERENT AGRO-URBAN APPROACHES – FRONTAL, TRANSITIONAL AND HYBRID

The students' proposals revealed their unbridled enthusiasm for working on spatializing the relationship between the city and agriculture, urban dwellers and farmers. Spatialization can be broken down into three types of relations. All three approaches were often combined in the final proposals, which were rather diversified.

The frontal approach recognises the specific identity, and the otherness, of agriculture and the city (4 of the 16 teams). Yet this does not mean turning farm labour into a spectacle, or stage-crafting agricultural areas on behalf of cities and their inhabitants, using the model that has marked European thinking about landscapes in which the spectator dominates the object. Instead, their proposals lay the groundwork for a dialogue between the two worlds, one that reaches beyond clichés and acknowledges their respective characteristics. The *Frontal dialogue* team proposed to "affirm the city in all its density and the agricultural world for all its productivity" (figure 2). This frontal approach provides an opportunity to resolve conflicts in a mutually advantageous manner. The *Peri-rural Strategy* team imagined in-situ events – theatre, open air cinema, and tours/observatories/forums. The aim is "to respond to the ethical concerns of spatial otherness" (Jens Denissen, *Frontal dialogue*, 2012) by paying the same amount of attention to urban areas as to agricultural spaces, highlighting their diversity and the role they play. The various teams often reworked images to reverse the iconography and cartography of "emptiness" of agricultural spaces and to highlight instead its substance,



Figure 2 : Frontal Dialogue. Jens Denissen, ENSP-Master 2 TDPP 2012-13.

thickness and heterogeneity (figure 3). These proposals underscore the notion of *intervisibility* – that the city can be seen from the fields, and the fields from the city – and seek out shared or common grounds. Above all, urban edges are seen as thresholds worth highlighting.

The second approach consists of creating a transition or buffer zone between the city and agricultural areas (5 of the 16 teams). This space seeks to make exchanges between urban and rural functions more visible and understandable. These projects seek to create “agro-urban edges” and to participate in green urban corridors, the emergence of which has already been cited as a landscape concept in France (Bonin, 2013: 211-216). At the local level, the goal is to create a new type of public area by building “layers of spaces to allow a slow transition from the city to major crop lands (From boundaries to ties: developing urban edge-ways team, 2013). One project talked about “nourishing urban-rural edges that build social, physical and economic ties” (*Using urban edges to knit nourishing ties between the city and the countryside*, 2013). At the farm level, a fruit-picking circuit was proposed associating walkers and farmers (*Connivance*, 2014).

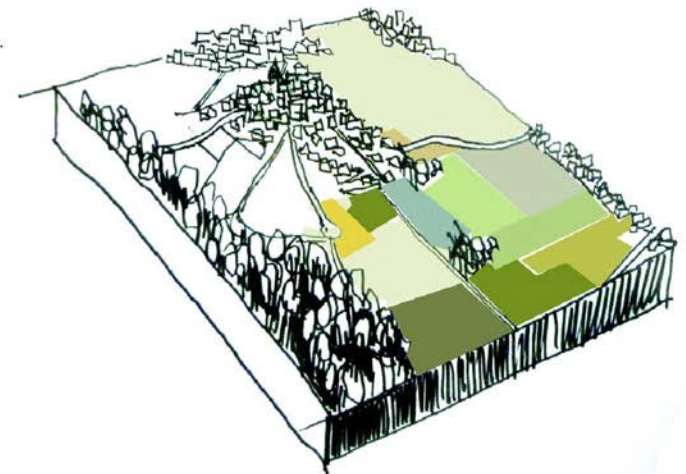
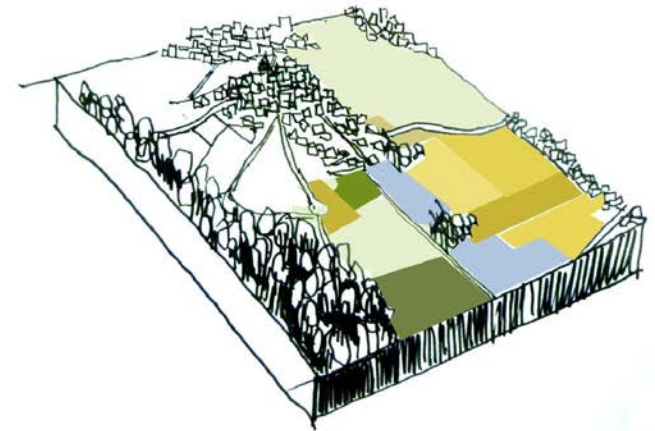
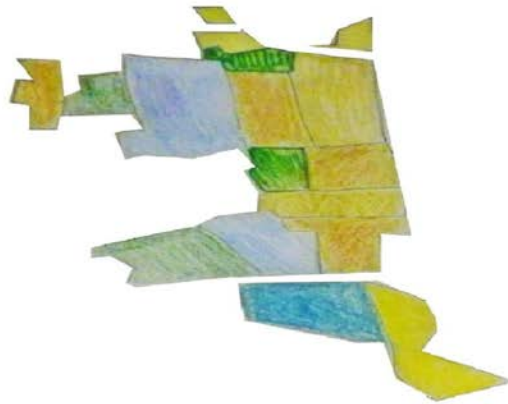


Figure 3 : Visualisation for the farm landscape during flower season (top) and in the fall (bottom). Marion Bruère, Elsa Guivarch, Amélie Thouret, Enora Calvez, Living the urban edge team, 2012.

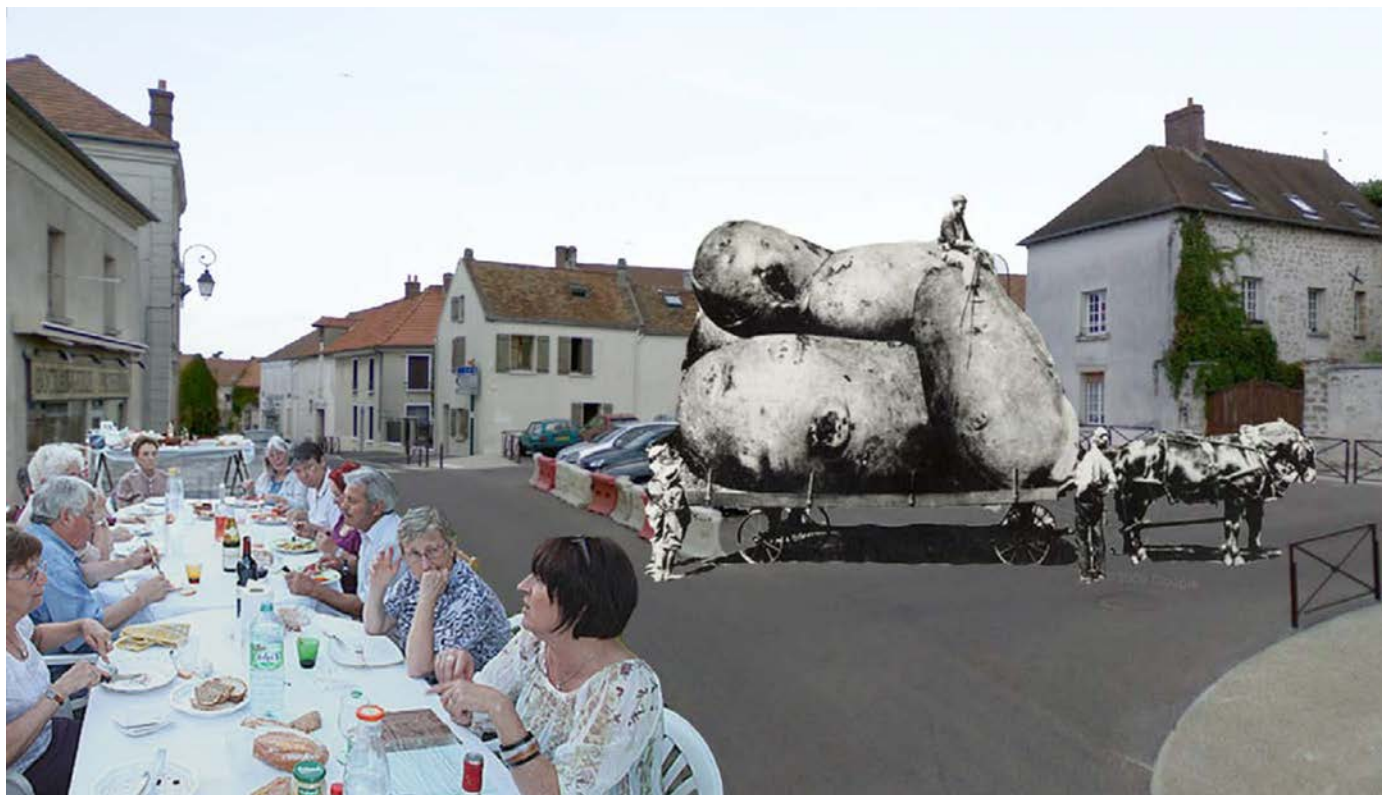


Figure 4 : Colonising empty urban spaces. Victor Meester, ENSP-Master 2 TDPP 2012-13.

The third hybrid approach consists of interpenetration. This was by far the most popular approach since it was dominant in 7 of the 16 projects, although it also reflects the challenges of having agronomists and landscape architects conduct research together. The projects consisted of rethinking agricultural space to improve its ties with the city; to rediscover agricultural uses for neglected intermediary zones; and to ensure an agro-ecological transition motivated by city dwellers' demands for short food supply chains and healthy spaces, in all senses of the term. One project developed the idea of integrating agriculture within the city. Urban areas were "ruralised": "the banality and beauty of the countryside so dear to city dwellers... can legitimately

invade the peri-urban environment" (Hélène Boons, *Taking agriculture to the gates of the city team*, 2012). Proposals called for "colonising empty urban spaces" by developing activities linked to local farm production, such as street kitchens and picnics in open spaces (see figure 4). Terms like *colonisation* and *invade* were expressly chosen as counterweights to urban *expansion*. The banality of the countryside, for example, can be found in *dactylis glomerata*, or orchard grass, which lines numerous country roads. It could be introduced to form a visible, supple greenway across the city.

Although it is easy to evoke the countryside through symbols, several groups questioned to what extent the

city was able or willing to host productive farm operations, even on its fringes, considering all the technical dimensions – objects, tools, equipment – that are not exactly an urbanite's dream. Students argued that a field was above all a production zone and workplace before being a recreation area. They also wondered whether cities must first undergo an urban reinvention process, such as family gardens or other vegetal systems (green roofs), before agriculture could be introduced. These spaces would not be cultivated by farmers but by urban gardeners, by which they could play a major social role.

3. SYSTEMIC APPROACH AND THE TRANSITION FROM "MAKING LANDSCAPES" TO "LIVING THE LANDSCAPE"

It is also worth noting the convergence between teams. The multidisciplinary workshops were part of an experiment in the hybridisation of agronomy and landscape architecture. In general, team work leads to the search for common denominators, but this is especially true when different educational programmes are mixed together. Convergence was due to the experiment in hybridisation, but it can surely be attributed to the evolution of teaching programmes as well. This can be illustrated by three ways of doing or grasping a project.

The importance of movement, flows and pathways: Roads and paths materialise the relations between different spaces and regional levels: from paths connecting the farm to nearby villages to connections with regional walking trails; the road and rail networks of the Greater Paris region, and even the Paris-London bike route. These paths are not only designed for mobility – to get from one point to another – but also to bring various stakeholders together. In a notion dear to landscape architects, pathways point out problems while providing the keys to resolve them: "handing local residents the keys to the countryside is the same as inviting them to claim a territory they share with farmers" (Marie Duclau, *Living on the urban edge*, 2012). When proposing improvements along country

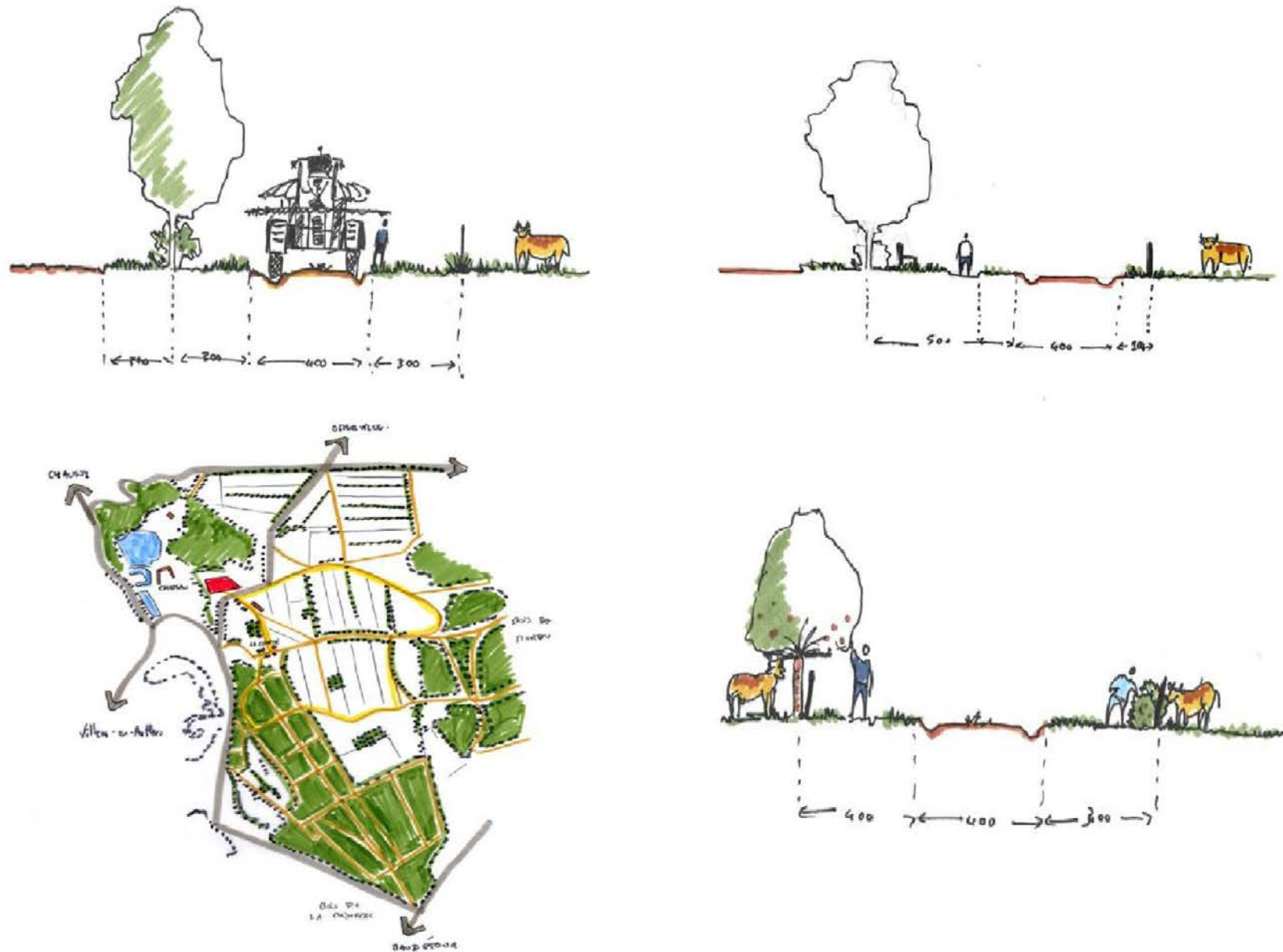


Figure 5 : Developing country roads, existing (top left), proposals for shade (top right), small fruit trees (bottom right) and operating plan (bottom left). Connivance team, 2014

TABLE 2: Inventory of Street Trees across 2.5 sq. km of city, Alexandria Cemetery, and Prince Street (1.6 km)

Tree species	All Streets	Cemetery	Prince Street	Tree species (continued)	All Streets	Cemetery	Prince Street
Acer griseum	Y			Morus rubra		Y	
Acer negundo	Y			Picea abies		Y	
Acer palmatum	Y	Y		Picea glauca 'Conica'		Y	
Acer platanoides	Y	Y	Y	Picea omorika		Y	
Acer platanoides 'Crimson King'	Y		Y	Picea pungens			
Acer rubrum	Y	Y	Y	Pinus strobus	Y	Y	
Acer saccharinum	Y	Y	Y	Pinus thunbergii	Y		
Acer saccharum	Y	Y	Y	Pistacia chinensis	Y		
Acer tartaricum ssp. ginnala	Y			Platanus occidentalis	Y	Y	Y
Aesculus hippocastaneum	Y	Y		Platanus x acerifolia	Y	Y	
Aesculus pavia	Y			Populus deltoides		Y	
Ailanthus altissima	Y	Y		Populus grandidentata		Y	
Betula nigra	Y	Y		Prunus cerasifera cv.	Y	Y	
Carpinus betulus	Y			Prunus cv.	Y	Y	Y
Carpinus caroliniana	Y			Prunus serotina		Y	
Catalpa bignonioides	Y	Y		Prunus subhirtella var. autumnalis		Y	
Cedrus libani		Y		Prunus x yedoensis		Y	
Celtis occidentalis	Y		Y	Pyrus calleryana	Y	Y	Y
Celtis occidentalis	Y	Y		Quercus acutissima	Y	Y	
Cercis canadensis	Y	Y	Y	Quercus alba		Y	
Cornus florida	Y	Y		Quercus coccinea	Y		Y
Crataegus spp.	Y	Y		Quercus falcata	Y		
Cryptomeria japonica	Y	Y		Quercus imbricaria	Y		
Fagus grandifolia		Y		Quercus lyrata	Y		Y
Ficus carica	Y			Quercus palustris	Y	Y	Y
Fraxinus americana	Y	Y	Y	Quercus phellos	Y	Y	Y
Fraxinus pennsylvanica	Y		Y	Quercus robur 'Fastigiata'	Y	Y	
Ginkgo biloba	Y		Y	Quercus rubra	Y	Y	Y
Gleditsia triacanthos var. inermis	Y		Y	Quercus velutina	Y		
Gymnocladus dioicus		Y		Rhododendron spp.	Y		
Hibiscus syriacus	Y			Robinia pseudoacacia		Y	
Ilex opaca	Y	Y		Salix babylonica	Y	Y	
Ilex x attenuata	Y			Sassafras albidum		Y	
Juglans nigra		Y		Styphnolobium japonicum	Y		Y
Juniperus virginiana	Y	Y	Y	Syringa reticulata	Y		Y
Koelerutaria paniculata	Y			Taxodium distichum		Y	
Lagerstroemia indica	Y		Y	Thuja occidentalis		Y	
Liquidambar styraciflua	Y	Y		Tilia americana	Y		
Liriodendron tulipifera		Y		Tilia cordata	Y	Y	Y
Maclura pomifera	Y			Tsuga canadensis		Y	
Magnolia grandiflora	Y	Y		Ulmus americana	Y	Y	Y
Magnolia stellata		Y		Ulmus parvifolia	Y		Y
Magnolia virginiana	Y	Y		Ulmus pumila	Y	Y	Y
Magnolia x soulangiana	Y	Y		Vitex agnus-castus	Y		
Malus spp.	Y	Y	Y	X Cupressocyparis leylandii		Y	
Metasequoia glyptostroboides	Y	Y		Zelkova serrata	Y	Y	Y

roads, priority is first given to farm operations and their constraints. Interactions with agronomists provided technical support, but also helped keep production issues in mind (figure 5 : Developing country roads).

Spatial multi-functionality: This theme was exaggerated almost comically in numerous projects. For the enhancement of a ridge between the plateau and a valley, as in one project, that combines “agricultural management, experimentation, production, freeing up the landscape, and recreation” (*Descending from the summits*, 2014 team). While some developed a variety of functions for the same space, others enumerated all the different resources a given landscape motif had to offer. For trees in a farm environment, for example, one team listed five means of enhancement (*Descending from the summits*, 2014) and another came up with eight possible objectives (*Rural laboratory*, 2014).

Opening the landscape and enhancing its readability, porosity, connections: Connivance is a rather transversal approach adopted by all groups, an echo of the “pensée-paysage” defined by Michel Collot: “Non-dualist thinking that frees itself from the traditional divisions between subject and object, visible and invisible, emotional and the intellectual.” (Collot, p. 274). A sense of proximity is developed between the city and agriculture in a relationship that is both aesthetic and functional, an ideal as well as concrete interrelationship. Almost all the proposals called for setting up or improving short supply chains to intensify commercial trade and social relations and to enhance regional cohesion. Grounded in mutual recognition, this notion cannot be separated from the evolution of operating systems arising from the engagement in more ecological, high value-added agriculture.

In conclusion, this experiment shows that it was relatively easy for the teams to rise above the conflicts between an engineering culture and a project and design-oriented culture. Used to working with short deadlines and under pressure, the project-oriented

students were initially in a position of strength when drawing up the initial proposals. But the other team members quickly found they had a complementary role to play, especially the engineering students when it came time to iron out the details. The importance all teams gave to using a systemic approach was striking, although the issues that were debated pushed the students to look beyond a simple motif or factor and to examine the relations between things.

Students didn't stop to their own knowledge fields, the technical approach of the agronomists enriched and based the first sketches of landscape architects, that allow to precise and increase the projects.

Agro-ecological techniques proved to be fertile grounds for projects, providing landscape architects with major leverages for innovation: the impact of parcel size, minimum surface areas for farm operations, rural road requirements for farm equipment, shelterbelts and windbreaks, habitats for insects so vital for crops, and the energy potential of woodlands. Yet this knowledge is not intended to provide ready-made solutions. Over the course of these three annual seminars, one of the most interesting points was the evolution of the project process and the development of systemic approaches integrating social, ecological and productive relations, taking into account time and creating tensions between the specific components of agriculture and the city.

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FINDING AND MAPPING A TEACHING ARBORETUM IN ALEXANDRIA, VIRGINIA

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KEY WORD

Tree Diversity, Botanical Garden, Place-based Learning, Plant Labelling

ABSTRACT

It is common for schools and universities to have botanical gardens and arboreta for teaching plant identification, planting design, and ecology. This field practice has a long history. In antiquity, Aristotle grew plants at the Lyceum, and during the Renaissance, the first university botanic garden was established at Padua, Italy, where professors distinguished between “Lectura” and “Ostensio simplicum” or teaching about plants from life. The tradition of teaching gardens continues today, considered experiential or place-based learning, a concept re-introduced in the modern era by educational theorist John Dewey. However, not all schools have space for teaching gardens, especially those in urban contexts. How might a university with insufficient land for teaching garden use street trees as a de facto arboretum? To address this question, street trees were mapped in Alexandria, Virginia, across a 2.5 sq. km area around Virginia Tech’s urban campus. The map revealed over 60 tree species and two areas of heightened diversity – along five blocks of Prince Street near the school’s two main buildings, and in nearby Alexandria Cemetery. These two discovered sites were established as “urban arboreturns” in December 2014 through physical and digital labeling. Along Prince Street, physical labels were designed and installed on the trees. Approval was gained through community meetings, including the Arts Commission, which brought students and neighbors together in dialogue. For the cemetery, an online Google map was developed for student and public use. These two new arboreturns extend the tradition of teaching gardens into the fabric of the city and are now part of the author’s classes. An important aim is to deepen community relationships through public tours, creating a broader learning experience and also raising public awareness of the variety of trees in the city and their ecological and cultural significance.

INTRODUCTION

Teaching and learning about plants, including their identification, ecology, and use in design, is often done in the field, whether it is in natural areas, designed landscapes, or gardens created especially for education. Teaching gardens (botanical gardens and arboreta) are particularly important in the early stages of “getting to know” plants because they usually collect a variety of relevant species together in an accessible place and organize them so that students can learn plant types, communities, and ecosystems. However, not all schools and universities, especially in urban areas, have sufficient land to dedicate to gardens for in situ learning experiences. What opportunities might there be for students to learn about plants where there is no dedicated space for an arboretum or a botanical garden on campus? In Alexandria, Virginia, two distinct hot spots of tree diversity were found, mapped, and labeled (digitally and physically), demonstrating that the slim urban footprint of one university could be extended into the city fabric. The two new teaching gardens:

- Re-think the collection and ordering of a traditional arboretum.
- Offer accessible outdoor learning experiences.
- Provide an education in plants that may generate a broader dialogue about the role of plants in cities through conversations between the university and its neighbors.

ORIGINS AND EDUCATIONAL THEORY OF TEACHING GARDENS

The notion of a teaching garden has a long history in Western culture. Aristotle, followed by his successor, Theophrastus, taught in a garden comprised of plants collected from abroad (Hort, 1916). This tradition was revived in the Renaissance, at Padua in 1545, where a circular garden was built with paths radiating in the four cardinal directions designed to collect plants from

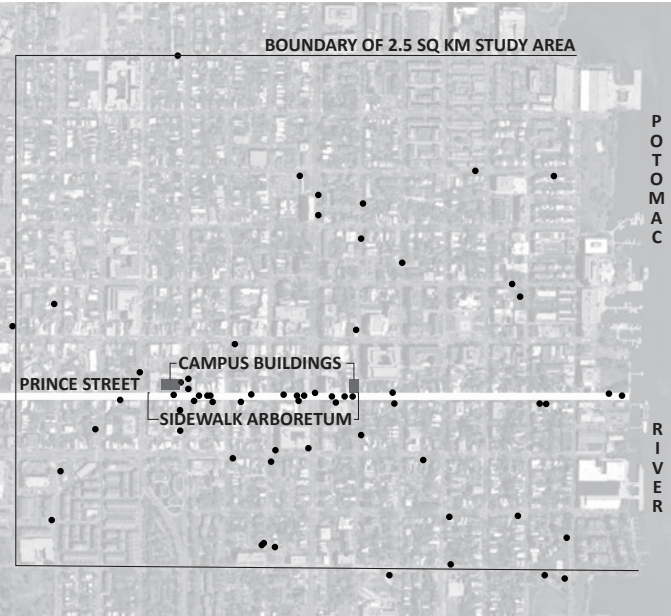


FIGURE 1: The closest-to-campus tree of all 61 species found on Alexandria’s streets (Drawing by the author)

around the globe (Hunt, 2012). In the garden, professors taught “Ostensio simplicum” or live demonstrations with plants as opposed to “Lectura” (Hill, 1915, 194). “Ostensio simplicum” is an example of experiential or place-based learning, a teaching method valued right up to the present. Some botanical gardens through the past 500 years have had primarily teaching missions, others have had an economic botanical thrust, but most work now to fulfill, in varying degrees, four key agendas: research, conservation, recreation, and education (Heyd, 2006). The final agenda, education, is the focus here.

The importance of the educational mission of botanic gardens can be explained in terms of theorist John Dewey’s concept of experiential learning, which he put forward in *The School and Society* (1915). In the later 20th century and up to the present, the idea of teaching and learning outdoors has gained additional

relevance alongside the environmental movement and is now also called “place-based learning”(Woodhouse, 2000). In landscape architecture, one might look at the writings of Patrick Geddes for an example of a philosophy of education that engages field-based learning (Thompson, 2006) and in teaching practice it is common for courses covering topics in plant identification, ecology, and design with plants to have an outdoor component. When available, these courses are often taught in part through the use of botanical gardens and arboreta. The two most important qualities of such teaching gardens are a heightened diversity of species and an organizational scheme, whether the plants are traditionally organized by types (as in their genus and family-relatedness) or by the region and environment in which they are typically found (Hill, 1915). With this historical background and educational context, the study team (author and one graduate student) went looking for places of greater tree diversity in the city of Alexandria, Virginia. The aim was to find an arboretum.

FINDING ARBORETA IN THE CITY,
LOOKING FOR HOT SPOTS OF DIVERSITY

Virginia Tech’s main campus in the foothills of the Appalachian Mountains boasts many designed resources for outdoor education and research about plants. In stark comparison, the university’s urban satellite in Alexandria has no gardens for these purposes and very limited land to create outdoor educational environments. Given the importance of place-based educational tools for learning about plants, the author has been plant hunting in the city. The first discovery was that the school’s “main street,” Prince Street, has seven times more diversity than the town’s “main street,” King Street, which is just one block north and dominated by oaks (Table 1). This immediately seemed to provide a teaching opportunity.

TABLE 1: Comparison of tree diversity on five adjacent blocks in Alexandria

Species on Prince Street (5 blocks)	Species on King Street (5 blocks)
Acer rubrum	Quercus palustris
Acer platanoides ‘Crimson King’	Quercus phellos
Acer platanoides	Quercus rubra
Acer saccharinum	
Acer saccharum	
Cercis canadensis	
Fraxinus pennsylvanica	
Ginkgo biloba	
Gleditsia triacanthos var. inermis	
Juniperus virginiana	
Platanus occidentalis	
Prunus cv.	
Quercus lyrata	
Quercus palustris	
Quercus phellos	
Quercus rubra	
Styphnolobium japonicum	
Syringa reticulata	
Tilia cordata	
Ulmus parvifolia	

Over the course of the fall of 2014, the study team walked approximately 42 km of street in Alexandria over the 2.5 square kilometer downtown grid and documented the closest-to-school specimen of each street tree encountered in the study area (Figure 1) to produce a map students can use to access the full range of tree types in the city from campus. What was left out of this inventory, and certainly warrants further investigation, are the trees along the alleys that sub-divide the blocks, the trees on private properties that are observable from the streets and alleys, and the small parks and churchyards that dot the city; all of these are also useful for teaching. In the future, it will be especially helpful to map these other areas because doing so will likely shorten the walking distance necessary to get to an example of each tree and may raise the diversity count. Even so, the street tree

inventory revealed that there are about 70 tree species on the city's streets (Table 2). Most of these are fairly common temperate deciduous species from all over the world and are the trees to learn for practice in urban temperate regions throughout the globe.

Looking more closely at Prince Street, half of the trees found across the city are represented on its 1.6 km length alone. While the method of selecting the closest to the university example of each type doesn't preclude finding other streets with similar or higher counts, Prince Street's proximity to school is especially fortuitous. More recent scouting, not yet tallied, suggests that adding the trees in the interstitial spaces just off Prince Street will bring the tree count much higher. But studying the trees of Prince Street provoked another question: are there other significant hot spots in the city beyond the streets?

In addition to the street tree inventory, the author noticed through repeated walks and several plant identification classes held at the Alexandria Cemetery that the 20-Hectare cemetery, at the southwest corner of downtown (Figure 2), is an area of greater diversity. Though it is a .5 km walk for students, its collection of 61 different species offers a different kind of layout and environmental growing conditions for comparison with the urban street trees. Table 2 shows that 34 species are found both at the Alexandria Cemetery and on the city's streets. Of the 96 total species mapped on the streets and at the cemetery, 27 are found only at the cemetery and 35 only on the streets, with 34 in common, suggesting that the collection in each area is about 50% distinct from the other. This suggested that both areas be mapped and founded as arboreta for educational use.

MAPPING AND ESTABLISHING TWO ARBORETA

There are two basic tree-planting configurations in downtown Alexandria: street trees lining the sidewalks and trees dotting park-like greenswards, such as the



Figure 2: Location of the Alexandria Cemetery relative to urban campus (Drawing by the author)

Alexandria Cemetery. These ordering schemes are what the study team had to work with in establishing two urban arboreta. Naturally, the focus of each collection is on its trees, but neither is ordered particularly by plant type, as is sometimes done with arboreta. Perhaps, as a whole, it can be said that the two arboreta are organized by types of trees that grow in the particular conditions at each location. But this seems very much like the other important design criteria for botanical gardens, laying them out by what grows in certain regions or ecosystems. So the two arboreta house trees that grow in one or the other condition, though a third of the trees enjoy both urban street margins and the parks (cemetery). The study team adopted the street trees in the vicinity of the university as one arboretum, easily accessible and useful for studying what grows in the compacted soils at the street edge, and borrowed the collection of the cemetery to see how some of the same trees and others (that do not fare so well on the street) do with more soil, moisture, and sunlight. These two found collections – the Prince Street Sidewalk Arboretum and the Alexandria Cemetery Arboretum, have been named, labeled, and mapped so as to



FIGURE 3: National Champion American Holly (*Ilex opaca*) designated in 2007 National Register (Photograph by the author, 2015)

increase their educational value and make them more identifiable and useful within the given urban order.

While not all the tree species discovered are found on Prince Street, it was chosen because it's easy to follow and it runs across Alexandria and down to the banks of the Potomac River. The Prince Street Sidewalk arboretum is, in effect, a cross-section of the downtown with the full range of elevations and ecological conditions found across downtown because of its east-west orientation. Not only is it home to a variety of trees now, but thinking ahead to when new trees are planted, Prince Street offers as complete a range of microclimates as any section of the city. Additionally, another defining factor for the street collection is that these are the hardest of trees, a resilient group, surviving all the constraints of urban street life, squeezed physically

TABLE 2: Inventory of Street Trees across 2.5 sq. km of city, Alexandria Cemetery, and Prince Street (1.6 km)

Tree species	All Streets	Cemetery	Prince Street	Tree species (continued)	All Streets	Cemetery	Prince Street
Acer griseum	Y			Morus rubra		Y	
Acer negundo	Y			Picea abies		Y	
Acer palmatum	Y	Y		Picea glauca 'Conica'		Y	
Acer platanoides	Y	Y	Y	Picea omorika		Y	
Acer platanoides 'Crimson King'	Y		Y	Picea pungens			
Acer rubrum	Y	Y	Y	Pinus strobus	Y	Y	
Acer saccharinum	Y	Y	Y	Pinus thunbergii	Y		
Acer saccharum	Y	Y	Y	Pistacia chinensis	Y		
Acer tartaricum ssp. ginnala	Y			Platanus occidentalis	Y	Y	Y
Aesculus hippocastaneum	Y	Y		Platanus x acerifolia	Y	Y	
Aesculus pavia	Y			Populus deltoides		Y	
Ailanthus altissima	Y	Y		Populus grandidentata		Y	
Betula nigra	Y	Y		Prunus cerasifera cv.	Y	Y	
Carpinus betulus	Y			Prunus cv.	Y	Y	Y
Carpinus caroliniana	Y			Prunus serotina		Y	
Catalpa bignonioides	Y	Y		Prunus subhirtella var. autumnalis		Y	
Cedrus libani		Y		Prunus x yedoensis		Y	
Celtis occidentalis	Y		Y	Pyrus calleryana	Y	Y	Y
Celtis occidentalis	Y	Y		Quercus acutissima	Y	Y	
Cercis canadensis	Y	Y	Y	Quercus alba		Y	
Cornus florida	Y	Y		Quercus coccinea	Y		Y
Crataegus spp.	Y	Y		Quercus falcata	Y		
Cryptomeria japonica	Y	Y		Quercus imbricaria	Y		
Fagus grandifolia		Y		Quercus lyrata	Y		Y
Ficus carica	Y			Quercus palustris	Y	Y	Y
Fraxinus americana	Y	Y	Y	Quercus phellos	Y	Y	Y
Fraxinus pennsylvanica	Y		Y	Quercus robur 'Fastigiata'	Y	Y	
Ginkgo biloba	Y		Y	Quercus rubra	Y	Y	Y
Gleditsia triacanthos var. inermis	Y		Y	Quercus velutina	Y		
Gymnocladus dioicus		Y		Rhododendron spp.	Y		
Hibiscus syriacus	Y			Robinia pseudoacacia		Y	
Ilex opaca	Y	Y		Salix babylonica	Y	Y	
Ilex x attenuata	Y			Sassafras albidum		Y	
Juglans nigra		Y		Styphnolobium japonicum	Y		Y
Juniperus virginiana	Y	Y	Y	Syringa reticulata	Y		Y
Koelerutaria paniculata	Y			Taxodium distichum		Y	
Lagerstroemia indica	Y		Y	Thuja occidentalis		Y	
Liquidambar styraciflua	Y	Y		Tilia americana	Y		
Liriodendron tulipifera		Y		Tilia cordata	Y	Y	Y
Maclura pomifera	Y			Tsuga canadensis		Y	
Magnolia grandiflora	Y	Y		Ulmus americana	Y	Y	Y
Magnolia stellata		Y		Ulmus parvifolia	Y		Y
Magnolia virginiana	Y	Y		Ulmus pumila	Y	Y	Y
Magnolia x soulangiana	Y	Y		Vitex agnus-castus	Y		
Malus spp.	Y	Y	Y	X Cupressocyparis leylandii		Y	
Metasequoia glyptostroboides	Y	Y		Zelkova serrata	Y	Y	Y

between the sidewalk, street, and street walls as well as sometimes suffering physical damage. The cemetery collection, on the other hand, offers dramatically different conditions, with ample soils, sun, typical rainfall, and little disturbance – the gravesites in the cemetery are still often hand-dug. Here, it is interesting to note that the Alexandria Cemetery is home to the National Champion American holly (National Register of Big Trees, 2015), the largest of its species found in the USA, while others are likely the largest of their type in the city (Figure 3).

One of the critical steps in making an arboretum is to label the trees (Wyman, 1947). The easiest way to label today is to use digital technology to mark them on Google Maps or a similar platform. Then the trees have labels that can be accessed when viewing a map on a mobile device in the field. For both arboreta – Prince Street and the Cemetery – Google Maps (Figure 4) are publically available on the author's website – www.thebucksaw.com. To give these maps a distinctive signature, a custom-designed white oak leaf icon was used to point out the different trees in cyberspace. The digital white oak pin recalls the once-dominant trees of the area that are rather intolerant of urban conditions.



FIGURE 4: Detailed view of Google Map of Alexandria Cemetery Arboretum (Produced by author using Google Maps)

Aside from the custom icon, digital mapping of this sort is becoming ubiquitous on many campuses (see the University of Washington's campus arboretum). The difference here is the appropriation of trees in public space as an arboretum. But perhaps more significant is how the study team designed and installed physical tree labels on the street trees between our two main urban campus buildings. This required a different sort of process beyond mapping, demanding engagement with the neighborhood and its people, who also care about the trees. This began with a simple public notice (Figure 5).



FIGURE 5: Notice inviting neighbors to a meeting about the Prince Street Sidewalk Arboretum (Photograph by the author, 2015)

INITIATING A DIALOGUE BETWEEN THE UNIVERSITY AND ITS NEIGHBORS/ USING THE ARBORETA

Bringing teaching and learning about plants outside of the traditional classroom is the primary goal of the work described, a practice already part of the author's courses and that of many landscape architecture educators. Teaching and learning at these two arboreta will build on this tradition so that university students and the neighbors will learn to identify, design, plant, and care for urban trees. As a new project in a 250-year-old-neighborhood initiating a dialogue between the university and its neighbors was a necessity (Figure 6) because the project required public approval. The conversations about how and where the arboretum would be implemented were its first educational steps. Conceived of as a temporary (two-year) work of public art, the Prince Street Sidewalk Arboretum design met the approval of the Alexandria Arts Commission in Spring 2014 and gained the neighbors' support in a community meeting held the following September. This meeting and follow-up conversations with neighbors have begun to animate an otherwise quiet street life. Still, there is more to be done to fulfill a promise of guided public tours of the arboretum and to connect the physical labels with online content.



FIGURE 6: An example of a custom-designed and made physical labeled installed on Prince St. (Photograph by the author, 2014)

Educating students, neighbors, and visitors about these two urban arboreta is ultimately the goal of the project. There are three key ways that the author foresees this happening beginning this fall.

First, given the public nature of the arboreta – both online and in the city – there will be some degree of contact and engagement with the arboreta by interested people who have a chance encounter with it and then look to discover more. For this the author is developing outdoor QR (quick response) codes and signage on the school grounds in the form of physical maps and guides to introduce the arboreta to students and citizens alike.

Second, during the upcoming academic year, the author will lead free public tree tours for neighbors in addition

to regularly scheduled plant identification graduate classes. This is not an unusual practice for arboreta, but the public nature of the street make it distinctively welcoming to all and one of its major advantages is its proximity to the Virginia Tech graduate buildings.

And finally, the author's class, which will use the arboreta directly, can spend more time focusing on tree identification, characteristics, and qualities, rather than traveling to more distant tree collections. Furthermore, the trees in the arboreta are some of the most common and therefore relevant to students beginning to learn to identify woody plants. Having a nearby collection of labeled trees will be to the students' advantage for continued study after class.

Disadvantages of the arboreta are that they are limited to the species present and sometimes poorly grown specimens at that. There is little opportunity, yet, for curating the collection. But that is on the horizon. Finally, while there is particular value in studying street tree plantings and the open grown trees of the cemetery for design students, the arboreta are limited to these two basic planting configurations, demanding that we look elsewhere for other forms of tree planting and cultivation.

CONCLUSION

Identifying, mapping, and labeling trees within the existing urban context of Alexandria, VA, has resulted in new possibilities for teaching and learning. The focus here has been on the process of finding and setting up the arboreta with more educational opportunities to come. As a project in the public realm, the Prince Street Sidewalk Arboretum began with discussions with neighbors, leading to some meaningful dialogue about trees. With this dialogue initiated, the arboreta can now put down roots. Although the two arboreta have been established with minimal footprints, the aim is that the educational environment they breed will be a powerful one, as students consider how to design with trees, one of many important questions landscape architecture graduates of our program face in practice. Equally important, is that these arboreta hope to get the attention of neighbors so that they too notice and learn about the importance of urban trees. In time, the author aspires to begin to shape the flora of these two found arboreta, as well as how the existing trees are interpreted, especially so that students can begin to select and plant trees in the city each year to increase the plant diversity and shift the vegetative plan of the city. For one of the wonderful qualities of trees, like the landscapes they inhabit, is that they are bound to change, always in flux, and these two arboreta will use every opportunity to increase tree diversity and to plant with ecological purpose.

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UNEVEN RELATIONS. MAKING, REMAKING AND UNMAKING PUBLIC SPACE IN LONDON

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ABSTRACT

Public spaces in London are continually being made, remade and unmade through unequal interrelations. They are composed from an entanglement of narratives bringing together the spaces, visions and actions of central government politicians, local authority planners, property developers, landowners, community groups, urban design consultants, journalists, researchers, local residents, workers and visitors to the city. As public spaces are made the differing opportunities afforded to those involved are asserted, challenged and navigated. These interrelations lead to individual gain and shared advantage to the detriment of people whose spaces, opportunities and livelihoods are overcome. The making of public spaces over the last three decades in London reveals overlapping perspectives and competing ambitions claimed by those whose lives and work depend on them. This paper examines three contrasting London sites where public space is subject to daily reconfigurations and large-scale masterplanned development. The nuanced accounts that constitute each case describe site-specific trajectories, of people, architectural proposals and material forms, through competing ways to realise public space. The research reveals that uneven opportunities to make public spaces are leveraged, for commercial, political and cultural advantage, by those with power against insecure public lives which are dependent on and contribute to these sites. The investigation employs a methodological approach, from which daily interactions and architectural forms are observed, descriptions of those making public space are heard and long-term rhythms are read. From the research emerges a broad conception of public space as individuals and organisations seeking spatial forms, visual images and social interactions, expressing ambitions for how public spaces can be realised which are found to facilitate, support and undermine each other. The paper explores what is lost and gained through these interconnected and uneven processes of making, which frequently favour large-scale, privately vested, singular ambitions for public space.

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This abbreviated paper examines three contrasting London sites where public space is subject to daily reconfigurations and large-scale masterplanned development. The nuanced accounts that constitute each case describe site-specific trajectories, of people, architectural proposals and material forms, through competing ways to realise public space. The research reveals that uneven opportunities to make public spaces are leveraged, for commercial, political and cultural advantage, by those with power against less secure public lives which are dependent on and contribute to these spaces. The three sites include: regeneration led by a local authority and made possible through a partnership with private developers (Elephant and Castle); a masterplan driven by developers facilitated by the local authority (Paddington Basin); and a project initiated by central government and continued by the metropolitan authority (Trafalgar Square). Reflecting Ali Madanipour assertion that public spaces 'inevitably reflect the values and aspirations' of those who produce them (1996:109), these sites reveal relations between people, organisations, cultural practices, economic conditions and planning controls constituting specific design and development geographies in London.

After describing the distinct trajectories of making public space at each site I analyse the common and overlapping narratives which offer more generalised findings. I examine three sites of shared contexts, from macro-scale economic and political impacts to recurring small-scale interactions. As I summarise the cases, conceptions of public space as *spatial forms*, *visual images* and *social interactions* can also be understood. The lens of public space as spatial forms are found in the architectural typologies of squares, plazas and streets, brown-field sites, development opportunities, building parcels, and red-line property boundaries. These are entities where ownership is traded and frequently asserted to challenge access and use. The material public spaces

are also affirmed through visual images, evident in the presentation of political and economic ambitions facilitated by architectural renderings, through media representations and in film-making. In many cases images are produced and disseminated showing buildings and open spaces which will never fully materialise. Additionally, visitors define their relationship to these spaces through taking photographs. This frequently conflicts with the multiple regulations to control photography, which overlaps with the third lens where we find public spaces made and remade through *social interactions* within the sites. Spaces are constituted through the embodied occupation and physical transformations which results from events, markets, gatherings and the chance encounters which remake all three places each day. This third frame of social interactions reflects the position of geographer Doreen Massey, who claims that public spaces are 'made out of our activities and our interrelations' (www.publicspace.org, 2013).

CONTRASTING CASES

The site of the *Elephant and Castle Regeneration* offers a context for research into the social processes and spatial forms of the outdoor market by the shopping centre. The space which was formed architecturally in 1965 from the designs of Boissevain and Osmond for the Willetts Group has subsequently been transformed in composition and public life. The modern concrete paving and elevations first enclosed a space punctuated with glazed windows and doors along with trees, fountains and seating. But when a new building owner engaged market specialists Urban Space Management to operate the centre the space was filled with an outdoor market (1990) which has continued to run ever since. The transformation of this once poorly used concrete space into a mish-mash of rusting shipping containers and steel-framed stalls created a bustling scene outside of the shopping centre. It also realised the 'market as a social space', as Sophie Watson describes (2006:44-50), where as a researcher it is not easy to

'disentangle' the social, spatial and commercial processes. The narrow plaza is reconstituted each day, through close-up interactions, as market stalls are fabricated, opened, closed and then dismantled. The economic exchanges of low-cost goods intermix with conversations between the market traders, residents, commuters, migrants, workers and visitors. Flows of commuters pass through at the beginning and end of the working day, children congregate on their way to and from school and around midday the food-court fills with queues for the food vendors. During the week the food-court is so congested that diners share tables together. The sunken market is a place, which Watson describes as 'not overtly conflictual' (2006:2), where the differences of people working, moving through or passing the day are accommodated and negotiated.

But with the advancing regeneration at Elephant and Castle the public space is due to be reconstituted. A gradual decline in the custom for the market has resulted from the decanting of the Heygate Estate while a more noticeable weakening of footfall has been felt since the pedestrian tunnels have closed. Stephen James who oversees market operations describes that the market 'is a general market, so it relies on the people; a general market for local people' and as Southwark Council 'have cleared thousands of [residents] out, so the traders are finding it difficult' (Interview 2012). Watson recognises in her research of different markets, that 'the social relationships between shoppers and traders' are important (2006:50). So as the demographic of the area shifts, from previously a majority of social renting residents to instead one which will be dominated by market-rate property owners, the relations across the new market square, located on the other side of the railway viaduct, are likely to change.

The plans for regeneration have underscored contestations between Southwark Council, the developers, local traders and residents. The concerns of residents of the Heygate and the traders inside the shopping centre

have been reflected in the contested 'Right to Return' and the protestations outlined in the Traders Charter (2007). The individual market traders, operating outside of the shopping centre, are not considered in the charter. Concerns for what will result from the development has discouraged some traders to continue their stalls and has deterred some residents from settling in the area. The uncertainty over the continuation of the market is further exacerbated by its private ownership. Unlike the celebrated public market which resides south of Elephant and Castle, on East Street, and which is protected through historic legislations, this private market has a short-term and limited tenure. The value of the Elephant and Castle market remains unrecognised by Southwark Council and the developers.

The developers of the second site, *Paddington Basin*, have a more singular approach in forming its public space. The complex of public spaces which unite the masterplan's thirteen development parcels, across 80 acres, are under the direction of the privately led Paddington Waterside Partnership. The resultant spaces at Paddington Basin contrast with expectations of a public realm owned and maintained by the state – instead these publicly accessible spaces display signs communicating their private ownership and the restrictions to what is permissible within them. The development is creating a place where public discourses and social interactions, such as those which could be considered to form a public life, are narrowly prescribed.

The masterplan was established through long leases offered by public agencies, such as British Waterways (now the Canal and River Trust), and a masterplan initiated by the City of Westminster. The Paddington Waterside Partnership includes 22 partners across developers, businesses and former government agencies, as well as strongly informing the BID (Business Improvement District). The partnership excludes the City of Westminster who had initiated the project and who remain the planning authority overseeing the

work. However, the process of development has consistently relied on the roles of public agencies who facilitate the masterplan through the favourable conditions as landlords and planning control. What is being realised is a commercial and residential development connected through a network of small private courtyards, dead-ended streets, an amphitheatre and a canal towpath. The towpath remains under the ownership of the Canal and River Trust, however the remaining public land has been handed over for private gain.

When it was formed the development partnership described the importance of a 'high quality public realm' that was considered 'vital for improving perceptions and for creating a new sense of identity and place' (PRP 2001). This emphasis was reinforced when the partnership established the BID in 2005. This business orientated operation also embraced new forms of public space as a tool which could offer a coherent image to the area. The BID, which expanded influence and control of the development partnership to encompass surrounding streets and businesses, prioritised the making of a 'place' (Interview with Kate, the manager of the BID, 2013). This approach allowed the development to benefit from the identity of the surrounding historic streets and buildings while informing projects to beautify the surrounding public realm and increase policing of undesirable activities, such as prostitution (Interview with Sharon, local resident and advisor to the BID).

The third site of making public space is at *Trafalgar Square*. *The World Squares for All* masterplan frames the refashioning of the square which was completed in 2003 through the oversight of the newly formed Greater London Authority. As a central London civic space of national importance its redevelopment was strongly informed by politicians at Whitehall, through national policy, as well as by the Mayor for London and the City of Westminster in whose borough the square resides. The architectural changes to the square, which were set out in the masterplan led by Norman Foster and

subsequently implemented by a team led by Atkins, are sufficiently sympathetic to the appearance of the historic forms that they can almost go unnoticed. A new flight of steps from the pedestrianized upper terrace to the main square aligns with both the National Gallery above and the statues, fountains and ornament below. These steps provide a new route for visitors passing diagonally through the square while creating a terrace of seating for resting, meeting and overlooking the activity below.

Within this architectural context the square is made socially through large organised events and gatherings as well as through tides of tourists, commuters and Londoners. The rhythm of cultural, commercial and political events which occupy the square are required to gain permission from the GLA, through an online application process. The cultural presence of Eid celebrations, the commercial presence of the T-Mobile sing-along and the political protests against student tuition fees are conflated into events which 'use' the square. The architect Jan Gehl, who was involved with projects in Elephant and Castle (2003), Paddington (2004) and in central London (2004), emphasises in his book *Life Between Buildings* (1971) activities 'in' public spaces. This is public space as a container in which social activities occur, can be encouraged or prevented by particular architectural interventions or which can be legislated against through regulations.

Rather than primarily a political space, a history for which Trafalgar Square is associated (www.london.gov.uk), the square is a highly imaged place. It was first photographed by Henry Fox-Talbot in 1844 and by 2009 it was claimed through a study of social media site Flickr that it was the second most photographed place in the world. Trafalgar Square is an open space in which people are both spectators and spectacle. When they are not gazing from seats around the edge of the square visitors are taking photographs of themselves, each other and the ornaments of fountains and statues. During events, rallies and gatherings there is an

awareness from individuals and the organisers that their presence will be seen. There is a distinct political and cultural value of performing and participating in events in the square. Although traffic concerns are cited as one of the main reasons for redevelopment, this should not obscure the importance of image making as a key objective in the reconfiguration of Trafalgar Square. As with the plan originally laid out by John Nash and realised by Charles Barry, the 2003 transformation was as interested with opportunities to frame magnificent views as it was concerned with reorganising traffic. Scenic outlooks to take photographs from were enhanced while new events have since unfolded across the square transforming its global image. This is a public space as a setting which embodies strong cultural images.

Partly due to the visibility of Trafalgar Square people and organisations seek to be associated with it. In addition to its associations with 'Britishness' (Mace 2005:11) the site offers exposure to audiences within the square and further afield through multiplying forms of media. As a result, it is a highly charged space, where politicians and their cultural advisors, architects and curators construct the image of the space and publicise their associations with it. Commercial enterprises hire the square for spectacular performances, film-makers set dramatic scenes in the square and political rallies use the square as a platform within the view-shed of parliament. The combination of visual backdrops and associations to political, economic and social histories, all situated in the heart of London, draw people to Trafalgar Square to be remake as it spatially, visually and socially.

OVERLAPPING ISSUES

In addition to the distinctive processes and interactions which form each site there are overlapping ways of making across all three. These are identified in the recurring presence of the same politicians, consultants, critics and developers who were engaged with redevelopment projects in London around this time. Of

note, consultants, like Space Syntax, Norman Foster, Richard Rogers and Jan Gehl, were employed by public agencies and private developers, influencing Elephant and Castle Regeneration, Paddington Waterside and Trafalgar Square over the two decades following the arrival of the New Labour government in 1997 and the establishment of the Greater London Authority in 1999.

Firstly, I found that the architectural development of all three sites have strong *economic priorities* oriented to a private market. An emphasis on the economic priorities of the local authorities for development and the need for financial profit for the developers results in public spaces which are architectural, visually bold and socially prescribed. Despite political differences between Southwark and Westminster the local councils embrace neighbourhood-scale projects which are tied to developer participation. These mechanisms at Elephant and Castle Regeneration and Paddington Waterside bring millions of pounds of financial contributions into public infrastructures. The local authorities are dependent on Section 106 contributions and for this reason the councils take the risk to make initial investment in order to enable their masterplans. As we have seen, Southwark were responsible for decanting the Heygate Estate of its residents while Westminster facilitated the hand-over of land from public agencies. As such the planners and councillors had a lot to lose if the development did not go ahead. In contrast to the profits rendered by developers, at Elephant and Castle and Paddington Waterside, the masterplan which realised Trafalgar Square engaged with a global contest. The Greater London Authority focused on enabling the presence of visitors in the square through pedestrian improvements. They also created conditions for investment, locally for the GLA through media events and nationally as these events enhanced the image of London, England and the UK. As Aspa Gospodini recognises between competing international cities (1992:12), the public space was reconfigured with the aim of 'upgrading' London's status.

Secondly, the masterplanned processes, which are initiated by politicians and facilitated by their consultants, begin and are maintained through *talking down* the existing areas. Uncompromising images of failed buildings and neglected spaces, which are frequently associated with marginal lives, are highlighted through selected photographs and scripted sound-bites. Derisory representations emphasise the failures of historic social and spatial infrastructures, such as: the congested, polluting and dangerous transportation systems (Elephant and Castle Regeneration and Trafalgar Square); the dilapidated, unsightly and failed architectural forms (Elephant and Castle); and the abandoned, vacant spaces offering new opportunities (Paddington Basin). This talking down of all three sites provides a foundation for new visions to be proposed, legitimising the ambitions of politicians and developers and the contracts of design consultants. By undermining the image of a failed area those with vested interest can, as one of the residents of Elephant and Castle described 'stimulate the idea of an obsolete place, a failing place, a place that is full of crime, and noisy, and dirty'. This is then used to establish a confidence that 'we [the council, developers and consultants] can change all this' (Interview with local resident and planner Paul). We can read in the book *The New London* (1992), a manifesto to transform London's built environment by architect Richard Rogers and politician Mark Fisher, arguments to reconfigure Trafalgar Square and Paddington Basin built from an initial critique. Rogers and Fischer introduce Trafalgar Square as a 'rammed' roundabout in a 'shabby city' (1992:xiv), before later proposing closing of roads to traffic and extending the pedestrian zones – an idea which Rogers had already drawn up for his exhibited proposal at the Royal Academy in 1986. Talking down establishes an image which argues for demolition through comprehensive redevelopment rather than small-scale local initiatives which are more complex and difficult to visualise.

Thirdly, visual images are rendered to *package* the transformations proposed. The effect of talking down

the existing conditions is that it establishes an opportunity for alternative visions to be proposed. Visual and written narratives are essential to communicate and fulfil the political ambitions and financial goals for urban redevelopment. They are necessary to attract investment, to persuade stakeholders and entice the media. Artistic styles of representing the city are carefully selected: from Foster and Partners' hand sketches displaying warm, social scenes of a new craft market at Elephant and Castle and a jostling Trafalgar Square, to polished computer renders which reassure investors in Paddington Basin's buildings of the high quality finishes of their spatial product. These artistic images, which are often distinguished more for what they conceal rather for what they show, are disseminated through websites, newspapers, television and marketing materials. Entangled with a proliferation of photographs taken in these sites and shared on social media the visual narratives contribute to what Kevin Lynch terms 'public images' (1960:7), influencing how we perceive of these spaces and our expectations of them.

The fourth shared condition is the *messy ownership* which belies the visual and spatial control of these sites. Architectural proposals and their visualisations offer confident and definite solutions to the problems affirmed through the initial talking down the three sites. Kevin Lynch describes that 'we are accustomed to one particular form of control' which is the 'legally defined ownership of a sharply defined area' (1980:205). However, across all cases there has been a need to navigate disorganised and occasionally contested conditions of ownership and management. At Elephant and Castle a patchwork of land parcels existed since the post-war reconstruction of the area confusing the council and shopping centre owners; at Paddington Basin a lengthy court battle over management responsibilities and service charges brought opposing developers and leaseholders for a legal decision by the courts; and at Trafalgar Square the different ownership of the upper terrace and the main square have

allowed buskers, vendors and cyclists to circumvent the regulations put in place in 1999 by the GLA.

Beyond the decanting of social housing, running down of commercial leases and the closing-off of historic rights-of-way there are threats to public space which are around its *ongoing control*. As the developments have been built the regulations, bylaws and the expectations of each site have been recomposed. While developers increasingly recognise the benefits that open spaces offer their developments holding onto the control of how they are maintained into the future is important. At Paddington Basin the BID provides a mechanism for extending control beyond the completion of building works. New regulations, written by developers and enforced by security guards at Paddington Basin and passed by parliament and enforced by Heritage Wardens at Trafalgar Square, point to the need for spatial transformations to be accompanied by legislations which reinforce the uses of public space.

Finally, through the processes of making public space, there are common patterns of individuals and organisations with power strongly *asserting their presence*. Despite control for making these spaces architecturally being negotiated at a high level of councils and local authorities, control of making public space through social interactions is attested at all scales. The market managers at Elephant and Castle decide who can rent a stall and dictate what they are permitted to sell. The Heritage Wardens at Trafalgar Square are afforded the authority by the GLA Act 1999 to remove people from the space. Consultants assert themselves within the masterplanning process attempting to define 'programme', 'activities' and 'use'. Organised events as well as large spontaneous gatherings occupy these public spaces restricting their use by others. In all three sites access, exchange and interactions are carefully negotiated. At times, conflict occurs between the security guards or police and people deemed to have transgressed the formal regulations of the spaces. But

enforcement is inconsistent at the privately operated Elephant and Castle Market and Paddington Basin while at Trafalgar Square the wardens are occasionally overwhelmed by the scale of the gatherings.

CONCLUSIONS

We find that across these sites individuals, developers, organisations and stakeholders assert their ambitions for making and remaking public spaces. Opportunities are differentially afforded, taken and denied – opportunities to design, plan, own, manage, maintain, enter, use and define the public spaces at Elephant and Castle, Paddington Basin and Trafalgar Square. While some of these relations are formalised through contracts and planning instruments, consistently in each site there are also repeated negotiations, from individuals struggling for presence in these spaces to investors striving for greater returns. The conclusions of this research raises three particular issues around the roles of individuals and organisations involved, their priorities in producing these sites as public spaces and the mechanisms which facilitate a greater or lesser involvement.

Firstly, the employment of a masterplan at Elephant and Castle and Paddington Basin highlights the significance of the relationships between the large-scale developers, investors and local government. The research has shown that Southwark Council and the City of Westminster are reliant on a variety of planning mechanisms to provide new parks, transportation infrastructures and leisure facilities. To pay for this scale of public infrastructure requires a correspondingly large scale of commercial project from which Section 106 contributions can be secured. This positions private developers and investors as primary participants and masterplans as key tools in making public spaces.

Secondly, we have seen in Elephant and Castle and Paddington Basin that further facilitation is required by the local authorities, from the provision of tracts

of public land on which the developers can build to clearing sites of residents and businesses through compulsory purchase. The complexity of these layered relationships expose the contrasting roles of the local councils as landowners, development partners and planning authority. This leads to the agreements becoming larger and more complex, and as there is more to be lost or gained from the development, critics decry the lack of transparency to public scrutiny.

Finally, and present in all three sites, ambitions for public spaces as architectural projects eclipse the priorities of individuals within these spaces. Plans for comprehensive urban regeneration and the large organisations which lead them overshadow some of the spatial forms as well as the everyday lives of the people who live, work, and pass through these public spaces. We have seen that this threat is exacerbated when activities which define the daily presence of the sites no longer aligns with the image desired by the council, GLA or developers. Although individuals can find physical presence in these architectural public spaces the opportunity to engage in their production is circumscribed. Opportunities to make these public spaces, in their many different ways, remain unevenly distributed and aggressively asserted by individuals and organisations with power to define the forms, images and actions of these sites.

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TEMPORARY PUBLIC SPACE STRATEGIES IN LARGE-SCALE URBAN TRANSFORMATION PROJECTS

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Temporary Use, Public Space, Urban Transformation

ABSTRACT

Several publications on temporary projects exemplify how small scale bottom-up interventions can instigate new uses of sites 'in flux' and create instant city-making, especially in times of uncertainty and limited resources. This paper investigates "temporary public spaces use" as strategic tool in large scale transformation projects. Around Copenhagen few projects are developing from industry towards new functions including temporary spaces and landscapes as long term visions, to explore site potentials and create awareness around the emerging change. In these in-between spatial situations, new types of urban spaces appear to initiate public life and potentially in the end – better cities. Carlsberg – a former brewery site has been opened to public. Due to stalled development the master plan was put on hold and an altered strategy promoted a series of temporary public spaces to create momentum. At Køge Kyst, a harbor in transition, temporary public sites have emerged between warehouses, silos and lumber piles to kick-start "life before the city". Refshaleøen, a former shipyard gains increased awareness with its proximity to central Copenhagen. Cultural producers have been invited into the existing sites to create 'content' and attractions for the public. These top down large scale transformation projects have incorporated temporary use of open space as part of their development strategy in different ways. While all of the projects have had an immediate effect and success we want to discuss what (if any) influence the temporary uses have on the long term planning process? What characterizes each of the strategies in regard to integrating public space development 'on the go'? What categorizes the physical spaces and do the first hints of further iterations and transformations tell us something about their role? The paper introduces the conditions and strategies of the three cases, discusses on the effects and interpretation and tried to find out, in what way these strategies corresponds with longer term transformations.

CARLSBERG, COPENHAGEN

In 2008 the Carlsberg brewery moved their main production from Copenhagen to a newer brewery in Fredericia. The existing historical premises, initially established in 1847 outside central Copenhagen, were now surrounded by dense city, which made further expansion to fit the global market difficult. The area, formerly closed to the public, has since then been gradually opened up and been under development into a new mixed-use city district (Copenhagen Municipality, 2015).

Though being very central positioned, the area has been a well-kept 'pocket' in the city. The enclosed structure holds various architectural and historic styles, due to both the specific brewery procedures and the founders' interest in art, culture and science. The area is officially defined as an industrial cultural heritage site (The Heritage Agency of Denmark) and the site has a very strong character based on the mix of representative spaces, lush hidden garden areas, vast asphalt surfaces, tall chimneys, big production and storage units and playful eclectic facade elements (Riesto, 2011).

The site is owned and developed by an independent consortium; Carlsberg Byen P/S is formed by Carlsberg, Realdania (private philanthropic organization) as well as two pension funds and an insurance company. Despite relocating main production, the Carlsberg Company keeps a strong interest in the development of the area, as an important physical manifestation of the brand. The area is still housing the Carlsberg administration, visitor & museum/'experience' center and research units.

A master plan for the area was developed in 2007, based on the results of an international architectural competition. The whole site covers around 25 hectare and the area is expected to be fully build in around 20-25 years. In the general master plan, as well as in the landscape plan, history, heritage and the importance of a qualitative network of urban spaces were highlighted. Specific strategies for implementing temporary



open spaces were not an explicit part of these plans, though short-term use of building structures were mentioned (Copenhagen Municipality, 2015). As a strategic move this was carried out based on crisis-related stagnated investments and the resulting lack of action in the area. The process of transformation was slower than first expected and more or less formalized temporary open space projects were initiated on site.

The first temporary projects established to attract urban life to the area consisted of three central squares initiated by Carlsberg Real Estate in collaboration

with the Municipality of Copenhagen and two foundations in 2010. Two design teams designed the public spaces that were planned to exist for a period of maximum 5 years. “Tap E Square” functions as a sitting and play area in front of the Dance Centre centrally located on Carlsberg, the second, “Bubble Square”, is a sport and playing field. The third, “New Tap Square/The Rope Forest”, consists of an art installation/urban space constructed as a big accessible ‘forest’ of ropes attached to an existing big canopy.

Following up on the squares popularity, further outdoor initiatives on temporary basis got permission to settle down in the Carlsberg area. These semi-public spaces were not initiated by the development consortium and designed by architects, as the first ones, but were based on individuals, smaller commercial players as well as user-driven associations. So far, this category has featured a tree climbing court, a beach lounge area, a container shop and event space and an association-based urban garden, all established in 2011-2013.

Both the public squares and the other projects have contributed to a reinterpretation of the open spaces at Carlsberg and introduced new programs. They did attract people to the area making the district a spot on the ‘mental Copenhagen map’. An evaluation of the urban squares on Carlsberg concluded that these temporary spaces had a positive effect in the sense that they tested different kinds of activity, programs and urban furniture (Carlsberg Properties, 2011). Nevertheless, there are no direct (published) plans if and how the different temporary spaces and testings will mirror in the future plans. Even though the master plan features a high level of emphasis on spatial qualities, new emerging spatial situations and practices can be a challenge to a very specific and precise set of master plans and design guidelines.



SØNDRE HAVN, KØGE

The harbour Søndre Havn in Køge is to undergo a slow transformation from industry to new urban area. The harbour area spans app 600 meters connecting the historic city center of Køge with the beach and water front. The ambition is to create a better cohesion between the two parts and take advantage of the qualities that the waterfront can add to city life and to increase the population of now 50.000 inhabitants.

While the urban fabric of central Køge is harmonious and dense with narrow streets and two story



buildings dating back from 1700th century, the harbour landscape has an entirely different scale and feel. Singular large corn storage buildings are contrasted by a variety of small scale vernacular structures. Chimneys penetrate the vast open sky and the water basins create both width and distance. A strong sent of both char and wood fill the air from shipping traffic of timber being logged in and out of the harbour.

The transformation process is managed by the partnership Køge Kyst owned in part by the Municipality of Køge and in part by the private fund Realdania By. An ambition for both the transformation and for the final city district is that art and culture should play a major role. And as a very unusual situation the strategic process is anchored and initiated in 2008 by the Department of Culture and not in the Department of Planning that would normally be the case (Jensen, 2008)

A phase 0 was defined with the ambition to use the initial five years to create “urban life before the city” (Køge Kyst, 2011). The aim was to animate the harbour with people and life immediately alongside the still existing industrial activities as a way to create awareness of the place and stitch it closer to the historic city.



Open sites in the area have been designed with temporary public spaces and every year an new art intervention was curated to engage people in the industrial landscape. This approach aims to allow the place to ripe slowly and for urban life to develop prior to the full physical and programmatic urban transition.

Many of the sites have already undergone several iterations and the engagement of the public has overall been a great success. A large corn storage wall was covered in an enormous mural gesturing a new discourse for the area moving away from the rationale of industry towards more culturally communicating

expressions and programs. Community gardens, an outdoor kitchen, play installations, a huge swing, places to sit, art installations and a dirt jump bicycle track have collectively created public stages, engaging in play and recreation and contrasting the industrial feel and look of the area. The effort has been a success in bringing people to the area and in creating a unique sense of place within the merged contrasts. Overall the project has had a positive outcome on the sense that the place is used and recognized.

There is also an ambition to learn from the temporary process on how to facilitate public life and space in the coming city. However, a master plan for the new district was more or less determined already before phase 0 was initiated. The master plan defines the area with dense three story city blocks, replicating the scale of the historic city creating an entirely new structure for the area (Køge Kyst, 2011). Only a few reminiscences of the industrial harbour landscape will remain and the scale and character will for the most be gone

REFSHALØEN

Refshaløen is a former shipyard site situated east of the Copenhagen inner city. The artificial land fill island, constructed in the mid-19th century was home to the Danish Shipyard B & W. The company went bankrupt in the late 1980'ies abandoning the area. The 500.00 m² site is still characterized by big scale production structures from the harbour industry, wide paved open spaces with spontaneous vegetation and the water edge, framing panoramic views towards the inner city.

Refshaløen Holding, a company owned by four Danish Pension Funds, manages the largest part of the area. In the Copenhagen municipal plans the area is categorized as a ‘perspective area’, which means that it has a longer development horizon than some of the other transformation areas in the city. Based on these conditions it frames the possibility to integrate

temporary activities and initiatives in the area until 2021 (Copenhagen Municipality, 2013). Also major infrastructural projects have to be built for a development of Refshaleøen to ever become possible.

In this in between state, the area today houses workshop companies such as boat builders, welders, auto repair; stage set construction and even a rocket builder and similar activities that require space and tolerance for noise. But also collective office spaces hosting the creative industry, artists' studios, musicians and galleries plus a high profile restaurant have been attracted to the area. Other tenants include space consuming leisure facilities such as a climbing center, paintball center and more.

Initially there were no particular ambitions with the cultural uses of the former industrial site. When the workers moved out artists simply moved in appropriating spaces to new uses. This lasted for almost 10 years until the Refshaleøen Holding decided on a more organized way of introducing new uses into the area while waiting for a larger plan to be defines.

Refshaleøen Holding rents out the vacant rentals directly to the users and the income is used to optimize the area for access and temporary uses through improving infrastructure (bicycle lane, parking, bus stop). But beyond that no physical interventions or public spaces are created in the area as part of the process.

Furthermore an increasing amount of cultural events have turned the spotlight to Refshaleøen as a both ambience creating and space offering possibility, facilitating events in a spectrum from popular culture like the Eurovision Song Contest, to Copenhagen Hell and Distortion as well as medium sized and smaller theatre, art and music festivals. In general activities that produce noise and require space.



Refshaleøen Holding is not in a position where they can work formally with a strategic plan for temporary use towards a transformation. But there is an attempt through the temporary activities to create identity and value and to attract people to the place. Unlike Køge and Carlsberg the only budget the Holding has is the income they receive from tenants.

DISCUSSION

All three urban renewal projects are happening in larger industrial areas that have lost their former purpose and are in process of transformation towards new urban neighborhoods. As demonstrated they have all intentionally employed temporary use as strategy to create identity, “life before the city” and a new expanded city. The effort has on short term proven overall successful in all projects even with their highly varied approach. However for all of them it is still very unclear if and how these short term effects will have an impact on the long term city development.

The projects on Carlsberg demonstrate a positive impact of the temporary open spaces on urban life and story building. The temporary spaces are clearly

an important part of the opening and transformation, which is also actively used in publicity and media to bridge historic spirit and new city ideals and trends. The designs of the first generation of public sites had a high quality and aesthetics that somehow resonated with the industrial historic context in an interesting way. The second rounds of temporary interventions were much more expressive but also ephemeral relying in the facilitation that was provided by the host.

Several of the temporary projects have now been dismantled or relocated. Parts of the installations or designs have been re-used in new ways, for instance the ropes from the rope forest or mobile tree boxes from the urban garden. The relation to the continuous development is so far primarily to be found in reuse of single design elements as well as in the storytelling of the area. Potential positive effects to carry on from new organizational constellations and practices established in the projects as well as the very specific spatial qualities of historic structures meeting new uses are more difficult to identify. There are no worded ambitions or strategies on transferring the experiences of the temporary space projects – of both first and second generation – into a more established Carlsberg city, which is especially strange since the future district has a very strong focus on public space. Perhaps the divergence in economy between a housing complex and temporary site is so big that the temporary project begins to seem whimsical and in the developer language of value and income insignificant – even when the temporary spaces is exactly what communicates city life at human scale.

The temporary public spaces in Køge has been a success in creating “life before the city” as intended – both from creating attractive and interesting spaces that explore and resonate with the unique character of the industrial situation of the site. Also the intensive facilitation of user involvement, events and festivals has made the place come to life. The process has been heavily funded with a direct aim that the life

created now will help make a strong neighborhood in the future development. But what part of the success of the temporary use projects will translate into the more permanent city in Køge? Is it possible to transform the social coherency that has been built in the area and transplant it into the new emerging district? Since the master plan for the area diverge strongly from the present morphology and scale of the harbor landscape many of the temporary spaces and qualities will not be possible to translate into the future places. Will the quality persist just because another community garden is created in the coming neighborhood or was the significant character of the garden in the scale of the open harbour landscape what made the situation unique? It could become a challenge to translate the program but not the site specific qualities in to the new district with success. Moreover, it will be interesting to see what public life a new and denser area will accommodate when the future inhabitants have moved in, most likely not being the same group of people as the ones initially engaged in the temporary process.

On Refshaleøen a strategic approach to temporary use has only been set in motion within the last 5 years. The intent is twofold – to give identity and attention to the area and to generate income through rent that will contribute to continuous small improvements. It is a very conscious decision to use large events to mentally move Refsaleøen closer to the city of Copenhagen and it is working. 10.000 people gather there for the annual Distortion festival and many other events attract very large crowds.

However no major investments are being made in the area to create public spaces that can support a general public life. Alterations are focused on infrastructure that improves the conditions for hosting large events and large crowds of people. Some support necessary functions like a boating dock but some also seem random and uncoordinated with limited concern for protecting the site specific qualities or adding new ones.

The large focus on events has also created tension with the community of craftsmen and artist that have their daily life in the area experiencing the place being overtaken by herds of people and all the fencing, noise and equipment that goes along with it. Can the event culture be a vehicle for the city district development into an inhabited urban area or are the festivals more a situation taking advantage of the vast open spaces and limited population? Currently there are no strategic investments in the slow ripening of the site towards a new city district and the Refshaleøen Holdings ambition to build and experiment with temporary live/work spaces has been stopped by the municipality.

CONCLUSION

The developers have in all three cases admirable ambitions in initiating a public life through new interesting urban areas and by facilitating events and experiences in the former industrial landscapes. They create new types of public spaces in a context different from the more “traditional” city fabric and use these tactical approaches to create public life, identity and use. All three projects have been successful on this account.

But even with these immediate apparent success stories it is in all the projects still quite vague how the qualities and experiences created in the now translates into the future city. This is partly due to lack of strategies and tools but also because we have still not seen what these new city districts will become. It might also be because they are simply not interested in this translation. Is this the case then the temporary use projects can perhaps be interpreted as being more marketing investments than city development tools.

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SMALL URBAN PUBLIC OPEN SPACES (SUPOS) IN CHINA AND EUROPE: THEORY, ASSESSMENT, PLANNING AND DESIGN

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ABSTRACT

In 1989, Jane Jacobs wrote about four similar squares near City Hall in Philadelphia, that only Rittenhouse Square was 'beloved and successful'. Her explanation was its diversity of pedestrian generators. Other theorists, including Bill Hillier and Jan Gehl have given equally confident explanations of why some spaces are more popular than others. My research set out to test theories of this kind by using the assessment criteria they recommend and relating them to the use intensity of 100 squares (in London and Tianjin). Small urban public open spaces are something of a problem in both east and west. Tianjin had few public open spaces before the 20th century and has made a great many since China's economic reforms began in 1978. Tianjin has higher population densities than London but its POSs have lower use intensities. One hundred POSs were surveyed and assessed, with the assessment criteria drawn from the literature of urban design and landscape architecture. Statistical tests were used to investigate possible correlations between the criteria proposed by theorists and the use intensities as surveyed in the spaces. The results showed that most of the criteria proposed by theorists have little or no correlation use intensity. The best theories for predicting use intensity were those which grew from empirical research, rather than armchair speculation. William H Whyte's findings, from his book on the Social Life of Small Urban Space were confirmed. Bill Hillier's work on Space Syntax was partially confirmed. Jane Jacob's theories were not confirmed. Further investigation revealed that although no criteria have universal validity, particular criteria can be used to explain the popularity of particular POSs. They could be used in design guides to help with the problem that (1) in China, most POSs are surprisingly unpopular (2) in Europe, some POSs are surprisingly unpopular.

INTRODUCTION

Urban open space design and planning has been problematic both in China and in the west. The problems are both theoretical and practical. During recent years, many public open spaces have been made both in the east and west. In the west, there are many theories but few of them have been tested. In the east, there are very few theories and none of them have been tested.

Jane Jacobs highlighted the problem with an example from central Philadelphia. She wrote in *Death and Life of Great American Cities* that:

When Penn laid out the city, he placed at its centre the square now occupied by City Hall, and at equal distances from this centre he placed four residential squares. What has become of these four, all the same age, the same size, the same original use, and as nearly the same in presumed advantages of location as they could be made? Their fates are wildly different (Jacobs, 1992, p92).

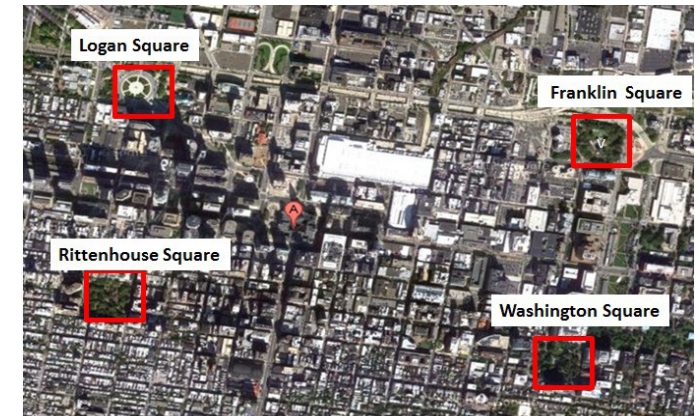


Figure 1 Jane Jacobs noticed that these four squares in Philadelphia were designed similarly and located at the same distance from City Hall. But their functions and popularity were totally different.

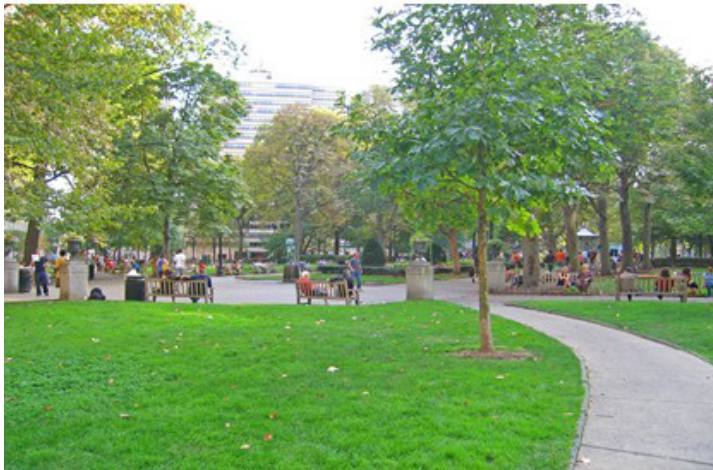


Figure 2 Above left, Washington Square used to be the heart of downtown Philadelphia. It is now surrounded by massive offices. Jane Jacobs found that it is almost empty except at lunch time (Jacobs, p93) Above right, Franklin square is the second most popular square, mainly be used by homeless, unemployed and poor people. Below left, Rittenhouse square is the best known of Penn's four squares. Jane Jacobs sees it as 'a beloved, successful, much-used park, one of Philadelphia's greatest asserts today.' (Jacobs, p92). Below right, Logan square is the least popular square in these four squares. Jane Jacobs found it is almost empty even on fine days (Jacobs, p93).

The fates of these four very similar squares are totally different: some are popular, and some are empty most of the time. This reveals the

problems of the planning and design of POS. It exists in the west and it is widespread in China.

Roger Trancik comments that the typical modern POS is 'ill-shaped' and 'ill-planned'. Spaces are not based on human behaviour and are often 'unshaped antispace' (Trancik, 1986, p.129). Similarly, Jan Gehl argued in his book *City for People* that spaces made in cities are often not planned and designed at a 'human scale' which makes many spaces unpopular (Gehl, 2010 p.29).

There are many other theories of how to make Small Urban Public Open Spaces (SUPOS) successful. Most of them come from 'armchair speculation' of the kind used by Jacobs and Trancik. Others (e.g. from Whyte and Hillier) have been subject to empirical testing.

RESEARCH

My research set out to test theories about what makes SUPOS popular. The method was to take a set of assessment criteria from published theories and relate them to surveys of use intensity of 100 squares (76 in London and 24 in Tianjin). Statistical tests were used to investigate possible correlations between the criteria proposed by theorists and the use intensities as surveyed in the spaces. Three types of data were collected:

- *Scale data:* For example, use intensity, space syntax and the percentage of sunshine in POSs
- *Ordinal data presented as ranked data:* For example, personal security and pedestrian generators.
- *Nominal data:* For example, colour.
- *There were two main approaches to the analysis of the survey data:* (1) the first approach was to examine the differences between Tianjin and London on each criterion. (2) The second approach was to examine the relationship between user intensity and the criteria. For the statistical tests, a significance value of $p = 0.05$ was employed, so that with values of $p < .05$, the result is defined as significant; with values

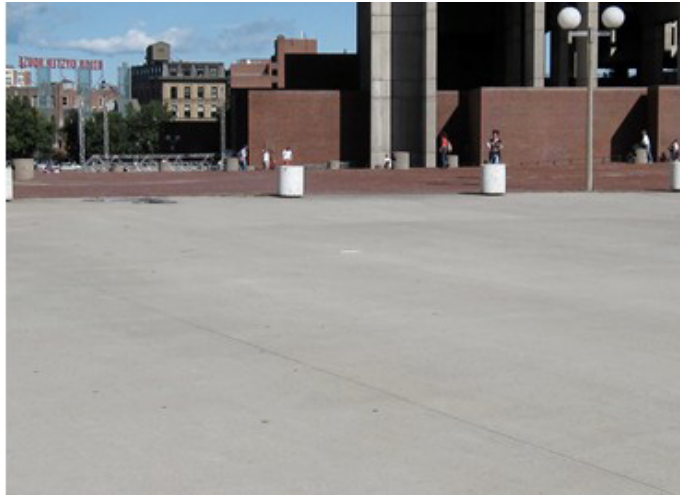


Figure 3 Left: City Hall Plaza in Boston, USA; right: Paternoster Square in London, UK.

of $p > .05$ the result was defined as non-significant. However, due to low numbers of cases within some analyses, when appropriate values from $p < .1$ to, $p > .05$ were reported as non-significant marginal trends.

The following statistical tests were conducted:

- *Pearson's chi-squared test of association (χ^2):* For categorical variables, this test was used to examine the difference between Tianjin and London on categorical or nominal variables.

Note: it is not possible to run chi-squared analyses on data in which there are low levels of responses in some conditions. The chi-squared test is invalid if more than 20% of cells have expected responses of less than five. Two solutions were used; the first was to combine data in different categories. The second was to employ Fisher's exact test for 2×2 contingency tables.

- *Independent measures t-test (t):* This test was used for exploring the difference between

Mean (M) and Standard Deviation (SD) values of scale data between Tianjin and London.

- *One-way ANOVA GLM Analysis (F):* Like the t-test this test was used with scale data, but when there are more than two variables.
- *Bivariate Correlation tests:* These examine the relationship between two variables
- *Pearson's correlation coefficient:* This analysis was used for examining the relationship between parametric variables (e.g., those that employ interval data).
- *Point Biserial correlation test:* This was a version of Pearson's test that can be used when one variable is dichotomous (e.g., yes, no) and the other is interval data.
- *Spearman's correlation coefficient:* This analysis was used when measuring relationships between variables when there is an outlier or one of the variables employs ordinal data. Indeed, with parametric tests, such as t-tests,

ANOVA or Pearson's correlation test, outliers can adversely influence the conclusions and the non-parametric is used instead. They can make what in reality should be non-significant effects appear significant to the unwary. They can also do the opposite – make what should be significant results come out as non-significant. The non-parametric equivalent of Pearson's was Spearman's.

Note: The output of Pearson's correlation coefficient conducting the analysis with and without the outlier is reported in the footnotes.

RESULTS

The results showed that most of the criteria proposed by theorists have little or no correlation with use intensity. The best theories for predicting use intensity were those which grew from empirical research, rather than armchair speculation.

William H. Whyte's findings, from his book on the *Social Life of Small Urban Space* were confirmed by my research findings (Whyte, 1980). With regard to sunshine, if a SUPOS could not get any sunshine during the day, it could not be popular and the place is full of sunshine is not where the people use most (Whyte, 1980). With regard to sitting places, people like sitting in all sorts of different places, including walls, steps and any other place where can be used for sitting, the concrete kerbs used to contain areas of grass. As Whyte wrote in *City: Rediscovering the Center*: "People tend to sit most where there are most places to sit" (Whyte & Underhill, 2009, p. 121).

Bill Hillier's work on Space Syntax was partially confirmed by my research findings. Space Syntax is an important method of researching urban POS and has some value in predicting use intensity. The method was developed by Bill Hillier (1998) and his colleagues in University College of London in the late 1970s. Popular POSs are expected to have high space integration and have more connections with other urban spaces.

Jane Jacob's theories were not confirmed by my research findings. Jane Jacobs commented on the advantage of multi-aged buildings around a POS in *The Death and Life of Great American Cities* that: 'The district must mingle buildings that vary in age and condition, including a good proportion of old ones' (Jacobs, 1992, p187). Also, Jane Jacobs (2011) discussed street security in *The Death and Life of Great American Cities* in 1961 (J. M. Jacobs & Epstein, 2011).

Based on the analysis of the correlation between criteria and the use intensity, very few of the criteria were found to be associated with use intensity of POS.

- Privately owned chairs were found to have the strongest positive significant correlation with use intensity of POS.
- Temporary food outlets were found to have the second strongest significant correlation with use intensity of POS.
- Fixed food places and total sitting length were found to have positive significant correlation with use intensity of POS.

In contrast, animals, the percentage of sunshine and Fengshui materials (wood, water and stone) were found to have negative significant correlation with use intensity of POS.

These results do not support most of the theories from the famous urban design theorists mentioned in the literature review, but the assessment methods used for collecting data in this research have limitations and individual criteria appear to be useful in explaining the use intensity of individual spaces.

Table 1 A table shows the ranking of correlation between each criteria and use intensity in a descending order on the measure of 100 POSs.

Criteria	rall (100)
1 Privately owned chairs in POSs	0.834
2 The number of temporary food outlets within the POSs	0.822
3 The number of temporary food outlets near POSs	0.566
4 The total number of food outlets	0.566
5 The number of fixed food outlets within the POSs	0.466
6 Total sitting length	0.284
7 Space Syntax	0.176
8 Pedestrian generators	0.172
9 Building-18th century	0.153
10 Fengshui-water to South	0.081
11 Personal Security	0.075
12 Building-19th century	0.051
13 Standing water	0.022
14 Building-20th century	0.01
15 The number of fixed food outlets near POSs	0.009
16 Building-before 18th century	0.002
17 Noise	-0.003
18 Sitting steps	-0.008
19 The public fixed benches and sitting walls in POSs	-0.015
20 Fengshui – sloping to south	-0.02
21 The public unfixed chairs in POSs	-0.025
22 Other tall herb and fen	-0.031
23 Scenic quality	-0.047
24 Edge of fountains and planting areas	-0.052
25 Vertical ratio	-0.055
26 Big tree with pavement	-0.062
27 Fengshui – orientation	-0.078
28 Ownership	-0.088
29 Big trees with vegetation underneath	-0.101
30 Scrub	-0.111
31 Perceived traffic annoyance	-0.117
32 Improved grass	-0.134
33 Building – 21st century	-0.14
34 Population density	-0.176
35 Sunshine	-0.18
36 Fengshui – material	-0.192
37 Animals in POSs	-0.199
38 Colour	-0.272

DISCUSSION

Further investigation revealed that although no criteria have universal validity, particular criteria can be used to explain the popularity of particular POSs. It was found that some of the criteria are of little use in explaining the popularity of POSs, but many

other criteria appear to have considerable value in explaining the popularity of individual spaces.

Space syntax was found to be very useful in some spaces, especially in the POS in central London, for example: Piccadilly Circus, Royal Exchange Piazza, Leicester square, Trafalgar Square, Bishops Square.



Figure 4: Piccadilly Circus is a tourist attraction with good space syntax. Based on the previous analysis, space syntax is likely to be the best explanation of why this space popular, rather than the factors found to have highly positive correlation with use intensity.



Figure 5: Royal Exchange Piazza did well on the total of positive significant criteria but was only 31st for the total

value of all criteria. Therefore, the reason of the success of this space is likely to be the very high value of space syntax.

The large scale of POSs in Tianjin appears limit their popularity, for example: Hai River Culture Square, Tianjin Hedong Park front Square, Jinwan Plaza and Tianjin Co-creation Future Square.



Figure 6: Hai River Square does not do well on other positive significant criteria and is 20th for the total value of all criteria. The reason for this space not being more popular is likely to be the low value of total sitting length, fast food places and other positive criteria. There is not enough to do in this space and it is surprising that the big pedestrian generator does not make it more popular. But after the investigation of the vertical ratio value of this POS, the main problem of this space being unpopular should be the huge size of this space with not much functional area for people to use.



Figure 7: Tianjin Hedong Park Front Square () does not do well on other positive significant criteria and is 63rd for the total value of all criteria and this is not far from its use intensity rank. This is a space near the residential area in the park. It has regular users who are mainly the residents nearby. The space has a limited accessibility that is a reason for this space not to be popular. But, the large size of this space without enough functional place for people is the main reason for this space not to be popular.



Figure 8: Jinwan Plaza also does not do well on other criteria and is 59th for the total value of all criteria. This space is almost empty during the day, it is a big public space but the designers did not have much consideration of how people might use the space. It is not easy to get access to this space and hardly any people use it unless there are any special events taking place. The main reason is that the space is too large without enough functional area for people.



Figure 9: Tianjin Co-creation Future Square () does well on other positive significant criteria and is 36th for the total value of all criteria. The space is built for a memorial reason and there are few attractions for people to stay in this square. The large scale of this POS is also a main reason for it not being popular.

Scenic Quality was found to have impact on Potters Fields, St James Square, One New Change Roof Square and The Broadgate Tower Square.



Figure 10: Potters Fields does well the positive significant criteria but is only 69th for the total value of all criteria. Therefore, the reason of the success of this space is likely to be the high value of scenic quality.



Figure 11: St James Square does not do very well on the positive significant criteria and is only 100th for the total value of all criteria. But it is in the top fifty of the use intensity list. The reason for it to be popular is likely to be the high value of scenic quality and vegetation. Also, St James Square is a famous place.



Figure 12: One New Change Roof Square does not do well on the positive significant criteria and is only 55th for the total value of all criteria. Therefore, the reason of the success of this space is likely to be the very high value of scenic quality. Users can enjoy the wonderful view of London from this space.

Vegetation (improved grass) was found to be very useful in making some POS popular, for example, Soho Square and Canada Square.



Figure 14: Soho Square does not do very well on positive significant criteria and the reason of the success of this space is likely to be the very high percentage of improved grass.



Figure 15: Canada Square does not do very well on other positive significant criteria and the reason of the success of this space is likely to be the very high percentage of improved grass in the POS.



Figure 16: Dabei Yuan Square does not do very well on most of the criteria. It is a front square of Dabei Yuan that is a famous temple in Tianjin. The low value of improved grass is one of the reason to make it unpopular.

When the pre -18th, 18th, 19th and 20th century buildings near POS are important pedestrian generators, they are the criteria to make POSs popular.



Figure 17: Soho Square is a well- known POS in London. It does not do very well on other positive significant criteria and is only 65th for the total value of all criteria. The buildings mixed with a high percentage of 18th century buildings help to attract a vast number of users to this space.



Figure 19: Victoria Memorial does well on the positive significant criteria but is only 49th for the total value of all criteria. Therefore, the reason of the success of this space is likely to be the very high value of scenic quality. The scenic of this POS are mainly the 19th century buildings near it.



Figure 20: City Hall Plaza does well on other positive significant criteria but is only 37th for the total value of all criteria. Therefore, the reason of the success of this space is likely to be the very high value of scenic quality. The scenic of this space is mainly the 20th century buildings that are also the pedestrian generator for this space.



Figure 21: One New Change Roof Square does not do well on other positive significant criteria and is only 55th for the total value of all criteria. Therefore, the reason of the success of this space is likely to be the very high value of scenic quality of the 19th century buildings near this POS.



Figure 22: Tower of London Square also does well on the positive significant criteria and is ranked 7th for the total value of all criteria. Therefore, the reason of the success of this space is likely to be the very high value of space syntax. Apart from this, the most important reason should be the world- reputation of the historical buildings near this space.

Fengshui theory, colour and ownership might have been found to be significant factors have in popularity of POS if the number of POSs were larger in future research.

CONCLUSIONS

In conclusion, this assessment method developed in this research can help reduce disappointments in POS design. The recommendation is that a systematic assessment should be used (1) at the design concept stage (2) when the POS has been built and is in use. Systematic assessment can help in making POS design more scientific, leading to spaces with higher levels of user satisfaction.

Designers and planners who wish to use the assessment method recommended in this thesis can proceed as follows:

- 1 Enter the criteria into a spreadsheet and type in a list of criteria in this research.
- 2 Collect as much data as possible and enter values into the spreadsheet. The data is of two kinds: (1) values that can be measured at the design stage (e.g. population density, space syntax value, the number of fast food places, age of

buildings, etc.) (2) Values that can only be predicted at the design stage (e.g. noise level, total sitting length, the percentage of vegetation, etc.),

- 3 Predict the use intensity of the space.
- 4 Use the criteria to improve the design proposal (e.g. by stating which positive criteria are being targeted and what measures are being taken to lessen the impact of negative criteria)
- 5 After the design has been constructed, the same criteria should be used to check whether the design has achieved the design intentions and to provide feedback for adjusting the initial design.

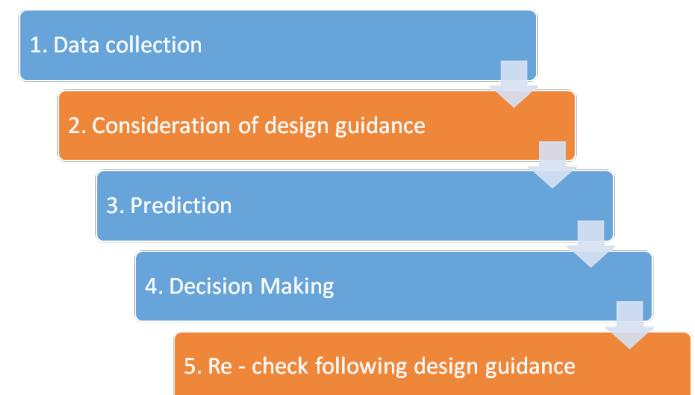


Figure 23: The diagram summarises the recommended approach to using systematic assessment and monitoring to improve the planning and design of Small Urban Public Open Space.

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SHANGHAI PARKS' TRANSFORMATION IN THE CONTEXT OF MODERNISM – A LOCAL CULTURAL PERSPECTIVE

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Urban Park, Landscape Flux, Cultural Driving Force, Hai Pai Culture

ABSTRACT

Local culture is the crucial identity of cityscape, which represents the value of social life and shapes the sense of place. The inclusive and creative Hai Pai Culture, the spirit of this metropolis, has played an important role in the transformation of Shanghai parks. In the progress of globalization with international multi-cultures, extraordinary contributions have been made to the flux of the modern landscape by Modernism. This reflective paper covers the general transformation of Shanghai parks with cultural driving forces (e.g. Chinese traditional culture, western culture including the classical and Modernism, Hai Pai Culture and their integrations) in the past 140 years as three main stages: the appearance, the exploration, as well as the maturity and regeneration. It is important to discuss the parks' changes influenced by modernism during the recent stage (1978-2015) from three aspects of morphology, function and management, as the time of their regeneration approaches. Taking some of Shanghai parks e.g. Luxun Park, Century Park and Xujiahui Park as case studies, it is revealed that the trends of free morphology and inclusive pattern, comprehensive functions and multiple user needs, as well as open operation and community participation, which reflect both the highlights of Modernism and the features of Hai Pai Culture. The local cultural perspective provides the opportunity to rethink not only the interactive process among the vernacular culture, landscape and people, but also the balance between globalization and localism. From this vantage point, the vernacular culture has played and will continue to play a key role in the birth and regeneration of cityscape.

INTRODUCTION

Shanghai is famous for its unique open, inclusive and innovational spirit, which is usually called the Hai Pai Culture (PANG, 2012). This local culture was initially influenced by the inclusive, creative and pragmatic Wuyue Culture, which was a vital tributary of Chinese traditional culture in the Taihu River Basin (QI, 2013). However, after becoming the treaty port in 1843, Shanghai was like a melting pot full of different cultures (e.g. Wuyue Culture, the traditional cultures from England, France, and America etc.), absorbing the advantages and making a new vernacular culture from each (MA, 1996). During this progress, inclusiveness and innovation can be highlighted as the unique identity and the soul of this metropolis (XIONG, 2003). At the same time, Shanghai parks, as an important part of the cityscape, have been impacted deeply by Hai Pai Culture in aspects of their form, function and management and finally emerged as a distinctive style called the Hai Pai Style.

However, since the Reform and Opening-up in 1978, great changes in contemporary design have taken place through the impact of Modernism in China (PENG, 2011). The denial of historical styles, impact of functionalism and including the concerns of people provide inspiration for changes in landscape to satisfy the demands of modern society (Marc, 1993). Facing the global cultural shock of Modernism, Hai Pai Culture always embraces new ideas, mixes them with the local context and affects Shanghai parks in many aspects.

Nowadays, there are 111 old parks to be regenerated in Shanghai. Since 2005, the Old Park Renewal project has been carried out. It is important to observe the evolution in the influences of Hai Pai Culture and Modernism and to reveal the trends of the Hai Pai Style, which will provide some lessons to the regeneration and make the vernacular cityscape of Shanghai.

DISCOVERY OF SHANGHAI PARKS' HISTORY AND CULTURAL DRIVING FORCES

The way to discover landscape through its driving forces (Jackson, 1984) is an important method to read the vernacular landscape. The literature of the transformation of Shanghai parks during the last 140 years reveals that the cultural driving forces have indeed played a significant role, especially that of Chinese traditional culture, Hai Pai Culture, the western cultures including both traditional and Modernist, along with their mixing and integration. In the study of the relationship between culture and the transformation of landscape (Fig.1), three main stages of Shanghai parks can be illustrated with the impacts of different cultures.

The first stage (1868-1949) was the appearance period, when the western classical culture arrived in Shanghai. The combination of exotic cultures and the native Wuyue Culture began to shape the Hai Pai Culture (TANG, 2010). Meanwhile, two different kinds of landscape were encountered Chinese classical garden and western classical garden. The privately-owned Chinese classical garden was the dominant style in Shanghai before the First Opium War. However, the Concession Parks emerged after the western lifestyle was transferred to Shanghai. The Public Park was established at the British-American Public Concession in the English Picturesque Style in 1868, which was marked as the first park in China (ZHOU and CHEN, 2009) and the beginning of Shanghai parks' history ZHANG, 2006). Since then, the main style of park in Shanghai was a copy of the western garden of the free or geometric form together with the leisure function. These Concession Parks were not open to Chinese citizens until the 1920s when the idea of democracy became widely spread in China. Parks built by the Guoming Government were affected more by the Chinese classical garden after the end of the western invasion.

The second stage (1949-1978) was the exploration period. It inherited the expression of the Chinese

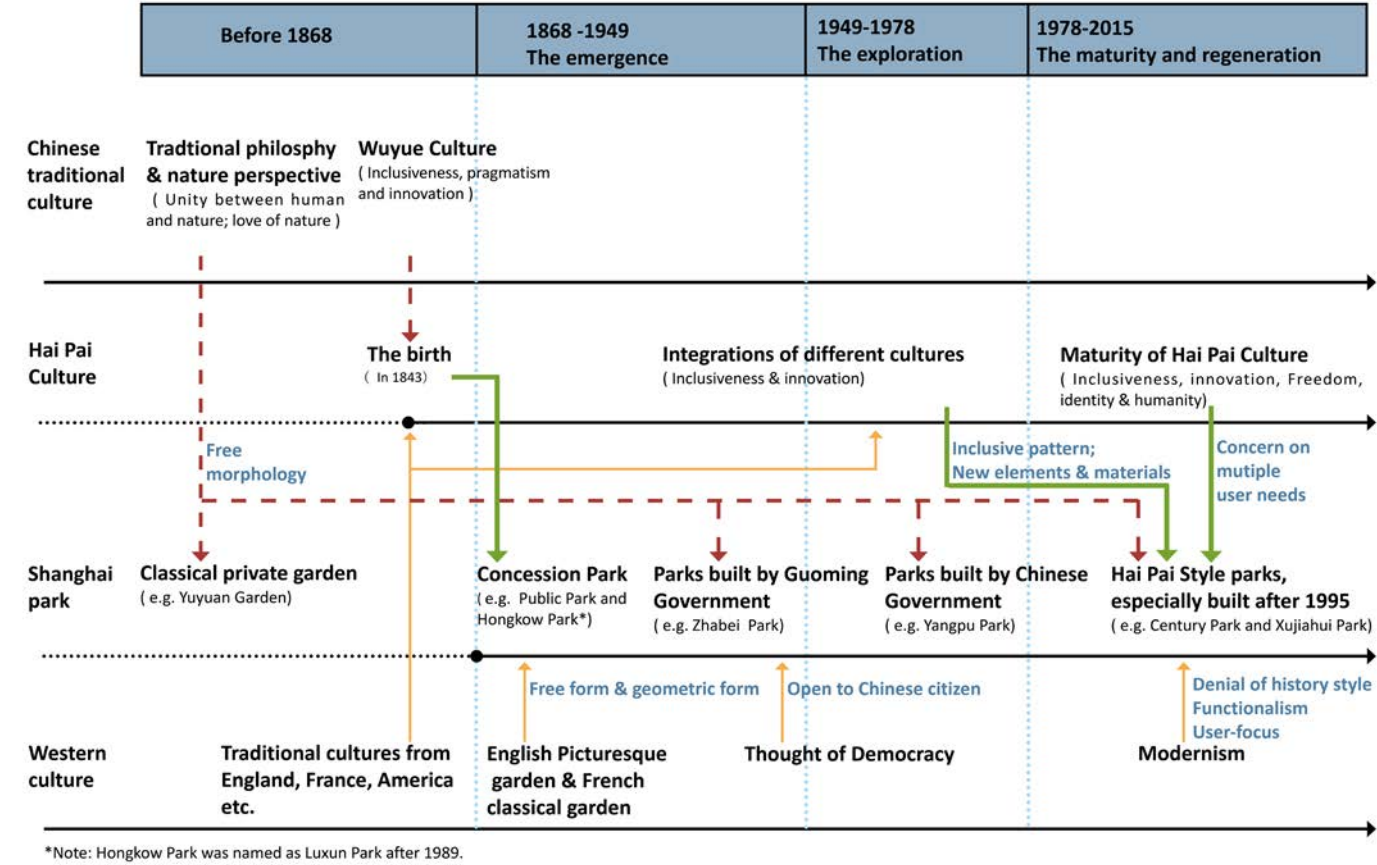


Figure 1: The relationship between culture driving forces and the transformation of Shanghai parks

classical garden rather than just copying the western garden. Thanks to the effort of the municipal government to repair the old and to build some new parks, there were up to 50 parks in Shanghai until 1958, marking a great change to enrich public leisure activities (ZHAO, 2010). In general, parks built in the 1950s inherited the free morphology from the Chinese classical garden to create large scale spaces with various functions and imitated western landscapes with some elements and materials, such as the flower beds and pavilions. Later in the ten years of the Cultural

Revolution (1966-1976), Hai Pai Culture went through a period of depression and parks suffered a lot, with damages to 36 parks, and some of them were transformed into space for production and other functions.

The third stage (1978-now) was the maturity and regeneration of the Hai Pai Style. Based on the second stage, Modernism and Hai Pai Culture mainly contributed to this maturity. Due to the Reform and Opening-up of China in 1978, Hai Pai Culture tended to become more open, inclusive and creative in the globalization progress, with

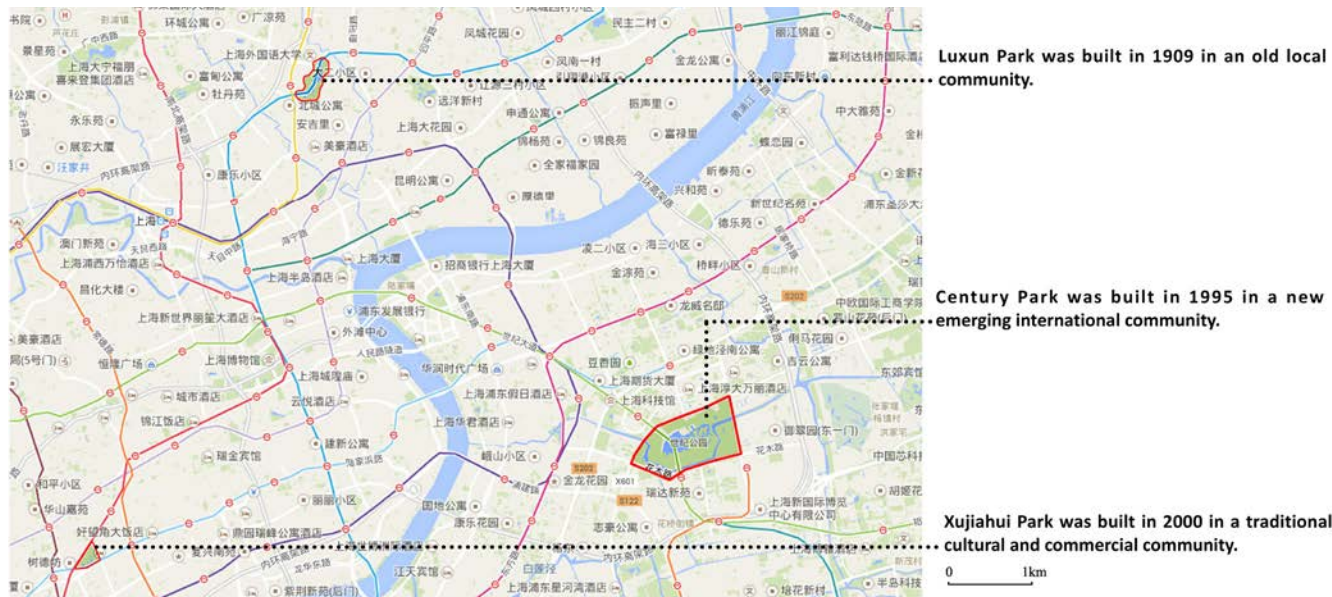


Figure 2: Locations of Luxun Park, Century Park and Xujiahui Park as highlighted (Google maps, 2015, modified by author).

more emphasis placed on the spirit of identity, freedom and humanism. At the same time, the cultural shock of Modernism on design have given Shanghai parks a great jump forward in the aspects of form, function and management. Especially after 1995, a lot of advanced concepts were introduced to the planning and design of urban parks, such as the concerns about the regional culture and community participation. All these cultural factors have shaped Shanghai parks within the inclusive, multi-functional and innovational Hai Pai Style.

From the review of three stages of Shanghai parks' transformation, it is suggested that Chinese traditional culture, Hai Pai Culture, western cultures along with their integrations are the main culture driving forces with different performances in each periods. What is more interesting, the transformation of parks also witnessed the development of the vernacular Hai Pai Culture. In this sense, Hai Pai Culture contributes to shape the Hai Pai Style parks;

and in turn, these parks as the vernacular cityscape are the spatial legacies of the unique local culture.

3. SHANGHAI PARKS IN THE CONTEXT OF MODERNISM AND HAI PAI CULTURE

The philosophy and hallmark of Hai Pai Culture is its compatibility to accept various cultures and innovation to create vernacular identities. As LONG (2006) asserts, Modernism has been the great cultural shock leading to the transformation of Shanghai parks. The primary influences in landscape design are the denial of historical styles, functionalism and user-focus of sites. Thus after 1987 when Modernism was prevalent in China, Hai Pai Culture continued to integrate these modern concepts into the vernacular style, becoming the Hai Pai Style. From this perspective, Luxun Park can be seen as a typical example to reflect the long history of the Shanghai parks' transformation; two other parks e.g. Century Park and Xujiahui Park



Figure 3: The English Picturesque Style of Hongkou Park in 1920s. (From website http://blog.sina.com.cn/s/blog_4b61b3900102vhye.html)

as a comparative study are used to clarify the Hai Pai Style in the impact of Modernism, especially during the last 20 years (Fig.2). The unique characteristics are revealed as the free morphology and inclusive pattern, comprehensive functions and multiple user needs, open operation and community participation.

3.1 LUXUN PARK

Luxun Park is an old park with an area of 28 ha located in Hongkou District, which is a local community with a long history. Its name has been changed in honor of the writer Lu Xun since his grave and memorial hall was located there. The park was built at the Public Concession in 1909 as the Hongkou Amusement Park in the British Picturesque Style (Fig.3). The broad meadow, shooting range, music pavilion and a lake were the main spaces in the park, where foreigners enjoyed walking, shooting, fishing and holding concerts. From then on, comparing its master plan in different times (Fig.4), there were three primary rebuilds in its development. In 1922, the area to the north-west was enlarged and became a sports park with a swimming pool, a golf

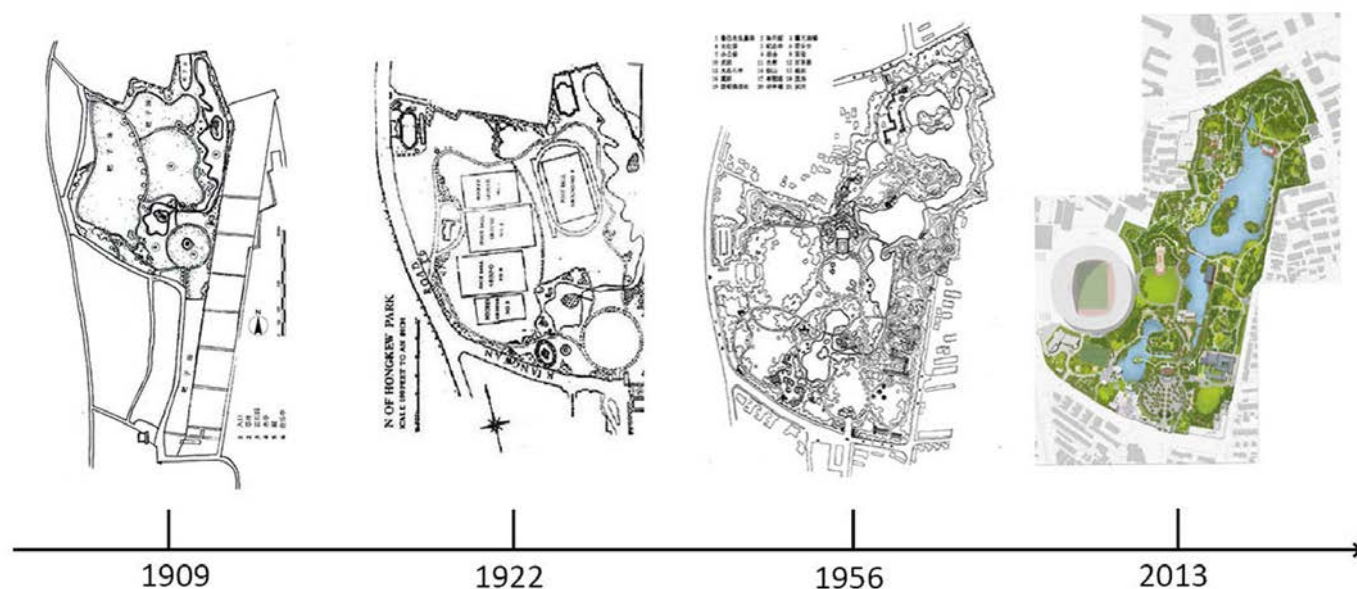


Figure 4: The transformation of Luxun Park during 1909-2013 (plans in 1909, 1922, 1956 and 2013 as examples from ZHANG, 2012 and JIA, 2011; modified by author)

course, extensive playing field and a bowling green to fulfill the sports needs of European immigrants.

Later, in 1956, the Chinese gardens' free morphology was combined with the English Picturesque Style through the adjustments of the water system and topography. The water system was enlarged in the traditional form called Three Islands in One Lake and composed to be the major pattern of the park. Some small hills (e.g. the Northern Hill and Birds Hill) were made by using the soil from digging the lakes. The adjustments of the spatial composition created poetic imagery, which was one of the most important principles of Chinese classical gardens. Moreover, it created more small spaces for various functions because visitors increased rapidly after the park was opened to the Chinese (ZHANG, 2012). Users

could enjoy both the extensive natural scenery in open spaces and various private experiences in small spaces.

Thirdly, the most recent renewal took place in 2013 (Fig.5). It retained the whole pattern of free morphology unchanged but reconstructed the detailed spaces with new pavements, vegetation and amenities to make it a safe and pleasant public place. The functionalism and user-focus concepts of Modernism with the local context were addressed in the renewal. For example, with the increasing need of the outdoor relaxation, a 1km synthetic-rubber track circling around Bird Hill was added to make room for walking, jogging and running. It is a creative approach to arrange a new place for fitness combined with the existing limited space, where was once only viewpoints. Additionally, the elderly are the majority users in the park as the aging society has

arrived in China. It is asserted that safety, cleanness and enough benches are the basic needs for older people in a park (Benedict et al., 2013). So sufficient wooden benches have been put in suitable locations, with new bins and toilets nearby. The old broken wooden handrails along the lakes were changed to steel ones in order to improve safety. In all, with users' demands taken into account, it is inclusive and creative to combine the new functions into the existing space, making it comfortable and safe.

3.2 CENTURY PARK

Unlike the Luxun Park with its long history, Century Park (Fig.6) was proposed in 1995 and opened to the public in 2000. It covers an area of 140 ha in the Pudong New Area, which is a new international community in Shanghai. As a great oasis in the high density city, the park is a good combination of human and nature, traditional and modern, as well as eastern and western cultures. It was designed and built by Land Use Consultants (LUC) from England, local companies and other experts. The international and interdisciplinary cooperation provided the opportunities for dialogue and a mix of Hai Pai Culture and Modernism.

The free morphology of the park's landscape combines British, Japanese, and Chinese classical styles. It has 45 attractions in 7 scenic zones, creating large areas of woodlands, lakes and meadows, with modern buildings like square, a concert stage, children's playground and fountain. The wide range of functions include ecological improvement, recreation and exhibitions as well as education. For example, the Bird Island planted with more than 50 kinds of shrubs serves as a preservation area to attract both local and migrant birds. In turn, these birds feed on the pests and help to keep the biotope in balance. On the other hand, it is also a good place for nature lovers to enjoy various species of birds, trees and plants. Diverse landscape spaces in Century Park also encourage various activities including both the traditional and modern. In the



Figure 5: The renewal of Luxun Park in 2013 (the plan provided by SHAO Qian, the Administrator of Luxun Park).



Views near the Bird Island.



Activities on the meadow.

Figure 6: The plan of Century Park and views (the plan from the website of Century Park; modified by author).

investigation of the frequency of activities in different spaces in May 2013, it was shown that the spaces in Century Park are compatible for diverse uses, and that the traditional and modern landscape types match with the traditional and modern activities in Table 1.

Century Park is under the control of the Shanghai Century Park Management Incorporated Company, which is the first to be managed by a company rather than the government in China. This approach has great benefits for the financial position and positive social influences during the last decade. For example, the park provides places for charities and public welfare organizations to hold activities to raise money. It’s a creative trial to open the operation to the market economy, making the management and maintenance more efficient.

3.3 XUJIAHUI PARK

Xujiahui Park (Fig.7) was built in 2000 and located in the traditional cultural-commercial community of Xujiahui District. It illustrates the inclusive pattern through the combination of geometric and natural form as a breakthrough of the free morphology. The park was once an industrial site with a rubber factory and a Red Building of Electric and Musical Industries Ltd (EMI). Considering the unique history, an elevated footbridge as the axis was built to connect the views between the chimney of the rubber factory and the Red Building. The preservation of the two old constructions in the park responds to the regional context and emphasizes as a spatial approach to the evocation of the memory of the past (WANG and LIU, 2007).

Community participation is another typical feature in Xujiahui Park. With the increasing need for cultural and mental improvement, every year the park holds more than 100 performances and concerts. These cultural and social activities are mainly supported by the Xujiahui Street Committee. It invites talented individuals and troupes to participate in performances

Activity Space Type		Traditional Activity					Modern Activity				
		Chatting	Fishing	Resting	Walking/ Running	Sports	Camping	Picnic	Parent-kid Playing	Playing cards	Taking Photos
Traditional Space	Woodland	○	×	○	○	×	●	○	○	×	●
	Waterfront	○	○	●	●	○	○	○	○	○	○
Modern Space	Meadow	●	×	○	○	●	●	●	○	×	○
	Plaza	●	×	○	●	○	×	○	○	○	○

Note: Frequency ● High ○ Medium × Low / Never

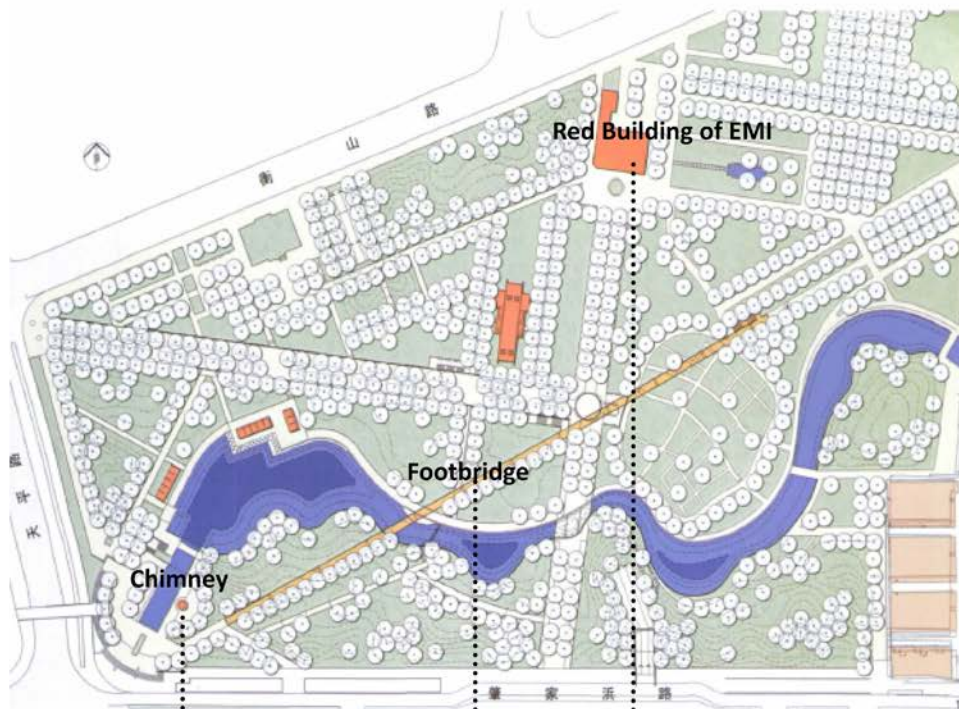
Table 1: Diverse landscape spaces for multiple user needs (investigations done on two weekdays and two weekends on May, 2013).

and to work with sponsors, while the administration of the park is responsible for the place of the show and coordination issues (Qiu, 2010). The cooperation of the street committee and park administrator is a model of community participation in the context of Shanghai, which supports and encourages the social activities in the park. As the result, these performances attract more citizens to visit the park and even join in. Thus, the creative community participation makes the park full of vitality and characteristic.

4. DISCUSSION AND CONCLUSION

From the case studies discussed, the trends of Hai Pai Style in the context of Modernism have emerged as the free morphology and inclusive pattern, comprehensive functions and multiple user needs, as well as open operation and community participation. However, the

transformation of parks is a long-term process, and lags far behind architecture. Changes can sometimes be adjustments rather than the complete transformation. As the case study of Luxun Park shows, the old park creatively combines the new function of fitness into the existing space. While the breakthroughs of the Hai Pai Style impacted by Modernism are more obvious and much addressed in the recently built parks (e.g. Century Park and Xujiahui Park), what is more important, by comparing the two parks, is the respect for regional contexts of the site, especially intensively expressed in Xujiahui Park. From this point of view, the distinctions of three case studies help in understanding the long transformation and different impacts of Modernism on the parks established in different times. It is suggested that the advance of localism will inspire designers to create vernacular public spaces for Shanghai.



Community Participation

- Parents & children theatre
- Chorus
- Weekend Concerts



Figure 7: The plan of Xujiashui Park and Community Participation (the plan from WANG and LIU, 2007; photos from QIU, 2010; modified by author)

In the context of the multi-cultural shocks, it is important to reassess and to keep a balance between the past and future, the traditional and modern, preservation and innovation. This reflective paper tries to study the Hai Pai Style with the cultural driving forces as an approach to read the interactive relationship between Shanghai parks and cultures. The spirit of inclusiveness and innovation from the local Hai Pai Culture are highlighted both in its integration with different western cultures and the transformation of Shanghai Parks over the last 140 years. These three main stages reflect the process from the passive imitation of foreign styles to the active exploration of vernacular style and lastly the maturity of the Hai Pai Style. In the final stage, Modernism brought new concepts to the Hai Pai Culture and then impacted Shanghai parks in the progress of globalization. By mixing with Hai Pai Culture and local context, Modernism provides new perspectives towards transformation of parks to fulfill the changing demands in the pluralist society. The trends of free morphology and inclusive patterns, comprehensive functions and multiple user needs, as well as open operation and community participation will give some lessons to shape vernacular identity and keep a balance between globalization and localism in the future.

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CHANGES TO URBAN LANDSCAPE APPROACHES: CASE STUDY OF AN INDUSTRIAL TOWN

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City Beautiful, Modernism, Urban Landscape,
Landscape History, Industrial Town

ABSTRACT

This paper presents current research on the evolution of urban landscape initiatives in an English town throughout a period of terminal decline and anxious change in the country's industrial towns and cities. The paper discusses questions of continuous change, development and adaptation in the urban landscape through a case study of Bolton, Greater Manchester during the decline of industry from 1909-1963. The aim of the study is to explore the changing attitudes towards urban landscape design and the amelioration of industry. This is discussed through the analysis of visionary plans such as 'Beautiful Bolton', by landscape architect and civic designer Thomas Hayton Mawson (1909) and 'Town of the Future' by architects and urban designers Graeme Shankland and Gordon Cullen (1963). Although the oeuvre of these seminal designers has been examined in previous research (Waymark 2009; Gosling 1996), much less academic attention has been given to their ideas for Bolton, and to the comparative analysis of these from a landscape point of view. The two examples chart the progression of an evolving image of modernisation of the urban landscape from the neo-classical City Beautiful approach employed by Mawson, to the sympathetic modernism of Shankland and Cullen. While each plan created alternative visions of the future, they also generated new visions of the past through the amelioration of the town's public space. The richness of available primary sources available makes it possible to conduct a detailed analytical evaluation of the proposals from the point of view of urban space, and to contextualise them in the history of landscape theory. In conclusion, the two plans present very different approaches to urban landscape design influenced by contrasting aesthetic traditions, yet they highlight the importance of landscape design the process of urban industrial amelioration.

INTRODUCTION

Bolton is a large town in the Greater Manchester conurbation of North West England. The town was originally founded as a small market town in 1200 AD but underwent vast urban growth in the industrial revolution shifting its function and identity. As such, the town became a typical example of the chaotic urban character that dominated urban thought in the twentieth century and the emergence of town planning in England. Upon the onset of decline industrial towns and cities have been the focus of numerous urban initiatives and Bolton in particular attracted the attention of highly influential, but somewhat alternative, designers. With this focus on Bolton as an exemplary case, we discuss two separate, but aligned, landscape approaches to the improvement of Bolton's central areas through Thomas H. Mawson's 1910 and Gordon Cullen's 1965 plan. Both designers influenced the development of landscape architecture and urban design in Britain throughout the twentieth century. In this presentation we discuss Mawson and Cullen's strategy to the difficult context of Bolton in order to highlight the relevance of their approaches for designers today.

THE LANDSCAPE ARCHITECT AND CIVIC DESIGNER BEHIND THE 'BEAUTIFUL BOLTON' PLANS

Thomas Hayton Mawson (1861-1933), the 'Olmsted of British town planning' was a highly successful garden designer, town planner, writer and campaigner (Cherry – Jordan – Kafkoulas 1993:328). Mawson aimed to create a bridge between garden design and landscape architecture and to integrate these ideas into the burgeoning profession of town planning. These were not just core questions at the turn of the 20th century but are also highly relevant today. Although he was a self-trained landscape architect and civic designer, he succeeded as one of the earliest figures to develop a strong international reputation with designs in The Hague, Greece and Canada that spanned from garden design to city scale. He was the first teacher

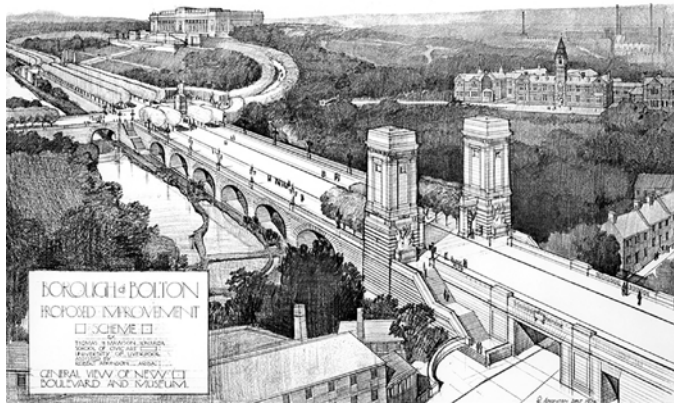


Figure 1: General View of Boulevard and New Museum. Mawson, Thomas H. 1910.

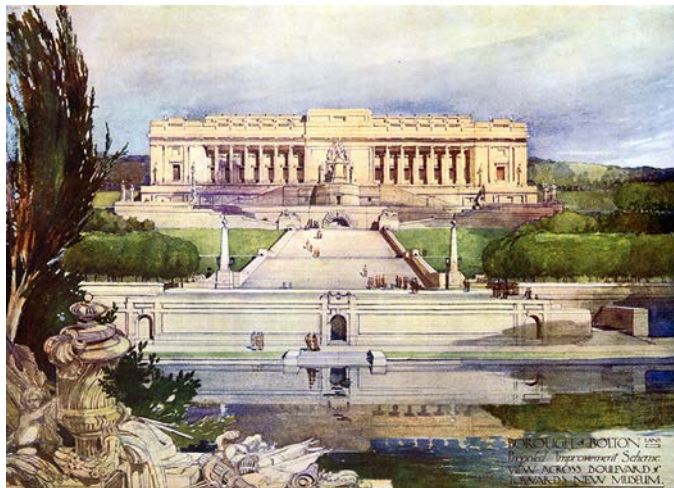


Figure 2: View Across Boulevard Towards New Museum. Mawson, Thomas H. 1910.

of Landscape Design at degree level, and his roles in the professional life of town planning and landscape architecture led him to be the president of both the Town Planning Institute, and the Institute for Landscape Architects. His writings helped expand and promote the new profession of landscape architecture.

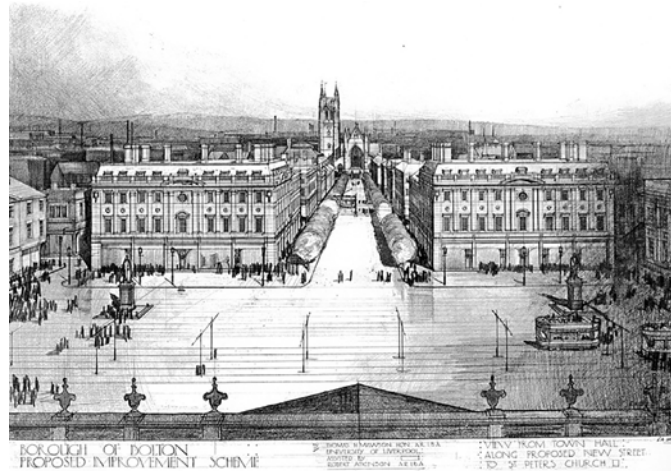


Figure 3: View From Town Hall Across Proposed Street Towards St Peter's Church. Mawson, Thomas H. 1910.

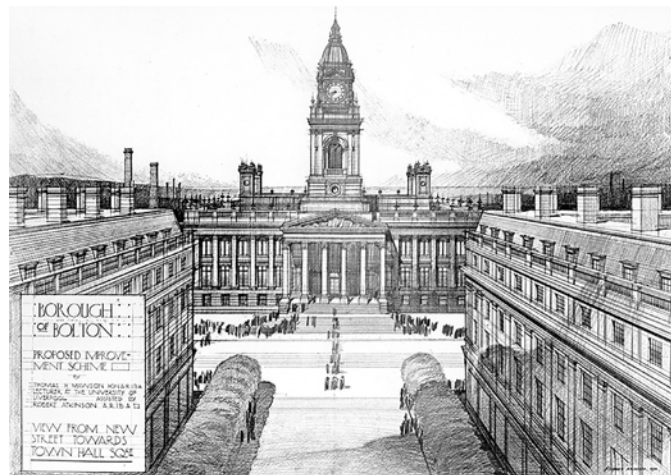


Figure 4: View From New Street Towards Town Hall Square. Mawson, Thomas H. 1910.

Mawson's civic designs were hugely influenced by contemporary urban planning ideas, these can be seen in his early 'Bolton Beautiful' scheme. One of his main examples, most probably not

independently from its landscape origins were the ideas of the American City Beautiful movement.

TOWN PLANNING CONTEXT OF MAWSON'S BOLTON PLANS

In his 1916 pamphlet about Bolton Mawson described his home country's town planning as follows: 'In England there are two schools of town planners [...] While one devotes its energies to the creation of so-called Garden Cities and Model Garden Suburbs, the other dreams of great civic centres and processional ways and grand architectural exteriors.' While describing the second, he continues: 'the opposite school on the other hand would, for the most part, direct its propaganda to the creation of the monumental, and the rearing of the grand external, and generally the decoration of everything which it considers important enough to come with the sphere of its operation' (Mawson, 1916:13). Here Mawson highlights the two contradictory directions of the early town planning movement in Britain, following Ebenezer Howard's Garden Cities concentrating on suburban growth in opposition to the city-centric model of the City Beautiful. Although Mawson presents a cynical account of the two directions he was inspired by both the Garden City Movement and the City Beautiful planning ideas emerging in Liverpool at the turn of the century.

The Atlantic port of Liverpool had a vibrant and international professional community which cultivated the exchange of early town planning ideas. As a consequence the city held the first City Beautiful Conference in 1907 (Richmond 2001). The city established the first degree course on planning in England in the department of Civic Design at the University of Liverpool in 1909, financed by the industrial philanthropist William H. Lever (Freestone 2007:26). Lever was a generous supporter of civic improvements and an admirer of the City Beautiful principles, this can be seen in the design of his model village, Port Sunlight, which, in opposition to the then fashionable informal style of suburban planning, was influenced by the more



Figure 5: 'A Town Park With the Formal Rear Wall of the Civic Centre Along One Side of It' – (View of the Victoria Park Extension), Shankland Cox, 1965.

formal American style (Freestone 2007). His own house and garden, Roynton Cottage, and the Rivington public park around it were designed by Mawson, who he invited to teach landscape design on the newly

founded course, and in 1910 asked to create improvement plans for his home town, Bolton in Lancashire.

'BOLTON BEAUTIFUL' – 'BOLTON USEFUL'

According to Mawson, Lever already had ideas about the main structural elements he envisioned for Bolton when he asked him to design it in detail (Mawson 1911:265). Mawson first wrote about the plan in 1910 with the title 'Bolton: a Study in Town Planning and Civic Art', and in 1916 published his principles again in his pamphlet 'Bolton as it is and as it might be' (Mawson 1910 and 1916).

The early example of Mawson's project was particularly unique at this time. Firstly, this can be seen in his combination of the two distinct planning strands, which used the results of the first garden city, Letchworth (1903), together with the imposing aim of the City Beautiful (Waymark 2009:202). While he proposed the creation of garden suburbs, with groupings of houses of two or three around either triangular spaces with allotments in the middle, he also created 'grand gestures' such as arcaded boulevards, and what he termed 'Park Causeway's' that linked the historic city centre with the surrounding hilly landscape upon which a new imposing museum building was proposed. (Fig 1 and 2). Secondly, contrary to contemporary town planning practice, he paid particular attention to the questions of revitalising the existing city centre. He explained, 'most men, who would face the planning of a new town with a large optimism, shrink from the task of remodelling an old one' (Mawson 1910:7). Mawson built his scheme on the heritage and existing architectural assets of Bolton. He aimed to keep and create a municipal centre around the Town Hall, to conserve the public library and infirmary buildings, and aimed to open up and improve the Market Hall. He created grand vistas through the existing urban structure to create visual links between Parish Churches and the new municipal centre. (Figure 3 and 4) He also aimed to create both visual and physical links to the existing green areas around the city,

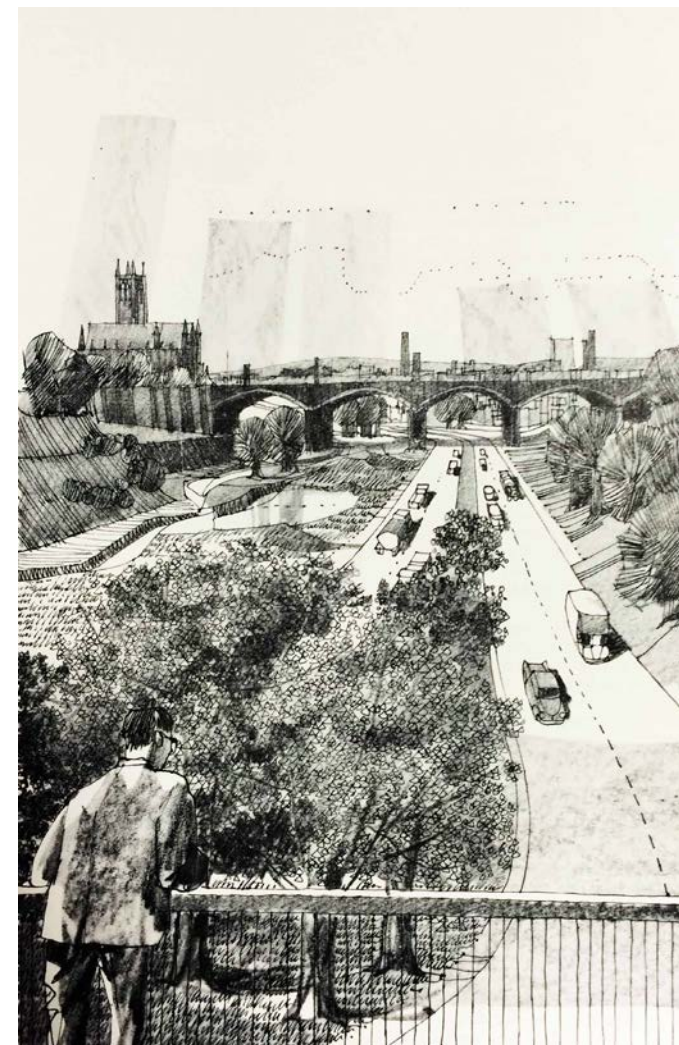


Figure 6: 'To See The Valley as Merely a Road is to Lose Its Significance' - (View Across River Croal Park), Shankland Cox, 1965.

this largely focused on the extension of the nineteenth century Queen's Park, one of the main focal points of his proposals. Another revolutionary element of Mawson's design was to build on the existing industrial resources of Bolton. In his town planning principles, he

stressed the importance of finding each town's individual character, and in this case, Bolton's character was industrial. He mapped and mentioned industrial buildings that had a good architectural quality and aimed to use these in his plans for the town's future.

Mawson's landscape architectural background can be clearly seen in the particular emphasis he laid on the park and parkway system of Bolton. This was a mixture of a radial and concentric chain of green spaces, and it was the first time that Mawson used the Viennese Ringstraße concept to link the parks and green spaces of the town together. In the inner parts of the city he designed several small green spaces, following the recommendations of the New Earswick plans by Parker and Unwin to locate a playground within ten minutes walk and without crossing main roads (Waymark 2009).

Although Mawson's plans had a very important principle to create a unifying and pleasing aesthetics for the built environment, they were based on the thorough understanding of the urban structure and the actual needs of the city. His design decisions were based on very practical ideas utility. In Mawson's understanding, this utility is the way to create beauty, therefore the 'Bolton Beautiful' is 'Bolton Useful' at the same time (Mawson 1916).

THE URBAN DESIGNER BEHIND 'BOLTON OF THE FUTURE' PLANS

Gordon Cullen CBE (1914-1994) was an architectural journalist, illustrator and urban designer. His work and ideas on urban design became widely known through an illustrated monthly series in the journal *Architectural Review* between 1946-1956. Cullen later published his studies and writings on English Urbanism in his seminal text 'Townscape' published in 1961. The book, along with his famously engaging illustrations, brought Cullen fame as an urban designer in Britain which resulted in a number of urban planning commissions throughout Britain and further afield in India (Cullen 1961, Gosling 1996). Cullen later received a CBE for

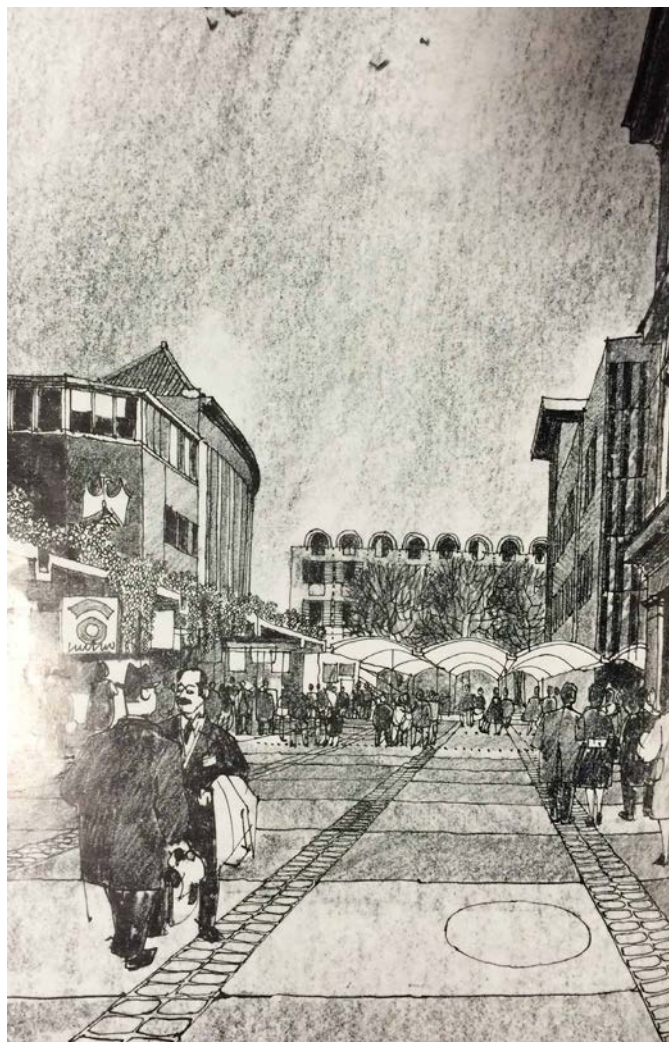


Figure 7: Deansgate Looking Towards the Proposed Square, Shankland Cox, 1965.

services to British Architecture in 1978 consolidating his position in the development of urban design throughout the twentieth century. His book 'Townscape' (1961) and an edited version 'The Concise Townscape' (1971) have both since become essential reading on landscape

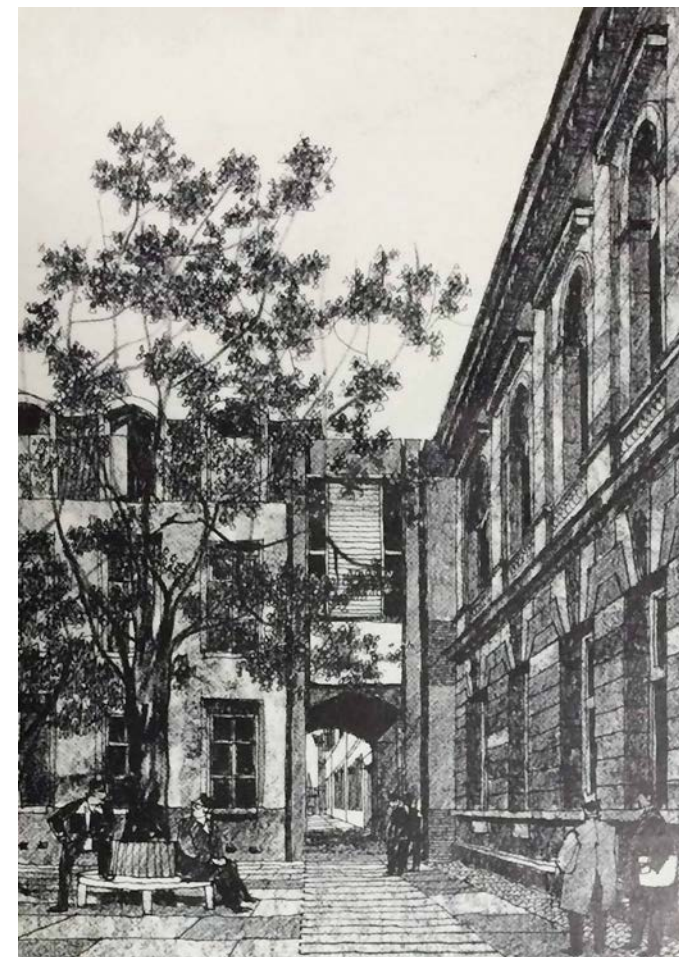


Figure 8: The Proposed Mawdsley Square in Front of the County Court, Shankland Cox, 1965.

architecture, urban design, architecture and planning courses throughout Britain again securing his continued influence into the twenty-first century. His theory of Townscape approached the city as an urban landscape integrating topography, materiality, scale and movement into an experiential and holistic understanding of place, Cullen termed this the 'art of relationship' (Cullen 1961:7). He stated 'in fact there is an art of relationship

just as there is an art of architecture. Its purpose is to take all the elements that go to create the environment: buildings, trees, nature, water, traffic, advertisements, and so on, and to weave them together in such a way that drama is released' (ibid). Graeme Shankland (1918-1984) was an architect and town planner taught at the prestigious Architectural Association School. He gained recognition as a prolific planner in twentieth century Britain through a number of town planning commissions, his austere approach has since gained him notoriety (Saumarez-Smith 2014). Cullen and Shankland worked together on masterplans for both Bolton and Liverpool, where Cullen's approach helped to subdue and tame Shankland's harsh brand of Modernism.

TOWNSCAPE AND COUNTER – MODERNISM RHETORIC

By the 1960's in Britain the zeitgeist of urban design had changed tremendously. A post-war sentiment had arisen in both professional and public circles to rebuild Britain's cities and towns to the rationalised standards of Modernism (Cullingworth and Nadin 2006). This brought a distinct focus on the central urban areas that had been unique in Mawson's early pre-war example. Following the 1947 Town and Country Planning Act all towns and cities in the county were obliged to publish urban plans and throughout the 1950's the examples were almost unequivocally Modernist in aesthetic and ideology (Larkham and Lilley 2001). England began to reconstruct urban centers to new socialist spatial ideals of large areas of open space, rationalist zoning approaches and distinctly modern architectural styles. The new order of reconstruction brought with it a destruction of the historic features of many towns provoking a critical counter-approach exemplified in the Townscape movement.

The aesthetic ideal of Townscape developed as a critique of the tabula rasa approach of post-war modernism. A number of prolific architectural writers published their ideas on both the damage of Modernist reconstruction and the exemplary standards of traditional English

urbanism in the prevalent journal *Architectural Review* between 1945 – 1960. The Townscape theorists, most notably, Gordon Cullen, Nikolaus Pevsner, Thomas Sharp and Ian Nairn were instrumental in the development of town planning in England, yet their modest argument maintained the liminality of the approach in comparison to the wide scale use of Modernism.

'BOLTON OF THE FUTURE' CULLEN – SHANKLAND PLAN 1965

Cullen's ideas on Townscape as the art of relationship permeated his proposals for Bolton where he was commissioned as a consultant to Shankland and Cox Associates to create a town plan in 1965. Cullen developed a sensitive approach to the existing scale, materiality, structure and history of the town, and his analysis of the central area of Bolton was unique in its detail and focus explicitly interrogating the character of Bolton. The existing topography, buildings and spaces were the key elements that Cullen focused on in his exploration of the town's character. From this analysis three major existing landmarks structured the proposals, the Town Hall, St Peter's Parish Church (both of which were highlighted in Mawson's earlier plan) and the Flax Place chimney, these 'fixed design points' (Shankland and Cox 1965:32) governed the height of all new constructions to retain their visual dominance. Yet he stated that 'the natural landform is undoubtedly the most important fixed design point...the design must, above all, recognise the land form and make it an integral part of the town centre' (Shankland Cox 1965:33) in order to provide a visual continuity with the view of the distant hills from the town centre.

A landscape framework created the cohesive element for the stylistically divergent landmarks through parklands, open spaces and urban squares. Cullen proposed an extension of the town's existing park into the central area, creating a continuous parkland from Victoria Square at the Town Hall and Civic Centre which stretched out through the western suburbs of

the town (Fig 5). A further, more naturalistic, parkland was proposed to the east of the centre following the course of the River Croal and surrounding the central landmark of St Peter's Church (Fig 6). The Croal River Park was proposed to extend southwards to the adjacent city of Manchester 15km away, integrating the urban core of the town with the wider landscape. A system of hierarchical squares broke up the dense nineteenth century urban grain of the town into a 'series of spaces' (Shankland and Cox 1965:28) which echoed his writings on Serial Vision and connected the two parklands through integrating green elements through the town's core. The use of the open spaces was promoted through the pedestrianisation of all major shopping streets and the creation of covered walkways, helping to shield the bad weather experienced as a result of the moorland context of the town (Fig 7).

Cullen encouraged historical continuity through mirroring the proportion, scale and materiality of the existing urban form (Fig 8). New buildings retained the proportions of the former streets through building line and height creating a mediated approach to Modernism. While large areas were reconstructed, individual buildings were designed by separate architects creating a variety within the structured framework. The materiality and colour of the former streets was also utilised where possible which created a distinctive visual continuity between the old and new parts of Bolton. Cullen's creation of a visual structure within which architects could work echoed the stylistic development of traditional English urbanism. Historical continuity was also supported through the retention of industrial features; Cullen proposed the use of former industrial machinery as 'museum pieces' (Shankland and Cox 1965:32) to be displayed in public spaces. The plan presented a very different style of restructure to that of mainstream Modernism that was heavily influenced by the personal approach and expertise of Cullen resulting in a creative balance between the new and old. The plan largely influenced the development of Bolton over two decades and key features of Cullen's ideas are still evident.

CONCLUSION

The two plans discussed in this paper were unique and progressive at the time of their creation, and were positioned against the widely accepted planning ideologies of their contemporaries. While Mawson's design was highly successful in integrating various international town planning strategies, seen in the Beaux Arts vision of the American City Beautiful, the English Garden Cities and the Austrian Ringstrasse idea, Cullen effectively mediated the Modernist desire for rebuilding with more conservative ideas for sensitive proportions and materials respecting the English urban tradition. Their complex understanding of the broader urban landscape led them to retrofit natural elements within the dense urbanity of the industrial town. This was also evident in their recognition of the importance of the link between the town itself and the wider landscape which was implemented in their shared aim to situate the urban core of Bolton into a green system. Both Mawson and Cullen had a comprehensive approach towards town planning that dealt with questions pertinent to current practice. Rather than focus solely on the common questions of housing and infrastructure the two distinct, but aligned, plans sought to develop a sense of continuity with both the past and the wider landscape. They cultivated a thorough understanding of the city structure through sustained analysis of the heritage, identity, community, experience and function of the town,. Rather than follow the specific design ideologies of their respective periods, Mawson and Cullen devised unique plans that responded to the specific issues of Bolton. Their interventions focused resolutely on improving the life and environment of the town's residents through the redesign of public space, an exemplary strategy both then and now.

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CIVIC AND SPATIAL TRANSFORMATION OF TWO MAIN URBAN SQUARES IN LJUBLJANA, SLOVENIA

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Ljubljana, Urban Square, Transformation, Protocol Space

ABSTRACT

Transitional changes in Slovenian Society over the last 25 years are also reflected in spatial changes and a transformation of Slovenia's capital city of Ljubljana and its urban open spaces. Two of the main squares in Ljubljana, Republic Square and Congress Square, have a specific civic history in Slovenian independence in 1991 – as presented in a paper at the ECLAS conference in 2005. A question raised at that time, “Would Slovenian society manage to rebuild both squares in order to reflect democratic changes?” was answered last year when they were both opened again after reconstruction works. The first square followed the original project presented 40 years ago by architect Edvard Ravnikar, but had never been executed until last year. The second one changed, with a mixture of Jože Plečnik's original design, but renovated and upgraded by new design ideas that were selected through an open design competition. Reconstruction opened new dilemmas: i) were arguments for keeping original designs of the squares sufficient, ii) were decisions made by authorities democratic, and finally, iii) are selected programs and recent use of both squares appropriate? In this paper, a framework of persistent urban landscapes theory presented in 2005 is used in order to answer these questions. Criticism of final designs considers recent transformations of society, and especially the characteristic political situation that led to rather unexpected conditions and new use of both squares, particularly for protocol purposes. Final analyses and evaluation of the changes of both squares results in a proposal for congruent design of the broader space around both presented squares, and can serve as guidelines for other renovations of Ljubljana's persistent urban landscapes.

INTRODUCTION

The urban history of Ljubljana, the capital city of the Republic of Slovenia, and especially its persistent urban landscapes were the topic of my doctoral thesis (Gazvoda 1996). Various types of urban landscapes were analysed and compared through 10 historic periods (maps), their transformations, and in recent stages explained in a wider socio-cultural context of Slovenian society. The last map of Ljubljana in the thesis was from 1991, which was the year of Slovenia gained its independence from the former common federal state of Yugoslavia. A change in social order came along with state sovereignty. Socialism was replaced by multi-party democracy and free economic enterprise – capitalism. The processes in society were similar to other post-socialist countries, and Slovenia entered a transition period. This transition started at all levels of social, political, economic, and everyday life. The process was continuous and the research of Ljubljana's persistent urban landscapes couldn't just end with 1991. Therefore, the ECLAS paper from 2005 (Gazvoda 2005) focused on several interesting types of urban open spaces, their history and changes from 1991-2005, among them also the changes in two main urban squares: Congress Square and Republic Square. What was most interesting in 2005 was the fact that spatial changes, at least in the direction of marking a new era of the Slovenian state with new urban places of Ljubljana, hadn't happened. Authorities started to adopt existing urban squares, and almost no new political iconography was introduced in the space. Political situations, ruling parties, and governments continued to change and it looked that the governments had no interest in the capital city. Now, 10 years after the paper from 2005, and more than 20 years after independence, some major changes in Congress Square and Republic Square were made. Therefore, it is another opportunity to continue the story at least of these two main squares in Ljubljana, and to present it at this year's ECLAS conference.



Figure 1: Position of both squares in the centre of Ljubljana.

THE STORY OF TWO SQUARES

Congress Square was designed in 1821 as a marching polygon for military parades in honour of a congress of the Holy Alliance (the alliance of Austria, Prussia, and Russia) that defeated Napoleon. The new design of the square was part of a city renovation for the five month-long congress (Mihelič, 2001, Korošec, 1991). At that time the square was only a sandy surface, large enough to suit military protocol. Later, it was redesigned several times to become a formal square designed by Jože Plečnik, one of Slovenia's most important architects. Plečnik used a simple and low cost design, a large four by four meter square grid made of white concrete plates, lined by darker lines and with a line of street lamps in

the axis from the church on the western edge of the square to the east. The architect's ambitious idea was to open the Congress Square further north and create another open space that would start with Aleksander's Propyla, named after former Yugoslavian King Aleksander. An important Plečnik idea was also to continue the protocol axis toward the northwest and to build a new parliament building on the edge of Tivoli Park (Krečič, 1992). With this he would complete a central area of the city and connect all of the main axes in the space, using the ancient Roman axes, parts of medieval Ljubljana, and some new national symbols that he wanted to insert in his composition. Unfortunately, Plečnik's solution of the square was later destroyed. Street lamps

were removed and grid pavement was covered by several layers of asphalt and the square was turned into a parking area that served this purpose for the next 50 years. Finally, in 2011 a public garage was built under the square which allowed the square to be cleared and redesigned in order to reintroduce Plečnik's original project and to add some new spatial features required by new uses (i.e. exits from underground garage).



Figure 2: Parking at the Congress Square six years ago (source: Slovenske novice, 2010).

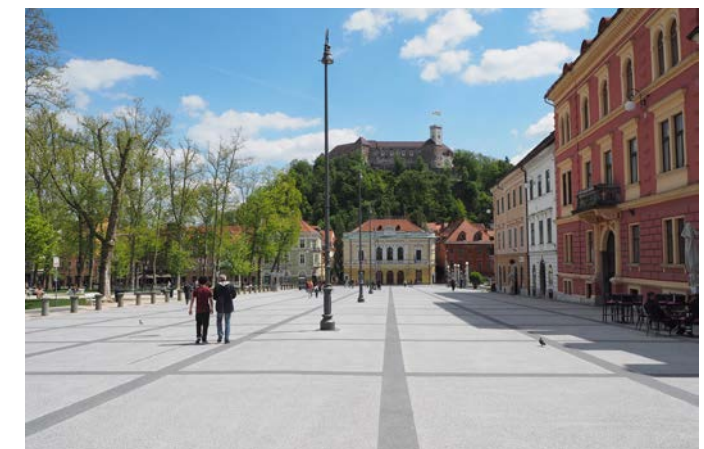


Figure 3: A redesigned Congress Square as it looks today.

An area of today's **Republic Square** was an urban green space in the past. Planted as medieval Aursperg's Gardens, the area later extended toward southerly to a small botanical garden by Karl Zois at the end of 18th century, only to be later replanted, sold, and in smaller part planted again as a garden that belonged to the cloister (the Nun's Gardens). After WWII, and with a new socialistic regime, the area had to be changed again. Edvard Ravnikar, Plečnik's student and one of most important Slovenian modern architects, recycled Plečnik's idea of connecting Tivoli Park with the city centre through a new administrative centre. However, competition ideas were never realized and at the end of 50's a decision was made to build a new parliament building, not in Tivoli Park, but on Šubičeva Street. The new Parliament building was designed by architect V. Glanz (Mihelič, 1983). Ravnikar got an opportunity few years later to design an area south of the new Parliament and to refresh his 10 year-old ideas. He proposed to build a rather large administrative centre around the new square that first was named 'Revolution Square.' The project was never completed. Two large towers originally designed for state administration were sold and bought by the biggest Slovenian bank and other financial and business companies. The square, which covered an underground garage, was also turned into a large parking space, similar to the Congress Square parking area.



Figure 4: Parking space in Republic Square in 2010 (source: Borko, 2010).

A pole with a large national flag was later placed on the edge of the parking area. This was practically the only thing that happened in the square in terms of spatial changes after gaining independence. The square functioned as a parking space, although there were many problems with the ownership of the garage. Only after this was solved, the square was finally redesigned and opened in 2014 according to original Ravnikar's project.



Figure 5: Republic Square today

Arrangements of both squares were several times problem of regulation plans and competitions that dealt with a question how to form a new city centre that would reflect main national and political ideas in various time periods. An area between both squares was under continuous changes and reconstructions. As it was mentioned, Plečnik designed a protocol axis from Congress Square to west, where the Republic Square is now. Later, in 1940 Ljubljana tried to get new regulation plan through the competition that should also rethought program of the city centre. Activities were stopped by WWII and were later, in 1948, continued by a competition for a new administration

centre of the new socialistic republic of Slovenia, and for new national assembly building. Many new questions were raised by this competition; an important one was how to mark a new political order (socialism) with architecture in a planned city centre. None of the big, urban design ideas – even Plečnik's proposal or Ravnikar's project – was ever completed as planned.

Independence in 1991 resulted in both squares serving as parking spaces. Reintroduction of a multi-party democracy didn't provide a stable government, and as city authorities hoped, preferably of the same political orientation. On the contrary, the majority in the national parliament and the majority in the city parliament were, almost always from opposing political parties. That was probably a main reason that the government had no particular interest in changing urban spaces of the capital city, although this would be a good opportunity to design a new space for protocol use at the state level. The situation became even worse in 2006 when the government was led by right wing parties, while the mayor of Ljubljana and the city parliament majority were rather left oriented, and from the opposing party of the prime minister's. The government cut the state budget for the capital city and Ljubljana suffered some major budget shortages, and had to depend more on its own budget sources. For that reason, the renovation of both squares was a city project and its authorities didn't consider state protocol as an important task of a new Republic Square. An open architectural competition was called for a new Congress Square, but the original Plečnik design had to be incorporated into the new winning project. During this time, the mayor appointed an architect, a professor of urban design as vice-mayor for urbanism, and he proposed a renovation of Republic Square following Ravnikar's project for the open space. There was no open competition, like in the case of Congress Square, nor was there any serious debate about what to do with Republic Square. The fact that city authorities started to rebuild the city centre, was certainly a positive process, but with no cooperation and support from the national

government Slovenia missed an opportunity to find new architectural and design solutions for both main squares that would reflect ideas of a new democracy in the 21st century, and to present Slovenia's capital city.

Despite this, all proposed solutions for both squares continued to live their own lives. Congress Square is older than Republic Square and it has a richer history. It started as the protocol space, though still keeping its political connotation as a mixture of political protocol and every day civic life. It was used for important political events on the state level, such as the secession of Slovene lands from the Austrian Empire in 1918, military parades of the occupation troops during the Second World War, celebration of the Victory Day on May 9, 1945, and much later for example, for the Pope's visit or President Clinton's visit and speech. Also, some very important spontaneous events took place on Congress Square, among which include the demonstrations that started the independence process in 1991. For the last ten years the square has served for city protocol and cultural events, but it also started to serve as the state protocol space.

Republic Square doesn't share such a rich history of events. There were some occasions that authorities used the square for some political events, such as Yugoslav president Tito's visits to Ljubljana, and Gorbačov's visit to Slovenia, but the square was not interested enough in other spontaneous events. After independence, the square was used several times for official state ceremonies (i.e. the celebration of Independence Day), but now these events moved to Congress Square. The most interesting spontaneous events were demonstrations in 2010 when an angry crowd ripped granite cubes out of the pavement and threw them into parliament windows. Seemingly, no one has a clear idea how to use the main square. The renovation of Republic Square didn't incorporate any program at all, it simply implemented Ravnikar's project: new pavement and patterns of granite paving, and a large empty surface which lost its meaning

because the originally planned administration buildings and institutions were never built around the square.



Figure 6: Paving detail from Republic Square.

CONCLUSION

The story of both squares also addresses new, rather academic questions: how to deal with partially completed architectural ideas, what is the time period after which we should search for new ideas, and even how often should public spaces be changed in the city? In the case of both squares, original ideas were either reconstructed or finally implemented. If that was an orientation of Ljubljana architects, why weren't other projects finished in the same manner? For example: at the same time as the squares renovations, Ljubljana ran a competition for The Butcher's Bridge in the middle of Plečnik's market place (built in 1939). Although Plečnik in his project for the market made a wooden model of the bridge (so-called 'Butcher's Bridge' with a dual-pitched roof typical of medieval bridges that were built in past in Ljubljana), architects in Ljubljana claimed that the new bridge must be built in the space, and that there

was no space to recycle Plečnik's ideas. The result was a modern bridge built in 2008 with many shortcomings.

An answer to the question of which urban open spaces remain unchanged, and which should be redesigned can be found in analyses of their persistence. There are at least two types of persistent open spaces in Ljubljana. The first group contains spaces that were practically never changed and the spaces live their persisting life and operate in various ways, satisfying the needs of the widest range of space users. Even more, they generate everyday life and offer an interesting stage for many urban activities. There is no need to introduce new uses in these spaces, and the same is with new design. Spaces can be redesigned, but there is no real need for that. In a second group are spaces that have almost no recognised genius loci, have weak collective memory, and are less used for various types of events. Although they did not change much over time, they are not persistent in the same way as spaces in the first group. They can and should be refreshed in terms of new spatial uses, with programs that require new structural elements and new design.

Congress Square was not meant to be the main national and capital square, but it persists as such. The official national square is Republic Square that is obvious in its name. But Congress Square is the space of the continuous civic realm, a continuous use for civic or public events (Rowe 1997). The other reason is that its renovation concluded before the reconstruction of Republic Square, and city authorities directed important events to this newly built and re-discovered square. The Slovenian government later followed this trend. One can only guess if this is so because the political option of the recent government shares the political orientation of the recent Ljubljana leadership, and it cooperates with city authorities in order to raise the importance of Congress Square.



Figure 7: A hockey rink in Republic Square (source: Delo, 2015)

The renovation and re-opening of Republic Square wasn't successful. The reason for this conclusion can be found in the existing program and structural situation – the square is simply empty. A row of residential buildings on the western edge of the square is separated by trees and would never be of any public use. Although a small park hosts two main revolution monuments, it remains uninteresting because Slovenian

society neglects this period of their national history. Two financial/business towers at the southern edge don't generate enough traffic or carry any events that could be transferred into the open space. A shopping mall at the eastern edge has its main entrance from the eastern side (actually from a direction of Congress Square). Visitors of the mall have practically no reason to enter the square. The northern edge, with the

Parliament, seems to be a public one, but it is actually excluded from the space for security reasons. And to be honest, Slovenes have no tradition of visiting parliament and their representatives. Therefore, except for official visitors and employees, there is no other use or pedestrian traffic in front of the Parliament.

Until now, there has been only one attempt to revive Republic Square. During the winter of 2014/2015 a hockey rink was built in the middle of the Square and outdoor hockey games were played in front of Parliament. At first glance, this was an interesting idea and new function in the space, a step forward for square's new persistence. But it was actually a mistake, because this function itself is typically an exclusive one. One had to buy a ticket to get into the rink, which was fenced and nothing else could happen there at the same time. Not to mention all other service activities and necessary equipment (toilets, TV trucks, sports commentators' cabins, etc.) that were raised in the space, blocking passage, and views across the square.

The best solution for Republic Square would be a protocol use of it. Protocol events on the state level were and still are organised on Congress Square, although the buildings surrounding the square hold no state administration or governmental program. Buildings at the square edge are the Slovenian Philharmonic and the University of Ljubljana, so it makes sense when cultural events take place in front of the Philharmonic and when school year starts and university organises big event for freshmen students. However, it is hard to understand, why The Guard check happens here and not in Republic Square in front of the Parliament. Before the renovation of both squares the Gregorčičeva Street – the space next to the Presidency building was used for protocol purposes (The Guard check). When Republic Square was renovated one would expect that this kind of protocol would take place there for two reasons: one, the square is only hundred

meters behind the Slovenian Presidency and two, the square is located in front of the Parliament Building.

As previously mentioned, The Guard check is now organised in Congress Square. This decision looks somehow illogical: foreign delegations are driven to the square, portable flag poles are installed, a red carpet is rolled out, and the military orchestra plays national anthems. The narrow space of the protocol event is fenced with metal portable frames. After the event, all equipment is moved out of the space, which functions again in its every day mode.

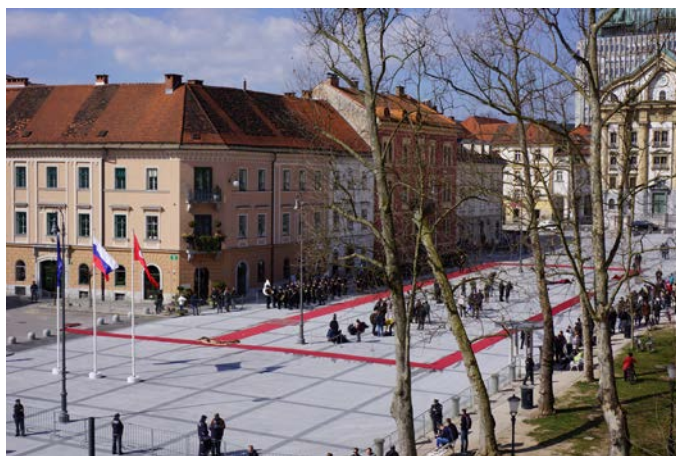


Figure 8: Congress Square ready for the Guard check: Portable flag poles can be seen in a left lower corner of the photo, and a red carpet is rolled out in the centre of the square. (Photo: S. Rozman)

If one tries to answer the question what would be the best programmatic and structural scheme of both squares, it is obvious that a search for a new administrative centre with a recognised and strong protocol space that connects both squares is the right direction. Considering the existing functions and spatial conditions of both squares, it becomes obvious that Ljubljana (and Slovenia) has failed to use this possibility for now.

Republic Square should be an excellent opportunity for Slovenia to show the form and quality of its democratic changes in the space. What kind of spatial form, program, and urban design elements should be used to answer this question and how to use the space? A few attempts were made in this direction, and one of them was diploma thesis written by I. Unetič (2007), in the which author studied all known proposals made by various architects in the past and proposed a complex solution and merger of both squares in a new protocol axis that culminates in a new design of Republic Square. Maybe this proposal is a rigorous one and cannot be implemented just like that, but the government should consider at least two pieces of advice. One is to create a protocol path for various events which would include the central area of the capital centre. It should provide different scenarios for different protocol events on a national level in terms of organising the movement of guests and spectators, but uses Republic Square as the main stage for these events.

The other one is to reconsider a purpose and program of Republic Square and find a new design proposal through an open urban design competition on the national level, and to physically change the square and turn it into a modern democratic space, a “national stage” which would attract people with its function and form.

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THE CHANGING AND THE PERMANENT ASPECTS OF LANDSCAPE

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KEYWORDS

Cultural Landscape, Permanence, Change, Toponyms

ABSTRACT

Change, process and dynamics are nowadays probably among the most common keywords in articles and books about landscape. Everything about landscape seems to be changing: the very meaning of it, the way we manage it, the way it looks and the way it functions. The only permanent thing about landscape is the fact that it is continuously changing. This paper discusses landscape change through three landscape layers: physical, social and individual – or matterscape, powerscape and mindscape, as Jacobs (2006) defines them. The core hypothesis of this paper is that at least some layers of landscapes are actually more stable and permanent than we usually consider them to be. It is derived from the findings of a research, in which toponyms, their spatial distribution, landscape characteristics and their temporal aspect were studied in part of SW Slovenia. The results show that toponyms, although invisible and intangible, have been preserved through long periods of time in the landscape, where everything else has changed: the political system, the language and the land use. They have survived as strong connections between people and their surrounding that they depend upon. Although the relation between people and landscape has also changed, the research showed that toponyms still have an important role in building the concept of landscape. As such they proved to be an important layer, which should be considered when changes are being introduced and landscapes of tomorrow (re)created.

INTRODUCTION

“More than is commonly realized, landscapes are in continual flux. But we sense them as abiding and need to do so; our very makeup depends on finding our surroundings more durable than ourselves.”

D. Lowenthal (1994): Landscape as living legacy, p. 13

Landscape change is a fact, an all-embracing, always present fact. Everything about landscape seems to be changing: its material presence, the processes which continuously (re)shapes it, the way people perceive it, experience it, and manage it. Inglis (1977: 489) points out that landscape should never be treated as an object, but rather as a living process. Landscape is also never complete, but perpetually under construction (Ingold, 1993), it is never created “from scratch”, but always recreated from its previous condition. However, the pace and the extent of changes frighten us. As Lowenthal (1994) emphasized, the essence of the “problem” is the fact that from our perspective environment has started to change too rapidly. Halbwachs (2001: 143) summarizes Auguste Comte’s observation that our very mental equilibrium is derived from the fact that physical objects in our surrounding change slowly or do not change at all. But nowadays changes can be seen in a decade and not in a century. What frightens us most is the anxiety/concern that we are responsible for these changes. Changes are often seen as negative evolution, a deviation or even degradation from “what we had before”. Yesterday’s landscapes are highly cherished. Today’s landscapes are frequently seen as a consequence of yesterday’s mistakes. We feel obliged to correct them when we are creating tomorrow’s landscapes. But in order to do that, we must first understand the complex system we call landscape, and our actual capability to change and/or preserve that system.

This paper discusses three different aspects of landscape’s reality and change and supported through a case study which was actually an inducement

for this paper. The study focuses on toponyms and their interrelation with landscape character, but also reveals interesting facts regarding toponyms and temporal dimension of landscape.

WHAT IS LANDSCAPE? THE THREE REALITIES OF LANDSCAPE

Before the discussion about landscape change, we must first define the object that is changing. Being a complex system, it could be studied from various perspectives. In this paper, landscape and landscape change is discussed through three layers that characterize every landscape: physical, social and individual. Jacobs (2006) denominates these layers as landscape’s ontological dimensions and calls them: “matterscape”, “powerscape” and “mindscape”. He describes matterscape as landscape’s physical reality, a system of facts to which laws of nature apply. Powerscape is landscape’s social reality with rules, norms and laws which regulate the behaviour of society, while mindscape is its inner reality, constituted by individual’s state of mind (Jacobs, 2006: 8-9). While universal matterscape is a singular entity, powerscapes and mindscapes can be many with different social groups and individuals respectively. And all three are subject to change. Temporality is an important aspect of all aforementioned landscape’s dimensions and changes are an integral part of every landscape. In order to understand landscape change, to adapt to it and to manage it, we must first understand the reasons, the driving forces of landscape change.

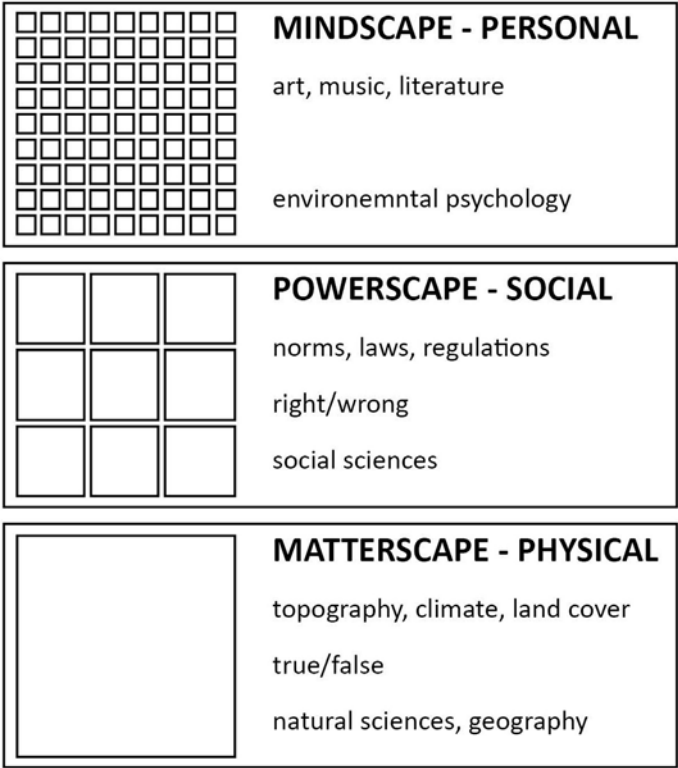


Figure 1: The three dimensions of landscape (Figure 1.jpg)

Geology, topography, hydrography, climate, land cover and land use are the elements which constitute landscape’s physical reality are the results of natural processes and human intervention. While geology is entirely the result of natural processes, some human interventions can be noticed in landscape’s topography, (supposedly) in climate, and most notably in land cover changes as a consequence of human’s land use. These elements are interrelated and interdependent: geology and climate affect topography and hydrology, all four affect land cover, which is also the result of human’s land use. It can be inferred, people are mostly responsible only for land cover change: for “dressing” and “undressing” the landscape.

If physical aspect of landscape is predominantly “a matter of natural processes”, then the other two – the social and the individual aspects – are culturally determined. Social aspects of landscape could be explained as a system of norms, objectives and needs, expressed in laws, rules and regulations. The “social landscape system” is a social agreement within society regarding the landscape – from its exploitation to its preservation and everything in between. The norms and the regulations are commonly accepted and all members of society are obliged to respect them – to treat landscape in a way that is agreed within society. These norms are also subject to change, being influenced by scientific facts about physical environment and – even more often – by new social agreements regarding that environment. What was common practice 100 years ago – to kill a wolf or make a vast clearing in a forest – is a matter of prohibition today.

Last but not least, each individual perceives and understands landscape in his or her own way. The meanings and values attached to landscape are an expression of the individual’s state of mind and are also subject to change, being influenced by other individuals, society and (changing) natural conditions.

MATTERSCAPE CHANGE

Landscapes do change and they change on various levels. But the change of physical environment seems to be the one which occupies our minds most. It is visible, it is tangible and it induces all other changes. Several studies (Antrop, 1997, 2005, 2006; O’Rourke, 2005; Reger et al., 2007, Daugstad et al., 2006; Van Eetvelde and Antrop, 2009; Kizos et al, 2010; Palang et al., 2011) focus on landscape change and although they address the topic from various perspectives, we could draw some common conclusions from them.

Landscapes of today are the result of yesterday’s management practices. While in some parts of the world,

the so-called traditional cultural landscapes are still preserved, in others they have been changed, modernized. The former are characterized by traditional land division systems and ownership structure, supported by traditional management practices. They are perceived as sustainable, beautiful and rich in landscape heterogeneity and biodiversity. They are often described as a “palimpsest”, where traces of the past can be seen underneath contemporary structures. But these landscapes are vanishing. They are an anachronism of the past which cannot survive as such. They are becoming a subject of abandonment, (agricultural) modernization and overall change. All processes, “rewilding” on one side, intensification of agricultural production and introduction of new land uses (e.g. leisure and sport facilities, infrastructure corridors, urbanized areas, etc.) are often seen as a “negative evolution”, although they are a response to new social demands. Our needs have changed, besides our urge and willingness to work all day long outside in the field, growing our own food, technology. The interconnection between people and landscape has changed. As emphasized by Lowenthal (1994), landscape has become a place for living, not for making a living. A drywall on the karst terrain, which was built by generations of farmers, can be demolished by a bulldozer in a day. Field is enlarged, cultivation easier and more profitable. Mission accomplished. Did we change the landscape? Yes. Did we damage, degrade or even destroy it? I do not know. In a way we are only continuing the process of its cultivation, its adaptation to our needs. With more sophisticated tools and machinery, of course. “Creative destruction or creative enhancement?” questions Mitchell (2013: 376) and further explains two different views on landscape change, offering two different solutions. The former is aiming towards creating new landscapes with new functions (e.g. leisure landscapes) and completely demolishing “the old ones”, and the latter towards finding new solutions, which will still enable us to preserve the coherence and identity of yesterday’s landscapes but at the same time introduce new functions as a response to new demands.

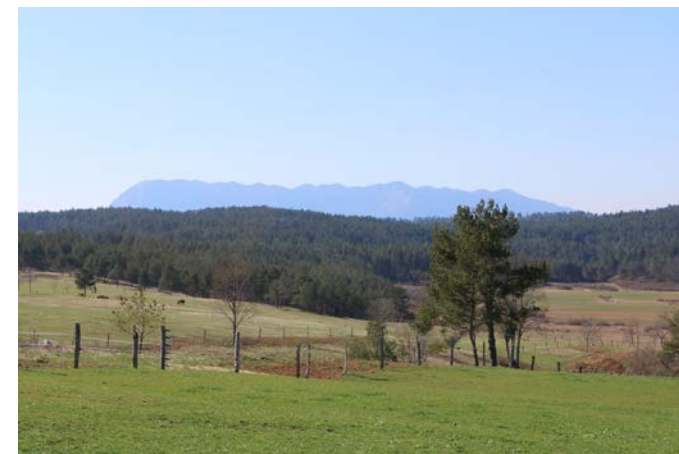


Figure 2a and 2b: Drywall on a karst meadow boundary and pasture without drywall (Figure 2a.jpg, Figure 2b.jpg)

POWERSCAPE: SOCIETY AS CREATOR AND GUARDIAN OF MATTERScape

Although we have accepted the fact that our physical environment is changing, we still desperately want to protect it from “changing too much”, sometimes even conserve parts of it. In order to do that, we continuously adjust the powerscape system, invent new rules and regulations to protect the matterscape. Common agricultural policy and Natura 2000 network are just two of the powerscape mechanisms extended all over Europe, aiming at landscape/matterscape management and often leading towards the conservation of its current condition. O’Rourke (2005) emphasizes the fact that (European) landscape is being more and more divided into areas of intensive agricultural production, interspersed with islands of biodiversity, managed with the aforementioned policies. More recently, nature conservation principles have been introduced into agricultural policy, regulating the management of agricultural areas in a way that supports some selected premium habitats and species (e.g. High Nature Value Farmland).

On the other hand, nature conservation is rarely aiming towards rewilding, towards climax, but more and more often towards protecting habitats that are highly

humanized and need continuous management to be preserved. We are “gardening” landscape, trying to keep it just as it is. Our obsession with control has in a way expanded from the garden to the whole landscape: from managing landscape in order to preserve its appearance and/or its species, to biodiversity offsetting and receptor sites. We are trying to correct the mistakes from the past, renaturating the rivers – not by letting the river to flood and find a new riverbed, which would take decades or even centuries, we want the result immediately. We simply dig a new riverbed with bulldozer, a little curvier, a little more natural-looking.

However, landscape just cannot be treated as a garden. It can be cultivated, it can be managed, but the uncertainty of nature will always be part of it. Landscape needs management concepts, which support all its aspects – from nature conservation to farming, concepts which would preserve its coherence and identity, but at the same time fulfil the needs of society. Powerscape must change. Is the answer to our questions in mindscape?

What about mindscape?

Similar to powerscape, mindscape is the invisible, intangible, slippery part of landscape but mostly inevitable. The “making” of landscape out of sheer physical environment begins with the establishment of the relationship between humans and their environment. Each individual creates his or her own mindscape, which could be defined as the perception and understanding of matterscape, influenced by powerscape system and individual's role within that system, feelings, emotions and experiences. Mindscape is a subject of change; in fact, it can be influenced by all aforementioned matters. However, human's mind also has the ability to conserve the memory of places and landscapes, even if they have changed. When a memory is preserved among several individuals, it becomes a collective memory. And, according to Halbwachs (2001: 157), all collective memories have strongly expressed spatial dimension.

LANDSCAPE, ITS PERMANENT AND ITS CHANGING ASPECTS

I will try to illustrate the interrelation among all the landscape's dimensions with some findings from my own research of toponyms and their spatial and temporal characteristics. The research of toponyms draws attention of all landscape researches, while toponyms are a phenomenon, which interconnects landscape's three realities, discussed in this paper. Although toponyms are neither visible nor tangible, they are in the first place part of matterscape, as their distribution is strongly related to physical characteristics of landscape – toponyms are particularly densely disposed in landscapes with many objects, which are considered to be “worth naming”. Further on, their connection with ownership and field division system should be mentioned. As such they constitute an important part of powerscape. And thirdly, they are mostly preserved in individuals' memories, in their mindscape.

I have researched toponyms in my doctoral dissertation entitled “Possible uses of toponyms in landscape

planning and management” (Penko Seidl, 2015). Since the emphasis of the research was on the field names – toponyms which are used to name mostly agricultural land and are strongly connected with field division system, the research area was rather small. I have collected, mapped and analysed field names within four cadastral communities in SW Slovenia, in an area of approximately 50 square kilometres.

The central hypothesis of the research was that field names reflect landscape characteristics on one side and people's perception and understanding of these landscapes on the other. As such they create an important layer of every landscape, which should not be neglected when we are developing new planning and management concepts for future, especially rural landscapes. The methodology and results were already published in some articles and conference papers (Penko Seidl 2008, 2011; Penko Seidl, Kastelec and Kučan, 2013).

The basic findings, considering their spatial and temporal aspects, are:

- (1) Toponyms were collected from topographic maps and local informants and the comparison has shown that many toponyms often cannot be found on official maps. They are preserved with oral tradition and are very frequently known only to the members of one local community or even a single family. Nevertheless, they have proved to be very stable. Several field names have been preserved through long periods of time and although they often originate from landscape's physical characteristics, many of them have »survived« even in the areas, where the landscape physis has changed. As can be observed in Figures 3a and 3b, the structure of field names almost completely concurs with land use around 200 years ago. Since then land use has changed radically, but despite that the structure of the names has been preserved, revealing the detailed knowledge about the landscape.

- (2) Identical names often appear in several local communities – they are shown in Table 1. However, there are no misunderstandings in communication, since they are limited to the members of a relatively small and closed social community. Despite the fact that many names are derived from the descriptions of the landscape's physical characteristics, and that identical toponyms appear at different locations, we cannot generalize that these locations are similar also according to their physical characteristics. Each place is named according to its surrounding.

Table 1: Toponyms which appear in several local communities

Field names which appear in several c. c.	No. of repetition	Similar field names which appear in the area of consideration
Bregi	2	Pod bregi, Za bregi
Boršt	2	Pod Borštom, Vrh Boršta
Cerkvenica	2	Nad cerkvijo
Dol / Doli	2	Veliki dol, Jagnje doli, Mrzli doli, Mali Kačji dol, Veliki Kačji dol, Medvedji dol
Devci	2	Devci pred gozdom, Devci pod korom, Devci pri Sv. Pavlu, Devci proti Knežaku, Devci rešelke, Devci v Drskovškem jezeru, Devci v pivščah, Dovci
Doline	3	Cerkvena dolina, Ježinova dolina, Pirčja dolina, Dolga dolina, Frictove doline
Gradišče	2	
Grmada	2	
Hrib	2	Zajcov hrib, Vrh Hriba
Pod Hribom	2	
Klančiči / Klančič	2	
Kot /Koti	3	Nad Koti
Loka / Loke	2	Lokavnik, Nad Lokavniki, Lokvivniki, Lokavščice Ločice
Plahute / Plehute	2	
Plešivec / Plešivica	2	
Kraška reber / Kraške rebri	2	Reber, Rebri. Krške rebri, Zagorska reber
Rebrnice	2	
Senožeti / Senožet	4	Cunarjeva senožet, Štancleva senožet, Penkcova senožet, Sajeve senožet, Klenske senožeti, Palške senožeti

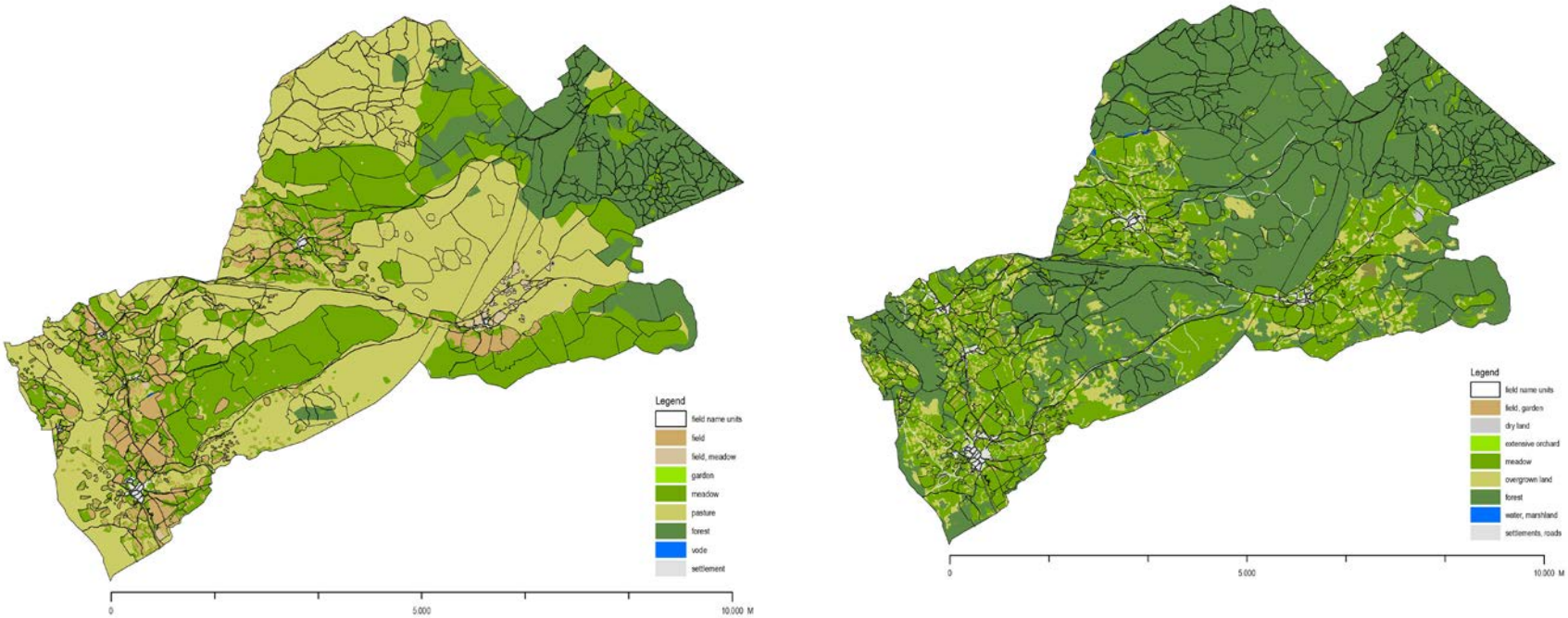
Ulovka / Ulovke	2	
Za vrti	2	
Vrtovi	2	
Zevnik / Zevniki	5	Nad zevnik
Zgon	3	
Žleb / Žlebi	3	Žlebič

(3) Using cluster analysis, areas described by a single toponym were clustered into groups of similarities according to their spatial characteristics: land use, aspect, height above sea level, slopes and several other variables, which characterize landscape (e.g. microrelief, the shape of parcels, the position of trees and shrubs, etc.). Because of different types of data (numeric, nominal, symmetric and asymmetric binary variables) Gower's coefficient of similarity

was used in cluster analysis (Gower, 1971; Kaufman & Rousseeuw, 1989) to measure the similarity between units. The results show that these areas, determined on the basis of toponym structure, can be defined as landscape character areas and can be used for the purposes of landscape typological classification, management and planning of agricultural areas. These areas also reflect the traditional husbandry organization with the combination of (1) fields, (2) meadows, (3) pastures and (4) forest.

(4) Although the matterscape has changed within several parts of these areas, the memory of the past is still preserved in individuals as well as in collective memory. Thus, the mindscape and the powerscape bear the information about the matterscape of yesterday, which

has changed. The research results show that names can be mapped and the named areas delineated using parcel boundaries. As such, names actually reveal the detailed knowledge about the landscape's physical characteristics, especially its suitability for different types of cultivation. Names like 'Long fields' or 'Wide fields' were often used for naming the village's oldest and most fertile fields (Ilešič, 1950). Even if they are today used as meadows and are partly overgrown by hedges, their suitability for agricultural cultivation can be inferred from their names, without looking at the soil map. On the other hand, names like 'Hay-field' were used to describe village's steep and rocky slopes, which were used as pastures and are nowadays completely overgrown. However, a memory of that area once cultivated is still preserved in its name.



Figures 3a and 3b: Land use around 1820 and land use today, both overlaid with field name structure (Figure 3a.jpg, Figure 3b.jpg)

CONCLUSION

Landscape is subject to continuous change and re-creation. Surprisingly, some of its aspects, which we would expect to be the most ephemeral while they are not visible or tangible and are nevertheless the reflection of its ever changing physics, seem to be the most permanent ones.

Some changes caused by humans cannot be restored. Landscapes are mostly threatened by the loss of their “naturalness” and their “culturality”, but solutions to both exist. Nature can conquer back what was taken from it; the main problem is – at least from human’s perspective – that it takes too long. On the other hand, the cultural aspect of landscape could be restored with our help – with the right management concepts, which would correspond to contemporary needs of society, while respecting the past.

Toponyms are the elements of landscape’s identity on all three levels: (1) they are used to describe its physical character; (2) they are the reflection of the social system, and (3) they are the result of people’s understanding of their physical environment, stored in people’s mind, waiting for an opportunity to be used for making new landscapes.

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OBSERVATIONS ALONG THE RIVER RARITAN

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KEYWORDS

Regional landscape history; Topographical history; Narrative

ABSTRACT

A narrative is an account of events, fictional or actual, presented as a sequence of spoken or written words. In Western narrative tradition, the most popular form of narrative literature is the novel, yet novels are only one of a number of possibilities, which include verse, myth, legend and memoir. Scholes (1966) defines narrative as the act of synthesizing heterogeneous phenomena. Using the context of ongoing watershed-related research in New Jersey's Raritan Valley – together with previous work and mapping within and beyond – this presentation examines the narrative and revelatory potential line walking, and the power of the eyewitness account to convey observations and impressions of the landscape with immediacy and verisimilitude. A geographical imagination coupled with an interest in landscape documentation led me to the Raritan. Situated midway between Philadelphia and New York, the valley is rich in historic incident and ecological variety; draining more than 1,100 square-miles along the river's seventy-five mile course. Accessible to Atlantic coastline at Raritan Bay, the river formed the backbone of an elaborate system of post, turnpike, canal, rail, and highway routes, which enabled and epitomized the state's subsequent settlement patterns.

INTRODUCTION

In the reading room of the Rutgers University Special Collections in New Brunswick there is a small though magnificent map of the Colonial New Jersey landscape depicting the extent of settlement in the estuary of the Raritan River. (Figure 1) Compiled and delineated in 1685 by John Reid and engraved in the colonies by Robert Simson, the map without being entirely accurate tell us much about the lands of East Jersey around the time they passed into the possession of its twenty-four proprietors. Twelve years earlier Reid, an Edinburgh bookseller and gardener, left his Scotland home to accompany a group of emigrates to America, to oversee their settlement, and to make a plat illustrating the results. For his trouble, Reid was granted a 10-acre tract in the provincial capital of Perth Amboy and later, as a reward for completing the work, an additional 200 acres on the western branch of the Hop River in neighboring Monmouth County. (Weeks, 2001, 74)

Reid's map view is up river, stretching roughly thirty miles westward from the edge of Raritan Bay to the confluence of the river's main tributaries. Visible in the upper left corner is a segment of a line, the longer, northwest running Keith line, which nine years earlier, and named for the surveyor who drew it, divided the original Province of New Jersey into two smaller ones.

The three drainages that feed and organize the estuary – the North Branch, the South Branch, and the Millstone – are depicted with considerable detail. Near the center of the map, roughly fourteen miles from Raritan Bay, at a point labeled simply "falls," lies the future site of New Brunswick, wisely located at the farthest point of inland navigation. An expansive geometry of riparian plantations stretches open and orderly along the floodplain. Channel depths, where known and critical, are shown with soundings in fathoms.

Onward from the early seventeenth century and the arrival of permanent settlers, transformations

to the American landscape were recorded in maps, written documents, and the structure of the land itself. For contemporary landscape architects, representations such as Reid's serve not only as instruments to calibrate landscape change but useful datums for its imaginative deconstruction.

In his book *Topographical Stories: Studies in Landscape Architecture*, architect David Leatherbarrow writes, "Although level land is the basis for most cultural practices, rarely is it given much attention, perhaps because it is so commonly taken for granted." (Leatherbarrow, 2004, 114) A cursory glance at Reid's map and its absence of topographic detail might mistakenly suggest so. In the latter decades of the nineteenth century, settlers of the lower Raritan would make good use of the river's neighboring terraces and hillsides – reshaping and transforming them through extraction and invention. The aspirations of those with earlier claims, however, focused on the estuary's more elusive relief of banks, bars and shoals.

From the original engraving, only two copies of the Reid map are known to exist; one housed at the Library of Congress and the other in Rutgers University, which maintains a vast repository of documents and ephemera depicting the lands of New Jersey throughout its history. The Sinclair Collection, the university's largest and most comprehensive, contains items of rare and specialized nature including an archive of original and printed manuscript maps, which are kept in a large vault off a special reading room.

This interest in examining the use of period relief maps to understand landscape change emerged within the context of a 2012 study funded by Woodbury University's Arid Lands Institute (USA) exploring a contemporary reformulation of John Wesley Powell's commonwealth approach. (McSherry, 2013) In the late nineteenth century, Powell, a geologist with the United States Geological Survey, authored his seminal "Report on the



Figure 1: 1685. "A Mapp of Rariton River, Milestone River, South River, Boundbrook, Greenbrook & Cedar brook with Plantations thereupon." J. Reid, delineator; R. Simson, sculptor. United States Library of Congress, Geography and Map Division. (<http://www.loc.gov/>)

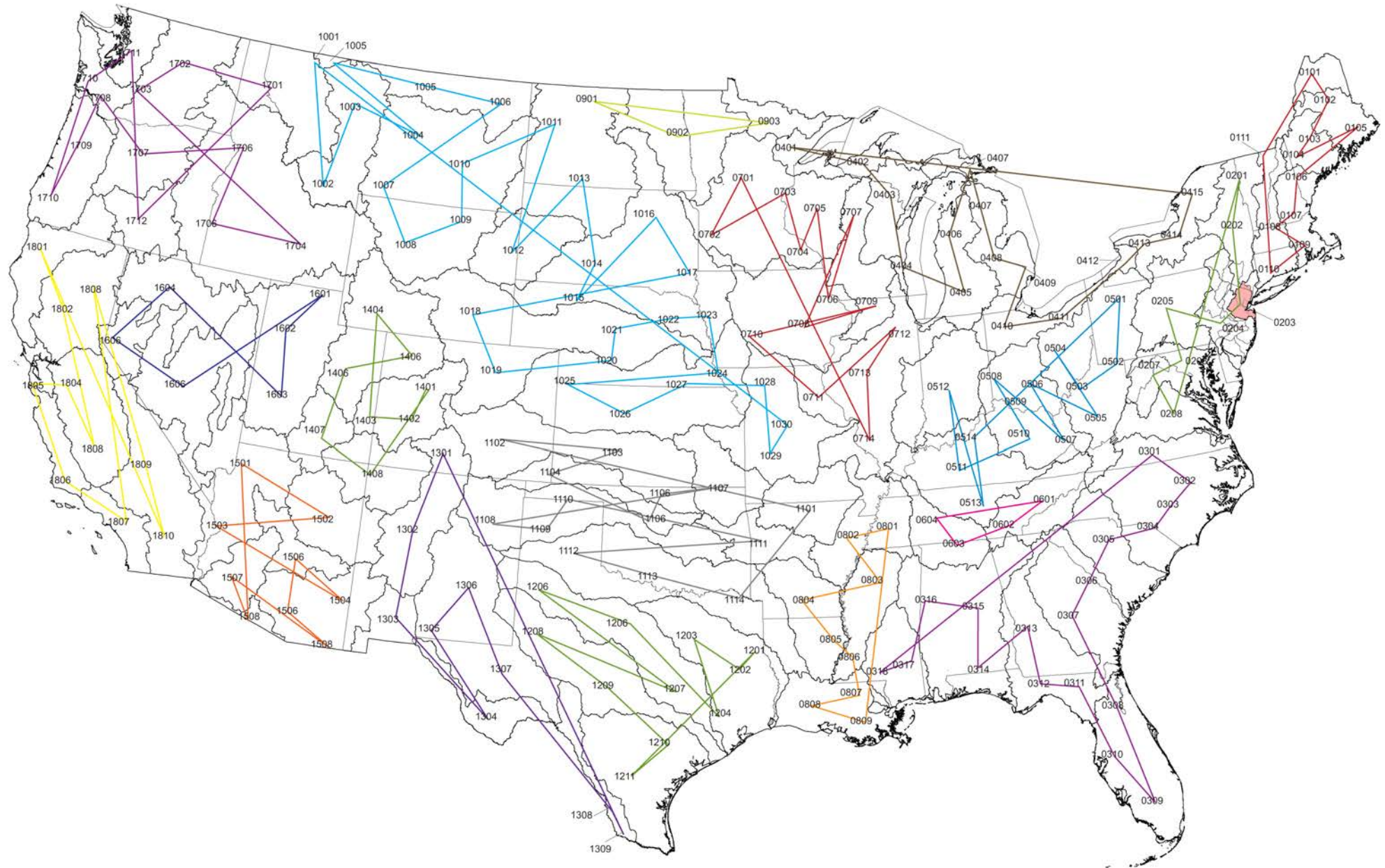


Figure 2: 2012. Scribble Map of the Continental United States." Competition submission. Drylands Design: Retrofitting the American West. L. McSherry.

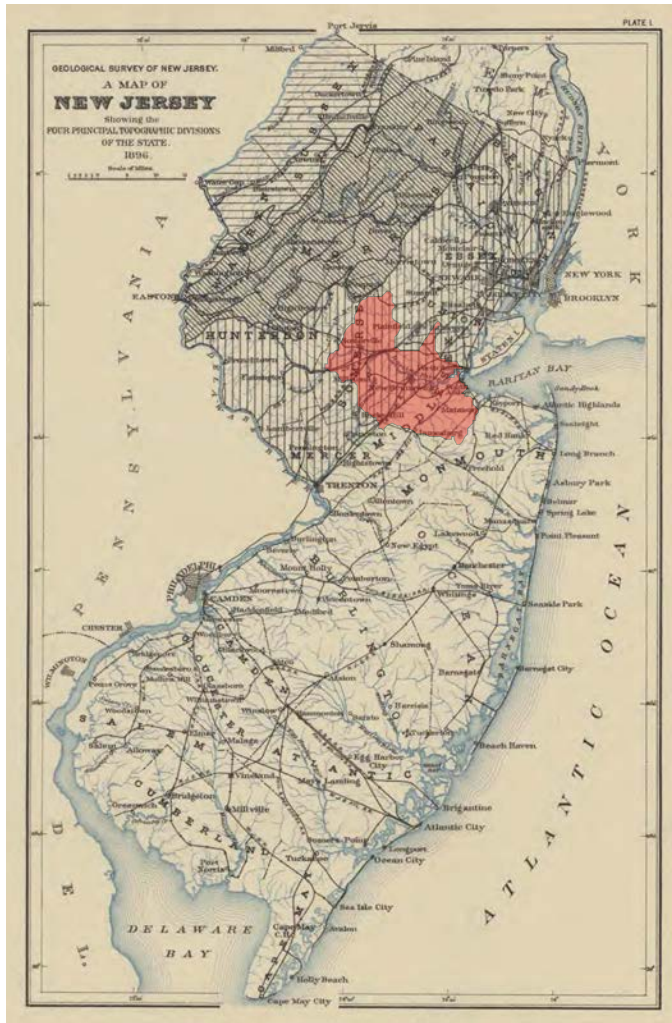


Figure 3: 1896. "A Map of New Jersey Showing the Four Principal Topographic Divisions of the State." From: Annual Report of the State Geologist for the Year 1896. Trenton, N.J.: John L. Murphy Publishing Co., Geological Survey of New Jersey, author. Highlighting of Raritan River watershed by L. McSherry, 2015.

Lands of the Arid Region," which called for the creation of a system of hydrographic districts, or commonwealths, empowered to make decisions regarding the division of water resources west of the 100th meridian. (Powell, 1878) Using Powell's call to action as a starting point, the reformulation entailed a speculative mapping exercise to realign the United States' political landscape co-extensive with its water resource base; more specifically, erasing current state boundaries and redistrict the land as a network of smaller territories corresponding to the natural drainage areas of principal rivers. (Figure 2) In addition to illuminating conflicts between the resource geography of water and settlement patterns at the national scale, this exercise invited reflection on landscape change at the watershed scale, which brought with it different rewards. One of these was the opportunity to return to the Raritan estuary and study the evolution of its built landscape more closely.

Situated mid-way between New York and Philadelphia, the watershed is rich in ecological variety and historic incident. (Figure 3) The river's name, drawn from the Algonquian 'forked,' suggests something of these realities. Draining more than 1,100 square-miles and accessible to Atlantic coastline at Raritan Bay, the river emerged early as a key waterway for Colonial trade and travel; evolving into the backbone of what became an elaborate system of post, canal, rail and highway routes, which together enabled and epitomized the state's settlement history (Cranmer, 1964, 41), not to mention my own. Nearly thirty years earlier, as a Manhattan-bound rail commuter, I crossed the mouth of the Raritan twice each day; curious to trace the river's progress eastward across the state and the stories of its inhabitation westward, in the opposite direction. In effect, reading the same river twice. (Patrick, 1889) Period relief maps are foundational in both narratives.



Figure 4: 2000. Same River Twice (photograph of installation). American Academy in Rome. L. McSherry.

TRANSECT AS DATUM

An earlier return to this region in the context of river research came in the fall of 2000 following a year-long fellowship studying landscape transformations in Italy's Sarno River basin. It was there that I experienced first-hand the practice of line walking, an archeological survey method that uses transects as travel and collection datums. (McSherry, 2002) In contrast to traditional site reading techniques used by landscape architects, line walking physically and temporally juxtaposes elements within a landscape, liberating one to consider possible interconnections among previously disconnected things. (McSherry, 2003) Figure 4 illustrates an early study of the imaginative possibilities of interpreting a landscape along a linear datum. Presented in the form of letters, the work records the watershed of the Raritan River as seen through the eyes of geographically separate observers. Drawn from conditions found at locations along a single line of latitude (≈ 8 miles apart), the project superimposes a collective horizontal plot across seven separate vertical ones; dramatizing the often strange but imperative interdependence of events and conditions in a regional landscape.



Figure 5: 1886. A Topographical Map of the Monmouth Shore (from original surveys and levelings based on the triangulation of the U.S. Coast and Geodetic Survey). C. C. Vermeule, topographer. (<http://www.davidrumsey.com/>)



Figure 6: 1727. **De Rivier de Merwede, van ontrent de Steenen-hoek, Oostwaards-op tot verby het dorp van Sleeuwijk : met den Ouden-Wiel, en de Killen, die uit deselve na den Bies-Bos afloopen.** N. Cruquius, author. Universiteitsbibliotheek Utrecht. (<http://objects.library.uu.nl/>)

CONTOUR AS DATUM

In Rutgers Special Collections there is another map. Dated 1886 and titled, “A Topographical Map of the Monmouth Shore,” the map forms part of an elaborate 100-sheet series known as the Vermeule Maps. (Figure

5) Named for the series’ chief topographer, Cornelius Clarkson, or C.C., Vermeule, the maps constitute the first **published topographical survey of a U.S. state, and that state was New Jersey. Completed in 1886** at a scale of one mile to the inch (with a 10-foot

contour interval), the series assembled the results of seventeen years of fieldwork, delineation and engraving, and represents not only a milestone in the use of isobaths to illustrate relief both on land and below water, but in the way in which Americans saw and thought about their collective landscape. For landscape architects and historians, the Vermeule maps are an invaluable resource for those eager to know something of the nature and quality of the region’s topography before filling and extraction transformed it. **The passage that follows, drawn from the series’ notes section, provides something of a window into a time when the contour line was largely a foreign and unfamiliar representational device.**

“The curved lines are level lines drawn on the earth’s surface. All points through which any given line passes are at the same level and their height above mean sea level is shown by the figures on the line. The rise or fall from any line to the next is 10 feet. The dotted lines on the blue ground are lines of equal depth of water, and the figures accompanying show depth at mean or half tide.”(Vermeule, 1886)

Roughly 150 years before the publication of the Vermeule maps, on the other edge of the Atlantic Ocean, Dutch engineer Nicholas Cruquius had long grasped the limitations of soundings to represent relief. His 1727 illustration of the bed of the Merwede River, said to be the earliest printed example using isobaths, or bathymetric lines, to depict areas of equal depth and elevation; was created by interpolating depths along a series of transects perpendicular to the river bank. (Bagrow and Skelton, 1966) (Figure 6)

The first useful maps to assemble the results of exploration in the New Jersey/New York region were made in the Netherlands in conjunction with the merchant shipping interests of the Dutch West India Company. According to Dodd (1909), Vinckeboon’s 1639 illustration “Manatvs gelegen op de Noot Riuiet” (Manhattan located

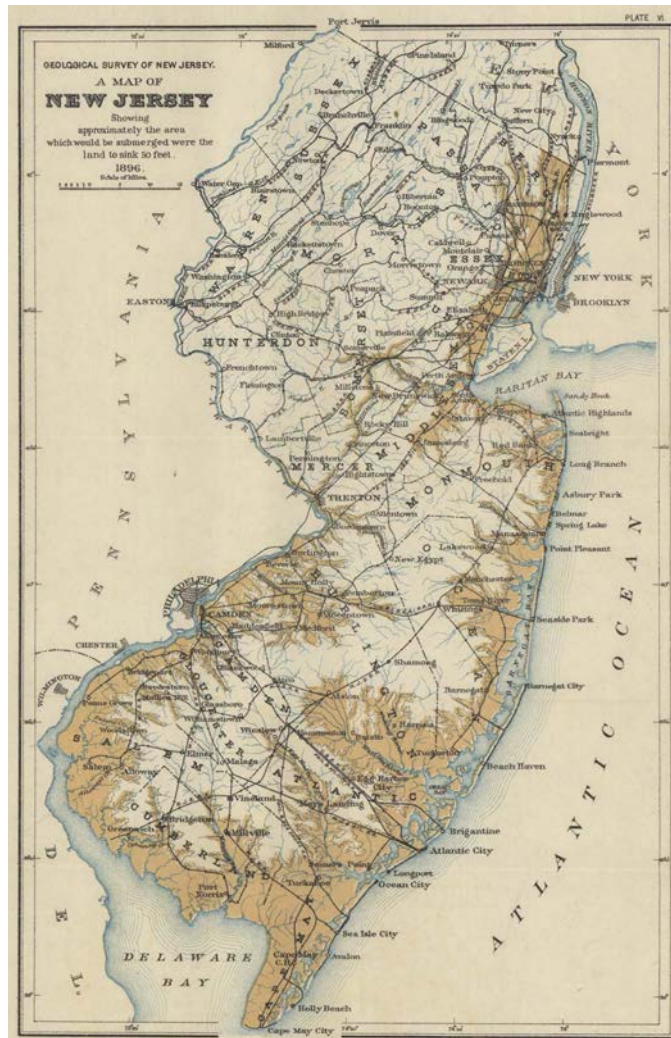


Figure 7: 1898. A Map of New Jersey showing approximately the area which would be submerged were the land to sink 50 feet. From: Annual Report of the State Geologist for the Year 1909. Trenton, N.J.: John L. Murphy Publishing Co., Geological Survey of New Jersey, author.

on the North River) was the first comprehensive survey of New York Harbor, and depicting the extent and location of settlement on Manhattan and Staten Islands and

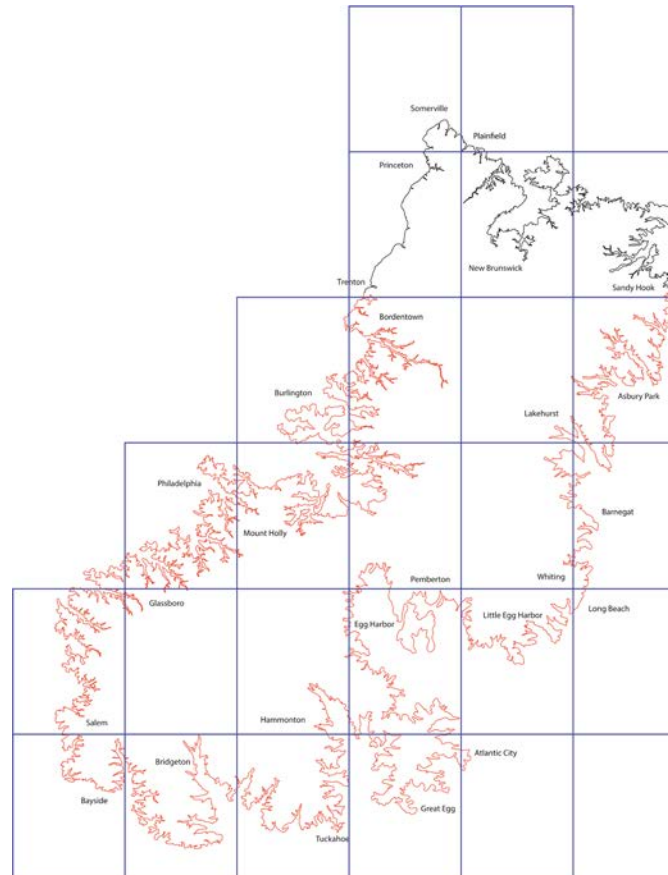


Figure 8: 2015. Map for a Walk to Circumnavigate the State of New Jersey Along Contour 50. Section One: Sandy Hook to Trenton. Adapted by L. McSherry from GIS data provided by the State of New Jersey, Department of Environmental Protection, Division of Water Supply and Geoscience. (<http://www.state.nj.us/dep/njgs/>)

along the western edge of Raritan Bay. Since early settlement in America concentrated along the seacoast and waterways deep enough to handle sloops, these initial images were oriented with north to the right; an aid to mariners approaching westward through the shoals of Lower New York Bay. Although information on water depths necessary to make bathymetric charts for the bay and estuary may have existed as early as 1685, it

was not until the publication of the Vermeule maps that one finds evidence of the practice. In their place, a combination of traditional techniques prevailed including core samples, landmark profiles, and lore. (Allen, 2014)

Prior to the mid-eighteenth century, attempts to show relief remained limited to bathymetric charts for rivers, channels and estuaries, and with the occasional use of bottom profiles. One example is Buache's 1752 illustration of the English Channel, based on previously published soundings, which combines 10-fathom bathymetric lines with a longitudinal profile of the Channel bed along a line equidistant from England and France, and correspondingly divided along its vertical scale. (Reidy and Rozwadowski, 2014) This practice changed with the 1760 publication of Du Carla's "Expression of Leveling or a New Method to Accurately Mark on Maps and Marine Charts the Heights and Configurations of the Ground." According to Bagrow and Skelton (1966), this map was the first exposition in the use of contour lines to show terrain (as well as the convention of darkening every tenth line to aid interpretation), and was followed in 1791 with Dupain-Triel's map of France, which combined 20-meter contour lines, spot elevations, and a vertical section.

CONCLUSION – DATUM AS DEVICE

Similar to cartography, reading the landscape is a cumulative activity. "The word terrain," writes Leatherbarrow, "gives rise to myriad synonymous terms – including those that refer to what is below that which is level: such as subterranean and interment." (2004, 115) "If the intention of the terrace s essentially fixity and dryness, that which is below and that which is next to it – is by contrast something else." (116)

As a datum connecting locations with a common attribute, what else might a level line reveal when scrutinized either in the world or imagination. Said in another way, what might be revealed

along a level walk through a differentiated landscape? For me, George Cook's 1898 map of coastal subsidence will be the first step in answering this question. (McSherry, 2014) (Figure 7) (Figure 8)

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THE STAGE OF MEMORY- SYMBOLIC LANDSCAPES OF SEJONGNO

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Symbolic Landscape, Collective Memory,
Public Space, Place-making

ABSTRACT

Because memory or history can be easily utilized or manipulated, it is flexible. Such characteristic is because memory is based on the place or landscape, a kind of art of memory. What is important here is that the collective memory created by place-making forms the identity of a country, people, and society. Sejongno, which is located in the center of Korea's capital, Seoul, is a national street created along with the establishment of the country and formation of a royal palace in 1395, and a historical place that forms Koreans' collective memory. This research aims to explore the relationship between landscape and collective memory by examining the continuous landscape changes of Sejongno diachronically. For this research, documents including maps, photographs, newspapers, and reports on Sejongno are researched and analysed. Furthermore, related materials such as literary works, personal records, and art works reflecting those times are reviewed. As a result, the landscape changes of Sejongno are classified into four periods: late 14th century to early 20th century, the Japanese colonial era from 1910 to 1945, the dictatorship, and after the 2000s. The events that occurred in this process, such as the establishment, re-establishment, and relocation of statues; planting and removing ginkgo trees; construction and demolition of Japanese Government buildings; specific planning of plaza construction; and events or festivals like state rituals or traditional games display what each period tried to remember and forget at the historical place through landscape design. Therefore, it can be concluded that Sejongno is the place and the stage where memory, namely history, becomes firm through the developed landscape. This paper shows a case of fluidity of memory, describing how memory-scape has been established as the history and identity of a nation state.

INTRODUCTION

Major changes in social attitudes in contemporary French society such as a thinning sense of national identity after the formation of the European Union, and increasing historical obliviousness about the Holocaust led the French to decide to build sites where memory could be crystallised (Nora, 1996). Likewise, when Europe was undergoing the drastic social transformation of industrialisation and urbanisation from the late 19th century to the early 20th century, new traditions were being invented all over Europe, for example, the creation of new national holidays, rituals and iconic objects (Hobsbawm and Ranger, 1983). The establishment or invention of collective memory is a prominent phenomenon that arises during the formative stage of a nation-state and Eric Hobsbawm attributes its cause to the effect, intended or otherwise, that sharing of memory helps society to form an identity (Hobsbawm, 1983).

What is noteworthy is that designed landscapes such as statues and memorial monuments were utilised as a way of representing collective memory. Examples of landscapes as an art of memory can also be found in 20th century Korea, the colonial or formative period of the modern Korean nation-state. Sejongno is considered a 'nationally symbolic street'. The landscapes that were designed, disappeared or remained in Sejongno throughout Korea's history are a vivid illustration of how Koreans' collective memories were exploited and invented in the name of history, and exactly what memories they were designed and constructed to preserve and celebrate. From the perspective of collective memory and community, the purpose of this paper is to discover the relationship between memory and landscape by exploring what and how it is represented in Sejongno.

This paper's research relied on documents including maps, photographs, and reports on Sejongno in order to identify the spatial changes, and reviewed related materials such as literary works, personal records, art works, and newspapers to identify Koreans'

perception of Sejongno. As a result, the landscape changes of Sejongno's landscape changes are classified into four periods: late 14th century to early 20th century, the Japanese occupation from 1910 to 1945, the period of Korea's dictatorship from the 1960s to the 1980s, and the early 21st century.

ORIGINAL LANDSCAPE OF SEJONGNO IN JOSEON DYNASTY

Sejongno is a 600-metre long and 100-metre wide street that symbolises the centre of Seoul's political, economic, social, and cultural life. Sejongno is located south of Gwanghwamun, the main gate of Gyeongbokgung Palace, the royal crown palace of the Joseon Dynasty (Figure 1). The street was initially constructed 600 metres long and 17 metres wide during the late 14th century when the Joseon Dynasty was founded and Seoul was chosen as Korea's capital city. The street was known by many names during the Joseon Dynasty such as Yookjo Street and Gwanghwamun Street (Lee, 2012: 27–30). It was named Sejongno only after the founding of the Republic of Korea. 'Sejong' refers to the Great King Sejong, the fourth king of the Joseon Dynasty, under whose reign several achievements were realised including the creation of the Hangeul alphabet. Koreans' respect and admiration for King Sejong is reflected in the street being named after him.

In terms of the original landscape of Sejongno, to the north of the street were Gyeongbokgung Palace and Gwanghwamun, and further north was the Bukak Mountain, the northern boundary of the city. On both sides of the street stood the main government office buildings. At the northern end of Sejongno stood two Haetae statues, symbols of the royal crown associated with the tradition of ministers, who upon arrival at the palace, would dismount from their horses to pay respect to the king and palace. This tradition began sometime during the Joseon Dynasty although its beginning cannot be ascertained precisely. Sejongno became a symbol of the Joseon Dynasty's political power and

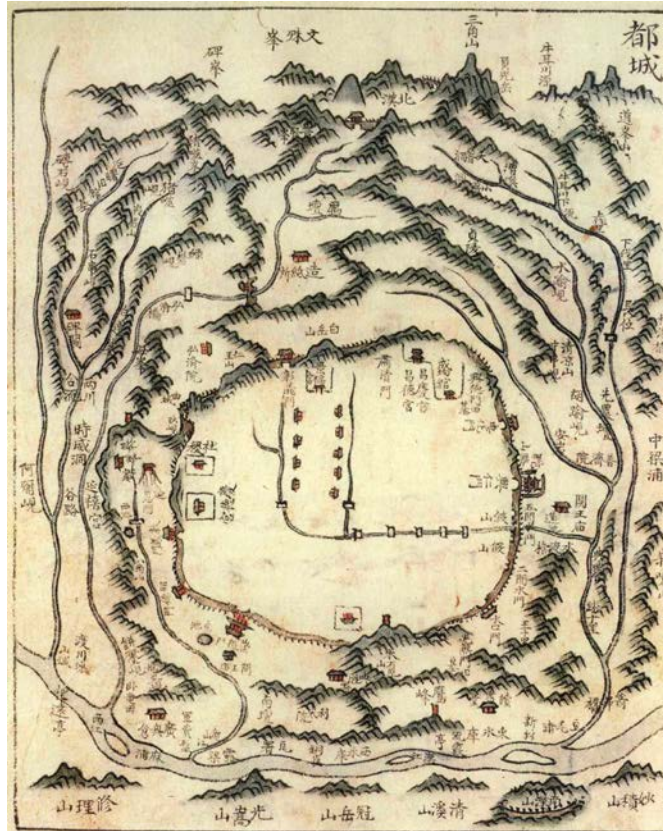


Figure 1: Doseongdo. Map of Seoul, 1720s (Source: Sungshin Women's University Museum).

regal sovereignty where the king and foreign emissaries would meet, national ceremonies and gwageo examinations were held, and people wanting to submit petitions to the king would gather. Sejongno was literally the heart of the Joseon Dynasty (Kim, 2008).

FORCED OBLIVION DURING THE JAPANESE OCCUPATION

Sejongno, which changed little during the six hundred years of the Joseon Dynasty, began to undergo rapid transformation during the Japanese occupation, from 1910 until 1945. Some of the symbols of the Joseon

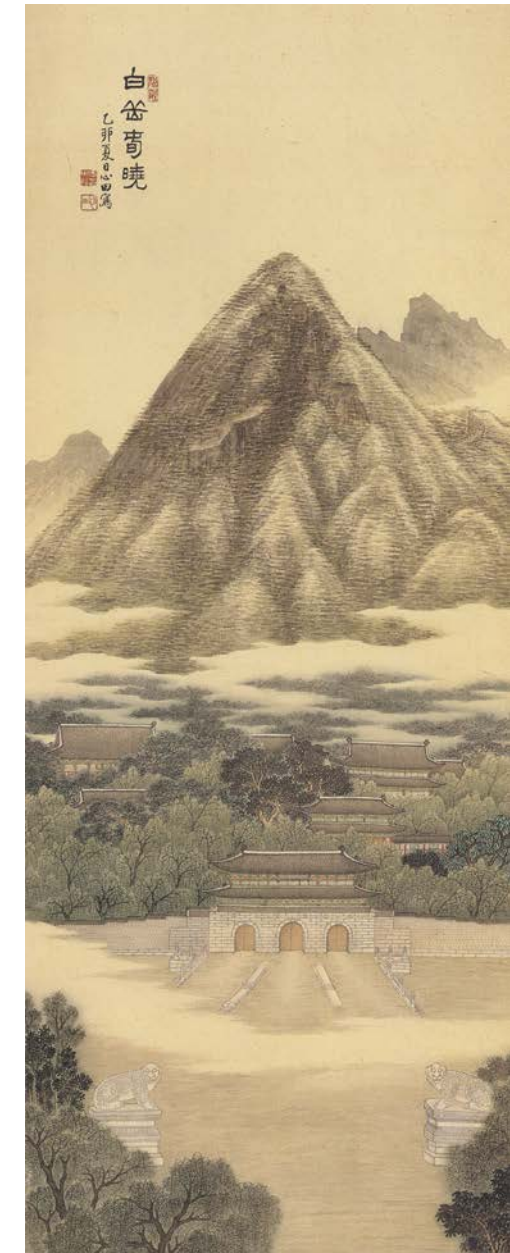


Figure 2: Baekakchunhyo. Painted by Joong-Shik Ahn, 1915, Colouring on silk, 192.5 × 50.0cm (Source: National Museum of Korea).

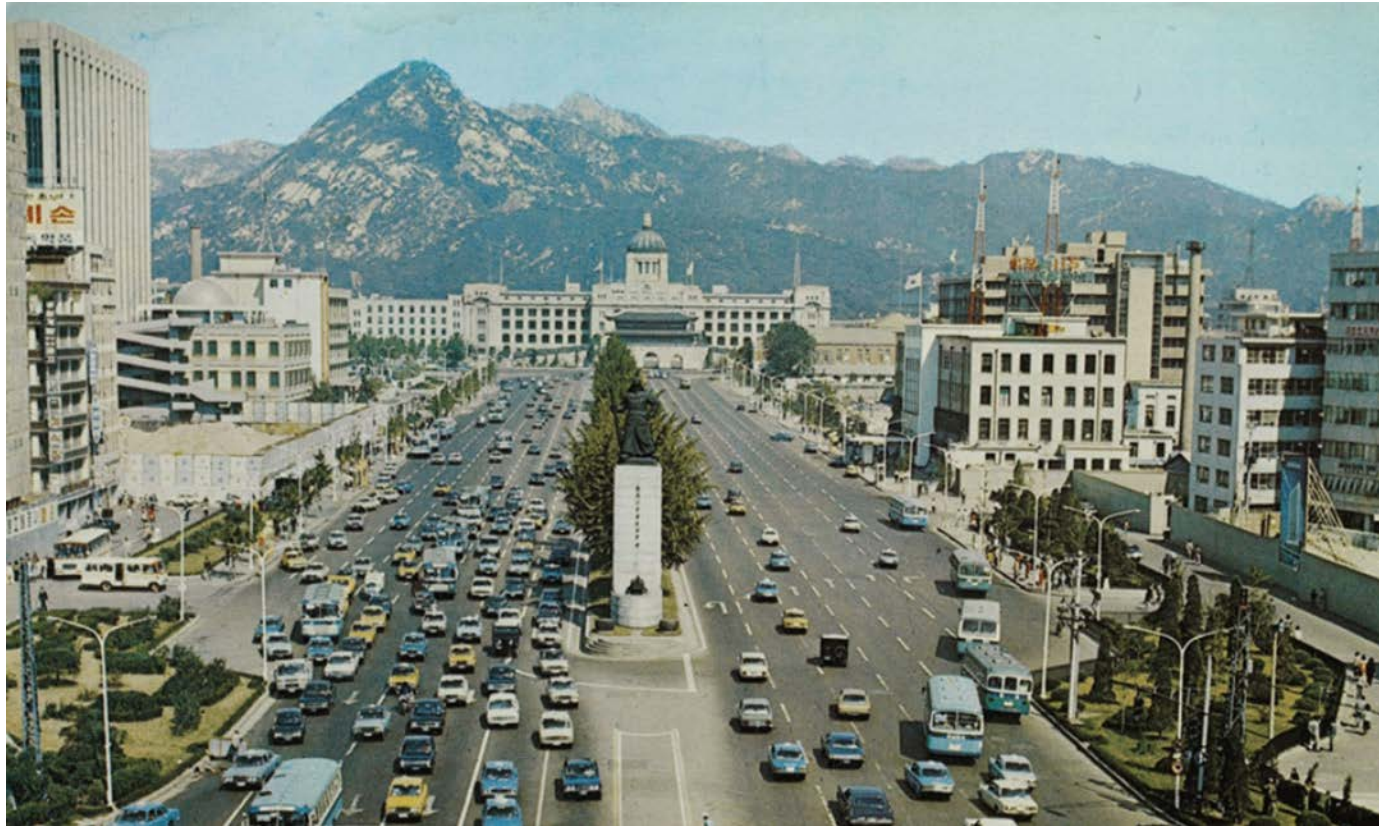


Figure 3: Statue of Admiral Sun-shin Yi in Sejongno, 1974 (Source: Seoul Museum of History).

Dynasty such as Haetae, Gwanghwamun, and Gyeongbokgung were removed and replaced by the Japanese Government-General of Korea, which literally out-shadowed Gyeongbokgung in size and location. Moreover, the axis of the street was realigned to face away from the palace and towards the Japanese Government-General, which in turn faced a Japanese Shinto shrine built in the Namsan Mountain, symbolising the transfer of political power. The name Sejongno itself was also changed to a Japanese style 'Gwanghwamun-tong'.

In 1915, Joong-Shik Ahn, a major figure in the development of modern Korean art at the beginning of the 20th

century, painted *Baekakchunhyo*, now a government-registered national treasure (Figure 2). The painting was Ahn's way of using landscapes to respond to the harm inflicted upon Sejongno by the Japanese. The reason is that *Baekakchunhyo*, which depicted a scene of Sejongno in the summer and autumn, did not depict the actual Sejongno landscape as it actually was in 1915. In the same year, 'Joseon Products Show Commemorating the 5th Government' was held in Sejongno. According to the newspaper report by Maeilshinbo on 12 March, the scene of construction under progress was visible:

Entering Gwanghwamun gate, one could see heaps of timber stacked on the wide palace ground in many places. The place is also full of loud noises planing wood. Sitting inside the editor's office at the company and glancing through the window in north direction, I could see a swarm of workers coming and going up and down the roof of Gyeonghwero and Geunjeongjeon all day long to do repairs.

However, neither the summer nor the autumn version of *Baekakchunhyo* shows even a glimpse of the Joseon Product Show while Gwanghwamun and its entrance way and Haetae statues, which had remained intact, are realistically depicted in the work. The painting could be considered an act of rebellion by the artist, depicting the dignified landscape of the Joseon Dynasty at a time when it was actually being destroyed.

EXPLOITED MEMORY OF NATIONAL IDENTITY: 1960S–1970S

Park Jeong-Hee seized political power through a military *coup d'état* during the political chaos that followed Korea's independence from Japan and the Korean War, and his dictatorship continued from 1963 to 1979. Park used nationalism as political ideology to bolster the legitimacy of his regime and foster economic development, giving birth to modern landscape architecture in Korea (Pae, 2003). Sejongno, in particular, underwent another dramatic transformation under Park's regime. Aspects of Sejongno that invoked memories of national identity were aggressively excavated, eventually leading to the restoration of Gwanghwamun and the erecting of the statue of Admiral Soon-shin Yi.

Through Gwanghwamun's restoration, the word 'nation' became prominent, attested by a newspaper article, which reported that 'the restoration plan is known to have come from the special order of President Park, who wanted the project to be a way of consolidating national spirit' (Chosunilbo, 1967, 5 November, A7). What should be noted is that in many aspects, Gwanghwamun was

exploited, not restored. Unlike the original Gwanghwamun, the location of the restored Gwanghwamun was '... pushed up 14.5 km to north, leaned 10.9 km to west and tilted 5.6 degree to east from the centre axis of Gyeongbokgung Palace' (Ha, 2010: 290). Moreover, for the roof, wood-like concrete was used instead of real wood.

In 1968, the statue of Admiral Yi was erected in Sejongno, which still remains today (Figure 3). Yi was a navy admiral during the 16th century, who is widely respected and admired by Koreans today because of his heroic feat in saving the nation during the Japanese invasion of Korea in 1592. In 1966, a government-affiliated organisation, the Committee for Building Statues of Patriotic Ancestors, was organised to stage a nation-wide patriotic campaign. Erecting Yi's statue was the organisation's first project. As the following speech from the president during the unveiling ceremony of the statue reveals, the statue, like Gwanghwamun, fulfilled the role of elevating nationalistic spirit:

Build while defending the country. Work while fighting for the country. Fight while working for the country. This is our spirit and it is directly connected to the spirit of Admiral Soon-shin Yi. We had great ancestors in the history of our nation. Therefore, we must dedicate ourselves to honour them. We can do this by successfully completing the modernization process of our nation, which we are burdened with today. Let us rededicate ourselves so that each and every one of us in this country could participate in this great work and march forward together in high spirit (Park and Shin, 1970: 156).

Like the Gwanghwamun restoration project, controversies abounded regarding the statue's realism. According to the article in the newspaper *Chosunilbo* in 15 January 1980, criticism of the statue's lack of similarity to his actual portrait led to the Korean Government trying to rebuild the statue. Meanwhile, the copper statue of General Lee was described as feeling stifled in his copper armour in the play, 'The Copper Statue', which

was banned in Korea in 1981 for political reasons. The copper statue stated, 'Can you please take off this bark of copper? The copper, if you take off this, I would be free as like long time ago when I fought in a war as an enlisted man' (Kim, 2014: 68). These controversies show that the priority in erecting Yi's statue was not to honour the great patriot but to invoke in people's minds the memory of defeating foreign invaders and to galvanise the spirit of nationalism. In other words, like all other government-sponsored national memorial projects, the statue was an exploited memory to strengthen political legitimacy (Jung, 2007).

INVENTED LANDSCAPES IN THE EARLY 20TH CENTURY

Since the 1990s, there have been continuous attempts to remove the memories of the Japanese occupation by restoring memorial objects that either disappeared or were reconstructed in different ways from their original form during the Joseon Dynasty. The Japanese Government-General of Korea, which had still stood and was being used as a national museum, was demolished in commemoration of the 50th anniversary of Korea's independence. Gwanghwamun was also reconstructed with original materials and traditional methods.

Sejongno was renamed Gwanghwamun Square in 2009 (Figure 4). The Gwanghwamun Square was initiated during the 1990s as part of the Gwanghwamun restoration project. The Seoul Development Institute had already announced the Seoul Symbol Street Development Plan, which focused on the restoration of old landscapes while preserving citizens' pedestrian rights. However, full-scale implementation began only during the late 2000s, due to Seoul Mayor Se-Hoon Oh, who stressed that 'we must use design to improve the brand value of the city and use it as the growth engine to revive the economy of Seoul city' (Oh, 2007a: 13). Finally, on 27 December 2006, Mayor Oh announced the construction of Gwanghwamun Square during the press briefing of the Gwanghwamun Square



Figure 4: Gwanghwamun Square (Source: Seo-Ahn RND Design Group).

Development Project, where he proposed history, tourism, pedestrian rights, and landscapes as Keywords:

Now, Seoul City will construct Gwanghwamun Square to restore the historicity of Sejongno as the central axis of Korean history and culture. The project will allow ten million Seoul citizens as well as the foreign tourists visiting the city to walk comfortably along the street from Soongryemun to Cheonggyecheon to Sejongno while enjoying the natural landscape and historical sites in urban environment (Oh, 2007b).

Among the Keywords, the word 'historicity' is realised by the design competition winner's three design

strategies: 'effacing', such as removing the distorted memories (e.g. ginkgo trees); 'tracing', such as restoring the axis ('Haetae' statues, 'woldae' and 'yookjo' streets); and 'imagineering', such as rearranging the location of the Admiral Yi and King Sejong statues or the memorial waterway (Shin and Kim, 2009). Removing the ginkgo trees and rearranging the location of the two statues are noteworthy. Firstly, when the Korean government conducted a survey to ask the public about transplanting ginkgo trees in 2004, 88.7 percent of respondents said they were opposed to the plan. Two years later, 72.3 percent of respondents said they were in favour of the plan because it was Japan who originally planted the trees (Chosunilbo, 2009, 5 September, B6). Secondly, the statues of two people who lived a century apart – Admiral Yi and King Sejong – were moved to the same location. These two strategies show the desire to reorganise memory and history by inventing landscapes.

CONCLUSION: LANDSCAPE AS AN ART OF MEMORY

This paper examined the relationship between landscape and memory by tracing the transformation of Sejongno throughout history. In each period, the original landscape of the Joseon Dynasty and the wide range of objects that remind us of the dynasty's past are invoked in Sejongno as an object of memory. However, the art of memory and the object of memory differed across the periods and political systems. During the Japanese occupation, a dignified landscape of Sejongno was expressed in a painting in response to the forced oblivion of the nation's history as many places of memory disappeared. During Park's dictatorship regime, 'memory-scapes' were aggressively exploited by a dictator who sought to cast a national identity to strengthen his regime's legitimacy by reconstructing traditional architecture or building statues of historical, patriotic figures to elevate Koreans' national spirit.

The objects of memory and the art of representing such memories that were used during these two periods are

in fact, as discussed by Hobsbawm and Nora, a construction of nationality or the subjugated class during the colonial period, the period of drastic social transformations. In contrast, the memory that has been represented in Gwanghwamun Square today is different from before. Here, the memory has been invented to reorganise history and memory. In conclusion, Sejongno is a place upon which different social groups in different historical periods project their ideas of history, people, identity, and spirit by representing memories and providing a stage where memories are recorded.

There are similar places to Sejongno in the world and in history, and landscape architecture as an art of memory is discovered not only in the past, but also in the present. The capital cities of many modern European states underwent various transformations to function as a public stage for holding national ceremonies (Fujitani, 2003) such as the reconstruction of London by the British monarchy during the 19th century (Cannadine, 1983), majestic architectures of Ringstrasse in Vienna, Austria, and magnificent monuments, decorations, and trees that surround 'Unter den Linden' in Berlin. Considering that Walter Benjamin, in his essay *On the Concept of History*, argues that the goal of historical understanding should change from recording the events of the past to remembering them (Choi, 2014: 373–378), the role of landscape architecture as an art of memory is important and responsible because it has the power to exploit and reorganise history and memory.

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LANDSCAPE AND MEMORY IN POST-SOVIET ESTONIA – THE STORY OF RAADI AIRFIELD

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ABSTRACT

As a borderland between the East and West, Estonia has suffered many foreign rulers throughout its history, the latest being the Soviet Union (1940–1941 and again 1944–1991). Soviet occupation was a regime of terror and as a result it is associated with conflicting emotions – the concept of dissonant heritage. Today the identity built through four decades of state socialism has been rejected in the nation's collective memory and replaced with a new post-communist national identity. Foreign elements can be accepted as heritage when they no longer pose a direct threat. It is important to understand this process in order to prevent the potential physical destruction of elements that represent this period in history – either because of painful memories, ignorance or lack of knowledge. This paper is an attempt to understand the process of change step-by step in both – in the landscape and in the mind of people. A case study of a former Soviet military air base in Tartu – the Raadi Airfield – was analysed using a combination of literature research and field reading of different historical and ideological layers in order to create a model describing the different stages of change and acceptance. Raadi can be seen as a symbolic place displaying several ideologies. After the fall of the Soviet Union it became a large-scale contaminated site bearing the burden of the past occupation and it was abandoned, began to deteriorate and fell into oblivion. Today, more than 20 years later, by building the Estonian National Museum, we begin to see it as part of Estonian history. Without forgetting or erasing the past, we can finally see ways to present the non-Estonian past together with our national heritage.

HISTORICAL BACKGROUND

The historical framework of 20th Century was formed mainly by conflict and crisis. It was an era defined by military conflict, rise and fall of dictatorships, global confrontations, oppression of the minorities and frequent change of borders and ideologies. As a borderland between the East and West, Estonia has suffered many foreign rulers throughout its history. Each following occupation either partially or totally destroyed traces of the previous one or leaving behind a new layer in history – a foreign layer that potentially evokes painful memories and negative emotions. For Estonia the 20th Century was like a ride on a rollercoaster – after gaining independence in 1918 it was from one occupation to another. Altogether Estonia suffered three successive periods of occupation during the 20th Century: Soviet (1940–1941), German (1941–1944) and Soviet again (1944–1991). During the Cold War Europe became separated between the communist East and capitalist West by a political, ideological and military border – the Iron Curtain – and Estonia became isolated from the West for decades. It is estimated that altogether 14–25% of Estonian territory was under direct military control for security reasons (Kuusk & Kärinen, 2013). Towns with sensitive military, industrial or scientific facilities together with coastal areas and islands were declared as closed areas for security purposes and accessed only with proper authorization. Estonia regained independence in 1991 (after the fall of the Soviet Union) and the last Russian troops finally left Estonia in August 1994. Altogether the Soviet occupation was a regime of terror and as a result it is associated with conflicting emotions – the concept of dissonant heritage (Tunbridge & Ashworth, 1996).

DISSONANT HERITAGE

Heritage is born over time; it is a carrier of secrets and memories of the past generations telling the stories of men, who created it, even after centuries have passed. It is multi-layered: the value and meaning of specific heritage sites and the past they represent can differ

and consensus cannot always be found. According to the online Oxford Advanced Learner's Dictionary, dissonance is a musical term, describing "a combination of musical notes that do not sound pleasant together". In heritage studies the concept of dissonance refers to heritage with conflicting meanings and opposing uses representing the disharmonies, conflicts and general lack of agreement between the past and present use of sites with conflicting history (Tunbridge & Ashworth, 1996). The roots of dissonance lie in the very fact that the past is valued and understood differently by different groups of people – heritage is created through interpretation and not just what is interpreted, but how it is done and by whom (Tunbridge & Ashworth, 1996). Dissonant heritage – for example sites of human atrocity or natural disaster, like German concentration camps, massacre sites, war memorials or prisons – makes us feel discomfort (Smith, 2006). This is due to mental pollution. In behavioural studies 'pollution of the mind' is defined as "a sense of internal un-cleanness, which can and usually does arise and persist regardless of the presence or absence of external, observable dirt" (Rachman, 1994:311). Bachmann (2006) transfers this term to landscape studies, where it represents a situation where memories and emotions accumulated through history and culture attribute a place with a negative meaning for some groups of stakeholders. As a result mentally polluted heritage is often neglected and unexplored, left without attention, misrepresented or even destroyed.

METHODOLOGY

This article concentrates on the relationship between landscape and memory, as history becomes heritage when defined in the context of landscape and through collective memory (Sooväli-Sepping, 2014). To understand the mechanics of the process of change in both – in the landscape and in the mind of people – a case study was carried out. The former Soviet Air Force's Strategic Bomber airfield in Raadi (Tartu) was chosen as a case study area as it consists of different types of

sub-landscapes representing different periods in history and different stages of acceptance. This research is concentrating only on the Soviet heritage and the way it has evolved in the context of post-Soviet Estonia, both physically and mentally. The case study area was analysed using a combination of literature research and on-site field reading of different historical and ideological layers in order to define the different stages of change and acceptance. The process of change was looked at step-by-step and layer-by-layer; altogether six different steps were distinguished and as a result a model describing the whole process was created.

CASE STUDY AREA

Raadi airfield is situated on the outskirts of Tartu (about three kilometres northeast from the town centre), the second largest town in Estonia. Raadi has been a symbolic place displaying several ideologies and traces of each of them are still visible on the site. The airfield, as we see it today, was built during the Soviet occupation and it "was the base for the long-range bomber and transport air regiment and two air service battalions" (Raukas, 2010:213). During the Soviet occupation Tartu was declared as a partially closed territory mainly due to the Raadi airfield. Restrictions of access to visit the town applied only to foreigners, like Western academics visiting the university, who had to be accompanied by an intourist guide while the visit and were closely watched by the KGB – staying overnight in Tartu was prohibited (Pärn & Peepson, 2011) as was visiting the Ülejõe district (Raukas, 2010). While operating, the airfield caused several inconveniences for local people. "Wealthy farms were levelled and part of the university's testing facilities were expropriated by the military, the Tartu-Narva road was closed and the restoration of the Estonian National Museum was rendered impossible, the noise from aircraft warming up disturbed inhabitants in the night-time hours along with, throughout the day, the noise of aircraft taking off and landing. Often troops behaved in a disorderly

fashion at night" (Raukas, 2010:213). After the fall of the Soviet Union the airfield became a large-scale contaminated site bearing the burden of the past occupation. Several problems occurred, including the size of the site, negative feelings against it and major environmental contamination – the site was extensively polluted by fuel depots, rocket fuel tanks, and large quantities of de-icing chemicals – both water and soil were toxic and the clean-up was difficult because of the lack of drawings and plans of the technical networks (Raukas, 2010). The pollution was cleared and the local municipalities first planned to put the former military airfield into civilian use, but this was not realized and the airfield was abandoned, began to deteriorate and fell into oblivion.

THE PROCESS OF CHANGE

After the collapse of the Soviet Union the changes in the dominant ideology were drastic in the former Soviet countries, including Estonia, which led to a period of change in the mind of the nation as well as in the landscape. The identity built through four decades of state socialism was rejected in the nation's collective memory and replaced with a new post-communist national identity. Even today, after more than 20 years have passed since the end of the Soviet occupation, the Soviet heritage is still considered as dissonant. R. Kennedy has said: "It has been said, 'time heals all wounds.' I do not agree. The wounds remain. In time, the mind, protecting its sanity, covers them with scar tissue and the pain lessens. But it is never gone." What has been done cannot be erased, but after time has passed, it is possible to overcome its negative impact (Bachmann, 2006). Foreign elements and people can in fact be accepted as part of the national heritage when they no longer pose a direct threat (Peil, 2005), but we never forget the wrong that has been done. "Remaking space is not quick and straightforward. After a few dramatic, rhetorical, proclamative changes which are relatively easy to achieve (such as pulling down statues or renaming streets) the process



Figure 1: The airfield became totally abandoned after the Soviet troops left Estonia



Figure 2: Nature taking over the military constructions

of creating a new space or landscape is protracted and contested" (Light & Young, 2010: 15). "The past can never be understood solely within its own terms; the present continually rewrites the meaning of the past and the memories and histories we construct about it within the context of the present" (Smith, 2006:58).

STEP1- ABANDONMENT

After the Soviet troops left, the airfield became a large-scale contaminated site bearing the negative burden of the past occupation (Figure 1). Right away several problems occurred, including the size of the site, negative feelings against it and the major environmental contamination by fuel depots, rocket fuel tanks, and large quantities of de-icing chemicals (Raukas, 2010). The structure was not usable as the Soviet forces had taken all the equipment with them. The costs of re-use were too high. The first instinct was to sweep everything away or hide it, but the site was too large to demolish. The easiest solution was to do nothing, so nothing was done. The structures were abandoned, left open to the elements and slowly began to deteriorate – the site became a wasteland. After the Soviet forces were gone the airfield went to the local municipalities and public access was made possible, but the collective memory was strongly affected by the Soviet past, so people were cautious, kept their distance and the area was cut off from daily life. It was a site of dissonance and mental pollution – a physically present reminder of the past people wanted to forget. Finally the airfield fell into oblivion and turned into a derelict and dangerous periphery figuring in urban legends and rumours.

STEP2- NATURE TAKING OVER

Mankind has always been fighting against nature, but nature is persistent. After being left open to the forces of nature, the deterioration slowly continued (Figure 2). Soon the site was reclaimed by vegetation that shielded it from public view (Light & Young, 2010). In addition to vandalism the abandoned airfield was used as a dumping site. Although ransacked, many buildings were still standing, but as time passed by, signs of human impact became less and less visible. Varying states of overgrowth occurred all over the site, hiding the scars of military past. The area was reclaimed by wilderness, acquiring the untouched, peaceful and quiet image only nature can create. In the mentality



Figure 3: The used car sales lot in Raadi airfield

nothing much had changed, the painful memory of the Soviet past was still strong, the airfield was still ignored and avoided and not accepted as heritage.

STEP3- TEMPORARY USE

Raadi is a perfect example of how change does not always have to be radical and large in scale. Although the site was still abandoned, it was not completely without use – drag racing, a slippery track, used cars sales lot (Figure 3), and a paintball area appeared to the airfield. At this point the use was temporary – referring to something short-term that exists only for a while. Most importantly is a way of space recycling that results in changing image of the site and presenting it to the society (Balicka, 2010). Temporality is mainly defined by action. Temporary activities are impulsive acts of everyday life, they cannot be planned in a classical way – instead they can be modulated and corrected (Balicka, 2010). Something deep in the human soul fascinates people in abandoned places – be it tragedy and decay or peace and silence. First interest arouse, followed by short chaotic visits on various purposes. After a while somewhat more permanent activities followed and Raadi slowly found its way



Figure 4: The fields next to the airfield are taken back in use and the real estate development is closing in

back to the consciousness of people. It became a part of everyday life – people went there for drag racing, to buy a car or to play paintball with friends. It became a night time shelter for the homeless and a place for day time activities for locals. Raadi was finally seen as a destination and not a white area on the map: the image of Raadi airfield finally started to change.

STEP4• RE-THINK

This stage of change is a state of mind rather than a physical change in the landscape. The essentials of heritage are defined and limited by people – their experiences, beliefs and knowledge. Mental pollution is created by the mind and the bare removal of physical bodies representing the negative feelings does not help (Bachmann, 2006). Landscapes are carriers of collective identity and historical memory – they are the work of the mind, built as much from strata of memory as from layers or rock (Kucan cit. Schama, 2007). In order for a place to change we have to change the ideology and attitude towards it. Heritage is not static; it is re-thought and re-valued in time. As time passes and generations change, the negative experience will become more impersonal. New

thinking is no longer based on previous prejudice – the negative experience is seen and evaluated from distance and this in turn opens up new possibilities. After it was decided to restore the Estonian National Museum in 2003 and the architecture competition of the new building of the museum was announced in 2005, media attention was right away turned to Raadi. A number of different and conflicting views circulated and decoding Raadi as a heritage site finally began. The meaning of the place was repeatedly re-invented and discussed in workshops and by media – everyone had an opinion. Finally the site was back in the consciousness of the whole nation and not solely as a burden of the past occupation but as a potential cradle of the national future.

STEP5• RE-USE

The world changes every day: new memories are created from the old and the past is used for present purposes. After the pollution is cleaned, many former military installations have been converted to civilian uses such as parks, recreational facilities, business centres or housing areas. When temporary use was impulsive, then re-use is a complex process that involves a great deal of planning. It is mostly done by the local municipalities in the context of general planning. When looking at the map of Tartu, it is clearly visible how the existence of the airfield has affected the planning pattern in the past – the town has grown to almost every other direction except Raadi. This is now changing – the areas that were out of use for years are now used (Figure 4). People are moving back one by one, new housing areas are built next to the airfield, farmers have taken the fields next to the main landing strip back in agricultural use and the former manor ensemble is used by the Estonian National Museum. The town is expanding and the airfield is becoming a part of it; the mental pollution is slowly fading away. The site itself is still more about temporary activities and impulsive actions, but with the town closing in



Figure 5: The construction site of the new Estonian National Museum building

and the new Estonian National Museum being built the development is becoming more planned and organised.

STEP6• RE-DESIGN

Some sites have to be re-designed without starting from scratch and eliminating the memories connected to that site. Instead of creating a completely new layer in landscape by erasing the previous one(s) the genius loci is maintained and the past is integrated into the present use. Historical sites are complex and re-designing them is a challenge, but when used wisely, the historical dimension also adds a deeper meaning and background to the outcome. This strategy has been used in the case of many industrial sites, one of the best known being the Landscape Park Duisburg-Nord in Germany, where a new type of industrial recreation area was created which is neither park nor landscape in the traditional meaning. In a way the solution offered to Raadi airfield resembles the one of Duisburg-Nord. The concept of the winning project of the architecture competition called “Memory Field” (by architects Dorell, Ghotmeh and Tane) was based on the dissonant past of the site (Figure 5). The goal was not to erase the past from the nation’s

memory by overwriting the Soviet layer, but to give it a hopeful meaning and make people understand the past without judging it. The building process started in 2013 and it is still in progress, but when finished, Raadi will be the new cradle of Estonian national culture. The architecture of the building is inspired by the structure of the airfield and the surrounding area will be left untouched. The new building will not be a museum in its traditional sense but rather a culture centre.

CONCLUSION

We have to understand the process of change in order to prevent the potential physical destruction of elements that represent the Soviet period in history – either because of painful memories, ignorance or lack of knowledge. In order to do that the former Soviet military airfield in Raadi was analysed as a case study site using a combination of literature research and on-site field reading of different historical and ideological layers. As an outcome a model describing step-by-step the different stages of change and acceptance was created. Altogether six different steps were distinguished and as a result a model describing the whole process was created. Raadi airfield is a perfect example of a landscape in change as all the steps and historical layers are still visible. Still it is nearly impossible to define, where one step ends and another one begins on the timeline. Because of the enormous size of the site it is possible observe the processes of abandonment, nature taking over, temporary use, re-thinking, re-using and re-designing all at the same time, although in different parts of the airfield area. Raadi is in constant process of change, both physically and mentally, and as time passes by, change becomes faster and more evident. The airfield is not an abandoned wasteland that it was when the Soviet forces left; it is now an area of great potential that has found a new meaning and its rightful place in the history. A symbolic place in our national culture – The Estonian National Museum is returning to Raadi, which shows that enough time has passed, we are no longer afraid of our past.

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THE TRANSYLVANIAN CASTLE GARDENS INVENTORY· 2004-2014

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ABSTRACT

This is a Hungarian study of over 100 castle gardens in Transylvania. The research has been undertaken by a substantial number of students, teachers and professionals working in the Faculty of Landscape Architecture at the Corvinus University of Budapest. The object was to explore and document the surviving parts of the gardens and estates of the chosen locations while evidence still exists, to complete a missing chapter in European garden history. All the available historic material was assembled, site surveys completed and a full record compiled. Where possible, help has been given in the restoration, or if necessary reconstruction, of the gardens concerned.

The research focused on historical investigation and inventarisation of current conditions of spatial structures, visual connections, built elements (inner traffic system, pavilions, fountains, stairs, retaining walls, fences, gates etc.), artistic features (sculptures, statues, ornaments, stone carvings, thumbs, obelisks, gloriets etc.) and dendrological values (old, exotic tree exemplares, aliniaments, clumps, shrubberies etc.) of Transylvanian castle gardens.

The result is a comprehensive overview of 400 years of garden history in the region, increasing understanding of the aims of the Transylvanian aristocracy, relating them to wider historical trends in the area (including periods of Ottoman occupation) and human use of the wider landscape. Also it acts as an inventory of the current state of the gardens, enabling renewal and maintenance plans to be put in place. The work won Europa Nostra award in category „Research” in 2014. The paper presents the research methodology and the main results of the investigation.

INTRODUCTION

Transylvania is a historical region in the central and western part of Romania. Bounded on the east and south by the Carpathian mountain range, historical Transylvania extended in the west to the Apuseni Mountains. The Transylvanian plateau, 300 to 500 metres high, is drained by the Maros (Mures) and Szamos (some) rivers, as well as other tributaries of the Danube. This core of historical Transylvania roughly corresponds with nine counties of modern Romania. The assessment of castle gardens in Transylvania is still a missing element in the European garden and art history research. Among the objectives of the research are to collect all historic material on Transylvanian castle gardens, survey and document current conditions, prepare a register, to assure a professional database for their preservation or reconstruction preparation. It is an unfortunate fact to be noted that the condition of Transylvanian historic gardens is devastating. There is very little tradition of garden preservation and reconstruction in Transylvania. The dendrological and botanical consequences are evident due to a lack of consistent condition surveys, landscape and garden history research and analysis supporting the protection of the rich and unique gardens of Transylvania. Most of the once valuable trees of these gardens are perishing, reducing the number of historic gardens day by day. The same consideration we can do regarding the built and artistic features of the gardens, which are in a devastating condition as well.

The reasons for this decay are several, and their discussion not represented part of this paper.

METHODS

The following theoretical work plan was established for the methodical exploration of the castles' garden art remains as follows:

1. Preparation of the list of all possible sites.; we have done a thorough bibliography research to compile

the possible sites. All significant architectural and art historical works, essays and travelogues of the 17-20th century Transylvania have been studied; this is how the 100-strong site list has been put together.

2. Identification of research site location; one of the aims of the research was to identify and find sites where castle gardens existed. In order to simplify the visits and surveys – and to keep costs low – we grouped the sites-to-be according to geographical regions.

3. The historical exploration/survey

Historical exploration was the first step in the case of each site, this establishing the inspection and survey on site, which revealed the earlier garden-, landscape- and art historical values.

4. Condition survey and assessment of the sites

In all cases records the current conditions as well as the securable values found, so that it could serve as a condition report and comparative basis for any possible future reconstructions.

The landscape architectural value and condition assessment is prepared with the help of geodesic base maps (cadastre maps, manuals etc.) It was an important step to determine and organize those assessment aspects, which are important characteristics and could become searchbases in the garden historic database. To begin, we took the basic historic monument assessment approaches used in Hungary, but some supplements and changes were necessary to accommodate local specifics. Important data about a given area were recorded on the assessment sheets from a historic, landscape, settlement structural and dendrologic point of view. The prime task was to determine the botanical, architectural and all unique landscape features.

To determine the gardens' historic-heritage value we have primarily investigated the following:

- the historic value of the garden, which is measured once in terms of it being a surrounding site for a historic building, and secondly as a site with an immaterial conceptual reference (for instance tied to an important historic event or family.)
- the age of the garden, or the first date which demonstrably refers to an existing part of the complex.
- the inventiveness of the garden with reference to the garden's special artistic value (for instance it is a significant work of either the designer or the epoch.)
- the typical characteristics of the garden, to what extent it forms a basis for typology (or if the garden is the first of its type in the period.)
- the geographic context of the garden into which it is laid.

5. Compilation of the assessment documentation

RESULTS

The most important results of the research, which are also significant for the preservation and strengthening of the cultural heritage:

1. Taken along active European examples, and applied onto an own, scientific viewpoint system, the research collects and orders the most important places and elements of the Transylvanian castle garden history – as the main chapter of the Transylvanian landscape. (Fig.3)
2. It offers and overview of the four-hundred-year history of the Transylvanian castle gardens between the years 1600-2000, shedding light

on the rapport and interaction of the contemporary European historical trends, the mentality of the Transylvanian aristocracy and the use of landscape surrounding the castle gardens.

3. It proves at a significant scale (21 out of 93 cases) the continuity of garden art arching four hundred years from the Late Renaissance till the present (Fig.3). With this continuum the unique position of the Transylvanian castle gardens has been proven in comparison with other Eastern-European countries, where the link between the Renaissance and the Baroque was broken – as the 17th century, Late Renaissance garden memories are rendered missing – due to the (occasionally even 150-year-long) Turkish occupation.
4. It also proves that the castle gardens form an essential part of the Transylvanian cultural heritage. Without knowing the art historical values and development of the researched castle gardens, the Romanian and Hungarian, as well as the whole European garden history is deprived and, in some cases, obscured.
5. The research shows that over the centuries the castle gardens – through the professional and economical tilling of the thousands of morgens of latifundiums enabling their birth and upkeep for centuries – have significantly contributed to the forming and preservation of the nowadays frequently met, traditional, attractive and romantic Transylvanian view and landscape character.
6. It provides a comprehensive and up-to-date snapshot of the current state of 93 Transylvanian castle gardens, with nearly all of them being remarkable ones. It can thus be used as a database by researchers, lecturers and professionals alike.
7. It forms part of the university level curriculum of landscape architecture, architecture, and

art history. Yet it also plays a promoting and awareness role in the preservation of cultural historical values and landscape traditions.

8. This research provides evidence for the historical value of the total of 93 Transylvanian castle gardens currently under no protection of any kind (more than 81 under no protection) while pointing out the possibility of, and the need for, the historic preservation of gardens to owners, administrators, and authorities. (Fig. 3)
9. It raises awareness about the generally neglected state and condition of Transylvanian castle gardens, the importance of surveys and registries and it classifies the relatively well-preserved castle gardens (with the neighbouring and related landscape sections where applicable) in the group of cultural landscapes in the spirit of the European Landscape Convention.
10. It highlights the relationship and the inter-connection of the castle garden and the surrounding landscape, along with its importance from a landscape aesthetics perspective.

CONTRIBUTION

Some interesting details are highlighted here below which show the values of the research sites concerned.

1. Most of the existing castle gardens serve as important landscape ecological and garden historical sites, because of their old trees which are representative of the leading European garden styles of the 19th century. (Fig. 4)
2. In the case of several sites, we have found descriptions, old plans, other illustrations, as well as references, which prove evidently the contribution of some famous landscape designers in the design

or rehabilitation of Transylvanian castle parks. Here we can mention names like Johann Christian Erras, Franz Rosenstingl, Heinrich Nebbien, Francois Burrey or Achille Duchene linked to the Bánffy Castle Garden from Bontida (CJ), to the Károlyi Castle Garden from Carei (SM), to the Forray-Nádasdy Castle Garden from Savarsin (AR), to the Rédey Castle Garden from Sangeorgiu de Mures, (MS), respectively to the Mikes Castle Garden from Zabala (CV) (Fig. 5)

3. A high number of garden features with artistic value are still present (in spite of their neglected conditions) in a lot of investigated castle gardens. (Fig. 6)
4. There is a huge quantity of descriptions, archive photos, paintings and other sources, which demonstrate the good or excellent condition of the Transylvanian castle gardens before the World War II. (Fig. 7)
5. The research validates the hypothesis of castle garden complexes, which are /were in an organic visual or/and physical interaction. This existing visual links were possible only in the case of a relatively high garden density in some areas and regions in Transylvania.
6. Visual connections on a landscape scale are decisive in the case of historic landscapes, gardens and parks, and among these in the case of manor gardens, manor houses and demesnes as well. The relationship between a castle garden and the surrounding landscape is the result of a conscious shaping of the environment. The results of our research confirm among others the fact that visual connections, as deliberate means of landscape design were applied in Transylvanian landscape gardens as well in numerous places, and through their application a certain landscape fragment was determined for several decades or even centuries.

7. The analysis of the visual connections consisted in the examination of 'eye-catchers' and of 'the prospects'. Concerning Transylvanian castle gardens, we tried to determine those eyecatchers, visual axes and prospects, which play an essential role in the garden composition or landscape.

The visual connections identified in the surveyed castle gardens can be summed up as follows:

The 'eye-catchers' – as outstanding landscape elements – determine the structure of landscape gardens. The sentimental, then romantic trends prevailing in the 19th century in many cases expected that outstanding buildings also become important parts of the gardens. Among 93 surveyed locations we identified 58 eye-catchers. Some of these are situated within the castle gardens, while the rest can be found outside the gardens, in the surrounding landscape.

- Among the eye-catchers situated within the castle gardens we can mention the the ruined boat-house of the Huszár Castle Garden in Apalina (MS), the obelisk in the Teleki Castle Garden in Gornesti (MS), respectively the well house of the Haller-Jósika Castle Garden in Garbou (SJ).
- Most part of the eye-catchers situated nowadays outside the castle gardens once belonged to the property. However, since most of the Transylvanian garden landscapes lying on extended properties were partitioned during the 20th century – following the two acts on land properties – part of the eye-catchers fell outside the properties' boundaries.

In this category fall for example neighboring castles or manor houses which are connected visually. A good example to this are the ensembles laying in the floodplain of the Mures River, the Teleki Castle-Garden ensembles in Glodeni (MS), Gornesti (MS) and Dumbravioara (MS), respectively

the Zichy Castle Garden in Voivodeni (MS) and the Bálintitt Castle Garden in Ernei (MS).

As a significant part of the eye-catchers left outside the examined gardens are memorial edifices (chapels, crypts, family tombs). A few relevant illustrations can be seen on illustration no. 20: the crypt of the Kemény family in Ciumbrud (AB) and of the Teleki family in Sárpatak (Glodeni, MS) shaped like pyramids (Fig. 8), and the tempietto of the Jósika family in Szurduk (Surduc, SJ).

b. On one hand the 'prospect' can be defined as the virtual extension of a garden's boundaries, the inclusion of the surrounding landscape into the view offered by a garden.

The garden composition unveiling from a given perspective, within the boundaries of a garden can also be considered a prospect; which reveals a valuable part of the garden, and enhances its aesthetic value. Among the 93 examined spots, in 73 cases we identified prospects acting as valuable sights. In most cases the prospect was offered by a distant landscape detail situated outside the garden, and in a few cases the favourable prospect emerged inside the garden. The latter cases were identified in 12 spots, mostly in those gardens which lie on relatively large areas, and the condition of which can be considered satisfying even today. In several places we identified details of gardens or landscape having visual value and we found 24 places, where both in the garden and in the surrounding landscape valued prospects were unveiling. Illustrations 22-24 show some of the prospects identified in the locations rated and specified during our research.

CONCLUSIONS

The situation of Transylvanian historic gardens, and within that, that of the castle gardens, is devastating. Compared with their former quantity and European standards, only fragments of them remain

extant, and those that survived are on the brink of demise. Their roles in the formation of the landscape and the preservation of national identity are obvious. To inertly watch their decay would demonstrate our lack of a sense of responsibility. Everyone shall fight for their survival according to his or her resources. Without these gardens, the highly-esteemed castle buildings are incomprehensible, compositionless parts of a once-existing unified whole.

The current devastating situation is also caused by a lack of landscape approach and vision on our part. Landscape architecture education has no tradition in Transylvania, and thus it has no present or future either. There are, however, such garden design, forestry, architectural, landscape agricultural and ethnographic traditions from which we can and should benefit. Transylvanian landscape architecture education should develop from these. Only this can become the guarantee for the longterm preservation of the Transylvanian site, our historic landscapes and cultural historic remains, and the pledge of the prosperity of Transylvanian environmental culture.

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TOPOGRAPHICAL DESIGN AND ARTIFICIAL EXCAVATION IN THE MODERN LANDSCAPE· CHANDIGARH, BRASILIA, MOERENUMA

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KEYWORDS

Artificial Topography, Perspective Control, Land Art, Earth Ground, Cities of Artificial Excavation

ABSTRACT

In the mid-twentieth century, Chandigarh and Brasilia, both new towns settled on natural landscapes and designed respectively by the architects Le Corbusier and Lucio Costa, are organized around each one parks, Capitol Park in Chandigarh and the Monumental Axis of Brasilia. In the late twentieth century, the Japanese-American artist Isamu Noguchi designs in Sapporo the Moerenuma Park. These three large parks are built as artificial topographies, a geometric overlay on the ground that is materialized into a topographical work, which is constructed with sequences of platforms, inclined ground planes and slopes, but also with artificial mountains and other earthworks. The topographic landscape manipulation pursues a perspective control from mechanisms of classic French Baroque garden to sequenced visions of space for a dynamic viewer. In some places, the ground surface is cut, drilled and excavated, as a fictitious archaeological excavation – a term defined in the 80s by Peter Eisenman in his projects known as *Cities of Artificial Excavation*. With these invented archaeologies, the void and shadows are incorporated into the ground and consequently the concept of “time passing” appears in the landscape. These tools are similar to those experimented by American land artists contemporarily, like Michael Heizer’s archaeological works in the desert. In this way it could be explained the cross printed on the bus station in Brasilia, symbol of the foundation of the city directly cut on concrete platforms; a series of archaeological pits that discover an ancient underground world in the front gardens of the Palace of the Governor in Chandigarh and the triangular stone garden excavated in the centre of the Moerenuma Park. In these three cases, design composition is focused on the ground surface as artificial topographies that are excavated in some points in order to generate anchor points with the surrounding landscape.

GROUNDSCAPE

During the second half of the twentieth century landscape architects and artists developed an interest in the new aerial landscape viewpoint, fascinated by the topographic forms of the natural landscape and the new urban geometries. This interest in the aerial landscape focuses the target of modern landscape on formalizing the ground plane as a spatial construction structure, a mechanism with clear antecedents in the great models of classic garden: the French Baroque garden, comprising successive horizontal and inclined planes designed for static contemplation from a central axis, and the English landscape garden, which undulating ground, apparently natural-looking, is the result of earthworks and artificial constructions carefully studied to accompany the movement inside the garden. In this plot, the publication of *The Landscape of Man* (Jellicoe, 1975), brilliantly reflects the historical continuity of these architectural composition tools, especially in relation to landform, geography and topography. This refers also to the research of the *tendenza* Italian School and the more recently texts of Leonardo Benevolo like *La cattura dell’infinito* and *I confini del paesaggio umano*, that allow us to understand some contemporary examples, like the Capitol Park for the new capital of Chandigarh, designed by Le Corbusier, and the Monumental Axis of Brasilia planned by Lucio Costa. These two case studies, along with a third, the Moerenuma Park, designed by the sculptor Isamu Noguchi, will be analyzed based on two architectural compositional tools: artificial topography and *artificial excavation*.

ARTIFICIAL TOPOGRAPHY

The landform in the contemporary landscape is like a sensitive membrane, modeled by human requirements, on the one hand, but also by the social and cross-cultural identification. This latter is translated into symbolic forms and clear geometries built in the landscape. The studied cases are based on an unspoiled natural topography or an overlay platform, which constitute an

homogeneous ground plane that only finds its limit in some geographical landforms – the Himalaya mountains in Chandigarh, the Paranoá lake in Brasília and the Moere marsh in Moerenuma. This condition leads to the construction of the landscape from artificial topography, including folds or platforms that generate controlled spaces bounded to man. During the design process, overlapping symbolic geometries activates the topographic surface and transforms its relief.

ARTIFICIAL EXCAVATION

In the 80s, the American architect Peter Eisenman made a series of projects known as *Cities of Archaeological Excavation* (Bédard, 1994). Among others, Venice's Cannaregio or Parc de la Villette in Paris, in which he played with time, history and maps of real places, moved and manipulated, and fictional places, overlapped on real locations. The last ones act as receiving surfaces of different design process steps in which are deposited architectures, transformed or altered geometric paths, that leave traces in the form of artificial excavations: cuts, cracks, overlaps or changes in topography. The floor acquires thickness and becomes a great *palimpsest* – a phenomenon in medieval manuscripts, overlapping writings on the same paper surface-, or an alteration game based on an horizon or ground zero level that acts as an axis of time-material symmetry. A line between an excavated landscape footprint of an ancient time and material added of the future time. The resulting landscape is the excavation of a series of archaeological samples or windows that reveal found objects and findings from different times.

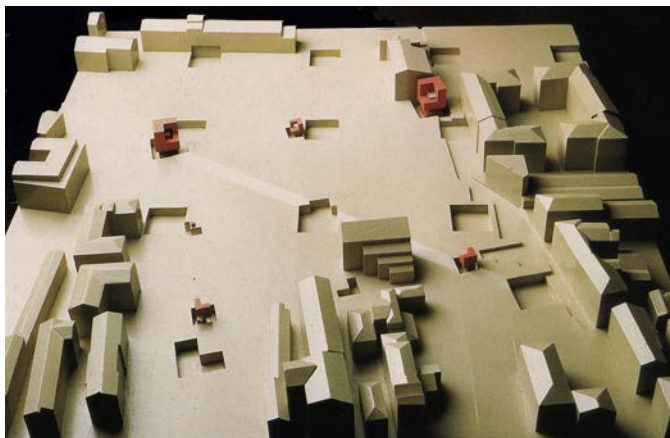


Figure 1: Project for West Cannaregio, Venice. Peter Eisenman, 1978.

These post-modern architecture laboratories allow to include fictional archaeology as a source of explanation for some contemporary landscape interventions presented here, even if they were earlier in time. Not surprisingly, contamination between architecture and archaeology is not a single event, it is actually the continuation of a process initiated by the artists of American land art of the 60s, like Michael Heizer, very interested in the world of archaeology, in their process of excavation and in their games with the alteration of time and memory –phenomena experienced in his work *Displaced/Replaced Mass*, between 1969 and 1977-.

CAPITOL PARK OF CHANDIGARH- AN EXCAVATED CONCRETE PLATFORM

Capitol Park of Chandigarh, built by Swiss architect Le Corbusier between 1950 and 1958 as head of the new capital of the state of Punjab in India, is a paradigm of large-scale contemporary landscape and the ultimate demonstration of the importance of the landscape in the work of Le Corbusier, real and symbolic (Cohen, 2013). The idea of the park is based on the construction of an artificial platform of large concrete

slabs, which from the first sketches is drawn from the *chahar-bagh* scheme -the archetype of Mughal gardens of India, characterized by two perpendicular water channels cut on the stone platform that intersect in the centre-. During the project development, the decision to transfer the buildings to the perimeter and focus all efforts on the design of the central void is taken, entirely pedestrian and perfectly design for human scale and perception. This is a priority condition that is reinforced with the transfer of road traffic to a lower level, thanks to the cut of the platform to accommodate the highways and parking lots.

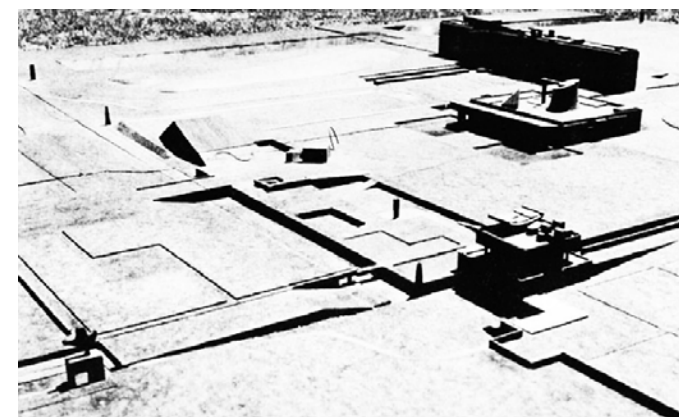


Figure 2: Model of the Capitol Complex as a composition in relief: in the centre of the photograph, the trench N-S and the sequence from Artificial Mountain and Tower of the Shadows (above) to the Palace of Governor with its front gardens (below); at the bottom, the Capitol and the Secretarial buildings.

In the photographs of the model, built after the third trip to India by Le Corbusier in 1952, all the cutting out of the platform are clearly visible, a set of reliefs and contra-reliefs articulated from the trench that runs along the axis N-S. This last is underlying the original *chahar-bagh* layout and is converted into a large crack in which the rest of the elements are supported: the crosswalks and the water channel in the cross axis, the large ponds that reinforce

the perspective and approach to buildings and even the limit wall of the Palace of the Governor garden.

Also there is working in the topography, with the placement at the perimeter of a series of artificial hills, built with earth extracted from the excavation foundations – an idea that already appears in the Plan Voisin for Paris in 1925, as part of a continuous park between glass skyscrapers, providing a certain picturesque to pedestrian paths and viewpoints, according to the Le Corbusier concept of *ville vert*-. The entire assembly is understood as a moldable plastic material, applying the Corbuserian principle of *plastic symmetry*, in which the volume of the excavations and the volume of the buildings is considered equivalent. Capitol Park landscape is thus a totally artificial groundscape that combines perfectly functional requirements with a symbolic idea for the park, which lies in the geometry and in the design of some special places.

This symbolic idea is especially present in the front gardens of the Palace of the Governor, an uncompleted complex set from the transverse axis of the park that can be understood as a particular plastic symmetry. On one side of the axis two symbolic artifacts were placed, the enigmatic Tower of the Shadows and the Artificial Mountain. The Artificial Mountain, an hybrid between topographic and constructed element, is a large truncated prism that balances the strong presence of the Himalaya and acts as receiver of excavated material. The Tower of the Shadows which Le Corbusier strategically placed at its side, is able to absorb another kind of material: the shadow. The association of both symbolic and cosmic artifacts provides the materials with which the gardens are built across the axis: the void and the shadow.

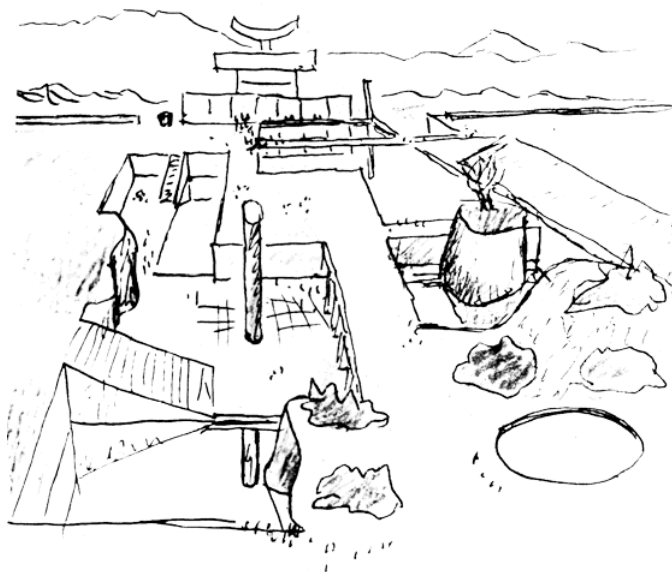


Figure 3: Sketch of the first proposal for front gardens of the Palace of the Governor, "le dessin du palais du Gouverneur définitif 12 avril 1952» Carnet Nivola I. FLC W1.8.147.

The whole garden is organized by three geometric voids cut directly on the platform, building a *promenade* or cracked path to the Governor's Palace. These recessed areas form a series of false vanishing points in ramps and stairs and optical games, emphasized by the use of water at different levels that include the reflection of the building. But perhaps the key to understand the mechanism of composition is found in the drawing in which there are represented a series of *objets trouvés* that Le Corbusier extracted from the earth bowels by these archaeological samples: prehistoric or ancient buildings –a totem or circular pillar-, fragments of an existing nature –an only tree-, the remains of ancient buildings –windows over the road street, galleries, stairs-. They all belong to the telluric world of shadows, inaccessible, as remnants of a past time that Le Corbusier exposes to build a real archaeological garden of the memory; with

overlapping memories of his trips to classical antiquity (Álvarez, 2004), the own natural history of Chandigarh itself and even the memory of a non-existent story and appealing to a universal memory for men.

MONUMENTAL AXIS OF BRASILIA- ARTIFICIAL TOPOGRAPHY AT THE SERVICE OF THE CENTRAL PERSPECTIVE

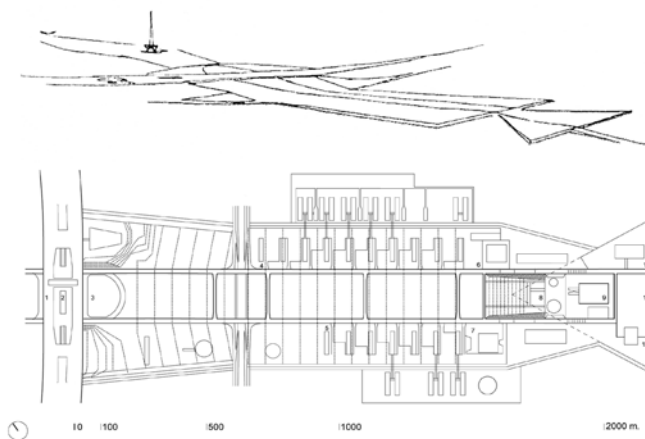


Figure 4: Sketch of the Monumental Axis. Lucio Costa, 1957 (above)

General plan of the Monumental Axis of Brasilia (below): 1. residential axis, 2. bus station, 3. esplanade of the Monumental Axis, 4. northern wing ministry buildings, 5. southern wing ministry buildings, 6. Palace of Justice, 7. Itamaraty Palace, 8. National Congress, 9. back garden of the National Congress, 10. Square of the Three Powers, 11. Planalto Palace, 12. Supreme Court.

"An esplanade -or Mall of the Englishmen-, a large lawn for pedestrians, to stops and parades." (Costa 1991: 20)

With this description of the Monumental Axis written by Lucio Costa in the memory of the Brasilia Competition in 1957, is shown the representative character which it will assume inside the new capital. As in

Chandigarh, a space of centrality becomes a democratic park for the people, where government buildings are located. In the same text he highlighted the a priori topographical character of the intervention, “the current application of the ancient Eastern technique of embankments, ensures cohesion of the whole and gives it a monumental emphasis” (Costa, 1991:20). This description is accompanied by the drawing of the large esplanade as a three-dimensional geometry of the floor where even the buildings appear.

From the slope of the original terrain, all survey operations are controlled from a rigorous perspective composition, defining a perfect canonical and representative central image of the Monumental Axis. The vast esplanade, a green surface placed in the centre and flanked on both sides by traffic roads and ministry buildings, is designed as a true *tapis vert*, like those built by the great seventeenth century French gardener André Le Nôtre at Versailles or Vaux le Vicomte. This parallel example explains the monumental scale of 2 km. long and 200 m. wide, with a slight inclination -two tranches of 1,2% and 1,4% and a third of 5,6% that descends to the Congress building-, as well as the fact that the esplanade is just crossed in certain points, thought to contemplate the central perspective. The first of these views is the one someone gets when arrives to Brasilia from the platform of the bus station in the city centre, where the extension of the esplanade is perfectly shown and disappears under a second platform on which rest the symbolic domes of Congress and Senate.



Figure 5: Monumental Axis of Brasilia. Sequence of central perspective (viewpoints from above to below): first floor of TV tower, bus station, National Congress entrance, back garden of National Congress.

At the second point, the plane of the esplanade experiences a strong descent slope between lanes of traffic and discovers the building's entrance. This topographical and compositional tool acts in two directions. From far it negates the building entrance, looking for a weightlessness effect for the platform that is accented by the triangular spikes of it. However, from the building itself a monumental space with a view of the ministry buildings silhouetted is generated by the slope and the angle shot. Artificial resources of Le Nôtre are reused here, through an anamorphosis or play with the topography and the inclination of the planes and distances to cover, uncover and highlight different views along the axis. The conclusive proof of the esplanade of the Monumental Axis scenic landscape understood as a service perspective can be found in the construction process of artificial topography. The overlap of these areas of land on the natural terrain is determined by embankments of 5 m. high, a line whose presence in the central perspective of the axis is hidden by the ministry buildings, covering the point where deception or artifice is shown.

Away from this sequence of chained perspectives, Monumental Axis assembly ends in the Square of the Three Powers, a recess and isolated space separated from it by the platform of the Congress. Using the figure of an isosceles triangle equivalence of the powers of the people, transferred to the placement of the Supreme Court and the Planalto Palace on two ends of the square. The paired tower of Congress and the Senate occupy the third point, which is perched on a large pool of dark, deep waters and geometric imperial palm plantation. The large stone surface, which extends between buildings reserved for more formal representations, is a rising belvedere 5 m. high above the original terrain. All together with the pond, planting palm trees and the stone plaza reflect an abstract representation and constitute an anchor point of the Monumental Axis with the landscape, to which a broader perspective that controls the horizon opens.

MOERENUMA PARK: SYMBOLIC TOPOGRAPHY AND ACTIVE PERSPECTIVE

"One day in the winter of 1933, I had a vision. I saw the Earth as a sculpture; I had the revelation that the sculpture of the future should be the Earth" (Noguchi, 1986)

Isamu Noguchi, an hybrid artist between sculpture and landscaping, pursues lifelong the dream of working with the earth as a material and the Earth as origin and end of his sculptural landscapes. His post-humous work completed in 2005, the Moerenuma Park, is entirely a large artificial topography built directly by land and waste of an old dump located on the outskirts of Sapporo, surrounded by artificial lake Moere, in an old meander of the river of the same name.

a viewer in motion to build active prospects, becoming visually inclined and horizontal in reverse, with the use of anamorphic perspective. This mechanism is particularly evident in the part of the Open-air Stage, a raised rectangular surface in one of its corners and sloping toward the central area of the park. The perimeter roads leading to the highest point tighten the long slope, a line flanked by thick retaining walls, which visually cut Play Mountain silhouette. In that perspective composition in motion, only it remains the diagonal lines intersecting geometry, disappears reference to location and the horizon. The landscape is understood as a game, an illusion that is created with the viewer and the movement and, in this way, it is built himself.

In a second level of analysis of the landscape, the true symbolic elements that make up the space become visible: four high territorial sculptures or earthworks built by earth and vegetation -Play Mountain, Mount Moere, Forest of Larches and Open-air Stage-, alternating with two other sculptures -Tetra Mound and Cristal Pyramid-, which orbit around the centre of the park and a global scenery. Mount Moere, an artificial mountain of 62 m. tall, plays with time and confusion of being a pre-existing geographical feature in the landscape of mountains surrounding Sapporo. The Play Mountain is an asymmetric stepped pyramid as an hybrid construction that participates in the game between the artificial and the natural: a perfectly geometric face with 99 stone steps and clear allusions to Machu Pichu and the other two sides as organic ground slopes with an upward path to the top. The Open-air Stage, which from above is a perfectly geometric and regular surface, in foreshortening, their large retaining walls secrete a stony volume that emerges from the earth as an archaeology found. All these large earthworks are references extracted from the imagination of Isamu Noguchi, inspired by primitive cultures and that establish a parallel in two directions between sculpture and landscape. In Moerenuma Park, the latter two added archaeology, which introduces time as an element of the set.

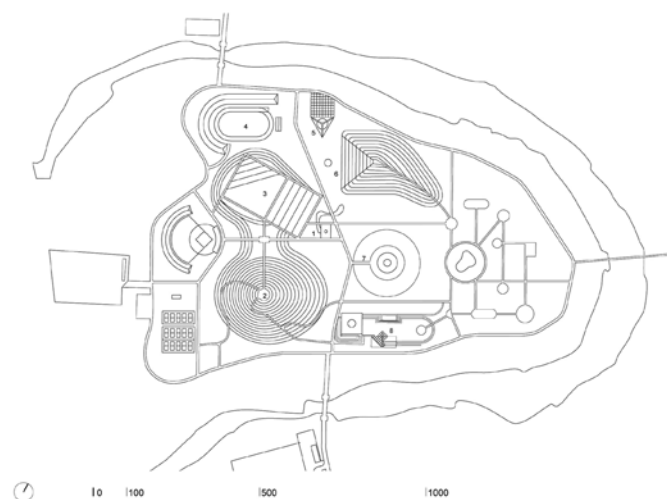


Figure 6: Plan of Moerenuma Park: 1. Plaza Aqua and Canal, 2. Mount Moere, 3. Open-air Stage, 4. Sports ground, 5. Tetra Mound, 6. Play Mountain, 7. Forest of Larches and Ocean Fountain, 8. Cristal Pyramid.

To a first approximation, the landscape is designed from a rigorous geometric network of roads and as a folded topography. Inclined and horizontal planes allow



Figure 7: Moerenuma Park. View from Mount Moere: on the left, the Open-air Stage; above, Tetra Mound and Play Mountain; below, the Aqua Plaza and Canal.

Aqua Plaza and Canal, in the gravity centre of the park and in its lowest level provides a geometric and material equality with the previous structures. The park paths are the lines that define the balanced and Aristotelian structure of the triangle and the stone is the material used by Noguchi for its timeless character. Everything in this centre is made in stone, the circular fountain and the water channel, redoubt of one higher that appeared in the first version of the project, which led before emptying into the swamp surrounding the park. It is remaining in the final construction as a fictional archaeology of this natural watercourse. Thus, in the focal point of the park, the triangle absorbs everything: the space between the boundary lines, nature and time, condensed in the stone. Conceived as a *karesansui*, a dry stone garden depicting a landscape of water -in the manner of Zen garden of *muromachi* period-, the stone garden is the expression of *mu* (無) or emptiness, yet full centre from which everything arises, in which the symbols of nature and of human existence -the land, the river and the life - create an empty triangle, a microcosm for the man, intermediary between space

and time, according to the Japanese sense of awareness of place *ma* (間). In the garden of Aqua Plaza, a void in the centre of the park, Noguchi concentrates the energy and captures the memory of the place, in order to create from this point their own landscape.



Figure 8: Moerenuma Park. View from Play Mountain: on the left, the Mount Moere; on the right, the Aqua Plaza and Canal.

We discovered that this centre is the origin of all the landscape and its impact on land sculptural shapes orbiting around, extending lines or tentacles that ensure the balance with the central system. In this way, the Play Mountain deforms extending and curving the line of the access road; the roads of Mount Moere are oriented writhing and the Open-air Stage tense his diagonal line deforming its surface; as if everything was product of a great centrifugal force. According to the principle of conservation of energy, the force that caused its deformation remains as energy in order inherent in the form it takes. It thus creates a net of forces of attraction between the elements, seemingly invisible lines, but the viewer recognizes some points relate with others: finding alignments and continuities, guessing the hidden geometries of this imaginary landscape of Noguchi. They are tensions leading man directing toward to stopping points carefully thought

to look, places where the road ends, the surface reaches its limit and the time stops. At the vertices of these surfaces, the lines project the park landscape extending to distant places, leading the eye towards infinity.

CONCLUSION

The artificial topography in the three case studies is designed to have a perspective control, from a front and static view of Chandigarh and Brasilia particularly, to the active perspective in Moerenuma Park. Thus, the symbolic value of the topography reinforces the specific character of each of these landscapes, in their implementation, geometry and meaning: Capitol Park is designed as a memory place of the new capital built as a platform with a strong archaeological nature; the construction of a monumental, representative, unitary axis to Brasilia is specially designed to be seen from the symbolic places of the bus station and the National Congress building and Moerenuma Park builds a cosmic landscape from symbolic structures orbiting around a central void.

If the artificial topography is the tool to control the large scale of these landscapes, ground excavation as fictional archaeology let down the scale and establishes closer relations, as links of interaction between the viewer and the total landscape. Thus, there is a parallel and complementary speech, which emphasizes the material value acquired by these topographic landscapes under the ground level. Precisely when dealing with newly built landscapes, recourse to the fictional archeology tool to build a double temporary condition in them. On the one hand, it can be integrated into a continuous discourse of historical time elements of history, such as the memory of the ancient buildings of primitive cultures that Noguchi and Le Corbusier move to Moerenuma and Chandigarh respectively. Moreover, the fictional archeology, in the sense of excavation, introduces the shadow and the depth, adding to landscape the value of time and memory.

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REPRESENTING THE DYNAMIC NATURE OF LANDSCAPE

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ABSTRACT

This paper discusses an on-going interdisciplinary research project, involving architectural, urban and landscape history, art, design and virtual reality, and some of its first results. The project seeks new ways of representing the cumulative changes that occur, in the landscape, over very long periods of time. Landscape change is slow, cumulative and can be difficult to perceive. Past transformations can be hard to detect, or even imagine, once a new situation has been established. Such slow change is difficult to represent in two, or three dimensions, and is rarely addressed in simulated environments. Computer generated imagery could help us understand and communicate about the process of landscape change. Making use of cutting edge gaming technology, this research by design project aims to extend 3D simulated landscapes into the fourth dimension of time.

A range of evidence (LiDar data, digital terrain models, historical and current day maps, film, photographs, texts...) is being interpreted and modeled using 3D gaming and terrain generating software (Unity, GeoControl...) to create an immersive model of an inhabited coastal site in Ireland. So far, the quality and colours of the visuals are basic; the graphics are rudimentary and the effects are far from photo-realistic, nevertheless, the “draft” 3D virtual model is an encouraging first step.

CONTEXT

In 2014, University College Dublin, the National College of Art and Design and Dun Laoghaire Institute of Art, Design and Technology, announced an initiative to encourage closer collaboration and development of new research partnerships between the three institutions. The initiative, supported by the Higher Education Authority of Ireland, included seed-funding in the field of Spatial Arts and Visualisation.

PROJECT

With the financial support of the seed-funding initiative, a small team is working on a methodology that combines landscape analysis, history, art, design and digital simulation to model and represent the cumulative transformation of real, inhabited landscapes as they occurred in the past.

Our approach is general enough to be applied in different settings, but is designed for a coastal landscape. One of our test cases is a small town, situated in a rural landscape at the foot of the Avoca valley, on the east coast of Ireland:

Home to approximately 12,000 inhabitants, Arklow is a typical town: it sprawled somewhat in the years of the Celtic Tiger but, otherwise, at first sight, Arklow seems to have changed little in a long time. In the making of the modern-day landscape, however, the small town of Arklow, its river, coastline and countryside underwent a gradual, fragmented and irrevocable transformation that is difficult to apprehend in its entirety.

Without detailed historical documentation, and especially visual aids, it is difficult to perceive the amount of cumulative change that occurred here over time. It is hard to remember a lost view. Hard to imagine what the view was two hundred years ago, harder still to visualise the scene that the Vikings would have known when they arrived here by boat a thousand

years earlier: in those days, where Arklow now stands, near the mouth of the Avoca River, the waters widened and slowed. A thousand years ago, the river formed a broad estuary where islands of river borne sediment, some of them quite large, would have supported woody vegetation. A marshy floodplain, that can still be seen today, would have been occasionally submerged. On the beach, windblown sand piled up into dunes.

Today, this entire area has been transformed: the riverbanks are reinforced by concrete; the river has been straightened and narrowed. To the south, an engineered jetty traverses the beach where sand has piled up against it, and extends out to sea. This breakwater defends the entrance to the Avoca; it protects the river and its harbour from storms and, at the same time, interferes with the longshore drift northward. The north beach has suffered from scour. After a recent storm Arklow installed a new flood defence: a rock armour wall that covers the entire length and breadth of the narrow beach.

Human activity has long altered local environments. More recently, humans have begun to alter environmental processes at a planetary scale, but such fundamental change is still largely invisible, making it easy to ignore. By making change visible, the ultimate aim of this project is to draw attention to man's impact on the environment. Visualising past change is necessary to take stock. Seeing the real cumulative effects of human action on local landscapes will help raise awareness of them, and could lead to better local management of future change.

Our project aims to create realistic digital models of current day landscapes; models equipped with time travel features that allow viewers to experience former configurations of those same landscapes. In travelling back through time, or in returning to the present day, viewers witness the succession of many small transformations that made the modern-day landscape.

LANDSCAPE TRANSFORMATION

Some landscape changes are slow, and occur almost unnoticeably over years, for example, the gradual erosion of a riverbank, the attrition of a sandy beach or, indeed, changes in sea water levels. It can take many years for such changes to be observed and their consequences felt. Other types of landscape change are sudden, and include landslides, floods and other natural events that are noticed when they occur, recorded in history, and remembered more for their consequences than for landscape features lost.

A third type of change includes different sorts of man-made transformations that can take place over days, weeks, months or even years, and include such things as the demolition of a house, the burying of a river, the gradual spread of a town over former fields, or the laying of a new railway line, or road.

VISUALISING CHANGE

Artists have sketched and painted landscape scenes for centuries. The capturing of landscape change, in traditional media, however, has obvious limitations. It is notable that writings published by nature lovers, philosophers and environmentalists such as, for example, Thoreau, or Ruskin, or Muir, who published hundreds of works between them (between 1858 and 1913) on the importance of nature, are not matched by graphical attempts to capture the changes that were actually occurring and causing such concern.

Early maps and surveys exist, of course, of certain areas. Although not all are reliable, they were useful in our work on Arklow.

In the mid-nineteenth Century, photography began to revolutionise landscape representation and, if the earliest photographs were often simply landscape scenes, by 1882, France's mountain restoration service (today the Office National de France,

ONF) was already using photography to monitor sites in which they intervened, as were the Italian and Swiss forestry services. (Grison, 1998).

The idea of using aerial photography in map making and surveys was patented in 1855 (think hot air balloon!) but it was only at the end of the First World War that the aerial camera actually turned towards such use. Photographic techniques and tools developed greatly from the 1970's onwards, and became increasingly accessible. The Ordnance Survey Ireland maintains an archive of aerial photography dating from that period.

In 1991, the Observatoire Photographique du Paysage was established by the then French Ministry of the Environment. The observatory began creating an archive of photographic records of particular sites at intervals of two, three or five years, to capture change that occurred in between. Photographic "itineraries" were recorded along with the exact locations and points of view of each photograph. Today, sixty local photographic itineraries exist alongside the twenty national sites. The resulting archive of photographs constitutes a wealth of visual information that nevertheless requires analysis if the aims of the project, to monitor and identify factors causing landscape change in the hope of positively influencing future evolution, are to be achieved. Currently, the archive is underexploited, partly because of a lack of access to it, and partly because of a lack of consensus about analytical methodology (Guittet and Le Dû-Blayo, 2013).

STATE OF THE ART TECHNOLOGY

Satellite imagery and GIS combine well to visualise recent landscape change, particularly at regional and planetary scale, however such images are limited to the past thirty years. Computer generated imagery could help us understand and communicate about the process of landscape change over longer periods of time. Making use of cutting edge gaming technology,

this research project aims to extend 3D simulated landscapes into the fourth dimension of time.

The past few years has seen exponential advance in the possibilities of simulated visual representation and informatic augmentation of built environments and landscapes. James Cameron's *Avatar*, the 2009 science fiction epic that featured photo-realistic computer-generated characters and environment took virtual effects to a new level of creative and technological excellence. According to Cameron, the making of the film was delayed for the ten years he waited for the necessary technology to become available. Benefitting from a multi-million dollar budget, a crew of 900 specialised technicians and the use of techniques used in video gaming *Avatar* took viewers to a virtual world that was "... fleshed out in such detail and scope that you really feel like you're in a place that exists." (Lemmon, 2009).

The potential of realistically simulating landscapes is proven in the worlds of film and gaming. As Pankiewicz and Hirschberg (2015) show, game engine technology has huge potential for academic and educational applications, including "travel through time".

METHODOLOGY

The means of this project are modest. Two academics, specialists in game engines, are contributing their technological know-how, part-time. The modelling of change over time (using LiDar data, 3D video gaming and terrain generating software) therefore has to be efficient and as visually effective as possible. Various techniques are being tested to simulate the effect of "seeing time pass".

A third academic delivers information to the modelling team, identifying themes and events critical to change in Arklow's landscape. An MArchSc student (in Landscape Studies) gathered and interpreted documentary evidence ranging from historical and current day maps, texts, surveys, site visits, illustrations, photographs and

interviews about Arklow. We lack, however, some of the detailed time perspective and knowledge of past societies and the human and ecological habits that would allow us to perfectly describe the interactions that created the Arklow of today. As previously described, our resources are limited. Therefore, critical examples only of each of the three major types of landscape transformation present at Arklow have been identified. These include epochal changes in sea level and coastline, natural, storm related events and human activities to do with farming, deforestation, field enclosure, interference with the riverbanks, and coastline, land reclamation, quarrying, road and rail building and house building.

INTERPRETATION

The first detailed measurement of Ireland, by the Ordnance Survey, began in 1824. Drawn at a scale of six inches to one mile (1:10,560) the resulting set of maps (printed in 1863) is acclaimed for its accuracy and detail. This historical map, available today in seamless electronic form, can be printed at any convenient scale or size. We located Arklow on the east coast and printed a map at the original scale, on an A0 sheet. Thus our 4D model is a country of approximately 10km by 10km that includes a small area of the Irish Sea.

When it was surveyed, in 1838, Arklow, our starting place, was a compact little village located on the southern bank of the river Avoca. At the river's mouth the gradient lessens and the riverbed widens to form an estuary. The land depicted in the map is dotted with farms and farmhouses. The landscape, noticeably bare of trees, is a patchwork of small fields. A single, large and elaborate swathe of woodland traverses the country, from west to east, its intricate, organic shapes suggestive of the dramatic steep-sided vale that the Avoca river has hewn for itself in its downhill course towards to the Irish Sea. In addition to marking place names and administrative boundaries, the map noted topographical features such as hilltops and

water bodies, ancient features such as forts, raths and ruins, agricultural features including field boundaries, farm buildings, drainage channels and sluice gates, types of vegetation including marshes, pasture, forests, orchards, crops and gardens, any buildings that were subject to tax valuation, industrial features such as quarries, sand and gravel pits, mines, weirs, dams and millraces and transport infrastructure including footpaths and bridges as well as roads.

Comparison of this two hundred year old document with an aerial photograph of the current-day landscape reveals a complex matrix containing similar landscape elements: field, hedge, tree, road, river, coast, beach, sea, harbour, stream, house, farm, quarry etc.

Similar, but are they the same? What remains today of the landscape-past? What changed?

We try to answer the question through the close study, interpretation and comparison of four maps in particular: the historical 6" map mentioned above, a second OS survey carried out in 1901 and printed in 1910, a later edition printed in 1951 and current day OSI maps, Bing, Googlemaps and Google Earth, all available online, as well other historical and contemporary maps, editions of planning documents obtained from Arklow Town Hall, the work of other scholars, writings, paintings, photographs and illustrations and in-situ findings and site visits that familiarised us with the terrain in its past and present forms.

The accurate reconstruction of Arklow's landscapes in times prior to the early 19th Century is more difficult. A couple of earlier surveys exist, such as the The Down Survey (1656-1658) drawn up by William Petty, at a scale of 1:50,000, in measurement of lands to be forfeit by Irish Catholics following Oliver Cromwell's victory. The map depicts Arklow Castle, an Abbey and several other houses, and is accompanied by a book of descriptive texts that gives some clues as to land cover.

Other texts and documented evidence allow rare glimpses of Wicklow across the ages. Arklow the story of a town (Rees, 2004) is an invaluable help; it starts with a description of the Viking encampment that gave its name to Arklow. The first documented mention of Viking activity off the Wicklow coast is dated 827 and whilst the evidence is distinctly fragmentary, it is likely that around this time the first Viking encampments were set up astride the estuaries of the Vartry and the Avoca at Wicklow and Arklow respectively. (O'Byrne, 2011)

RESEARCH BY DESIGN

Lack of detailed and archaeological evidence could be seen as a constraint in this project. The best and most accurate information on Arklow covers the past two hundred and fifty years only. Prior to this time we rely on a few sketches, texts and much informed conjecture to recreate a thousand years of landscape history through a systematic design approach based on analysis of topography, hydrology, geology, climate... and archaeological evidence.

The conceptual graphics of the 4D environment are a second important element that benefits from a design approach. Various landscape phenomena are being modelled to various degrees of detail, and accuracy. The project experiments with different ways of highlighting different types of changes as they occur (in parallel, or in succession) as well as with ways to differentiate between speeds of change (epochal change, seasonal change, or even the explosion of a gunpowder factory). The graphics must differentiate between events that occurred at a known time, for which we have documentation, and other events, that occurred over a less certain time period. Furthermore, as the speed of time travel varies, so must the experience of the landscape and its change.

Designing the look of the model, and the way it behaves as events occur (do elements sparkle, or flicker, or fade, or bounce, or pop up...?) is a trial and error process of design. On the one hand our model has to be scientifically credible, but it must also be fun to use and easy to understand. We are seeking a visual language that expresses different types of change and finding it involves testing ideas amongst the interdisciplinary design team as well as in the model.

CONCLUSIONS

The accuracy of the landscapes recreated in the 4D model is not our main priority. Gaps in historical information are not a limiting factor. Although we are attempting to recreate a view of the past, we are seeking an effective way to simulate the passage of time such that it allows us to comprehend the scale of cumulative landscape change.

Making use of cutting edge gaming technology, our research aims to extend 3D simulated landscapes into the fourth dimension of time. Conceiving the look of the 3D-model, and the way it behaves as events occur, is a trial and error process of design. This is a work in progress. The quality and colours of the first 3D model is rudimentary, much information is lacking and the graphics are basic. The project does not aim for the photo-realism of the mentioned Hollywood productions, but for an effective visual language that expresses different types of change over long periods of time.

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ART AS/AND RESEARCH

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ABSTRACT

In the 1980s, as the landscape profession regained an interest in design, landscape architects such as Georges Hargreaves, Martha Schwartz, and Peter Walker cited the impact of contemporary art on their thinking and designs. Seen in this way, art and art practices can be viewed as research into the shaping of form, space, perception, and experience. Unlike landscape architects, who must consider the full range of parameters during the course of a project, the artist can focus on selected factors taken in isolation. Michael Heizer's reshaping of the desert landscape provided new insights into modeling topography. Robert Irwin's planes of theatrical textile radically changed the reading of rooms and their configurations. James Turrell's investigations of light revealed how we see and how we perceive space, depth, time, and color. In all, the artist's studio can function as a scientific laboratory, but with two critical differences: there is no intention to establish a procedure that will yield a constant result, nor results that can be *quantitatively* measured. In contrast, the artist demonstrates, illustrates, and reveals through process, to produce *qualitative* situations and products; these will necessarily vary with the conditions of the setting, the issues, and the individuals involved. This is the value of artistic investigation, and its potential benefit to landscape architecture.

SCIENTIFIC

Within academia research is normally confined to conclusions and publication. We hypothesize, we formulate, we test, we draw conclusions, we review and publish our methods and results; and we await a response from the reviewers. This constitutes research. This assumption has come to a troubling state in Britain, for example, where – as in an increasing number of other countries – publication in peer-reviewed journals is rapidly becoming the sole criterion by which academic advancement and standing are judged. Not only is this troubling, but it is also wickedly unfair. If the world of thinking and investigation we call “academia” is truly a setting and a forum for the production and dissemination of ideas, we should welcome the exploration of different ideas in different ways, and the sharing of those ideas through different vehicles.



Figure 1. Michael Heizer. *Adjacent, Against, Upon*. Seattle, Washington, 1976. “Upon” is in the foreground. [Marc Treib]

In the realm we call the “art world” methods and values vary.¹ Rather than a positivist approach for finding a single truth, we encounter exploration and provocation without the burden of always providing a final

answer. Rather than the quest for a finding that may be tested and applied generally, it is acceptable, in fact laudable, to seek what is unique. In some ways the goal is to provoke new responses and thinking in the viewer (or the “perceiving subject,” as some like to term it) rather than provide an answer. However, like science, art poses propositions, asking “What might be?” For example, Michael Heizer examined the phenomenal relationships between a rough boulder and a geometric slab of concrete in his sculpture *Adjacent, Against, Upon* [figure 1]. The title of the work announces the artist’s proposition; the work itself realizes the findings. Not all art works are this lucid or demonstrative of the ideas behind them, however. Nor do they need to be.

While there is no reason that we should honor either the scientific or the artistic approach alone, that is usually the case. Part of the problem is the seeming conflict between quantitative and qualitative thinking. In more so-called scientific pursuits – for example, those in the social sciences – one finds continued attempts to standardize and even quantify situations that most artists and designers would know to be qualitative and biased. Design education, like art education, stresses the absence of absolutes, that every situation is contingent and in some ways personal. Two examples will suffice. In a recent article in *Landscape Research* the authors, through questionnaire, sought an answer to the question whether a view of nature from Danish office spaces created worker well-being.² Although they were suitably guarded in their findings, the authors did discover that, well yes, a window with a view of nature is a good thing. This seems like common sense and hardly requires study. Yet we could question the nature of the nature in their questionnaire. For example, if “nature” is a massive shrub adjacent to the window, do the findings remain true? How do you compare a short view of nature to, say, a fifth-floor view over a town spanning a greater distance?

A Norwegian study found that a high percentage of people interviewed preferred a bench in a park rather than a bench on a sidewalk in a thoroughly urban situation.³ Again, this seems to be common sense and we can easily accept the findings of the study. Again, images were used for the test, not the direct experience of the benches. But if the park were cold and windy, and the city warm and still, would we make the same choice? Or if there was a dead fish in a trash bin next to the park bench, we still want to sit there? Or a strong wind? Or a homeless person, or loud children playing nearby? Often what is considered “research” succeeds by narrowing the group of factors tested to such a degree that they can be easily dismissed when applied in the greater world beyond the laboratory, where complexity dominates restricted factors.

The problem lies not only in the divergence of quantitative and qualitative values, but also in the definition of constants and variables. Environmental psychologists often regard as a “constant” what a designer or artist knows to be a “variable.” For example, those engaging in landscape assessment often assume the medium of photography to be transparent, that is, considering a photograph to be congruent with the actual landscape. But it is not. Photographs represent a mediation that is fully capable of skewing the results of any study. In addition, in many instances the factors tested are so limited that the findings are easily dismissed when introduced into the real world. What the researchers usually test, in fact, are qualitative findings about responses to *photographs* of landscapes, which may or may not apply to the landscapes themselves. An artist would be suspicious of the method.

I offer this introduction to argue that art may – but not always – serve as research for landscape design. Art can serve as research in at least three major ways: as a source of values, a source of form, and as a source of experience. In what ways could this be this valuable? For one, artists – at least the environmental

artists presented here – like scientists, may spend years looking into few, or even single factors, and then test them in real-life situations. At one extreme art practice actually parallels operations in the laboratory, and examines phenomena in depth. The difference lies in the reason for their study and the inquiry.

FORMAL

Aesthetic values and form derived from the fine arts have influenced landscape design almost from the first reshaping the land. A considerable segment of landscape history has examined those interrelationships. The *broideries par terre* of the seventeenth-century French garden, in its very name confesses the association of fashion and garden design.⁴ In Japan, the restraint of the sixteenth-century tea ceremony infused all parts of the related arts and their environment, from the painting hanging in the *tokonoma* to the implements used, to the garden in which the tea house was situated.⁵ Every aspect of tea was considered as an art form, despite the self-deprecatory statement that it was simply boiling water, making tea, and drinking it.⁶ Values were consistent; formal approaches were usually shared.

At mid-twentieth century, American landscape architects looked to painting and sculpture as sources for a truly contemporary expression in garden design. The parallels between the kidney shape of the swimming pool at Thomas Church’s 1947 Donnell garden and paintings by Joan Miró, or glassware by Alvar Aalto, are obvious.⁷ Garrett Eckbo greatly appreciated the work of the Russian painter Wassily Kandinsky whose forms informed many of his garden designs. While Eckbo’s adaptation of Kandinsky’s formal language represented appropriation, Kandinsky had been the researcher. In his paintings Kandinsky sought a spiritual level for art, and believed that in non-objective painting and the judicious use of color, one could achieve works that raised the viewer to a higher plane.⁸

More recently, in the 1980s – after over a decade of the landscape architecture profession's domination by analytical methods – “land art” (or “earthworks”) stimulated a renewed interest in the making of visually and haptically engaging landscapes.⁹ *Double Negative*, constructed by Michael Heizer (1944–) in 1970, demonstrated how the mere reformation of earth could create spaces that simultaneously engaged the landscape and revealed geological history [figure 2]. Using a bulldozer and explosives, Heizer made deeper and deeper cuts into the edge of a mesa outside Overton, Nevada, the excavated soil spilling in the hillside between them. From the level terrain of the mesa top new spaces emerged; in fact, twin spaces that addressed one another across the irregular cliff's edge created by wind and rain over a period of eons. Descending the ramps that remained from the excavation, one traveled back in time, with history revealed by the geological strata. *Double Negative* represented research by excavation.



Figure 2. Michael Heizer. *Double Negative*, Overton, Nevada, 1970. [Marc Treib, 1996]

In contrast, Robert Smithson's (1938–1973) 1970 *Spiral Jetty*, set on the edge of the Great Salt Lake in Utah, constituted research into displacement and

piling. The spiral figure evolved by dumping into the lake truckloads of basalt rock alien to the site. Walking on the surface, soon encrusted with salt, visitors move toward a center in which the skies were reflected in the surface of the lake that alternate with rock. Retracing one's path from the center, a changing panorama of vistas unfolded and insured a full regard of the open landscape over and around the lake.

It should be stressed that although the cut of *Double Negative* and the spiral of the *Spiral Jetty* served landscape architects as formal devices thereafter applied to projects with functional programs, both artworks actually centered on action, experience, and perception. In that sense the artworks also had a function of sorts: to involve humans with the landscape in a more profound way.

EXPERIENTIAL

Providing formal vocabulary is only one way that art serves as research for landscape architecture. Perhaps more profoundly, artists create settings and situations where experience is adjusted, at times intensified, at times paralleling experiments in psychology, but always with an aesthetic intention. As a painter, Robert Irwin (1928–) began a life-long quest to erase the distinction between figure and ground. Solid color fields dominated his early paintings, yet each panel included lines that were barely perceivable. Tinted at their edges, the concave disks that followed these paintings were carefully illuminated to diminish the distinction between the edge of the disk and the wall – and thus the gallery space itself. By the 1970s Irwin began to intervene in existing spaces, relying on the most minimal means to disturb and modify normal perceptions. Using only lines drawn with black tape set at eye level, he co-founded the reading of the art gallery space. In 1976, at the Whitney Museum in New York City, planes of translucent theatrical textile, called scrim, diffused the incoming light and reoriented the reading of the gallery.

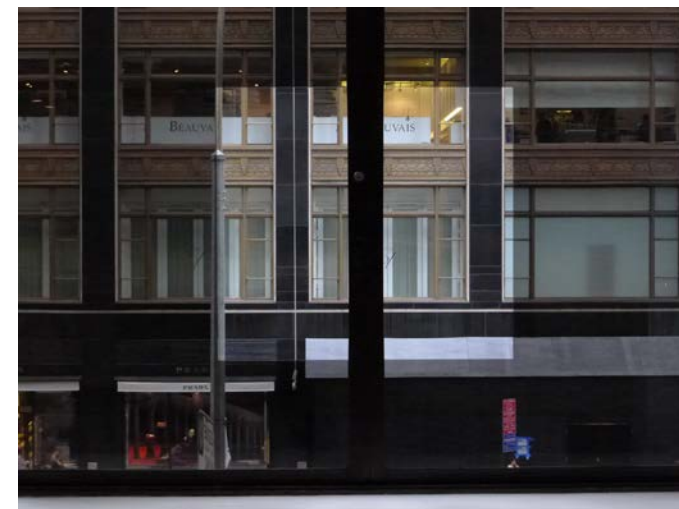


Figure 3. Robert Irwin. *Dotting the i's and Crossing the t's*, Pace Gallery, New York City, 2012. [Marc Treib]

Scrim became the material of choice for a continuing series of installations where the movement of the sun tempered the readings of the space throughout the day. The most enveloping of Irwin's scrim environments was the 1998 installation *Excursus: Homage to the Square at Dia Foundation*, in New York. Here the entire floor of a former industrial building was sub-divided and transformed into a labyrinth of scrim. Negotiating the passage through the art work required attention to the light filtered through the layering of planes.

Irwin's installations require that we look more carefully at situations with which we have become too familiar. There is much to see and experience; we just must look more carefully. *Dotting the i's and Crossing the t's*, executed in 2012 at the Pace Gallery in New York, covered the windows of the gallery with tinted film, leaving only the central rectangle clear [figure 3]. Like the telescope, this reduced the cone of vision shifted the visitor's focus to the buildings facing the gallery and life on the streets below. This simple intervention demonstrated what can

be effected with minimal means, a lesson in attention and psychology of benefit to those in the design world.

One might dismiss Irwin's artworks executed in scrim as too dependent on illusion. Yet the artist's quest was not to simply modify the configuration of the planes, but to create an environment in which the visitor became aware of just how he or she was perceiving. They involve experience, lessons, in attending and perception.

James Turrell (1943–) art also involves perception, but through the medium of light. Early works (the Projection Series) used high-intensity lamps to project ambiguous two-dimensional shapes on the walls of a darkened gallery, teasing the eye into reading them as three-dimensional volumes. His investigations became more spatial in the Space Division Constructions, working with a light at the barest level of perception, a condition in which light is perceived as granular. A wall with a rectangular opening divided the gallery into two spaces. Under this low light level the window first appears as a flat plane on a wall and becomes spatial only as the pupils dilate and vision becomes more acute. Only then is the rear space, the source of the light, understood.

Turrell also has produced a series of immersive environments, landscapes in themselves. The light level, color, and rounded wall intersections produce a sense of the infinite. I would not argue that there are direct applications for these works in landscape architecture or that we should try to replicate them in any way. At root they make us more aware of the condition of light and the effects of color. We leave having experienced a heightened condition, and from that condition we may draw our own conclusions and applications.

In the skyspaces Turrell rotated the apertures vertically, and looked at the sky rather than an interior room. Twilight provides the prime moments for viewing these spaces, the color of the gently illuminated ceiling changing as the skies darken. Skyspaces can be



Figure 4. James Turrell. Live Oaks Friends Meeting House. Houston, Texas, 2000. [Marc Treib]

square, round, or elliptical. One of the most engaging work in the series was the 2000 skyspace at the Live Oak Friends Meeting House in Houston, Texas, which opens each Friday night and attracts the falling light of the skies into the space of the church [figure 4]. As the sky darkens the space within the room appears more brilliant, its color changing from white to yellow.

Turrell's most monumental and true landscape reconfigured the crater of the extinct Roden volcano as a



Figure 5. James Turrell, Roden Crater, near Flagstaff, Arizona, 1970s to date and continuing.



Figure 6. James Turrell. *Twilight Epiphany*. Booth Centennial Pavilion, Rice University, Houston, Texas, 2013. [Marc Treib]

massive artwork whose form increases the reading of the sky as a dome, an effect experienced by pilots [figure 5].¹⁰ The *Roden Crater*, a project which had been ongoing since the 1970s, entwines a series of tunnels and other devices by which to view the rising of

the moon on certain days of certain years, changes in the light levels of the sky, and the experience of the concave space itself. Natural form has been regularized through regrading, in effect converting the crater into an observatory of natural phenomena.

Recent projects such as the 2013 *Twilight Epiphany* at the Booth Centennial Pavilion on the campus of Rice University in Houston, Texas, uses LED lights in an orchestrated sequence to play the roof plane against the skies at twilight or dawn [figure 6]. The slow and subtle changes of colors achieve electronically what the painter Josef Albers (1888–1976) termed the “interaction of color,” which he used as the basis for the extensive series of paintings called the *Homage to the Square*.¹¹ It is not color taken in isolation, Albers argued, but in its relation to other colors that produces our perceptions of them. A yellow set against gray is not understood as the same color when set against a red ground. Of course, scientists – and philosophers such as Johann-Wolfgang von Goethe – have also worked on these theories of chroma. Michel-Eugène Chevreul (1786–1889), a chemist and director of the Gobelins tapestry works in France, derived a classification of color based on his own experience with textile dyes. Interestingly, Gertrude Jekyll was influenced by Chevreul in her formulation and design of the herbaceous borders for which she is justifiably famous.¹²

CONCLUSIONS

At least one of my colleagues has argued against my claim of art as a research on the grounds that art “just is.” Art is its own phenomenon and occupies its own category and should be experienced and regarded in just that way; it need not justify its existence in the university by citing its potential as research. I would agree. But I also believe that we become better designers in any medium by knowing as much about everything as we can, by understanding the effects as well as the causes, by realizing that the functional or ecological level is only the point of entry into project, and that we should seek a quality beyond the base level at which we ordinarily operate. A ninth-century Chinese poet wrote that he would not merely depict water, rocks, or trees, but always something more: “something beyond the form, something beyond the sound.” Sound advice.

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(ENDNOTES)

1 2 3 This bench images were only a part of a far larger study. Helena Nordh, "Quantitative methods of measuring restorative components in urban public parks," *Journal of Landscape Architecture*, Spring 2012, pp. 46–53.

4 For example, recent scholarship has examined the garden within the greater sphere of material culture. See Chandra Mukerji, *Territorial Ambitions and the Gardens of Versailles*, Cambridge: Cambridge University Press, 1997.

5 On the tea ceremony and its integration of the arts, see Kakuzo Okakura, *The Book of Tea* (1905), reprint Rutland, VT: Charles Tuttle, 1956.

6 The early tea master Sen no Rikyu described it simply in this way: "We draw water, gather firewood, boil water, and make tea. We then offer it to the Buddha, serve it to others, and drink it ourselves." Quoted in Dennis Hirota, ed., *Wind in the Pines: Classic Writings of the Way of Tea as a Buddhist Path*, Fremont, CA: Asian Humanities Press, 1995, p. 217.

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10 Turrell is himself a pilot and found the Roden Crater after an extensive aerial survey.

11 Josef Albers, *The Interaction of Color*, New Haven: Yale University Press, 1963.

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MAKING PROPOSITIONS. RICHARD LONG AND ROBERT IRWIN

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ABSTRACT

For British artist Richard Long (1945-) and the American Robert Irwin (1928-), making propositions, rather than presenting data, is a legitimate form of research and a means of constructing knowledge. Richard Long relates the measure of the human body to the measure of the landscape through walking and subsequent map making. In his installations, Irwin explores light, space, and experience. Each artist offers a nuanced understanding of the interplay between cultural concerns, human perception, and site specificity and what it brings to the interpretation of the landscape. Their research is simultaneously fluid and precise, a means for exploring and explaining the world through physical propositions such as the path, installation, or garden. For each artist, research provides conclusions and, more significantly, also raises questions through an intensely personal process of seeing, making and reflecting. The methods of Long and Irwin can invigorate current landscape architectural practice and thinking in different ways and to different effects. Together, their works and methods offer insight into the complex relationships between movement, measure and landscape, between perception and object, and materials and their history.

INTRODUCTION

Robert Irwin began his career as an Abstract Expressionist painter, and is now most often considered a conceptual artist, especially since his works of 1970s like *Fractured Light – Partial Scrim Ceiling – Eye Level Wire* at the Museum of Modern Art, New York and *Black Line-Volume* at the Chicago Museum of Contemporary Art. He also works in landscape. *Two Running Violet V Forms* (1983) was a permanent installation within a eucalyptus grove at the University of California San Diego. *Nine Spaces, Nine Trees* (1983) was originally designed for a site in downtown Seattle and *Untitled* (Filigreed Steel Line) for Wellesley College in 1980. Such installations were a means of exploring the relationship between an artwork, its space, light and human perception.

Irwin sees art as a legitimate form of advancing knowledge or developing ideas, one that is in equal weight to other disciplines. In his book of interviews with Irwin, art critic Wechsler observes that Irwin insists that art has both the right and the obligation to stake its claims as high as any science (Wechsler: 233). When Irwin looks at a retrospective of Mondrian in New York he sees in the work, an investigative rigor with parallels to his art practice. He notes, “You could just see it, you could see how each step evolved from the one before, how there wasn’t any revolution at all, it was all a process of continually considered evolution.” (Wechsler: 228) The retrospective shows a process of questioning that is marked by a series of physical propositions. For Mondrian, these are paintings. For Irwin, his art practice moved from paintings to installation. For each, the making of art is neither illustration nor simply self-expression. Rather, it is a means of testing ideas; a concrete suggestion that both defines a stage in the development of knowledge and a tangible method of opening up further discussion and analysis.

The 1970s shift in media from paintings to installations in Irwin’s art practice demonstrates how making art allows for defining questions, uncovering knowledge and

drawing conclusions through reflection and analysis. It marks a progression in his thinking about the relationship between art and the space in which it is viewed and the subsequent affect on the viewer. He situates this work within a context of what paintings and painters do, briefly summarizing how modernist painting arose out of critique of the hierarchical structure of perceiving the world and how his own work extended the flattening of the relationship between figure and ground seen in, for example, in cubist painting. Irwin finally concludes of his last paintings--the 1968 discs-- "When I married the painting to the environment, suddenly, it had to deal with environment around it as being equal to the figure and having as much meaning." (Weschler: 172).

When Irwin realizes that paint and paintings have become insufficient means of exploring the questions of light, perception and space that are most interesting to him, he searches for another kind of physical proposition, one that both through the process of making and through its form itself, allows for further testing and experimenting with observed qualities of space. In his 1970 installation at MoMA *Fractured Light – Partial Scrim Ceiling – Eye Level Wire*, Irwin begins not with positioning an object within a space, but with the space itself. He starts by adjusting a context, by reading the texture or room and uses only minimal means to emphasize a particular quality. His process is mundane: "Irwin spent several nights just sitting there, taking in the situation. He cleaned the walls, repaired the floor. He tried this and that...put things up and took them down..." Irwin himself further notes, "Instead of overlaying my ideas onto that space, that space overlaid itself on me." (Weschler: 154). Irwin understands an object, a space, and that of a person within it as relational: each informs the other. Finally, he makes three main moves: he changes the fluorescent lights to green and pink. He stretches a piece of piano wire, painted white at each end across the far wall. And he places translucent white scrim halfway across the room. Through these

modest interventions, Irwin was able "skew expectations" and "tilt perceptual mechanisms" (Weschler: 156)

This fluid method of carefully observing the texture of a place and then responding to it would inform a series of subsequent installations of which Irwin considers his 1975 show at the Chicago Museum of Contemporary Art to be the most successful. As he did at MoMA, Irwin begins by making a series of nuanced observations. He itemizes three interesting qualities of the room: the light was diffused from a modular ceiling, there was a post in the center of the room and there was a black kickboard around the edge. He made one move: he completed the rectangle of the kick board with black tape. This was subsequently described by art critic Roberta Smith "... the resultant black rectangle was not what you "looked at" – there was actually nothing to focus on – but it soon brought the space into focus with a distinct visual snap...It is hard to know whether the tape was doing all of this or whether, having become visually conscious enough to see the black rectangle, you simply continued to experience the room with this heightened awareness." (Weschler: 177). Irwin's first installation resulted in little critical commentary and even fellow artists such as Richard Serra questioned him about it. For both art critics and Irwin, however, the Chicago show demonstrated an advance in understanding and responding to questions of perception, light and space.

Irwin's work demonstrates the disciplinary rigor and methods of an arts-based research practice. Initial questions are rooted in subjective, individual observation and his own experience of room, landscape or light. This sensibility and confidence in the validity of his observations drives his research methods and processes. It is scaffolded by the objective fact of the artwork itself: a built proposition is the means through which ideas are tested and understood and then advanced.

Such work is often characterized by uncertainty; Irwin admits that he does not always know where his initial

act of making will take him. His own surprise at how installations are received suggests that Irwin himself recognizes the relational character of his work. Not only does he dissolve the boundary between the object of the painting and its space, but also between observer and space, and artist and observer. The artwork itself offers an interpretive mode of knowledge. It results in not only a tangible physical space, but also in a parallel cultural construction of ideas--whether academic or intellectual or experiential and phenomenological--that suggests alternatives and new possibilities.

The fluidity with which Irwin reacts to what he is doing is equally crucial. He does not consider the placement of the scrim, or the color of lights to be definitive. Each space in which he works, demands an equally specific approach. His process is subjective, dynamic and particular. For Irwin, installations allow for the rigorous shaping of spatial ideas: they enable a synthesis of human experience and light, one that, to Irwin, defied documentation in photographs. For Irwin, the only reliable way of knowing how an installation works and how it addressed his particular questions was through the making and observing of the installation itself. The art proposition itself is the strongest and most accurate synthesis of his ideas. Repeated acts of making give him an innate, tacit knowledge of what is essential to explorations of the affective quality of light and its capacity to shape human perception and how minimal interventions emphasize existing qualities of place. They demonstrate engagement with both specificity and process and show alternatives to the interplay of object, space and human process.

Richard Long uses the act of walking to move beyond the traditional making of sculptures to explore materials, movement and time; all topics important to landscape architecture. He describes own work:

"Art about mobility, lightness and freedom. Simple creative acts of walking and marking

about place, locality, time, distance and measurement. Works using raw materials and my human scale in the reality of landscapes.” (Tufnell: 20)

Long’s walks are a dynamic sculpting of landscape through repeated walking. Unlike Irwin, his work relies heavily on visual documentation. His audience only experiences his work through spare texts, photographs and mappings. These are accompanied by installations of mud surfaces or quarried rock, and through sculptures made from materials found on such walks arranged in circles or lines within galleries or out in the landscape.

The critic Rudi Fuchs, wrote of Long’s *A Line Made by Walking* (1967)

“The fact that it used the real earth, without adding or subtracting other materials, hardly disturbing the ground that was walked on, opened up an enormous new range of content. In principle, a walk could traverse different landscapes at different times of day and night, in different conditions of weather and through different states of mind on the part of the walker – and thereby making all these aspects of the real world part of the sculpture.” (Tufnell: 23)

This first instance of a sculpture based on active engagement of the artist with a place, made through the repeated imprint of a foot on the ground marks an point in Long’s consideration of movement, time and place through sculpture. If Irwin found painting an insufficient medium for his own art inquiry, then Long turns to the walk as the most effective means of exploring questions of movement and landscape. He makes the act or process of walking a proposition: the means through which sculpture and the artist making it became “..a part of the world.” His experience of landscape captured through the walks is singular and personal, and also site-specific. “I’m just involved in what I’m doing. It’s like living in the moment. No past,

no future. It doesn’t always happen, but quite often the best works come from that state of mind, being absorbed and intuitive, sort of unselfconscious really. Art functions as a kind of freedom, you can invent any idea and that’s enough you can just do it.” (Long: 76)

Like Irwin, Long’s art is based on intensive subjective inquiry and an uncertainty about where an aesthetic curiosity will take him. He says for example, “I may have a feeling or an idea that some place might be interesting...that is good enough reason to find out what the place is like.” (Long: 249). Yet, his walks are purposeful. He goes to places for a certain reason, following a certain idea, and to do a piece of work over for a certain amount of time. He also works in opposition to and with an understanding of the context of making, from within the disciplinary boundaries of fine arts. He works fluidly, responding to what he sees and adjusting what he does. In making HALF-TIDE, he explains, “My idea for a sculpture was just to make a cross of stones on the seabed as the tide was out. When I woke up the next morning and unzipped the tent and looked out over the bay, the tide had come in and instead of seeing my cross of stones, I actually saw the image of my work suspended on the surface of the water because the stones were keeping the seaweed down...so it actually become a work about half-tide. Anyway, that was an example of a work that comes about by a sort of combination of what I do, plus some unforeseen natural phenomenon which actually transforms the work.” (Long: 52)

Long recognizes how the unexpected can enrich his work; the movement of the tide adds a third elemental layer to his construction of stone and walking. Long works freely, but can respond to shifts in his own expectations because of his own experience in making and his own clarity about his use of raw materials, movement and site specificity and what they might mean to his own aesthetic inquiry.

His walks are systematic. They are timed, mapped and recorded through spare texts that in their own arrangement recall the rhythm and structure of Long’s walks. Sculptures within the space of a gallery accompany the documentation of walks and through their simplicity of form--a circle, a line – become abstractions of the vaster landscapes Long passed through; a distillation of river, desert or mountain range. Sculptures and text evoke an immediate sense of time, of temporary human passage or actions of moving stone or smearing mud and longer geologic processes of weathering, erosion and mountain formation.

Like Irwin, Long reads the texture of a space and then, through minimal adjustments of earth, rock, wood or water shifts perception of a particular landscape. The beaten line of earth, the circle of jagged rocks become markers of both how Long has shaped the landscape and of how the landscape has shaped his own movement through it. His sculptures record the measure of the human body against the scale of a wider landscape. A line is the width of his two feet. The circles are made from stones he can lift alone and arrange in given amount of time. And the evidence of line or circle, even if photographs, make his actions of walking, moving stones, arranging wood or splashing water part of the landscape; and his art, an extension of nature. Like Irwin, Long practices making. He observes, “I just go from one work to the next. But the work builds up anyway.” (Long: 105).

For each, both individual works and a body of work made over time are demonstrations of knowledge that show how choices about media, process, form and space relate to a particular aesthetic inquiry. Both make propositions in the landscape and both confront ideas that overlap with the considerations of landscape architecture.

It is not simply the subject matter of their art that could invigorate landscape architecture practice, but also the

method of testing ideas through a physical proposition. While each demonstrate technical competence in making, neither depend on the collection of data or facts to either determine what to do or to measure the success of what they have done. Rather, for each, the practice of art depends on highly particular, subjective observation and an engaged, open-ended questioning. This kind of subjectivity is not however simply self-expression or illustration. The making of installations by Irwin and the taking of walks by Long is a kind of sensorial assimilation; a interpretive, complex knowledge that requires the capacity to know materials, procedures and techniques and to use them in a imaginative way that engages all of the senses.

Such knowledge involves, looking, thinking and then transforming a space or a landscape through a tacit understanding and response to what one has seen and experienced before. The sustained curiosity demonstrated in the work of Irwin and Long has meant that over their careers, they have learnt to modulate space and human experience of it. Through the making of propositions, they define the questions, arguments and values that matter most to them. Through the making of art, they become attentive and practiced in the reading of space, to its structure and to its latent meanings. Long observes, 'There are millions of stones in the world, and when I make a sculpture, all I do is take a few of those stones and bring them together and put them in a circle and show you. So as well as finding the right place, you can also bring things together, hopefully in the right way, and say this is what the world is made of.' (Long: 45)

Their experience over time, and the body of work developed from repeated acts of making makes it possible for each to determine or choose when a construction is good, not through a list of isolated criteria but through a synthetic, complex and nuanced process of making and remaking of space through structure, material, human movement and light. A

landscape architecture project must resolve rational problems and fulfill functional, technical and other demands. A good landscape architecture project must also evoke complex human experiential and cultural values that cannot be easily prescribed and that demand alternative modes of research and practice.

The making of art, of propositions in some kinds of drawings, installations or other media might enrich landscape architectural practice by acknowledging that landscape architecture is not simply about the natural world. It is also made up of the systems of organization and meanings created by a group of people at any one time. The form and structure of space, whether at the scale of a small garden or a wider territory both creates and contribute to the structure of a world: we make spaces and they make us. The acknowledgement of alternative modes of research, of the value of knowledge gained through subjective, dynamic acts of making offers a kind of intellectual emancipation that is perhaps best described by the French philosopher Jacques Rancière in his description of an society of artists:

Such a society would repudiate the division between those who know and those who do not, it would only know minds in actions: people who do (MAKE), who speak about what they are doing and who thus transform their works into ways of demonstrating the humanity that is in them as in everyone." (Rancière: 71)

The rigorous practice of landscape architecture demands as art demands, a disciplined inquiry based on dynamic engagement by designer and spectator with the media of landscape architecture. One where the making of design propositions is a means of exploring complex questions that have the potential to bring about spatial and cultural innovation. In this way, a landscape architecture proposition again becomes not a passive setting for art, but is itself art and so expressive of aesthetic and cultural aspirations.

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THE LANDSCAPE AS A FUSION OF TIMES: QUALITATIVE METHOD IN THE ART OF MARCELO MOSCHETA

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Time, Art, Landscape, Narrative, Synthesis, Marcelo Moscheta

ABSTRACT

Many researchers who study perception – from psychology, philosophy, or even architecture – have appreciated the perception of time as experienced through art. This experience seems to transcend the common division of time into past, present and future, and creates in the beholder a state removed from the passage of time: in effect, a fusion of times. In his artwork, the Brazilian artist Marcelo Moscheta explores the construction of time using a two-fold process of artistic production in which the distillation of the studio experience follows the first moment of direct immersion in the landscape. His artworks result from a geographic and temporal displacement that invites the viewer to consider the landscapes Moscheta has visited, some of which are remotely located. Two of Moscheta's most significant projects – *1,000 Km*, *10,000 Years* (Desert of Atacama, Chile) and *North* (Arctic Pole) – demonstrate the validity of a qualitative method for representing a synthesis of time that is offered as an experience. The landscape holds the potential to significantly change our perception of time, by slowing it down or speeding it up. Even when some of these experiences are short or temporary they can still be immersive and deploy our will to explore and discuss the nature and qualities of our relationship with time. Moscheta's method may be useful in landscape architecture, not only because it allows us to better understand the temporal qualities of the landscape's most fundamental materials, but also because it may trigger the construction of narratives that support our experiencing this fusion of times.

INTRODUCTION

Many researchers who study perception – from psychology, philosophy, or even architecture – have appreciated the perception of time as experienced through art. This experience seems to transcend the common division of time into past, present and future, and creates in the beholder a state removed from the passage of time: in effect, a fusion of times.

Philosophical theories that focused on the study of time, significantly supported by phenomenology, have revealed an understanding of perceptual synthesis and how it influences spatial and temporal experiences. The works of philosophers such as Hegel, Husserl, Heidegger, and more recently Derridas, figure amongst the most notorious examples. And even philosophers who were critical of the phenomenological tradition (such as Nietzsche, Bergson, or more recently, Deleuze) have revealed an interest in the potential implications of the perceptual act of experiencing time through different artistic manifestations, from painting and sculpture to photography, video or dance (Fieser & Dowden) (Williams, 2011) (Wittmann, 2009).

As in so many other disciplines, landscape architecture has capitalised on some of these studies to investigate the temporal qualities of the landscape, not only in research but also as design methods. The landscape offers immersive experiences of time in many ways similar to the temporal experiences perceived through art.

In his work, the Brazilian artist Marcelo Moscheta explores the construction of time using a two-fold process of artistic production whose parts may be distributed over several days, weeks, or even months. The first moment involves a one-to-one immersion of the body in the landscape. Moscheta is a “traveling artist” and needs direct experience to measure the landscape, to create on-site cartographic representations and to collect samples and materials (Tala, 2013). Sometimes, even during the first moment



Figure 1: 1000 km 10000 Years. The direct immersion of Moscheta in the Desert of Atacama.

artistic production results, usually when a specific landscape feature is isolated and highlighted in situ.

The second moment happens in his studio, where Moscheta distills his experiences through different media (sculpture, light installation, photography, and drawing). His artworks result from a geographic and temporal displacement that invites the viewer to consider the landscapes the artist has visited, many of which are remotely located.

At first sight, Moscheta's work appears to have received a strong influence from the Land Art movement: the artist frees himself from the studio and sets off to explore the landscape. Sometimes he uses the landscape both as site and subject to produce his pieces. Most of the time, however, he returns to his studio, where he systematically catalogues, draws, and sculpts the materials collected from the landscape, reusing them to reinvent meaning within the enclosure of the gallery. However, Moscheta identifies himself less with the artists from this innovative movement from the 1960s than with the intrepid adventurers and explorers from the late nineteenth century who discovered some of the most inhospitable terrain on the planet (Resende, 2011).



Figure 2: 1000 km10000 Years. Exhibition of the three pieces produced after the distillation of the studio experience.

Two of Moscheta's most significant projects – 1,000 Km, 10,000 Years (located in the Desert of Atacama, Chile) and North (sited at the Arctic Pole) – demonstrate a qualitative method of research for representing a synthesis of time offered by experience. Besides the two-fold process that characterizes his most notorious works, two other significant dimensions – matter, and narrative – also inform Moscheta's construction of time. Some conclusions drawn from this essay may be relevant in landscape architecture by explaining how the landscape represents a fusion of times.

In *1,000 Km, 10,000 Years*, the measure of space alludes to the distance the artist travelled through the desert, and the measure of time to the moment when the first tribes of the Lican Antai started dwelling in that land. Moscheta's first art piece resulted from experiencing the landscape directly. He produced a construction with natural stones, meticulously aligned along the virtual line of the Tropic of Capricorn. Its form was also in close dialogue with a nearby monolith indicating an ancient Inca trail, part of a much wider network developed by that civilization and spreading over the vast territories of South America (Fig 1).



The other three art pieces included in this project were assembled together as an exhibition. In the first – *Linha:Tempo:Espaço (Line:Time:Space)* – Moscheta reinterpreted the first line, but this time he replicated one single rock several times in clay, and tagged the resulting copies with significant coordinates along his journey. In the second – *Atacama: 28.04-06.05/2012* – he created a map with PVC and graphite to reveal the displacement resulting from the process of moving and collecting stones. And in the third – *Timelapse* – he constructed a small box containing desert soil, sand and stones with a plaque celebrating the first human beings who inhabited the site in a gesture equivalent to those astronauts left on the moon (Buenaventura, 2013) (Fig 2).

In *North*, a culmination of a three-week expedition to, and residency at, the Arctic Pole, Moscheta followed a similar process, and revealed yet another interesting consideration of time. Equipped with a cutting-edge GPS device, the artist tried to mark a series of yellow lines on the pristine white landscape that made visible the parallel and the meridian pointing to the four main cardinal points, only to realize that at such latitudes the magnetism of the poles weakens the temporal precision

of the entire navigation system (Lame, 2012) (Fig 3). It is an example not only of the ancient and always latent re-encounter between nature and artifice, but also of the technological frustration when trying to accurately measure space by using time – a fact that the artist accepted and promptly incorporated in his art (Fig 4).

Using these two projects as examples to illustrate a method characteristic of the artist, it is obvious that Moscheta's art pieces can be made of either materials collected from the landscape or of other materials that force us to look at the landscape through a specific lens. Either way, they are always about a landscape which exists in distinct temporal layers. In fact, this art materializes that temporal compression, not in a chaotic, but rather layered way, in which layers of time accumulate in an onion-like display.

Another specificity concerns narrative. In *1,000 Km, 10,000 Years*, for example, the meaning of aligning stones to materialize an otherwise virtual line unfolds in time: on the one hand it celebrates the memory of the first human settlement in the territory, and on the other hand it becomes a message for other travelers like Moscheta himself, who may visit the desert in a more or less remote future (Buenaventura, 2013). The artwork brings together the *past as memory* and the *future as repetition*, both concepts formulated by Deleuze in his theory of time. The third dimension is the *present as habit*, here seen as the artistic manifestation, or the artwork (Deleuze, 1968).

In *North*, the yellow lines marked the cardinal points on the ice for only a very brief moment: the time required for Moscheta to photograph them. Here it is through the final exhibition itself that one becomes aware of the significant temporal compression that shapes the narrative. *North* is not simply about the power of the natural forces operating in the landscape versus the lack of skills to fully measure them, but also about the human quest for a grounding in some of the most

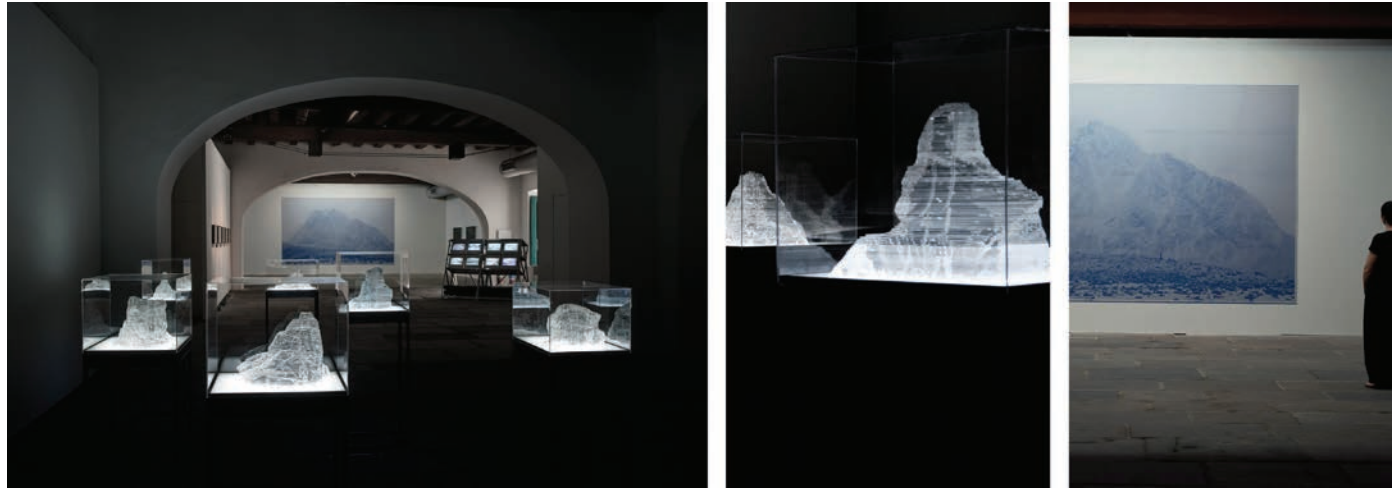


Figure 3: North. Photographs taken from the direct immersion at the Arctic Pole, where Moscheta produced the yellow lines on the white landscape.



Figure 4: North. The different pieces that composed the exhibition.

remote places on Earth. Moscheta revisited the memory of the former Soviet-Union city of Pyramiden, abandoned in 1998 after the extraction of coal was no longer viable. The artist followed and carefully registered its network of roads, paths and trails connecting the archipelago (Lame, 2012). The memory of this place

will eventually live in Moscheta's artwork perhaps even after nature ruthlessly erases the city (Fig 5).

In Moscheta's narrative there are three components that characterize its temporal constituency: subversion, fiction and synthesis. Subversion stems from



Figure 5: North. Collection of photographs as a distillation of revisiting the memory of the former Soviet-Union city of Pyramiden.

artificially isolating, at times even manipulating, a condition that triggers in the beholder the thought about the landscape itself. Fiction appears through displacement, which forces the narrative to establish a distinct connection between two points in space by a proposed path of time. Synthesis stems from the nature of the relationship between art and landscape, which constantly represent one another.

It is perhaps with this last characteristic – synthesis – that we can begin to understand how Moscheta's method may become useful in landscape architecture. In the two aforementioned projects, the common division of time into past, present and future is deliberately abandoned in favour of a construction that fuses times within time; a fusion of times. Thus, time is no longer about simply remembering a moment isolated in the past or imagining a moment that will happen in the future, but a fusion of all these moments compressed and revealed in the present. In the metaphor of the onion-like concentric layers, it is as if in every project the artist cuts the onion with a sharp knife to reveal how time has been compressed in distinct, yet interactive layers.



In landscape architecture, this qualitative method may become valuable in the configuration of important dimensions of both analytical and propositional work. First, it can bring clarity to the actions involved in fieldwork, site analysis and different design stages, mainly by raising awareness of the distinct moments of perception that occur when we read, understand and represent the landscape. When analysing a landscape, a direct immersion becomes fundamental to correctly assess its qualities, and should be followed by an equally important distillation of the studio experience to represent it. However, it is important to note that the two-fold process may not be sufficient to characterize certain landscape architectural activities since a third stage – construction – usually follows the two first moments already described. In this case, the proposed landscape not only fuses times, but also inaugurates its own new conception of time.

This distinction between artistic and landscape architectural methods should not be disregarded, because the landscape holds the potential to significantly change our perception of time; slowing it down or speeding it

up. When we visit a park or a garden, for example, it is usual to lose our track of time. Even when some of these experiences are short-lived or temporary, they can still be powerful and instigate our will to explore and discuss the nature and qualities of our relationships with time. Very often, when we give ourselves some time to be in the park, we discover or experience something new.

Second, this method can also promote a better understanding of the temporal qualities of the landscape's most fundamental materials. These are in constant evolution and require time to forge relationships with one another, and with the context in which they exist. This observation gains meaning when we consider that most of our landscapes are made of living media that evolve over time and have construction and maintenance requirements that vary significantly. The landscape as a fusion of times is not static but dynamic; an ecology of times that depends on every single relationship forged by any two given components.

And finally, the qualitative method may trigger the creation of innovative narratives that support our experience of and in the landscape in different spatial and temporal moments. Our perception of the landscape as a fusion of times, both through a direct immersion in it, or through a mediated experience, may remove us from our familiar notion of the common passage of time. By instigating alternative ways of experiencing and narrating time, landscape architects can promote pioneering approaches and design projects which bring us all closer to our landscapes.

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(ALL IMAGES REPRODUCED WITH PERMISSION)

ART AS ENVIRONMENTAL INQUIRY: COLLABORATIVE AND TECHNOLOGICALLY DRIVEN APPROACHES

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KEYWORDS

Art, Collaboration, Simulation, Subjectivity, Inquiry

ABSTRACT

As forms of critical exploration, art works are often inspired by the rigours and questioning of scientific inquiry, while retaining art's traditional concern for creative freedom. As such, they position creative imagining, intuition, and subjectivity not only as parallel and complementary to scientific objectivity, but arguably essential to the concerns of landscape research. If anything, they are effective at illuminating the complex knot of collaborative and technologically driven approaches. Through laboratory-style and field-based experiments, the work of two art practices, Collins-Goto and London Fieldworks, explore the technological simulation of natural phenomena. Their projects encompass collaboration, testing, and revealing. Using long-term systematic investigation, they illuminate how environmental interpretation is contingent, requiring time and study. In *Eden3*, Collins-Goto worked with scientists, computer programmers and musicians to customise a portable monitoring station *Plein Air* that combined the traditional artist's easel with digital sensors and transmitters. *Eden3* operates as a mobile laboratory that reveals the biogenic interaction of trees within the atmospheric chemistry of cities. While informing their on-going inquiry into empathetic human/nature relationships, the information gained provides a platform by which to engage environmental planners and policy makers in leveraging change in land management and urban development. London Fieldworks have incorporated smart materials, brain imaging software, industrial robotics, and biomonitors in their projects. Early works, such as *Syzgy* (1999), *Polaria* (2002) and *Little Earth* (2005), explored the subjective gap between scientific observation and natural phenomena, using technology to reveal processes of natural and human physiology. More recently, *Outlandia*, an off-grid architectural hut set in a remote forest, utilised satellite broadband technology to produce *Remote Performances* (2014), a work that highlighted local aural and linguistic traditions as forms of environmental knowledge.

INTRODUCTION

While it can be argued that cultural authority currently resides with science and not with contemporary art (Warr 2005), science may be seen to operate in self-imposed limitations, where 'objectivity is a fantasy that our culture has heavily invested in' (Hiller 1996 p210). Many artists are inspired by the rigors and questioning of science, while seeing it as part of their creative freedom to measure using their own scale and methods. This may lead us to consider that while art is not equivalent to science, it can operate as a complementary strand of cultural interest that attends to its own agendas.

Two art practices in the United Kingdom, Collins-Goto and London Fieldworks, offer a basis to explore how art can approach a complex knot of belief, desire, creativity and knowledge. They draw attention to the play, the intuition, whims and idiosyncrasies in knowledge production (Warr 2001), while highlighting that subjectivity shapes science, just as it shapes art (Warr 2005). These practices represent a critical shift in the definition of art; to abandon the fixation on object-centered experience towards experimental approaches that explore the human inter-relationship with nature (Goto Collins & Collins 2012). Four aspects of their practice are potential useful for landscape research: instrumentation, inquiry, integration, and impact.

ART AND INSTRUMENTATION

In this work traditional artist's tools have given way to new modes of technologically driven instrumentation. This is expressed in Collins-Goto project *Eden3*, where a customized portable monitoring station, *Plein Air*, uses the traditional artist's easel as a prop for new tools such as digital sensors and transmitters (Fig 1.). In *Eden3*, Collins-Goto worked with scientists, computer programmers and musicians to develop the mobile laboratory to reveal the biogenic interaction of trees within the atmospheric chemistry of cities.



Fig 1. Collins-Goto Plein Air portable monitoring stations. Source & credits Collins-Goto



Fig 2. Little Earth installation, Wapping Hydraulic Power Station, London. Source & credits London Fieldworks

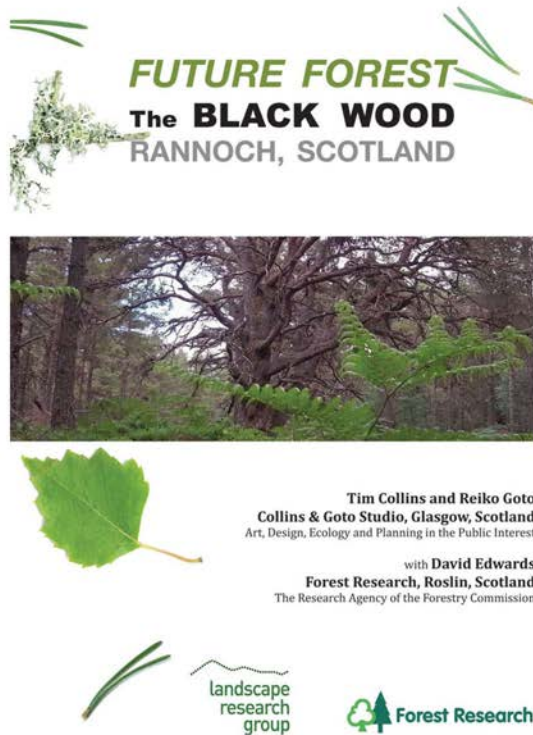


Fig 3. Collins-Goto Future Forest report and mapping. Source & credits Collins-Goto

London Fieldworks incorporate a range of advanced technologies in their projects, including smart materials, brain imaging software, industrial robotics, and bio-monitors. Their project Little Earth (2005) offers a commentary on the historical turning point in science from observation with the naked eye to approaches increasingly dependent on instrumentation and technological simulation (Gilchrist & Joelson 2005). Through the invention of their own instrument, the Little Earth installation (Fig 2.), the artists re-enact the invention of idiosyncratic instrumentation with reference to the work of the early electromagnetic scientists Wilson and Birkeland.

As with landscape research, these artists indicate the need for levels of invention and improvisation, where instrumentation is intertwined with experimentation. They demonstrate that instrumentation and simulation can reduce the vast scale of natural phenomena to a human scale, where it can be seen, played with and manipulated (Gilchrist & Joelson 2005). While Little Earth highlights an increasing distance between the observer and the raw materials or phenomena under examination, Edenz emphasises how technology can intensify our awareness of subtle phenomena, bringing attention to atmospheric conditions on which we are interdependent (Goto Collins & Collins 2012).

ART AND INQUIRY

Through instrumentation artists can be seen to explore traditional subject matter, such as the natural world, with increasing depth and complexity. In doing so, traditional art practices of marking and making give way to technologically driven experiments that aim to reveal the detail, scale or complexity of living systems (Goto Collins & Collins 2012). While this may be seen as a system-based approach with an ecological/material focus, for both practices it forms the basis of-going inquiry into the essence and values that underpin environmental interpretation.

While Collins-Goto work through instrumentation to reveal atmospheric and biomorphic conditions, their practice is framed as an on-going investigation into empathy to draw attention to the ethics and values that shape human relations to nature (Goto Collins & Collins 2012). *Future Forest* (2015) involved a creative inquiry into how ecological and cultural values historically shaped the form and function of the Black Wood of Rannoch in the Scottish Highlands (Fig 3.). By mapping how the forest has evolved as a culturally intrinsic landscape, their aim is to question how its future management demands considerations beyond those solely scientific (Goto Collins, Collins & Edwards 2014).

On-going enquiry by London Fieldworks explores the ways that the data of natural phenomena is made manifest and interpreted in both science and art (Gilchrist & Joelson 2012). In *Syzygy* (1999) they worked with Imperial College and Cranfield University to develop a smart-materials kite sculpture (Fig 4.) to record weather patterns, which were then correlated with brain activity through EEG monitors of invited writers and musicians in the same environment. The work was situated in the remote Sanda Island in Scotland with the results transmitted to a digital sculpture in the ICA gallery in London. *Syzygy* personifies the artists' concerns for making metaphorical linkages between technological and human responses to the environment, seeing their work



Fig 4. *Syzygy* smart material kite and aerial photos on Sanda Island. Source & credits London Fieldworks

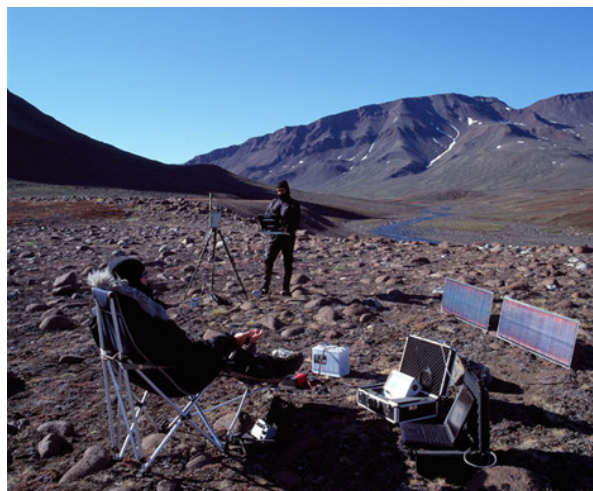


Fig 5. *Polaria* field and gallery images. Source & credits London Fieldworks

as poetic expressions of how art, like science, functions to process and distribute information (Metzger 1969).

ART AND INTEGRATION

Integration refers a particular shift in defining art, where the audience is no longer regarded as spectators but instead selective participants and co-creators, representing the closing of a gap between artists and audience. This shift requires participants to respond both physically, intellectually as well as emotionally, which in turn reflects how environment must not be construed as our material surroundings alone but rather as the socio-physical context which we inhabit and in which we participate (Berleant 2005).

In Eden3 Collins-Goto worked with musicians, philosophers, technologists and scientists, seeing this as a process of shared authorship to monitor and reveal the processes of respiration and photosynthesis in trees. Related to their on-going inquiry into empathy, this collaborative approach provided Collins-Goto with a

basis for addressing ethical ideas. By engaging participants in the process the art work effectively becomes a backdrop to catalyse dialogue. In this way the art work shapes an integrated process, between artist, participants and production, to understanding collaboratively.

London Fieldworks see the notion of ecology as a complex inter-working of social, natural, and technological worlds (Gilchrist & Joelson 2005), using collaborations, especially with scientists, to explore ideas around the authenticity of mediated experience of place. In Polaria (2001) they traveled to Northern Greenland to record intense daylight with a spectroradiometer and physiological responses using a range of biomonitors (Fig 5.). The fieldwork was presented through an interactive daylight chamber that further correlated the bodily responses of participants. By examining the interaction of embodied consciousness with the natural environment, their intention was to demonstrate how our experience of the environment is dependent on our interactions with it.

These works highlight the combination of factors that shape experience, including participants, site and cultural context, allied with the complexity of environmental factors – and call for integrated approaches to environmental interpretation. While Collins-Goto seek an essentially dialogic process to share and co-evolve knowledge, Polaria poetically plays with the gaps between measurement and experience, where both embodiment and instrumentation constrain the way we interact in the world, an approach that can result in the dis-integration and vulnerability of communication and meaning.

ART AND IMPACT

Both practices produce art construed as explorations into human relations through participatory structures. This reflects art critic Grant Kester's idea that as in our experience of natural environments, art can be structured as an aesthetic experience we are

'immersed in' rather than looking 'at' (Kester 2011). These practices also explore how the art work is itself 'immersed' in a cultural context and the need to best position the work for its most effective impact.

Collins-Goto's Future Forest project is based on a collaborative partnership with scientists and conservation and planning groups, believing that their creative inquiry can directly inform the current management of the forest. As such, the project is not only a dialogue about a forest landscape, but with the people who live and work in it (Fig 6.). The artists undertook field explorations, participatory workshops and archival surveys as a comprehensive study to identify a 're-imagined' forest based on alternative approaches to current management. The results of their study were synthesized into a final report in a form of attuned to the conservationists and physical scientists they hope to develop influence.

In a similar context, London Fieldworks have worked with the Nevis Landscape Partnership, a consortium of conservation organizations, to construct Outlandia (Fig 7.), an off-grid field station set in a remote forest in the Highlands of Scotland. As an



Fig 6. Collins-Goto field workshop at the Black Wood of Rannoch. Source & credits Collins-Goto



Fig 7. The Outlandia field station in Glen Nevis. Source & credits London Fieldworks

artist-led project it provides a platform for creativity in the natural environment, while offering a basis for exchange with foresters, ecologists, and planners about the development of the surrounding landscape.

In both projects the artists see themselves as facilitating exchange through creative projects that act as platforms for engagement between differing interests groups. While the impact of these projects is left open-ended and remains to be seen, we can identify what lies beyond the production of an artwork itself, taking a dialogical approach that seeks local and consensual transformation. It could be argued that by appreciating this kind of art practice we become more aware of, and thus more inclined to value, the contingent nature of environmental inquiry and interpretation.

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THE CHANGING ROLE OF DESIGNERS IN ENVIRONMENTAL DESIGN; FROM FACILITATING PARTICIPATION TO EVIDENCE-BASED DESIGN

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KEYWORDS

Design Process, Users, Experience, Evidence-based Research, Design Knowledge

ABSTRACT

In recent decades public participation based design has been embraced by both professionals and laypeople. The design of the everyday landscape seems to be an ideal arena for giving control to people of their own living environment. Since everybody lives in their day to day environment it appears obvious that regular users are more knowledgeable than outsiders. Yet, in the long term, the use of the landscape from a viewpoint of social use as opposed to current individual use are not domains that individual users are able to incorporate. In this paper we want to put forward that a more professional level of input of knowledge, based on experience from realised plans in the form of explicit design knowledge, is a far better choice. It does not mean that input from participation is always of lesser quality but it has its limitations. We start with a short overview of some theoretical viewpoints of participation in the context of planning theory. We take a closer look at different ways of making both user experience and design experience explicit; expert systems, evidence-based research, reflection on own projects, combining practice, teaching and research. We proceed with a short overview of approaches in projects and research where the idea of design knowledge is further elaborated. The conclusions try to convince on the one hand on the basis of arguments for more attention for design of the landscape as public space while on the other hand sketch an outline for a different model of the design process in which design knowledge, design thinking and design research will become an integrated approach that is based on experience made explicit.

1. INTRODUCTION

Since the 70s of the last century, participation in environmental planning and design has grown in importance and appreciation. In this paper we want to outline a different approach to making use of input of users; evidence-based research as a feedback into the design process.

‘Participation’ is a large domain of activities depending on the intensity of participation, the type of input from users and the way this input influences the design process. There are different forms of participation like direct consultation of users, making use of results of interviews and active participation in design, model building.

Moreover participation has the unique feature that it can hardly be criticised; only technical or economical reasons could have influence. Politicians and decision makers have a special appreciation for participation in general because in that case a project has an ‘extra stamp of approval’ that nobody will question. Moreover they never take the wrong decision, so it is also an easy way out.

In this paper we will put forward that explicit knowledge from practical experience by research on evidence is a far more reliable and balanced input into the design process. It is empirically based and is explicit.

The main research question is how the results of analysing user and design experience change the design process and the role of the designer.

2. APPROACHES TO PLANNING AND DESIGN

Participation in planning and design is generally known as ‘participatory planning’ (Motloch, 2001). The theoretical model is giving priority to what users bring in at a certain point in the design process. The opposite is mostly described as ‘master planning’. Without giving a complete overview of master planning and participatory planning, we will briefly analyse the different aspects of the approaches by juxtaposing them to each other.

- Participatory planning is a planning approach that emphasises involving the community in the process of planning. It is also described as part of community development. Note the term 'community'; that is a lot of people. Especially if you take into account that in general elections in democracies, never the whole population takes part. So, who is participating is determining very much the outcome and can even dominate that outcome. Participatory methods can only be used in cases where the users are known. The participatory approach focuses entirely on the end result and on the short term. It is a linear approach that is based on one goal; implementing what those participating want. In all cases where specific groups have clearly defined issues, participation can work effectively as an 'alarm' that something is proposed that not all people will agree with. Friedmann (1982) links knowledge to action in planning. 'Action theory' refers to a planning theory in which public participation in whatever form, is the key issue (Brydon-Miller et al., 2003).

- Master planning first of all refers to a comprehensive viewpoint for the long term and is mostly done by professionals. It focuses on the end result in the long run. It comprises also design and reflection on the possible outcomes through design thinking.

(Figure 1) Diagrammatic overview of participatory and master planning juxtaposed;

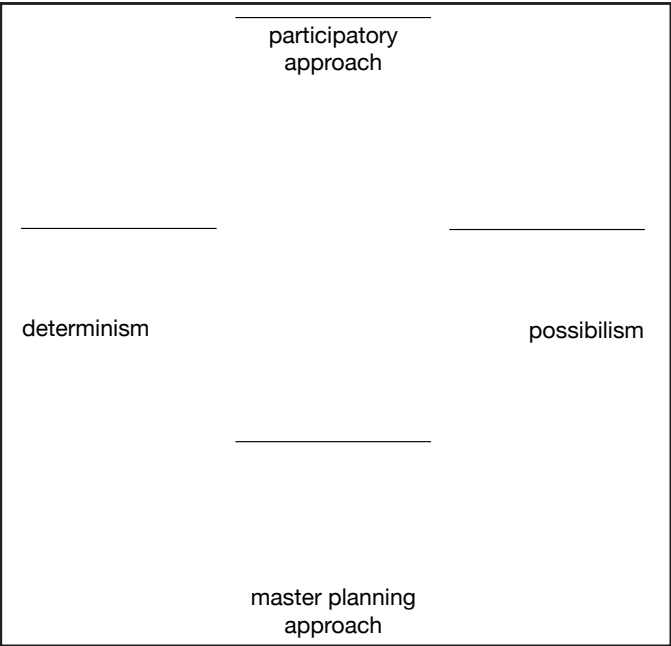
Often the participatory approach is described as bottom-up and master planning as top-down based on a centralised decision making and power centre. Both are a bit too extreme. Bottom-up planning rarely involves all or the majority of potential users while top-down is not completely loose from what plays in the community involved. Both terms are a bit away from reality.

- Determinism, also known as climatic determinism or geographical determinism, is the view that the physical environment, rather than social conditions, determines culture and social behaviour. Those who share this view say that humans are largely defined by stimulus-response (environment -> behaviour) and cannot deviate. Even though determinism in geography seems to be something of the past, it still holds ground.

- Possibilism is considered as the opposite and developed after determinism. Its main viewpoint is that even though the environment sets certain constraints or limitations, culture is determined by man's actions. Both concepts originate from geography (Claval, 1976). In design disciplines both play a role although it seems that design is definitely on the side of possibilism. Both viewpoints play an important role in all design but are mostly implicit. Designers in general have a strong preference for physical determinism although it is not always clear at first sight. The foundation of an Environment-Behaviour (E-B) approach to design is the idea that there is a mutual relationship between environment and behaviour that can inform the design process.

(Figure 2) Diagrammatic overview of determinism vs. possibilism;

In the context of participatory approaches there is another issue that plays a role in the theoretical domain; the issue of determinism vs. possibilism.



(Figure 3)

Planning and design approaches and theoretical aspects of the relation between user and the physical environment

3. DIFFERENT TYPES OF EXPERIENCE IN DESIGN; IN SEARCH OF EXPLICIT DESIGN KNOWLEDGE

Design knowledge comprises both user and design experience. We first make a distinction between the two types.

3.1 WAYS OF MAKING USER EXPERIENCE EXPLICIT; E.G. E-B RESEARCH

Apart from participation, there are also other ways of getting to know user experiences and user needs; that is by research what is referred to as Environment-Behaviour (E-B) studies.

E-B studies explore environments in relation to specific use and users and are empirically based. The research comprises both designed and non-designed environments but it is crucial for all design disciplines. E-B studies do have strong historical and cultural aspects. E-B studies started as empirical work that was primarily focussed on relations between social behaviour and the physical environment (Moore, 1979). The presupposition of these type of studies is based on the conviction that the physical environment has a direct influence on human behaviour. This physical determinism which is based on a one-way causal relation has later on been reworked and refined. After this early work, the distinction between the physical environment and the environment perceived as 'mental construct' gained importance. In contemporary research the cognitive component is added which means that perception as an interactive process is also influenced by a cultural component that filters the perception of the physical and environment as mental construct (Hsia, 1988).

Zeisel (2006) gives in the second part of his book an extensive overview of research methods for different types of E-B research, from observation studies to standardised questionnaires and searching in archives.

There are two organisations actively engaged with E-B research; EDRA and IAPS. The Environmental Design

and Research Association (EDRA) is US-based and was initiated by the Design Methods Group (DMG) after 1968. EDRA organises conferences every two years since 1969, mostly in the US. The International Association People-Environment Studies (IAPS) is the European counterpart of Environmental Design and Research Association (EDRA) and holds conferences every two years. Proceedings of the conferences from both organisations are a vast and rich source of information for designers.

3.2 DESIGN EXPERIENCE FROM DESIGNERS AND PLANS; E.G. PRECEDENT ANALYSIS

Design knowledge is partly in the heads of designers as personal design experience but for the largest part implicit in realised projects. The personal design experience of designers is, what we call, a form of tacit knowledge. We will give some examples of making design knowledge explicit and making use of that knowledge in the design process, in a diagrammatic overview.

The two types of explicit experience could give design a more empirical basis and could in theoretical sense contribute to an explicit design knowledge and design process.

Evidence-based design can also be seen as a different approach to integrate the user in the design process. For landscape architecture this can be useful in cases where the users are still unknown, as for instance was the case in the design of the landscape plans for the new polders in Holland, or where the size of the plan area is too large like in regional plans.

4. EVIDENCE IN RESEARCH AND DESIGN

4.1 What is evidence?

The Oxford Dictionary describes 'evidence' as:

the available body of facts or information indicating whether a belief or proposition is true or valid.

Tufte (2006) in his study on 'Beautiful evidence' states that evidence

involves multiple forms of discourse, but that the essentials are universal. That is: to appraise quality, relevance and integrity.

Evidence is not only used in design. In science, evidence is expressed in a theory, that can be transformed into an algorithm for the given reduced reality. This model and/or algorithm forms the basis for prediction.

Evidence and evidence based research refers to the product, the realised plan. It is used to relate a design goal (like sustainability, health, comfort) to existing archetypes where indeed these goals are matched. Those archetypes are more than examples, since they represent a similar design problem, only the location and time context are different.

4.2 Some examples of evidence-based studies in the context of landscape architecture

We have chosen a limited number of examples that are related and show a growing degree of complexity and comprehensiveness. It is represented in a diagrammatic overview to facilitate comparison and the line of thought.

4.3 Evidence-based-design (EBD)

An evidence-based design process is intended to connect knowledge to intervention.

Coming back to the four juxtaposed approaches from the beginning – participatory vs. master planning and determinism vs. possibilism – we could conclude that evidence-based research could link

the four approaches with an empirical foundation. In such a way it is a first step towards EBD.

EBD searches for relations between design goals and functioning and use of the plan after realisation. These design goals are based on predefined norms, standards like energy use, health, water conservation. There are also design goals that cannot be quantified like comfort, sustainability, and which are far more difficult to clarify the evidence.

Evidence-based design is the process of basing decisions about plans on credible research to achieve the best possible outcomes. It focusses on the first part of the design process; the translation of the program into a first outline of relations and forms based on the future use. The main point here is functionality; does it work like the users wanted it and does it work in the given context of time and space? Evidence is referring to realised projects, that can show how certain goals in a given situation have been achieved by application of specific design means. In design disciplines the use of evidence is based on factors that determine the design means in realised plans; from noise reduction to a more comprehensive goal like health (Ward Thompson et al., 2010). The results of research on evidence are site and time-specific so in contemporary practice only the principles can be applied not the historic form or pattern.

Evidence is also important in cases where plans have a long range explicit goal like the statement that the plan contributes to 'sustainability' for instance. If the plan is related to plans that have already been acknowledged by empirical research that have proven to work in that respect, such goals or statements can be much more convincing.

Also for the more universal requirements of projects in landscape architecture, research on evidence in realised plans on micro-climate and

comfort, drainage and usability could improve the quality of plans to a great extend.

As an important issue for research on evidence for the future we consider research on comfort, health and well-being as crucial and more important than the current focus only on sustainability because it comprises also human use and well-being. Frumkin (2003) postulates the idea to search for 'good places' based on evidence. He mentions four aspects of the built environment, at different spatial scales, as offering promising opportunities for empirical research on public health; nature contact, building design, public spaces, urban form. As such he proposes to 'widen' the concept of 'sense of place' by including results of this research on comfort, well-being and health.

4.4 The changing role of the designer; research as integral part of the design process

We are now gradually moving towards knowledge – based design where the results of research on evidence, the analysis of realised projects (precedent analysis) are becoming increasingly important.

Post – Occupancy Evaluation (POE) is more and more replacing the direct user – interaction meetings that were based on private opinions and interests of users, all based on short term views. This explicit design knowledge gives a much better overview of the accumulated knowledge of how design means have led to a certain use and performance and also enables to introduce the long term view, so characteristic of all landscape architectural interventions. In general it introduces explicit design knowledge that underpins the design process and can give evidential proof of at least a part of the use and performance to be expected. It also gives designers much more space and time to innovate, to develop new concepts. Still user input can be useful but on specific times during the design process and for specific subjects.

It means that the role of the designer will change towards more research and integrate the results of research into the design process through feedback.

Sometimes it is suggested as if evidence-based design pushes away the key role of creativity and intuition in the design process. In our view it is the other way round; by making use of the results of the research on evidence, designers get more time and space to pay attention to the design task proper of integrating, transcending this knowledge into a plan.

5. CONCLUSIONS AND DISCUSSION

- Participatory methods and professionalism

It is important to distinguish between the results of research on user experience from user participation. Research on user experience produces generic explicit design knowledge that adds to the quality of design disciplines at large and makes them more professional. In the long run it will have also more impact because of its cumulative effect. User participation can be useful in some cases and can add specific information for that design project especially when it is locally defined and in the short run.

- The demand for evidence

Design needs to be informed by evidence to improve the effectiveness of interventions and to convince users and decision makers. Evidence-based research and design could vastly strengthen the empirical basis of design. Research on evidence can lead to new declarative knowledge. Nowadays' goals for the discipline at large like energy transition, water conservation and management, comfort and health are perfectly fit for evidence-based research.

- The design process needs to focus on public space. Individual users bring in their private interest. In most

3.1

Making user experience explicit

Hsia (1988) distinguishes three types of E-B research that focus on making user experience explicit.

- Program definition

Defining and analysing a program is typical for the start of the design process. It is partly determining the result of it and forms the foundation for a good design process. E-B research can help in formulating a program and as such could contribute substantially to an improvement of the process of planning and design

- Design guidelines

The relation with design extends to design methods how to implement results of E-B studies in the design process. 'Design guidelines' as developed by Clare Cooper (Cooper-Marcus & Francis, 1990) are a typical result of E-B studies that are translated into a checklist or design principles to be applied in future design projects.

- Post-Occupancy Evaluation (POE) Zimring & Reizenstein (1980) give an overview of Post-Occupancy Evaluation. In the course of time several specific E-B methods for research have emerged and been developed like for instance Post-Occupancy Evaluation (POE). POE's can be for specific use/users like certain age groups but can also be done for sites for specific use like children's playgrounds, health care environments.

3.2

Making design experience explicit

- Precedent analysis

Precedent analysis is a way of making design knowledge explicit (Toorn & Guney, 2011). It is based on an analytical framework that enables to compare different projects on their design approach, design principles and materialisation. Goal of a precedent analysis is the search for explicit design knowledge by learning from earlier experiences. Eventually it will lead to generic and explicit design knowledge, which forms a basis for both practice and theory (Donadieu et al., 2012). Precedent analysis is also used in other disciplines like law, medical sciences, business administration.

- Documenting personal experience

Another way of making (personal) design experience explicit is the writing down of projects and experience by designers themselves and reflect upon what has been done. A remarkable example is the publication of a series of three books by Jellicoe (1993; 1995; 1996) which he wrote at the end of his career as a landscape architect. It comprises the whole scope of his work; practice, research, teaching and study tours. Even though the experience is strictly a personal view, it has great value since there is ample reflection and looking back. Not every designer is capable of such a daunting task of writing down and reflecting, especially to do it in a way that it is also interesting for other people. Sometimes also others document the work of a designer and the approaches, viewpoints and methods being used. The work of Peter Latz — a German landscape architect, practitioner and educator — has been very well documented and analysed by Weilacher (2008). Especially the relation between Latz as a practitioner and how he applied his insights from practice in teaching, is very interesting not only for students but also for colleagues.

• Hoogstad (1980) — a Dutch architect — gave a particular example of making use of evidence in his design approach. Before making a plan for the Weena (a large avenue) in Rotterdam, he went to Paris to analyse, measure, study boulevards in Paris. This knowledge was immediately applied in his plan for the Weena. This is not uncommon among designers but in the case of Hoogstad, he published his approach in an article and made it explicit (Hoogstad, 1980).

• The title 'All designers use evidence' (Nauta et al., 2009) is probably a somewhat optimistic interpretation of current practice. The study refers exclusively to the planning and design of medical facilities. In the US the use of research on evidence is more common in practice of design of medical facilities; evidence-based design (EBD) is well known in the medical world (Sackett & Rosenberg, 1995; Sailer et al., 2007).

• Davis et al. (1987) study how 'knowledge-based systems' can be used in environmental planning. They refer to quantified and explicit information and data that can be used in planning. Even though they don't use the term 'evidence' the concept of evidence could fit well into their approach.

• Friedman (2003) views the evolution of design from (...) craft to a form of technical and social science (...). This necessarily implies the need of knowledge and insight on how to accomplish certain goals. Research on evidence could be one way to gain knowledge and insight in the design process.

(Figure 5) A diagrammatic overview of some examples of designers making use of evidence, of different 'knowledge-based systems' and of the historical development of design knowledge.

cases these interests result in controversial demands depending on certain groups. The role of the designer is to secure a framework of public space that can afford different types of uses but in most cases not all users can be satisfied. Planning and design is a professional activity that can contribute to long term effects, to the relation between public and private while taking into account of the different groups of users.

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(Figure 4) Two different types of experience in design; user experience and design experience

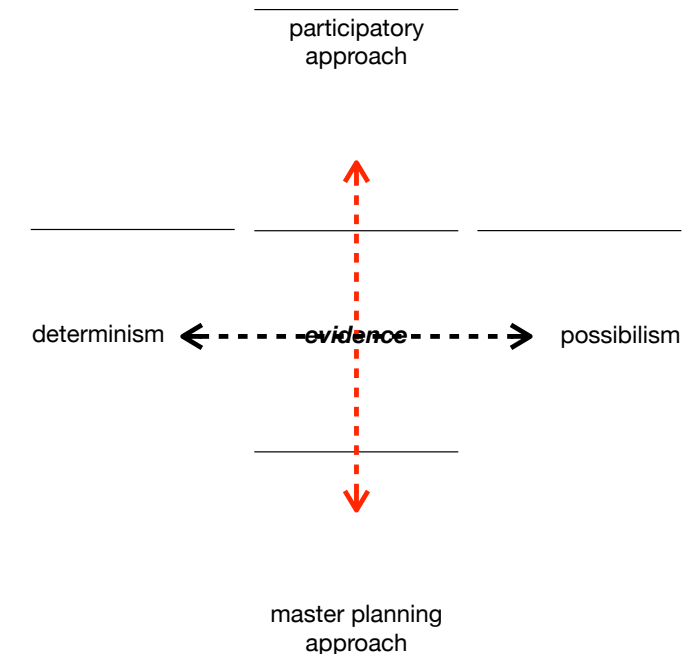
• Lynch (1974; 1981) pays a lot of attention to the concept of 'comfort'. Comfort is related to climate, noise, exposition to the sun, access and covers a lot of aspects that play a role in the design of environments. The entire concept of comfort but also the separate aspects could be very interesting for research in realised plans on evidence. Results of these type of studies could greatly enhance the quality of design in the urban landscape.

Lynch (1974) uses the term 'evidence' frequently but points out that evidence in the daily environment and in realised plans mostly refers to a complex of different causes. Direct cause-effect issues are rare; it means that in case of not functioning there are in most cases multiple causes. Sometimes the mismatch between goal and functioning can be quite clear however not the cause(s).

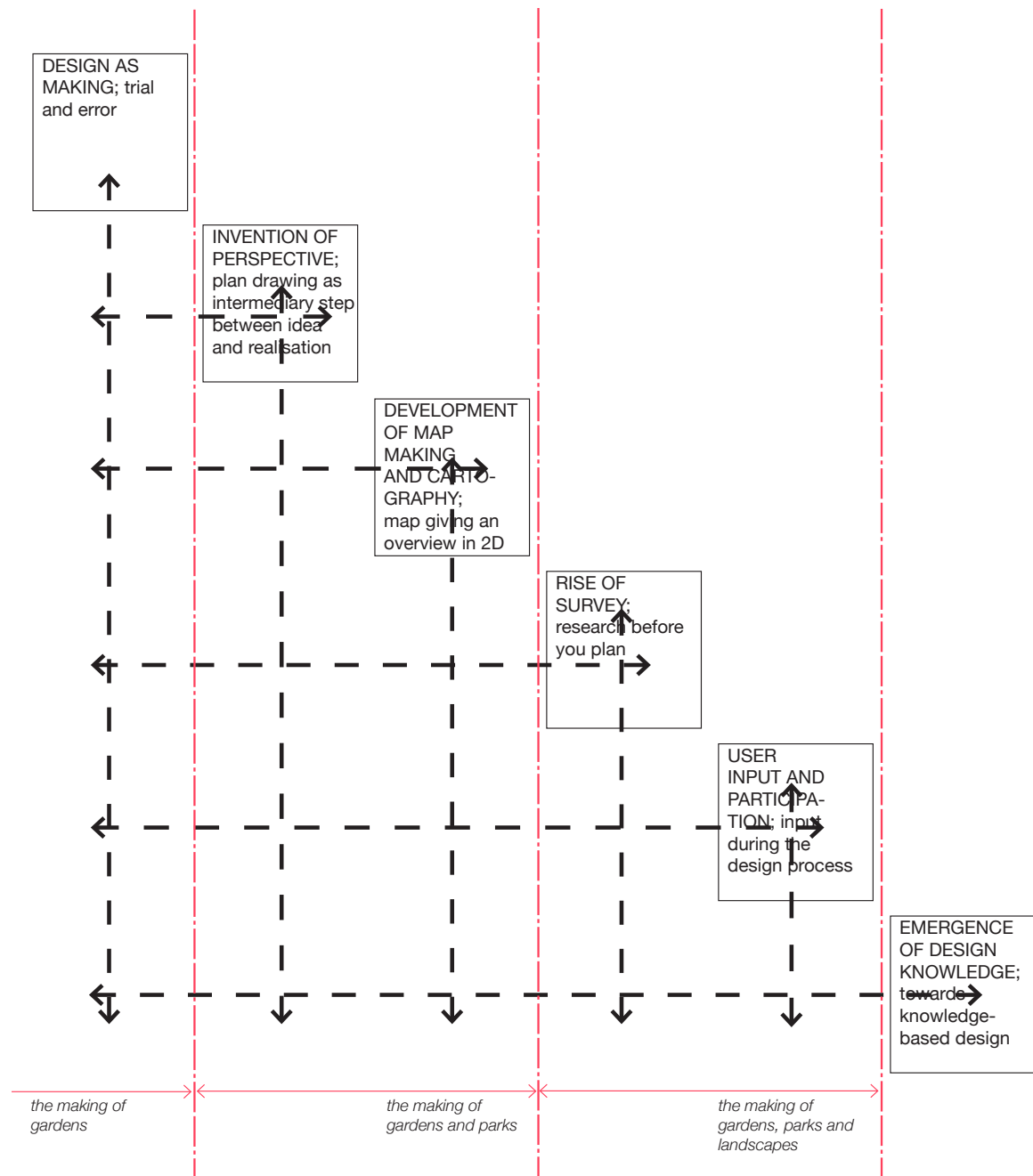
• The studies of Olgyay (1969) are still classic on the study of how to make use of climatic factors in building and regional design. He develops six design principles that play a role in what he calls 'bioclimatic design': site selection, sol-air orientation, solar control, environment and building forms, wind effects and air flow patterns, thermal effects of materials. These principles are based on empirical research on climatic factors and regional design. So, Olgyay does not only take into account the aspect of comfort but integrates climatic factors in a general design approach. Knowles (1974) did interesting research on the relation between energy and (architectural) form. He made study of the architecture of the Pueblos in the southwest of the US where he found a relation between energy conservation and diversity on the regional scale. The result forms a basis for a contemporary design approach based on evidence-based knowledge. He searched for a design approach based on evidence-based knowledge which goes beyond visual criteria, fashion and individual preferences. Such an approach can lead to regional diversity and identity in a contemporary context and as such a fundamental approach for landscape architecture.

• Lenzhölder (2010) did for her PhD research a study of thermal comfort in three Dutch urban squares. Here the study of the relation between physical conditions, climate, use and experience of the urban squares formed the basis for a series of guidelines for designers. Note the explicit distinction she makes between 'use' and 'experience'. To make this distinction a series of interviews were made in which people described their experiences of the square. The guidelines could be used in an approach which she called 'research by design' for the problem of the micro-climatic conditions of future urban squares. Micro-climate is a vast domain to be explored for urban landscape architecture. In almost all design projects, comfort does play a role albeit in different ways and under different conditions. Lenzhölder's (2010) research resulted in a similar approach; an important methodological step for the design process by integrating evidence on micro climate and comfort.

• Ward Thompson et al. (2010) take comfort one step further by introducing the concept of health as a universal design goal in landscape architecture. It is one of the few studies that introduces health as a comprehensive design goal. Health goes further than sustainability since it includes also people. Moreover it comprises also the quantitative and qualitative aspects to be taken into account in any project. Finally it covers a domain that is a primary design goal for the discipline at large.



(Figure 7) Evidence linking different planning approaches and theoretical backgrounds



(Figure 8) Overview of the emergence of knowledge-based design in historic perspective;

The role of designers has changed over time. In the beginning there was only the making. Then came the invention of perspective which enabled reflection before realisation; as an intermediary step before realisation; the plan drawing. For landscape architecture the development of mapping and cartography has opened additional new influxes for design and the design process. Turner (2011) remarks that in England around the beginning of the 18th century, there were different ways of describing what a landscape designer did in those days. He cites Addison who was the first to speak of 'making a landscape'. Lancelot Brown (1716-1783) called himself a 'place-maker' while Repton (1752-1818) called himself sometimes an 'improver'. In contemporary time the role of designers has broadened. With the growth of design experience gradually the idea of design knowledge emerges thus including research in different forms in the design process at large.

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EXPLORING NEIGHBOURHOOD PREFERENCES USING CONJOINT ANALYSIS

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ABSTRACT

This study aims to better understand the impact of urban depopulation on residents' preferences with regard to different attributes of their dwelling environments, such as, urban typology, population density, green space typology, green space quality, community and security. Conjoint analysis is a methodology developed to compare relevant characteristics (attributes) of products/services/objects for their overall preferences. In this research, the objective is to compare different dwelling contexts, namely, the different preferences of residents of depopulating vs. growing neighbourhoods when asked to imagine their ideal neighbourhood. The conjoint analysis tool used in this research – adaptive conjoint analysis (ACBC) – combines the advantages of self-explicated methods (decompositional), with presentation of hypothetical scenarios (compositional). A total of 130 participants took part in this study, all residents in the city of Lisbon, Portugal. The results show that there is a significant difference ($p=0.000$) between residents of depopulating and growing neighbourhoods with regard to the importance of the attributes 'community' and 'population density'. People living in depopulating environments place a higher value on having a strong community and a lower value on having an acceptable level of population density, compared with respondents who do not live in such environments. Age, level of education and presence of children in the household, influence results and show significant differences between depopulated and growing neighbourhoods. These differences show how the provision of social support in depopulating urban environments in Lisbon seems to be an important factor in relation to people's preferences when asked to consider hypothetical dwelling environments. This corroborates the social capital theory that views social networks as being a key factor for people's wellbeing, health, and longevity. Social support, therefore, should be given serious consideration in any political/social/architectural intervention within these depopulating contexts.

INTRODUCTION AND METHODOLOGY

Each participant was provided with three written descriptions of these hypothetical neighbourhoods at the same time and asked to choose one. Each respondent completed, on average, six of these choice tasks.

Depopulation is a phenomenon somehow neglected in planning and architectural research forums, however, many cities worldwide are going through population declines, especially in the northern hemisphere (Oswalt, 2008). It is important, therefore, to understand how these urban environments might evolve. Since cities are profoundly transformed by individual citizens' choices, it is necessary to better understand how people's preferences regarding urban dwelling environments change within a depopulating context. Then it should be possible to, create urban contexts that would suit its residents better, and be better informed about features that potential new dwellers would find more attractive.

The study examined three core neighbourhoods in the city of Lisbon (Portugal), two of them have undergone population losses of about 40% in the last three decades, and one neighbourhood has gained 20% more residents between 2001 and 2011.

To explore these differences in preferences, this study applied adaptive conjoint analysis (ACBC). Conjoint analysis is a mathematical methodology developed to compare "arbitrary combinations of 'quantities' of a single specified kind" (Luce, Tukey, 1964, p.1), i.e., it is a tool designed to calculate and quantify the relevance of different qualities, or attributes, of services, objects, products, etc, when within a combined agglomeration, as it is presented in real life. Luce, a psychologist, and Tukey, a statistician, first developed conjoint analysis in 1964. Initially, it was used as a marketing research technique in the early 1970s by Green&Rao (1971) and Johnson (1974), becoming extremely popular, particularly in the 1980s and 90s. Nevertheless, conjoint analysis has also been used by several other

disciplines ranging from health, education, to planning. Another advantage of conjoint analysis is that it has incorporated some of the principles of heuristics, namely, the preference reversal effect. This effect, studied by Daniel Kahneman (2011) and Amos Tversky, states that participants are not always consistent in their choices. Some questions, therefore, were repeated in order to unveil people's stronger preference patterns.

Despite conjoint analysis' popularity, some studies postulate that when the object/product/service being analysed is too complex, i.e., when there is the need to test a large number of different attributes, there is no advantage in using conjoint analysis, when compared to self-explicated methods (SEMs). The SEMs are compositional approaches, meaning that the data to test the importance of an attribute/quality is gathered by questioning respondents directly about the relevance of different attributes in interviews or questionnaires, normally through ranking or rating questions. The product development is only achieved after data collection. However, for many researchers, SEMs are not only an artificial way to present the different attributes to respondents, since it is quite different from real life, and also, it is usually considered difficult for respondents to use rating scales (Scholz, et al., 2010). Conjoint analysis is inversely structured, i.e., the relevant attributes are artificially combined to form a set of potential products (scenarios/concepts) and these are presented to the respondents in sets of two, three or four concepts. From those, the participant is only allowed to choose one. From that information, it is possible to calculate the relative importance of each attribute describing the studied object/product/service (Sambandam, n.d.), the utility of each level of attribute and the share of preferences for each level of attribute. Conjoint analysis, therefore, is considered a decompositional approach.

Across the years, different sub/methodologies within conjoint have been developed. Firstly, adaptive conjoint (ACB), which is based on the rankings and ratings of the

different attributes; then, choice based conjoint (CBC), still the most popular version of conjoint analysis; and finally, adaptive choice based conjoint – ACBC – which combines the strengths of the two previous methods. Although CBC remains the most used method, ACBC has numerous advantages, namely: (1) combining the strengths of SEMs and choice-based; (2) permitting the use of more than five attributes; (3) identifying the non-compensatory attributes of an object/service/space, i.e., the attributes that a respondent is not willing to trade off by any other; (4) reaching significant results with small samples, which is particularly advantageous where there are limitations of time and resources; (5) appearing to be more realistic and more engaging to participants; and (6) by providing more accurate predictions than CBC, since ACBC has two additional sections targeted at the 'non compensatory' attributes, permitting a deeper analysis of the remaining attributes (see point 10.5.3) (Curry, 1996; Johnson & Orme, 2007; Orme & Johnson, 2008).

One of the sections that is present in ACBC, and not in CBC, and that allows questionnaires to be tailored better to each respondent, is the 'build your own section' (BYO). In the BYO in this research, respondents were asked to choose one level per attribute and in this way, 'build' their perfect hypothetical neighbourhood. The question was: *"Imagine now that it would be possible to build an ideal neighbourhood to live in. What would that neighbourhood be like? Please choose one of the levels of the attributes presented and build the neighbourhood of your dreams."* The section consisted of only four of the six attributes. The two excluded attributes, 'open and green space quality' and 'security', have a ranked nature, meaning that the answers to those questions would be known *a priori*.

Based on these advantages, ACBC was chosen as the most appropriate conjoint analysis sub-methodology for this research project. Its weak point, acknowledged since the beginning of this study, is the fact that ACBC

is a computer-based questionnaire, since it adapts the questions while the participant is undertaking it, and the target population for this study is, generically, of a low educational background and generally, not skilled in undertaking this type of exercise. This meant there have been some challenges, namely, that most questionnaires had to be completed with assistance.

The attributes and levels were chosen after taking into consideration the results of the exploratory qualitative research undertaken previously, i.e., a series of focus groups/discussions gathered together several residents of depopulating neighbourhoods and their 'likes and dislikes' were discussed and noted by the researcher(s). Moreover, some of the attributes were added after taking into consideration the particular interest of this research, namely, how does depopulation influence the fundamental characteristics of a given neighbourhood? The image, below, shows the different attributes, and their levels, that were considered in this study, and that composed the scenarios presented to participants.

Sawtooth Software, the leading conjoint software company, provided a grant for this research, giving access to ACBC software.

RESULTS

The results show that 'community' is the most important attribute, followed by 'urban typology'. The attributes 'population density', 'open and green spaces quality', and 'open and green spaces typology' are ranked as having much the same importance, relatively, while 'security' was ranked as the least important attribute. This is probably because only two levels, where neither was objectively negative, described the attribute 'security'.

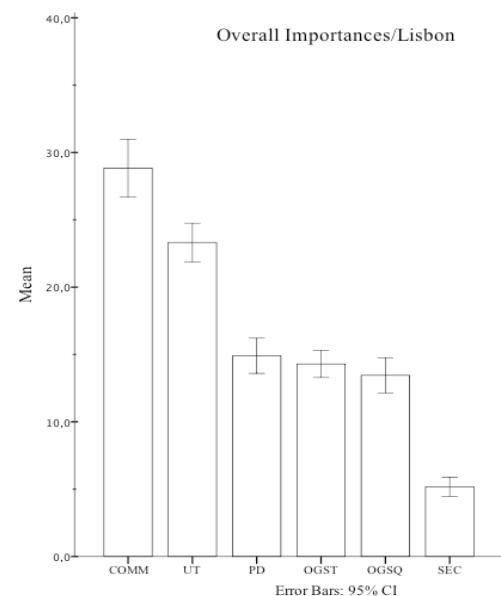


Fig. 2. Relative importances of the six different tested attributes.

When the same data was analysed by dwelling groups, the importance of the attribute ‘community’ is quite diverse across the groups, with residents of depopulating neighbourhoods the group which gave ‘community’ a higher relative importance. The attribute ‘population density’ seems to be less important for residents of depopulating neighbourhoods, whereas typologies of open and green spaces are of greater importance to the house searcher group.

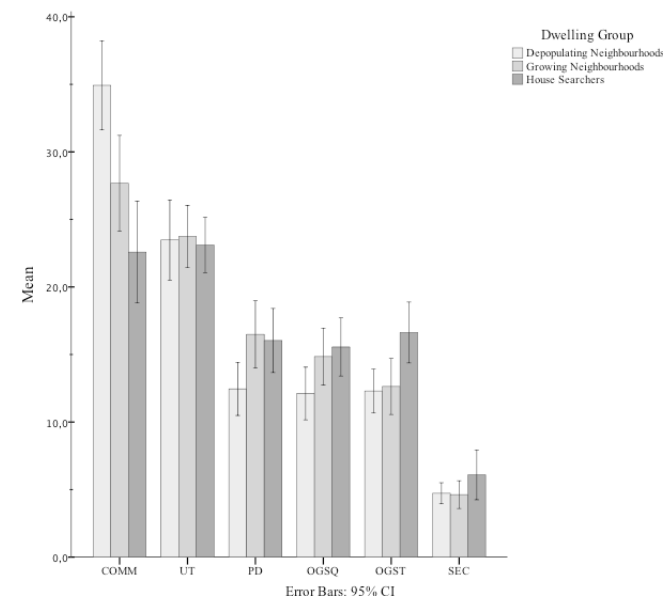


Fig. 3. The relative importance of the six different tested attributes, by dwelling groups.

This graphical overview was followed by a series of non-parametric tests comparing the importance of different attributes across different socio-economic, and dwelling groups. The results show that the attributes ‘urban typology’ and ‘security’ do not vary significantly between different socio-economic groups, namely, between the three sub-samples of the various ‘dwelling groups’. The attributes ‘open and green space quality’ and ‘community’ are more highly sensitive to socio-economic differences, with older and less educated participants valuing the attribute ‘community’ significantly more, and the attribute ‘open/green space quality’ significantly less. The attribute ‘population density’ also presents differences across the various socio-economic groups; younger and more educated

participants value ‘population density’ more⁶. Residents of depopulating neighbourhoods consider the attribute ‘population density’ is of lower importance to them, on average, but place a higher average importance on the attribute ‘community’. These results support the idea that population shrinkage might be linked with the view that a supportive community then becomes a much more strongly attractive attribute.

With regard to the research’s main focus, there is a significant difference between participants living in depopulating urban environments and growing urban environments, in terms of the average importance given to the attribute ‘community’, where residents of depopulating environments valued it significantly more. This result was further confirmed by a multiple regression, where the difference between the two sub-samples was still significant after controlling for factors such as age, education and the presence of children in the household.

Step2	B	SE	β
Constant	40,56	6,55	
Age Group	3,12	1,61	0,22*
Education	-2,43	1,56	-0,17
Children	-0,85	3,10	0,03
Depopulation	-7,52	2,30	-0,32**

Note: R2 = 0,11 for step 1, ΔR2= 0,10 for step 2, (ps < 0.05).
* p< 0.05, **p< 0.01, ***p< 0.001

Table. 1. Multiple regression testing the variable ‘community’ between depopulating and growing urban environments in Lisbon, controlling for age, education and the presence of children in the household.

Regarding the relationships between the different attributes, the attribute ‘community’ presents negative correlations with the other five attributes, with the more expressive correlation being between the attributes ‘community’ vs. ‘urban typology’, and, ‘community’ vs. ‘open and green spaces quality’. This indicates that

6 Interestingly, the attributes OGSQ, OGST and COMM are part of the same component in the factorial analysis.

the higher importance given to the attribute 'community' is correlated with the lower importance of the attributes 'urban typology' and 'open and green spaces' quality'. The relation between 'community' and 'open and green spaces' quality' is stronger in a depopulating neighbourhood when compared with a growing one. For the first group, 24% of the variability of 'open/green spaces' quality' is due to the variability of 'community', whereas for the second group – living in growing neighbourhoods – this percentage halves to 11%.

This indicates that residents of depopulating neighbourhoods are less willing to trade-off community for a more open/green space of higher quality.

Analysis of the 'shares of preference' – one of conjoint analysis' outputs – showed it was possible to better understand which levels were more or less preferred. These outputs are drawn from a comparison of the percentage of preferences between a number of different scenarios, or products, in Sawtooth's language, computed by Sawtooth Market Tool or SMRT software. In this research, four branches of variation were tested: 'urban typology' (UT), 'population density' (PD), 'open and green spaces typologies' (OGST) and 'community' (COMM)⁷. For example, in the branch concerned with 'urban typology', four scenarios were tested, one scenario per level of attribute, and all other attributes remained constant. The constant levels of the attributes that were not tested were chosen after giving consideration to the levels that were generally preferred more in each attribute (these can be detected through the levels of utilities). So, in fact, each scenario is close to a general ideal scenario, except for the varying attribute. The graphic below shows the shares of preference for the levels that were studied. For the attribute 'urban typology', the level that is more preferred is 'medium size buildings and wide streets', with the third and fourth levels presenting close shares of preference, and the level 'tall buildings in narrow streets' the lowest of all shares of preference.

7 SEC and OGSQ were excluded due to their qualitative nature and gradation.

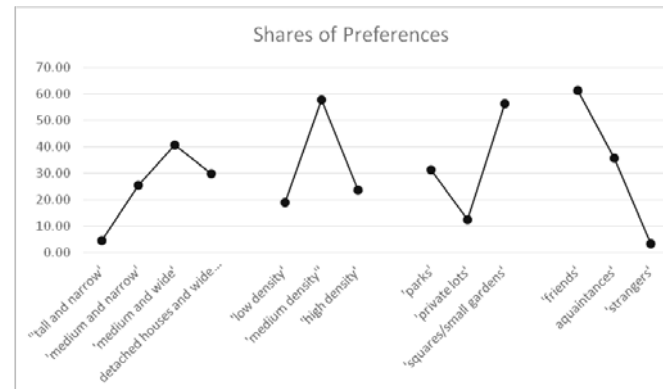


Fig. 4. Shares of preference across all levels of the attributes UT, PD, OGST, and COMM.

In the second branch of comparative scenarios, the variation was concentrated on the levels for the attribute 'population density'. As the results in the graph above, show, 'medium density' is the level that is preferred the most within the three levels presented (low, medium, high). The third branch of variation compared the three levels of the attribute 'open and green space typology'. The results show that, surprisingly, the level referring to 'private lots' is the least preferred of the three options. 'Public parks' and 'squares and small gardens' show close average shares of preference, and the level preferred most is 'squares and small gardens'.

DISCUSSION AND CONCLUSION

The aim of this conjoint study is to better understand how depopulation affects residents' general preferences regarding particular attributes of dwelling contexts. The results indicate that the greatest difference between residents of depopulating neighbourhoods and growing neighbourhoods concerns the attributes 'community' and 'population density', with depopulation linked significantly to the higher importance given to the existence of closer and more supportive communities, and lower importance to variations on 'population density'.

This finding is consistent with several studies examining the role of inter-supportiveness in communities. For example, the presence of high levels of "interpersonal trust and norms of reciprocity and mutual aid" (Kawachi, 1999, p.121), seem to be linked with healthier citizens, both physically and psychologically (Kawachi, Takao, & Subramanian, 2013; Kawachi, 1999). This is known as the 'social capital' of a community. A community with high levels of social capital seems more effective in, and after, a disaster recovering process, in preventing crime and delinquency (Kawachi et al., 2013), in its contribution to youth development, in supporting job finding (Lin, 2008), or in the advancement of economic development (Fukuyama, 1995). Moreover, homogeneous communities/neighbourhoods within unequal societies are more affected by the lack of social capital, i.e., in neighbourhoods mainly composed by people with the same social-economic and racial background, in societies with high economic inequalities, the lack of appropriate social ties have stronger impacts on citizens' health and wellbeing. The endowment of resources to members of a community is certainly disrupted by sharp population shrinkage, and therefore, it is understandable that, under these circumstances, people feel much more attracted to a strong and friendly neighbourhood community. Moreover, depopulation is a phenomenon typically associated with social segregation and high unemployment rates, meaning, there is less proximity to crucial resources such as jobs. In the particular neighbourhoods studied, older and less educated people dominate the population. This fact corroborates that depopulating neighbourhoods are, potentially, at greater risk of losing the social capital levels necessary to support a healthier and more diverse community, where people from different backgrounds share the same spaces and therefore enrich the social network.

It is particularly interesting, then, to understand what is more important to the group of house buyers and potential newcomers, since they represent the group of potential new residents. The data shows

that for younger and more educated participants, especially those in search of a new house, 'open and green spaces' quality' is more important than for other socio-economic groups. These results support the literature showing a relational effect between the presence of green spaces in a neighbourhood and the average price of housing (Altunkasa & Uslu, 2004).

To create greater stability and enhance depopulating urban contexts with a more diverse community, it is important not to neglect the balance of the existing community, i.e., the current social bonds, and at the same time, to be aware that green spaces of good quality are important assets for increasing the attractiveness of neighbourhoods, especially for younger and more educated individuals, a crucial population segment that can further enrich these neighbourhoods.

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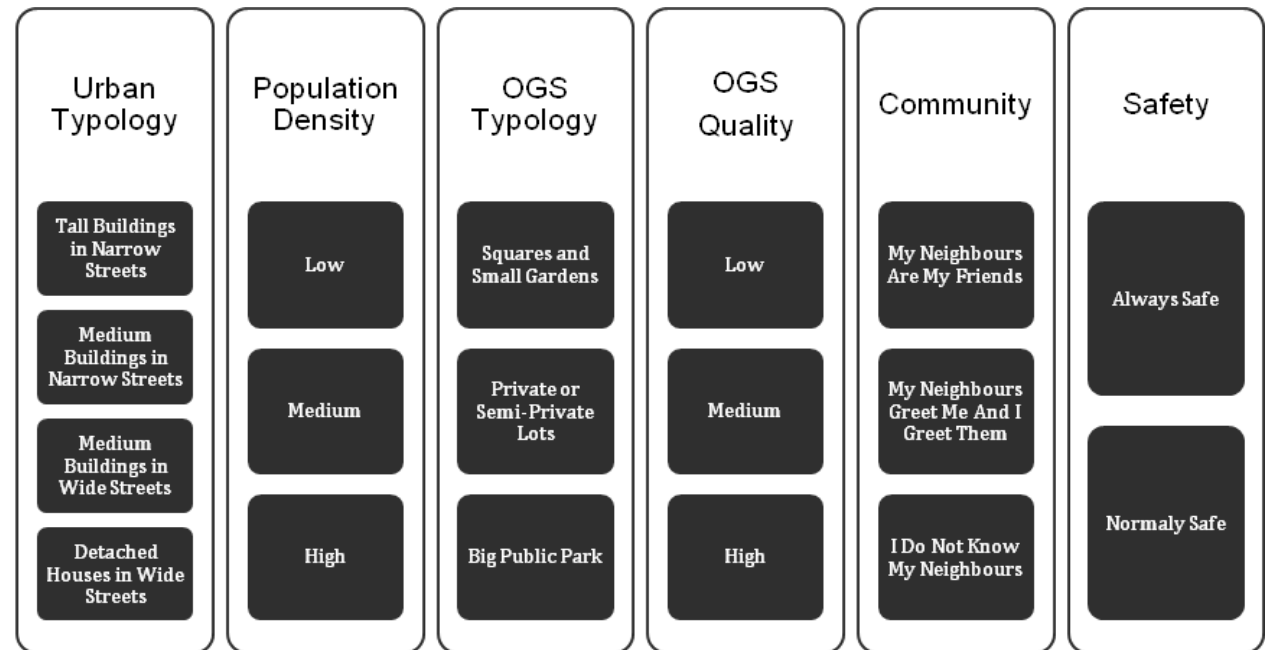


Fig. 1. List of attributes and corresponding levels.

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NEXT CHALLENGES IN RESEARCH ON CULTURAL LANDSCAPES· THE SPANISH EXPERIENCE

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Cultural Landscape, Geospatial Inventory, Cultural Heritage

ABSTRACT

Cultural landscapes have only recently been incorporated to Spanish heritage policies. For this reason, in 2013 the Spanish Government developed a National Plan with the goal of recognising the features of this kind of cultural property. The Plan defines several principles for their identification, characterisation and safeguard. This paper is an overview of the current challenges faced by lines of research in cultural landscapes as a result of the National Plan. Initially, a number of methodological questions will be discussed before proceeding to address the documentation and creation of an atlas of cultural landscapes at a national scale. One of the aforementioned challenges involves the Plan's choice of designating landscapes as contained within boundaries, instead of merely studying the territory as a continuous fabric (as does the British HLC). Another involves the acknowledgement of cultural transformations of the landscape on equal footing with its natural properties (contrary to what is the case for the Swiss CLN Inventory, which only considers the latter). The paper will then go on to assess some tools and innovative techniques which should be explored in order to study cultural heritage property through a territorial approach. The point of this is not to ascertain how much heritage tools are contributing to landscape, but rather how much landscape tools are contributing to heritage. In this vein, part of our present work is focused on fine-tuning cartographic landscape visualisation as a tool for the identification, characterisation and management of cultural property. Here, for the first time, some deductive processes will be needed involving the spatial analysis of human activities and their legacy. Finally, a number of actions will be compared which have been carried out to advance the instrumentalisation of cultural landscapes through large-scale development policies.

CHALLENGES IN CULTURAL HERITAGES STUDIES· THE SPANISH NATIONAL PLAN FOR CULTURAL LANDSCAPE

The development and commissioning of European environmental policies has given rise to thorough review of the concepts traditionally underlying territory management in EU. The most immediate consequence of implementing documents such as the European Territorial Strategy and the European Landscape Convention is that spatial planning is now being tackled for the first time by several administrative regions. In regional planning, the challenge involves coherently linking the different economic and social activities with the environment, nature preservation and with the protection of architectural, historical and cultural heritage.

As part of the spatial planning of the regional socio-economic system, there is a vital need to revisit aspects of quality and quantity of what is to be preserved. It is no longer a question of merely protecting buildings, historic districts or monuments, as used to be the case when implementing urban planning. This idea extends to cover all larger notions of heritage, comprising what has been called Cultural Landscapes. The World Heritage Committee and the European Landscape Convention defined them as the “cultural properties [that] represent the combined works of nature and of man”. Particularly in Europe, cultural landscapes are considered as part of the common heritage and different European initiatives focus upon their conservation and promotion.

The National Plan for Cultural Landscape is an instrument used in establishing the bases for the safeguarding of landscapes that are relevant for their cultural significance. The Plan identifies cultural landscapes as a type heritage cultural property and defines it in broad terms as “a morphological, functional, perceived and symbolic expression of the historical and current relations between society and nature”.

The growing incorporation of the landscape heritage into the tourist and territorial development

strategies responds to the commitment acquired by Spain through the ratification of the international Conventions. In this context, the National Plan aims to establish mechanisms for studying values inborn to Spanish cultural landscapes, as well as for safeguarding and transforming them.

Document initiates with an accurate definition as “the result of people interacting over time with the natural medium, whose expression is a territory perceived and valued for its cultural qualities, the result of a process and the bedrock of a community’s identity”. Therefore cultural landscapes are dynamic, complex and holistic cultural properties.



Picture 1: Singular civil engineering works and infrastructure such as dams or bridges build unique landscapes of cultural interests that has been considered in the Spanish inventory.

The plan identifies that owing to the territorial scale or dimension that defines landscape there are a minimum of activities with the greatest configuring capacity in cultural landscapes from a historical perspective. The table includes (Picture 1):

- Agricultural, stockbreeding and forestry activities.
- Industrial and energy activities.
- Bartering and commercial activities associated above all with coastal and/or river environments.
- Activities linked to social events of a recreational, symbolic, religious, artistic and other.
- Offensive-defensive activities such as defensive facilities, battlefields, etc.
- Urban systems or historical settlements.
- Major communications, transport and hydraulic infrastructures.
- Scenarios associated with historical events.
- Itineraries and routes that generate cultural landscapes

In addition, the National Plan for Cultural Landscapes establish progressive stages of implementation through associated tools. These are: A national inventory, case-study enquiries, master plans, and specific intervention projects and management plans. The national plan underlines the cultural nature of this properties, and accordingly it established that aspect as anthropic action, transformation and human perception must be carefully including in studies, plans and documents.

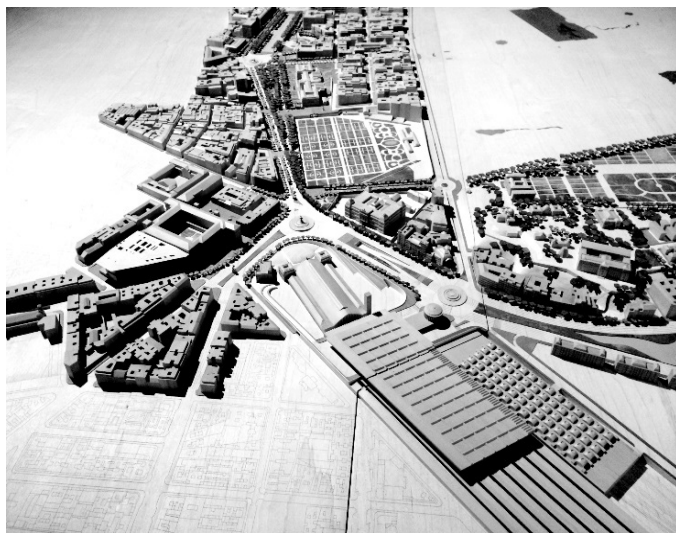
Unique landscapes versus continuous landscapes

One of the problems that arise in regard to cultural landscape is the real lack of information on existing cultural landscapes and which of them deserve to be preserved, as they need to retain enough of the constituent components that determine their character. A first step should be the drafting of an Inventory or Register to identify the landscapes of cultural interest.

Firstly we must distinguish from generic landscape maps to a more specific cartographic inventory for cultural landscapes. Landscape maps represent only kinds of natural scenery and are continuous over whole surface of the territory. The mapping process is methodically simply with an unambiguous results. This reason have made easier their development in the European Union, including Spain and its regions.

In contrast, The Spanish National Plan considered only unique landscapes and provides them with legal protection of cultural properties. Cultural landscapes are “non-continuous” fragments. They are shaped from a density or concentration of specifics human activities, so that they can be individualized respect the whole territory by its uniqueness values.

It is relevant to contrast the Spanish criteria and the English programme for Historic Landscape Characterisation HLC, which probably is the more ambitious landscape inventory in Europe from a cultural perspective. Although the HLC has introduced anthropic and cultural values, it continued describing the whole surface of territory. Its method considered that “particular groupings and patterns of components which recur throughout the county can be seen to have been determined by similar histories”. Historic landscape in the HCL programme can, therefore, be characterised, mapped and described, using a finite number of categories or types of “historic landscape character”.



Picture 2: Retiro Park and Paseo del Prado. Historical park, gardens, streets and public spaces in this Madrid City's area have been considered as cultural landscape by the Spanish Public Administrations.

On the other hand, the HLC programme is defined as “is a method for understanding and mapping the nature of the landscape with reference to its historical development”. In contrast historical values are not the central indicator in the Spanish methodology. Selection of landscapes of special cultural interest contemplates wider appraisal criteria, including intrinsic values of typological representativeness, exemplary nature, territorial significance, authenticity, integrity and uniqueness, as well as, heritage values of historical, social, environmental or process-related significance. Also are considered potential values and viability that depends of the legal situation that will allow it to be safeguarded and managed, the fragility and vulnerability and the social viability and profitability.



Picture 3: Mining landscape of Puertollano in central Spain. A landscape approach to industrial heritage is essential in the Spanish Plan for Cultural Landscapes.

Cultural values should be considered at least as important as natural values.

A cultural landscape shapes and is shaped by what it contains, and it constitutes a holistic system in which nature and culture co-evolve. The division between culture and nature, or between people and place, is an operative tool in some cases, but any artificial separation of constituents without a holistic unifying framework may obstruct a genuine understanding of complex adaptive systems such as cultural landscapes. At present, these cultural systems are considered to be very valuable, due in part to their uniqueness or rareness, to the environmental processes they maintain and to their aesthetic and economic characteristics.

In a methodological approach, the Spanish National Plan for Cultural Landscape would be more related to the Federal Inventory of Landscapes and Natural Monuments in Switzerland (BLN). Its 162 elements comprise multiples spatial scales, from large natural parks or reserves to historic sites or gardens (can be checked at <http://www.bafu.admin.ch/bln>).

However the BLN Inventory identifies landscapes only considering its natural values, as natural beauty, and ecological or scientific interest. Exceptionally cultural values are considered but only from an agrarian or symbolic approach. It classifies the elements in unique landscapes, distinctive Swiss landscapes, recreational landscapes, and natural monuments.

Spanish selection commitment to register landscapes of cultural interest, so a valorisation of human transformation is dominant. In this sense some of traditional large-scale historical heritage is renovating its characterization from sites to cultural landscape (Picture 2). Is the case of the Alhambra and the Generalife of Granada included on the World Heritage List. Researchers are considering the idea that the architectural and gardens complex need to include the Darro Valley as part of an integral cultural landscape in order to be considered an environmental and sensitive approach to our legacy.

In other cases, as mining landscapes, the Plan contemplates cultural landscapes where the pastoral or monumental beauty is not preferential. In the way in which industrial operations design builds a place, landscape may prove to be the bedrock of history, the witness of the collective memory of the local people and the different elements found in it become symbols and transmitters of significances that identify a community (Picture 3). Other enthusiastic example is the cultural landscape of Valle Salado de Añana, a salt-related humanized landscape consisting of more than four kilometres of wooden structures that channel the



Picture 4: Valle Salado de Añana: A salt-related cultural landscape in north Spain candidate to the World Heritage List. Recently its Restoration Management Plan has been awarded by the European Commission and Europa Nostra.

salt water from the springs to the wells and staggered terraces built with stone, wood and clay (Picture 4).

In addition, in the inventory of Spanish landscapes of cultural interest is considered the Twentieth Century Heritage. Particularly the significance of the cultural heritage of the twentieth century requires understand the contribution of context to the significance of a heritage site. An example are the unique urban settlements of the Spanish Plan for abandoned areas in the decade of the forties where the different planning schemes are relevant concepts for each heritage site.

DIGITAL CARTOGRAPHIC SYSTEM· AN INTEGRATIVE INVENTORY

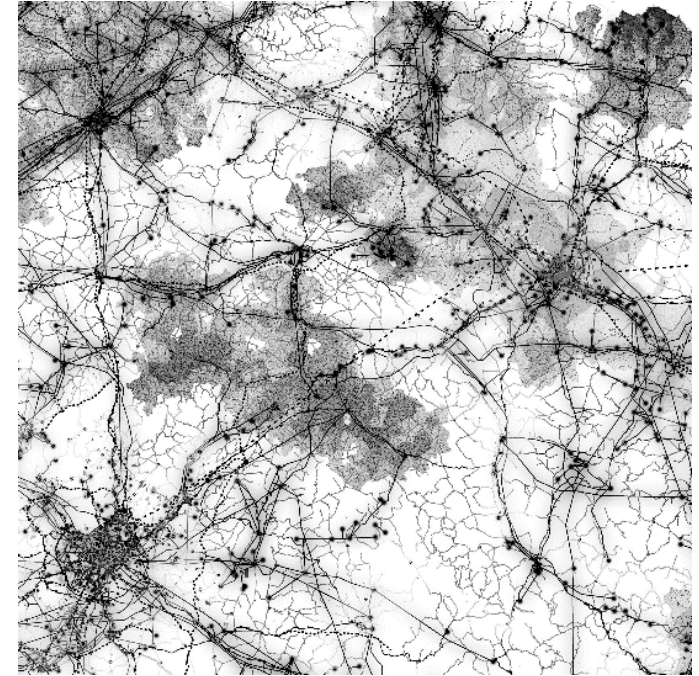
The goal is to create the first Spanish inventory of cultural landscapes in a Digital Cartographic System (DCS). As a representation of knowledge, it will work as a graphic base for transdisciplinary encounter, which will foster discussion of, and research on, the spatial aspects of cultural heritage both among researchers and among managers and policymakers. Thus, heritage in general and specifically cultural landscape will be brought into the processes of territorial planning, and the concretisation of knowledge

will be made to lead into the appearance of creative solutions for intervention and protection.

Cultural landscape, while understood as cultural heritage, also shares the spatial characteristics of dimension, dynamism and complexity inherent to the territorial scale; it is thus endowed with a great specificity which sets it apart from traditional categories of heritage. Therefore digital technology based on GIS tools widespread in the praxis of landscape architecture offers a unique opportunity for heritage studies. Systems for the treatment and manipulation of spatial data at a specific, geographical scale; virtual representation and simulation of dynamic processes; or computer-aided construction of physical models are but a few of the tools that can be deployed for a better, more efficient accomplishment of the ultimate goal of safeguarding cultural landscapes. Developed an atlas in GIS is pertinent because it allows a dynamic and transdisciplinary approach to heritage territories.

Traditional catalogues with files are obsolete for two motives. Firstly, their information is usually mono-disciplinary, and in the best case, it is multidisciplinary but not crossed or dynamically crossed. In contrast, in an atlas all information is spatially and temporally related, so that it opens new ways for the discipline integrations in heritage studies. In second place, catalogues are static and they place the maps in a secondary level because their utility is only to indicate locations. Conversely, an atlas is a display of information allowing for an open-ended reading and understanding of landscape which, deliberately lacking a pre-determined order that and complementary to pre-existing knowledge, allows find new spatial relationships.

In a methodology for cultural landscapes identification we need to analyse the different productive activities and forms of organisation of the territory linked to complex ways of life usually intervene in the historical configuration and modelling of landscape,



Picture 5: Inventorying cultural landscape related to energy industry. GIS information models allow to search potential cultural landscapes by examining settlements, industrial sectors or human patterns related to a geographical logic.

on a specific natural basis, generating a diachronic sequence. However, when it comes to establishing the bases for a classification of landscapes of cultural interest, in most cases it will be necessary to attend to “dominances” or processes that predominate in the historic construction, in the functioning and in the image and perception of a specific landscape.

Some experiences reveals that deductive identification process using GIS data bases is a potential strategy for identification. One of this is the preliminary map of Andalusian Cultural Landscapes, where researches have used a study of spatial distribution of types of cultural properties to reveals areas of typological concentration.

The hypothesis is that a large density of a similar type of cultural property suggest links among them and may reveal that exists typical territorial qualities of cultural landscapes. Later these sectors have been evaluated to test that exists a real landscape integration or cohesive environmental values. Other case is the atlas of Spanish energy landscapes -related to the energy industry- which identification results of an enquiry of every single geographical area where maps show a high concentration of production and industrial artefacts (Picture 5).

In broad terms, two principal kinds of information are included in the DCS: scientific data (neutral) and social (subjective and interpretative). Scientific data includes a characterization of the present places, its diachronic reconstruction, and diverse disciplinary descriptions (ecological, geographical, architectonic, etc.). Social information includes regional and local Spatial Plans and the social and cultural valorisation of landscapes by population.

ICT FOR PUBLIC PARTICIPATION· THE SOCIAL ROLE IN CULTURAL LANDSCAPES

Cartography comes across as a fundamental strategy not only for scientific analysis, but also for communicating and summarising. Landscape cartography, as a system for the representation of knowledge, draws from a variety of techniques and can be applied to the whole process of knowledge management, becoming an attractive communication channel as well as an interpreter and decoder of the message.

The application of ICT tools follows the development of the GIS digital atlas of cultural landscapes, and is aimed at the development of open sites and apps capable of better transmitting to a wider public the gathered knowledge. Users will find in it multilayer information, maps and pictures concerning specific places: they will find an help in organizing visit itineraries according to their taste, time, interests; and they

will be able to compare the past reality of places (both by technique of overlapping historical pictures upon the nowadays “face” of the place and by using more advanced technique of AR) with present ones. Also, they will meet on the social sector of the App (linked to a supporting website) the opinions of other people: their memories (by the insiders, who lived and live in that place) and their expectations (by the outsiders, who are going to visit or have already visited that place).

The result of this process will be the construction of an online landscape territory by both local communities (insiders) and tourists (outsiders), who will be able to share territory properties where they live and territory memories where they visit. Based on the experiences of groups (of family, school, or old generations, people share their stories of past or just happened now, to tell the others (maybe outsiders) everything regarding this territory. They can seek the assets of their territories, even hidden or forgotten, and will recover the emotional connections with their lives and other activities. The material could be collected by smart citizens as photographs, videos, drawings, interviews (all that are old media) through the collaborative construction of an interactive Google map, to spread and update daily.

CONCLUSIONS

Assuming cultural landscape as property subject to heritage policies implies recognising and incorporating cultural heritage values and management strategies to the territorial level. This quantitative leap carries with it a radical switch in paradigm, since supervision and management are now tied to territorial planning and development. This has led to a thorough revision, undertaken from multiple disciplines, of the tools for the protection of cultural heritage in order to advance towards more efficient, dynamic models addressing the difficulties and peculiarities of its large-scale assessment and management.

Consequently to create a national inventory of cultural landscapes is both a methodological and conceptual challenge around the tradition of cultural heritage. Firstly as a representation of knowledge, it will work as a graphic base for transdisciplinary encounter, which will foster discussion of, and research on, the spatial aspects of cultural heritage both among researchers and society, and among managers and policymakers. Secondly it implies a redefinition of who is a landscape of cultural interest in the post-industrial society of the XXI siècle. Provide a comprehensive and coherent response to these challenges is the goal of the Research Network of Spanish Cultural Landscapes, in collaboration with the Spanish Institute for Cultural Heritage.

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THE LAYERS OF PARK USE· VISITOR SURVEYS OF THE VÁROSLIGET IN BUDAPEST SINCE THE 90`S

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ABSTRACT

The Városliget of Budapest was designed in 1813 by Heinrich Nebbien. As a winner of an open international design contest he turned a suburban wetland into an English-style romantic public open park. In that time – before Frederick Law Olmsted's Central Park was built – it was an entirely new approach by the town council to finance a public park from state budget for local citizens. By the middle of the 19th century the Városliget had become a favoured place where people could retreat from the city. 200 years have passed since it was designed and several questions on its use have surfaced. What is our connection with this great urban area? How do we use this historical site today? In 2013 the Corvinus University of Budapest, Department of Garden and Open Space Design was asked to make a comprehensive research on the park use. Since 1987 we have gathered some information about the users of the Városliget – which is one of the oldest urban public parks in the world – but getting an up-to-date information has never been more important than today, when the Városliget faces serious threats. There are some initiatives which would install building complexes and other infrastructure into the park risking the historical green area and the natural values of the place. However, according to the research made in 2014, the majority of the users come to the Városliget for passive recreation. The survey has a great role in understanding urban park systems and getting an overall view of the user attitude. Through the report we can review consequences closely connected to people-environment relation, physical and mental well-being.

INTRODUCTION

"The enjoyment of scenery employs the mind without fatigue and yet exercises it; tranquilizes it and yet enlivens it; and thus, through the influence of the mind over the body gives the effect of refreshing rest and reinvigoration to the whole system."

(Frederick Law Olmsted)

The city – living together with its parks – has gone through a number of morphological and functional changes over the last 150-200 years. Just as our cities, we –urban people – operate differently in the 21st century. Several researches have proven that people living in urban environment are „over-stimulated”. The urban atmosphere constantly alarm the nervous system, everyday we need to tackle with these stimuli consciously or unconsciously (Dúll, 2014). Therefore, urban parks are not only important because of their urban ecological effect, but the quality and the quantity of the stimuli changes in these places compared to the city's average load. Getting out from the dense urban areas we literally respire, our thoughts are „cleared up”, and the nervous system is able to relax. Green urban spaces has great importance on the quality of life as well (Bertram 2014), based on recent well-being research people are happier when living in urban areas with greater amounts of green space. “Compared with when they live in areas with less green space, they show significantly lower mental distress and significantly higher well-being.” (White, 2013)

This article focuses on urban public parks, which support the physical and mental well-being of the people living in the city. In the first half we give a historical overview about the role public parks, then we present the most important findings about a comprehensive park user research made on the Városliget.

HISTORICAL OVERVIEW ABOUT THE ROLE OF URBAN PUBLIC GREEN SPACES

In the modern sense of public park theory the so-called Volksgarten (People's Garden) was published in Germany in book form "Theorie der Gartenkunst" by Christian C. Hirschfeld. Hirschfeld believed that "... the natural world will inspire everyone's moral sense, in this point of view public parks have particularly important role. His description emphasises the relationship between city and nature, detailing that every city needs that kind of places where citizens can gather and enjoy the fresh air." (Csepely-Knorr, 2011).

At mid-18th century Budapest the first significant green spaces were made after one and a half century domination of Turks as the part of baroque palaces, monasteries and town houses. Then in 1785-87 Városmajor was ready, meaning the first recorded large-scale park in the capital. In mid of 1790's Baron László Orczy established landscape garden within his own Józsefváros estate which was the most remarkable green area for Pest until the birth of Városliget (Alföldy, 2004). Influence from Hirschfeld and his followers lead that Pest city council launch a tender in 1813 for Stadtwäldchen (Városliget) parking and landscaping designs. The winner, Heinrich Nebbien was the well-known landscape architect of the era by his work Pest and Central-Europe enriched with one of the largest public green area (designs were completed between 1813-16). (Fig. 1) Its spacious landscape was almost finished for the 1830's with the rondo, large lake and promenade. Soon it became a favourable place of Pest citizen excursions and holidays. Nevertheless the reduction of the Városliget has begun in the mid 19th century, when nearly 20 hectares vanished as a result of the Budapest-Vac railway construction in 1845. The area decreased by further 10 hectares in 1865, because of the Budapest Zoo construction works. (Fig. 2)

By the expansion of the industrial revolution throughout Europe from 1850's industry, technology, development of science, urbanisation trends had become ever

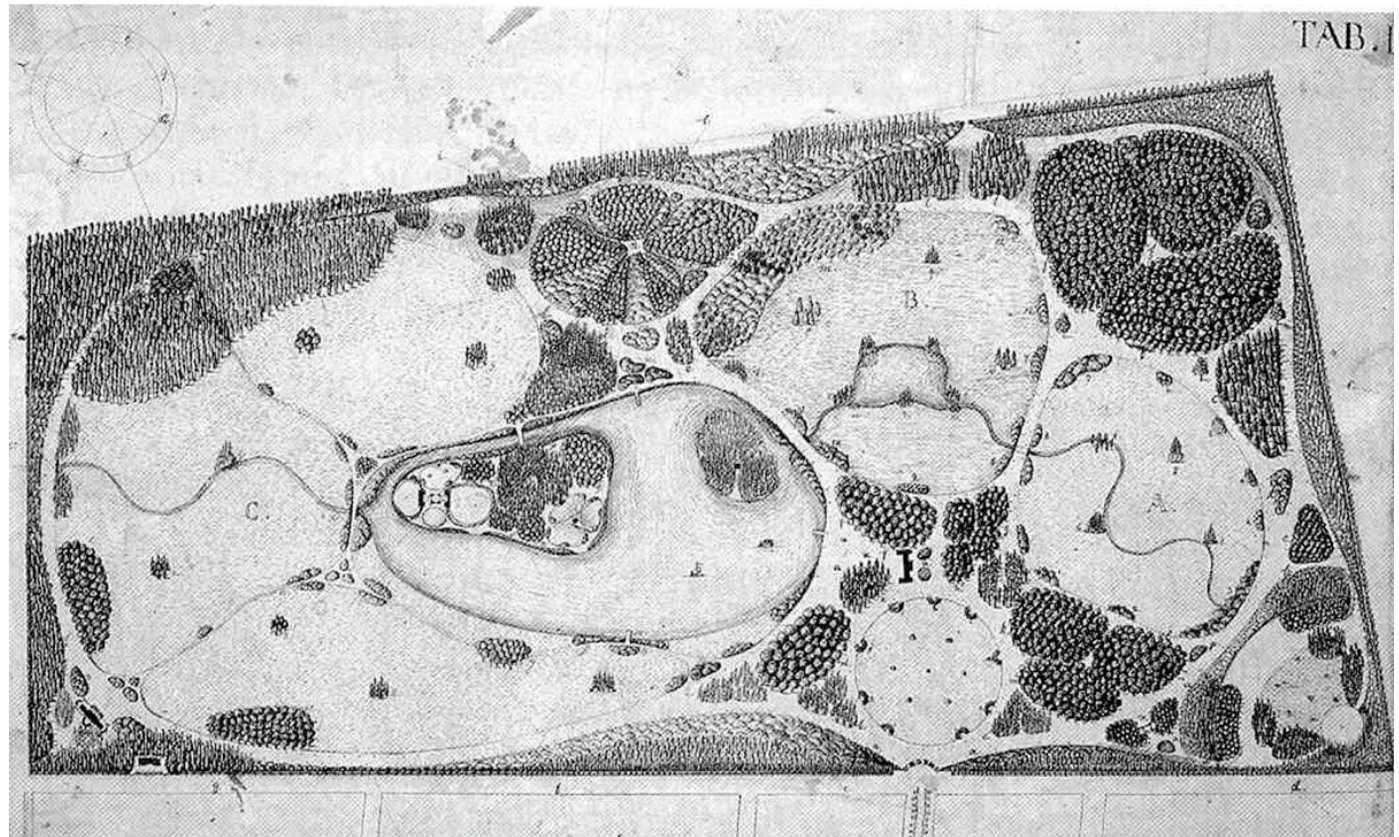


Figure 1: The plan of Városliget by Heinrich Nebbien, 1813-1816. (Total area 130 hectares) (source: Budapest, Kiscelli Historical Museum)

faster. Numerous of industrial employed people started to live closely to each other in the densely populated industrial areas and industrial districts of cities. European leading cities started impressive development largely due to the goods produced by people living in the slums. With the development of arms industry the military strategies changed and city councils started to give the city walls up, demolish tower systems and it gave possibility for new urban green areas. Inhabitants used happily the new parks, but their use was still not much more than a walking space. The turn of 19-20th century brings breakthrough in this respect,

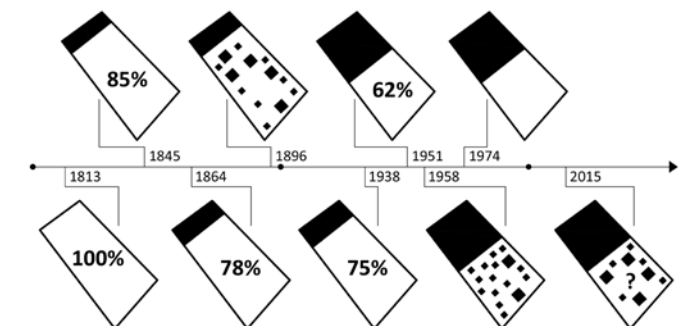


Figure 2: The brief history of the Városliget

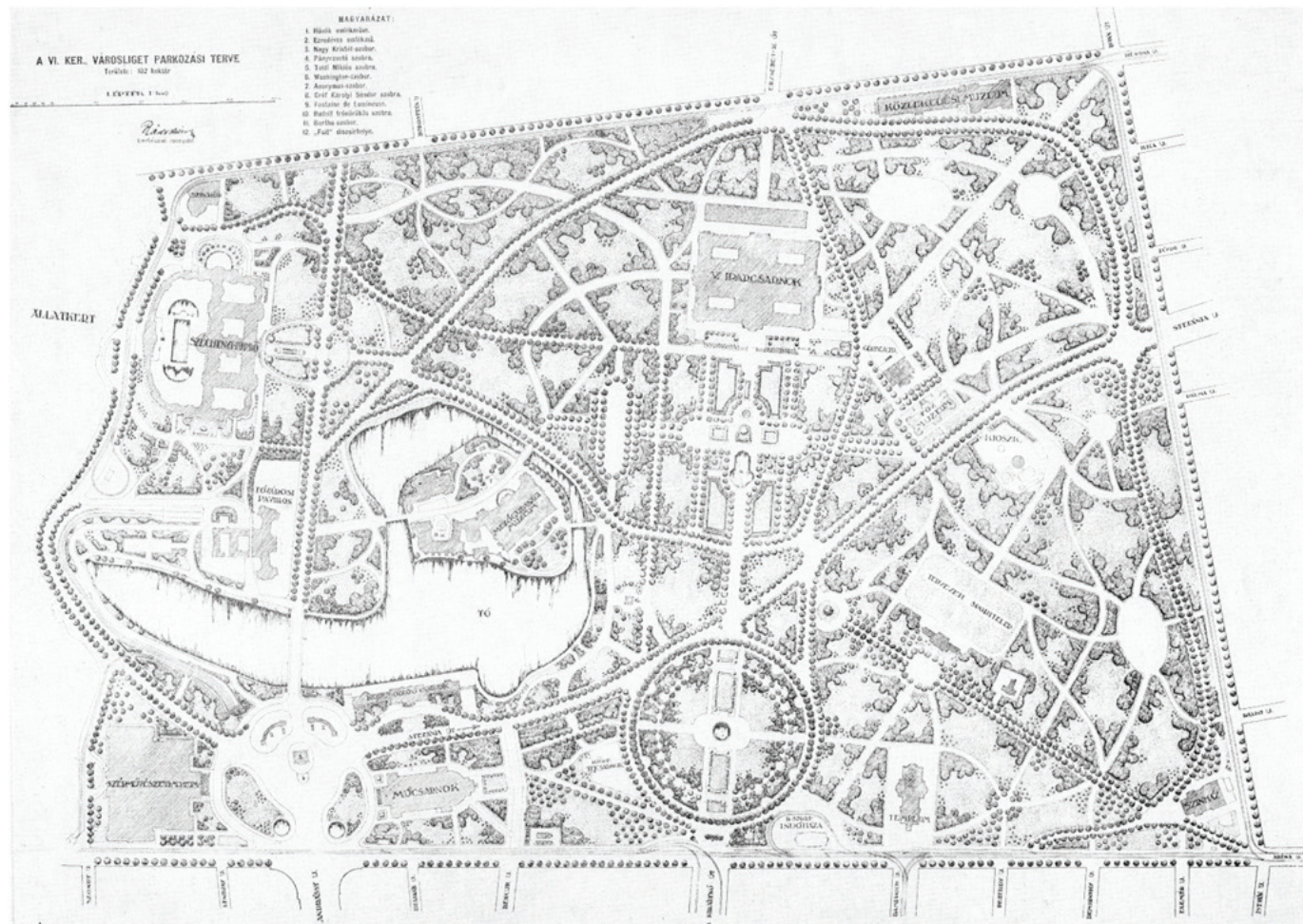


Figure 3: The plan of Városliget by Károly Ráde. (Total area 102 hectares)

when park forming in Europe takes new direction with “central of the parks having large grassy open spaces that is – in contrast with earlier parks – specially inspiring people to play sports, outdoor games or other outdoor activities.” (Csepely-Knorr, 2011). The first park usage studies came into light from these times as well. In 1860 on the most popular day New

York Central Park had 85,000 visitors, primarily with the purpose of recreation and sport (Zelenák, 2014).

During the union of Pest, Buda and Óbuda, at 1873, Budapest– was the most dynamic settlement in the continent beside Berlin – had approximately 300 thousand inhabitants, while on the threshold of the First World

War, this number exceeded 1.1 million. In that time more and more people were aware of the harmful effects of the spontaneous urbanization – the wealthiest built small holiday houses for their family, the less well-off streamed out from the city on weekends, just like out to the Városliget. By building luxury villas on the Avenues’ end (today Andrassy Avenue) and in the neighbourhood close to the park the prestige of the Városliget was started to increase noticeably. At the same time functions have broadened and rising of new buildings (e.g. restaurants) were started. In 1896 the Liget became the place of the millennium exhibition, which determines the destiny of the park, serving an unceasing reference to the high building percentage. (Fig. 3) The park had reached its todays structure by the early 1900’s, when the car esplanade has built and afforested the neglected areas of the previous exhibitions (Balogh, 2004).

After the Second World War an ideological decision was obtruded to the Városliget: by widening the Arena road, in 1951 the Felvonulási Square was created (Prakfalvi, 1999). The other, typically different function from the public park was the „Budapest fair” from 1958 – so called BNV – which was more a memory remained from the millennium exhibitions.

When the BNV moved out from area, there was an opportunity for the radical renovation of the Városliget. The results of the design competition organized in 1974 were 27 hectares renewed park surface, sun terraces, fountains, playgrounds and promenades. The park represented European standards, for thousands of families it was the number one recreational opportunity. (Fig. 4)

The Városliget through its historical aspect arrived in a fairly reassuring moment to the threshold of the 19th century. In the summer of 1999 the General Assembly of Budapest rejected the government’s proposal in a substantive decision, which initiated the building of the National Theatre in the Városliget. Due to the general park reconstructions made in the




Figure 4: The Városliget in the second half of the 20th century (Left: The area of BNV, Right: Renewed playgrounds in the 1970's) source: www.zoldkalauz.hu




Figure 6: Things visitors enjoy and dislike in the park



5.2 million people yearly



3 million people in mass events



3 million people in mass events    

Figure 5: The annual visits of Városliget

seventies and eighties, on the turn of millenary, the Liget is able to operate as a metropolitan public park and green area; however the user surveys made in 1987 revealed the social demand for the renovation of the urban park and its functions (Nagy, 1997).

In July 2013, a placing and urban planning competition had organised for the new national collection building complex (Liget Budapest) in the Városliget. Then in the February, 2014 an open international competition has launched to design the 'Liget Budapest New Museum Buildings.' The competitions are touching the core area of the historical urban public park. The plans are surrounded by extensive social and professional opposition.

METHODOLOGY

“The development of use of parks is a key issue that has to be analysed constantly in order to adapt to the changing demands of users and the changing viewpoints in society at large.”- written by landscape architect Martin van den Toorn, research professor at TU Delft. How do we use and how we would like to see the 200-year-old Városliget today? A comprehensive research sought to answer these questions made by the Corvinus University of Budapest, Faculty of Landscape

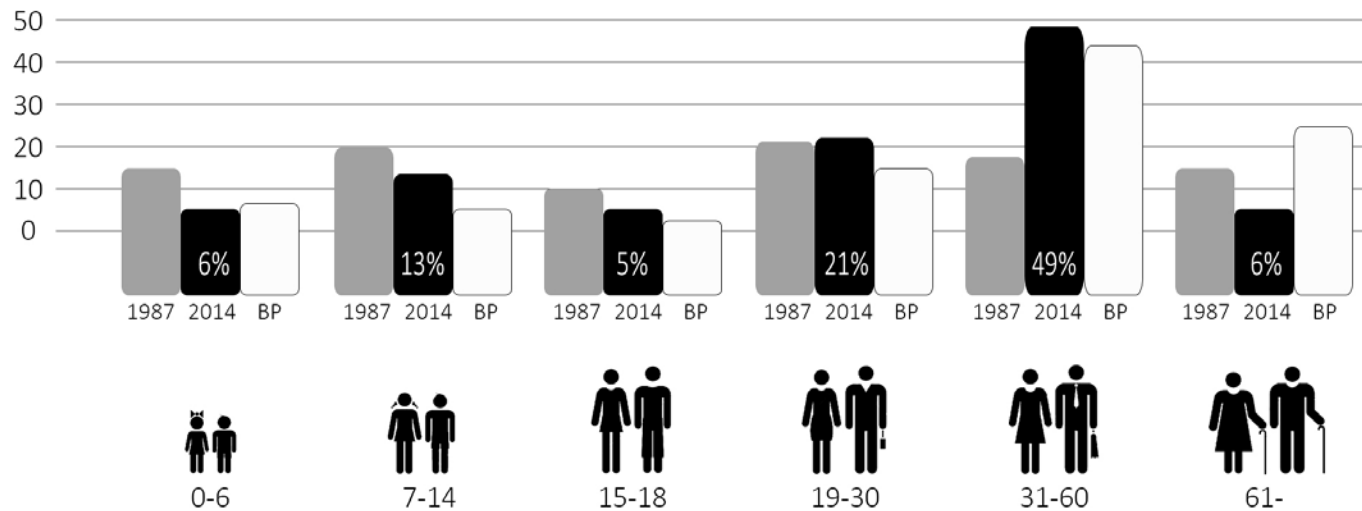


Figure 7: The change of users age

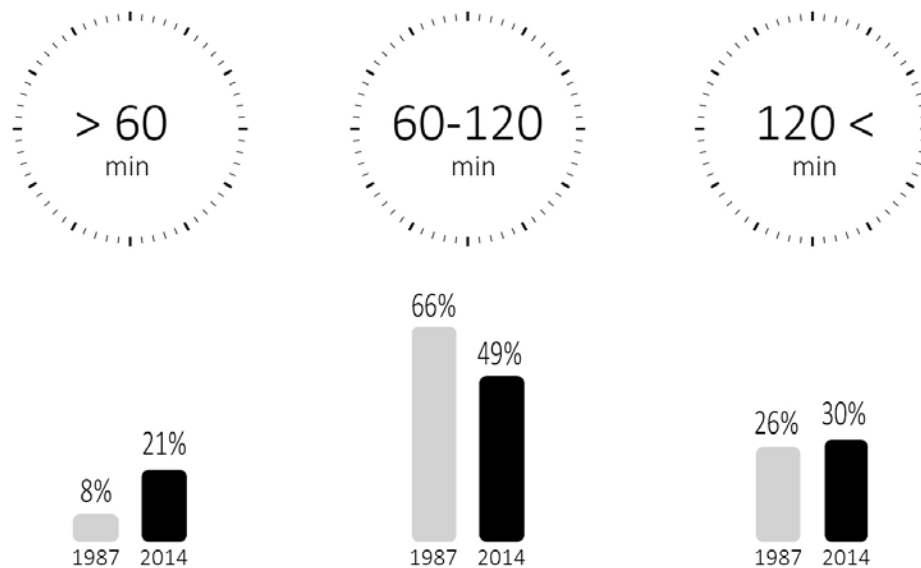


Figure 8: Duration of visits

Architecture– commissioned by the National Museum of Fine Arts – from October 2013 to June 2014. During the on-site observations 65567 park users activity had been recorded, furthermore 1018 online and 1118 on-site questionnaire were evaluated. For the first time in the life of Városliget park user survey was made in 1987 in order to map the visitor habits and use of the park. Over the past nearly three decades, the city around the park and city dweller's habits have changed considerably, while within the park there were not significant renovation.

CORE RESULTS OF THE VISITOR RESEARCH ON THE VÁROSLIGET

Based on the survey results, it is estimated that Városliget receives 5,2 million visits annually. In addition, each year about 3 million people visit the park for mass events occasionally. (Fig. 5) The majority of visitors come for passive recreation, walking and relaxing (65%) then socializing (40%) are the most common activities. The most attractive destination is the Zoo (32%), then concert, events (19%) and museum visits (18%). People who come for active recreation prefer cycling (17%), running (12%), skating (13%) and rowing (6%).

The greatest value of the Városliget for the majority of the respondents are the peace and quiet atmosphere, fresh air (72%), and the park's natural features, vegetation and old trees (63%). According to that users like the park because of its basic public park quality, the most appreciated values are the green surface, the vegetation, the natural simplicity and aesthetic experience. A significant number of respondents could not name problems in the park, the most common complaints by visitors are the state of the pavements, lack of litter bins and the presence of homeless people. About 6% cited issues of dogs, 5% have problem with traffic and crowd, 4% are not satisfied with park furnitures and 4% cited safety topics. (Fig. 6)

Since 1987 the age of park users has changed considerably. While nearly three decades ago there were

balance between the young (under 18) and adult (above 18) generations, by 2014 adults represent the most in the park. Compared today's age distribution with Budapest's age structure, it can be concluded that the 7-14 year olds, the 19-30 year olds and the 31-60 year olds appear more in the park and people over 61 visit the park in much smaller proportion. (Fig. 7) The exact reasons of the changes of age composition could be proven by deeper sociological and environmental psychology research, but likely there is a relationship between the youngest and oldest people decreasing park use and the lack of internal park connections (quality and network of roads and paths) and the difficulty of orientation and safety reasons.

The residence of visitors has also slightly changed since 1987. Thirty years ago users came from the neighbourhood districts (VI., VII. XIV.), while today its partly functions as a local public park for everyday recreation, partly operates as an urban large park, which is visited by people from the capital city and tourists as well.

The research revealed that users spend less time in the park. Since 1987 an increasing number of visitors spend less than one hour, while there are fewer people who spend one or two hours. The respondents can not identify clearly what is the reason for the decreasing time. Behind the data, there might be general lifestyle changes of the 21st century urban people, but the weaknesses expressed by visitors – lack of urban furnitures, public toilets, drinking fountains – support the short stay in the Városliget. (Fig. 8)

CONCLUSIONS

“The more successfully a city mingles everyday diversity of uses and users in its everyday streets, the more successfully, casually (and economically) its people thereby enliven and support well-located parks that can thus give back grace and delight to their neighbourhoods instead of vacuity.”— wrote by the famous

american urban theorist, Jane Jacobs in her book called *The Death and Life of Great American Cities*.

The 200-year-old Városliget was born for the public in the ideal to serve liveability and community. However, several times during its history it fell prey to the hunger of the city for areas, the intensive land use sometimes remarkably shaped its spatial structure and use. In the last four decades the maintenance and development focusing on its public park quality and operation has delayed, therefore the park's functional supplies could not follow the changes of social habits. In 2013 – due to the Liget Budapest project – the park came into spotlight and this gave an opportunity to carry out the most comprehensive user survey so far. According to the research results the city dwellers need the nature experiences provided by the historical public park, citizens demand safe, well maintained and intensive green surfaces. The renovation of one of the oldest and largest public park in Budapest would not just only mean to meet with the several decades debt, but it could be a pledge of the capital's health and its resident's well-being.

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“NEW DIRECTIONS” IN LANDSCAPE ARCHITECTURE RESEARCH· LEARNING ABOUT PEOPLES’ SENSE OF DIRECTION– THE CASE OF THE “BERGPARK KASSEL WILHELMSHÖHE” IN GERMANY

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KEY WORD

Orientation, GPS-tracking, Bergpark Wilhelmshöhe, Signage Design

ABSTRACT

Orientation is known as a basic human need. However, nowadays the overflow of information impedes orientation. Public parks such as the Kassel “Bergpark Wilhelmshöhe” might suffer orientation constraints where different kinds of signage contribute to visitors’ confusion. The recent registration of the “Bergpark Wilhelmshöhe” in the UNESCO world heritage list 2013, has led to an increase in the number of visitors and also to a potential increase in park damage. It is therefore essential to think about how the current situation can be improved. This study investigates visitor orientation and movement by employing a visitor and GIS supported survey in winter 2013 and summer 2014. Approximately, 500 visitors were asked to carry a GPS-Logger during their park visit and to participate in a short survey. A GIS model was developed that combined the GIS data and the survey data and allows the exact examination how visitors navigate and behave inside the park area. Results show that two types of visitors can be distinguished. First, there are local visitors, who live in close proximity to the park and come to relax and do sports. Second, there are tourists, who come from far away mainly to do sightseeing or to participate in a particular event. Furthermore, the model allows researchers to examine the movement-behaviour of the two groups. Results demonstrate that there are main routes and secondary routes. In addition, several parts of the park were identified as largely disregarded by most visitors (so-called blind spots). On the basis of such findings planners and managers may be able to derive strategies to improve visitor orientation. For example, enhance signage to better guide visitors through the park and highlight important features. In addition, the development of routes that indicate time, distance and altitude may help visitors to better experience and enjoy the park.

1 INTRODUCTION

Sense of direction is one of our most important senses and the feeling to know where we are and where we need to go next is elementary in our daily life. Public places might challenge our sense of direction, and some of them, such as airports, train stations or shopping malls, often leave us feeling lost particularly where numerous signs, advertisements and other kinds of information exists that is made to attract our attention (Bierhoff, 2006; Seumenicht, 2008).

Problems of disorientation can be found even in public parks such as the “Bergpark Kassel Wilhelmshöhe” (BKW) in Germany, a large historic garden was registered on the UNESCO world heritage list in 2013. The “Bergpark” had undergone significant changes since its conception as a castle garden made for and used by one lord. The lord, in former times, liked to enjoy the park privately. He and his family and guests liked it to be surprised by different kinds of games such as labyrinths or optical illusions. In contrast, the modern visitor and tourists like to efficiently visit some of the main attractions in a relatively short time. The park with its historic characteristics attracts the visitors. It was, however, designed in a way that offers many distractions. Distractions that were wished for in the past may now lead people to go astray and not meet with the ‘typical’ expectation of a ‘typical’ tourist. In addition, different kinds of signage, frequently altered and adjusted over time, contribute to visitor confusion.

This paper reports results from a study that aims to analyse the current visitor orientation in the BKW and to discuss potential recommendations for improvement where orientation is poor. First, some of the typical park visitors are presented and second, visitor movements and their experience inside of the park are reported on.

The study presented in this paper applies a novel methodology, one that combines face-to-face interviews and GPS tracking of visitors movements within the



Fig. 1: The baroque site „Kaskaden“ in the „Bergpark Kassel Wilhelmshöhe“ during the water features.

park. Approximately 500 visitors were asked to carry a GPS-Logger during their park visit and also to participate in a survey. A GIS model was developed that combined the GIS data and the data generated through the survey. Results allow researchers to examine ways how visitors navigate and behave inside the park area.

Results show that two main groups of visitors can be distinguished. First, there are local visitors who live



Fig. 2: A huge crowd at the waterfall „Steinhöfer“ during the water features in the August of 2013.

in close proximity to the park and wish to relax and exercise in it. The second group is the tourists; these are comprised of people who come from far away mainly to do sightseeing or to participate in a particular event. The analysis of peoples' movement behaviour by using the GIS model, demonstrates significant differences between the two groups. Locals appear to be mainly heading towards single park locations and, using secondary routes, they seem to be relatively restricted as to the park areas they regularly cover. Tourists and visitors, who travel long distance to visit Kassel, usually move along the main park routes. In addition, it was found, several parts of the park could be identified that are largely disregarded by both local and tourist visitors; these areas might be called “blind spots” of the park.

2 THE CASE OF THE „BERGPARK KASSEL WILHELMSHÖHE“

The “Bergpark Kassel Wilhelmshöhe” and, in particular, its Hercules monument and the baroque and romantic fountain system, was registered on the UNESCO world heritage list in June 2013. The 240 ha area park is located in the Bad Wilhelmshöhe district in the west of the



Fig. 3: Because of the enormous number of visitors several of them leave the existing pathways. That leads to damages in the park area.

city Kassel (Germany). The unique setting of the park was chosen by Landgrave Carl Ende in late 17th century, who discovered that the special topographical situation of slopes of the “Habichtswald” hillside lend themselves to create a unique garden and water system. Landgrave Carl Ende and his successors designed the park, first as a Baroque and later as an English landscape garden (Fig 1). With the landscape garden style designers aimed to produce ideal images of nature. They included elements such as winding paths, creating effects of surprise and, originally in order to let lord and lady enjoy the gardens and water while strolling through the area.

The declaration of the BKW as World Heritage has led to increased visitor numbers and also to positive economic spill-over effects. However, to modern visitors, the historic design of the park causes several severe problems. First, winding paths and an original design based on ‘surprises round every corner’ make it difficult for the visitor to find the way to the key sights they wish to see. Second, during special events such as the days when the water displays attract thousands, it is even more difficult for people to find the right way.

Masses of tourist visitors physically block some the paths (Fig. 2). Hence, many visitors stray away from official walkways and trample the grass and flowers, thus destroying the beauty of the park people come to see (Fig. 3). Third, a system of signs exists that, rather than guiding visitors, contributes to increased confusion. Growing numbers of visitors challenge park managers and designers to develop an adequate orientation system. A good system should consider how to:

- (i) protect the park in its unique historic character;
- (ii) facilitate and promote the spatial orientation of visitors;
- (iii) inform visitors about the park area and the special attractions it offers.

3 THEORETICAL SOLUTIONS

The relatively young discipline of “Signage” might be best prepared to deal with the aforementioned orientation problems. Signage can consider a number of important interrelationships between space and users. For example, signage might support the promotion of spatial orientation and free movement (Naumann, 2004). Good signage might also highlight identity-forming characteristics of a place.

In considering the construction of signage and its placements, one must first consider the characteristics of the ‘place’. To do this, several guiding questions can help, such as: What are the different user groups and user claims? How do the visitors might best enjoy a space? Do differences exist between major routes and secondary routes? Do “blind spots” exist within the park where nobody ever goes? What is the distribution of different locations? Which places lead to visitor disorientation? Which spatial elements exist that support orientation?

Human orientation is, by and large, something very individual. At the same time, individual orientation depends on a number of elements, such as cultural influences, peoples’ age and experience, prior knowledge, and much more. Hence, signage design cannot be considered purely objective criteria. Subjective issues of “orientation” must also be studied in a methodical way.

The main methodological challenge that was addressed in this study is the following: How can a topic such as “guidance” be investigated empirically, in particular with the aim to develop good orientation systems?



Fig. 4: An example for wayfinding in the park area of the „Zwinger“ (Dresden), designed by the company „Gourdin & Müller“. The wayfinding system is integrated harmonically into the site.

4 PRACTICAL SOLUTIONS

To learn and find out how visitors orient themselves in the park two issues must be clarified. Firstly, who are the people who visit the park. Secondly, how do people move in space? Traditional social empirical research methods such as interviewing people are used to learn which people visit the park. With respect to second question few approaches exist that have proven to show useful results. In this

study methodological elements of mobility research were employed and incorporated into the case study research, i.e. face-to-face interviews and GPS tracking.

Face-to-face interviewing is usually done by conducting personal interviews during individual meetings and where respondents themselves provide information about their activities and movements. Responses received may be written or verbal. Standardized or open questions may be used. Interviews require a strong cooperation of interviewed subjects. Interview based approaches enable researchers to gain a relatively deep understanding a number of different topics and questions related to mobility and movement. However, given that visitors experience much confusion while moving through the park, their ability to accurately report on their movements may be limited. Even if supporting resources are used, such as a park map or planning documents, it may still be difficult to obtain accurate mobility data from participants.

Global Positioning System (GPS) tracking can be combined with data analysis using Geographic Information System. In this approach, tracking volunteers would be equipped with GPS devices and, after a short briefing, walk without limitation. The GPS device would, after completing the park visit, returned to researchers, and results be transferred to computers for data analysis. This method does provide movement related data, and it does so with high levels of accuracy. Furthermore, the time component that is integrated in the device can be accessed and show at which locations and for how long volunteers have stopped. The data logger is able to record up to 20 hours of information, for practical purposes, there are no temporal restrictions. One disadvantage exists, and that is how entry and exit points must be predetermined because the GPS tracker needs to be issued and collected. Volunteers also might not visit certain areas, for example, if they feel that such locations are somehow “forbidden”, and this would be traceable in the aftermath.

In summary, the combination of face-to-face interviews and GPS tracking is a more promising approach to record park visitor movement. Rather than being put into the position of “subject” and “respondent”, “volunteers” just need to agree to carry a small device along with them during all times of the park visit. The GPS tracker can be configured and programmed before each use.

5 DATA AND METHODS

GPS tracking was applied to collect data on visits of the Bergpark Kassel Wilhelmshöhe in 2013 and 2014. A questionnaire was used, in addition to collecting movement date, in order to learn what motivates people to visit this park, and also to include some basic information such as age, frequency of park visit, etc..

5.1 Data

When collecting data at Wilhelmshöhe Park attempts were made to capture a somewhat representative visitor sample. The survey was therefore conducted on different days of the week and during different seasons. There was a total of ten survey days. Data collection took place on Wednesdays, Saturdays and Sundays, between 11:00 and 17:00 hours, during November 2013 and May 2014. Entry and exit points were set at six different locations. In total, data was collected by 504 persons who volunteered to carry the GPS tracker and respond to the questionnaire.

The distribution of data collected during the two seasons was similar: 253 people during winter, and 251 during summer. Approximately 11% of the data was not available for analysis due to erroneous recordings in the GPS logger. The total number of useable observations was on 450 visitors. Data collection was based on voluntary participation, and dates and locations of data collection were fixed. These are limitations that must be considered during data analysis and interpretations of results.

5.2 Methods

The statistics gained from data analysis help describing frequency distributions and correlations were made on the basis of visitor interviews that were completed. Analysis was performed using chi-square test (χ^2 test), T-tests (F-value) and Mann-Whitney U test (Z-value). A cluster analysis was also performed in order to find out which visitor groups share certain characteristics and patterns of movements and behaviour. Differences in clusters have been identified relating to differing levels of statistical significance.

Cartographic analysis of the GPS data indicate how mainly two types of visitors seem to exist that move very differently within in the Wilhelmshöhe Park. It is possible to find out and understand, by data correlation, to which extent questionnaire responses are linked to actual behaviour recorded by GPS tracking. For this purpose, a spatial GIS model was constructed which links the questionnaire data with mobility path data of visitors. As several questions in the survey are linked to the motives and objectives of visitors, such as particularly preferred sites of visit, data correlations helped to differentiate visitor types. Thus, after conducting the cluster analysis, researchers were able to separate the GIS movements particularly of two groups of visitors, and it became possible to see whether movements of people belonging to specific groups were different in statistically significant ways. A density analysis was performed that makes it possible, for example, to filter out whether and to what extent certain paths and park routes were frequented, and whether or not routes were used by particular groups.

6 RESULTS

6.1 Cluster analysis

Cluster analysis helped identifying and dividing 370 of the 450 people who used trackers into two significantly different groups of park visitors (the remaining 80 are

considered as outliers). The two groups can be identified as “Locals” (Type I 207 people) and “Tourists” (163 persons Type II). From these two groups a number of differences were tested for significance regarding several variables and also regarding different needs and behaviours. Differences in needs and expectations could be cross-references with results from cartographic analysis.

In addition to the two groups of visitors, two different types of orientation strategies became apparent: The first strategy is most commonly used by those who spontaneously and intuitively orient themselves (65%); the second strategy is shared by those who prefer to always be well prepared in advance of their park visit (35%).

The spontaneous / intuitive people seem to have no aversion to ask others for help when needed.

If lost or in trouble, members of this group may also resort to using a mobile phone to seek some guidance, and then may continue relying on their own intuition (at least according to the statements members of this group made). The largest segment of this group indicates, during interviews, that their fear of disorientation is low. The people, on the other hand, who are always well prepared to meeting orientation challenges, may have brought a map or a navigation device at the ready; they usually look for signs in an emergency as well as seeking out information booths in advance. These two different approaches to orienting and navigating through the park require different approaches to preparing and managing park guidance systems.

6.2 Cartographic analysis

Employing cartographic (GIS) analysis the two groups mentioned above were examined more closely regarding their movement and behaviour. Maps 1 and 2 illustrate results of this analysis. The movement of all 450 participants differs according to different



Map 1: movement of all 234 participants in November 2013



Map 3: circulation patterns of Locals



Map 2: movement of all 216 participants in May 2014.
Different movement of Locals and Tourists from the starting point "4" – Castle Wilhelmshöhe



Map 4: circulation patterns of Tourists

(2015): maps taken by author

seasons. All lines of movement were superimposed and differentiated according to survey periods.

Interestingly, during winter, a larger area of the park is being visited than during summer (Map 1). During summer, however, visitors increasingly focus on what might be considered the core area of the park: That is the area located in between the Wilhelmshöhe Castle and the Hercules Monument at the top of the hill (Map 2).

With respect to people's orientation different movement patterns were documented. Differences in patterns may have several reasons: Firstly, it seems as if the winter park visitors are mainly locals; these are people who are familiar with most or all of the park attractions and simply visit the park to relax or engage in some activity such as walking. In addition, if visitors like to enjoy the best view of the park design and lay-out winter might be the best time for that, because the trees have no leaves; wide open views also makes navigating and orientation easier.

In summer, it seems, many visitors are almost automatically directed towards the widely exposed corridor of the central axis that links the castle and the Hercules Monument. Both of these two structures are large and can be seen from far away; they serve as important spatial orientation points for tourists who come to visit Kassel and the famous Bergpark Wilhelmshöhe mainly during the summer months. In addition, it might be important to consider how access to some of the wilderness areas within the park is restricted. Therefore, most visitors move in the areas of the highly publicized sights and highly visible structures.

The two maps (Map 3 and 4) illustrate results obtained on circulation behaviour of people who are starting at starting point "4" at Castle Wilhelmshöhe). Using density analysis of the GIS, it is possible to map the routes people choose to take and to identify if routes were highly frequented, seldom used, or not used at

all (red = very busy, yellow = moderate, green = infrequent). The red dots indicate where subjects felt “disoriented” (Not discussed in the context of this paper).

Considering the mobility behaviour of participants starting at point 4 (see map 3) it is noticeable how many visitors move and increasingly remain in the eastern section of the park. To a certain extent this behaviour is due to the topography. The park becomes increasingly steeper towards the west. In addition, there are less-visible areas in these park sections and the central axis increasingly merges with adjacent forests.

A comparison of circulation patterns of Locals (Map 3) and Tourists (Map 4) reveals that park visitors who are mainly moving within the eastern park sections are, to a large extent, the Locals (Visitor type I). Locals who wish to visit the Hercules Monument, for example, usually select the longer but less strenuous way, and that route also leads away from routes that tourists usually choose to take.

Comparing movement patterns of locals and tourists it is the latter who try and incorporate all three main park attractions into one route: Wilhelmshöhe Castle (in the east), the Lions Castle (in the south) and Hercules Monument (in the West). Tourist movement patterns are mainly tied to and (when possible) along the central axis of the park.

7 SUMMARY AND CONCLUSION

When, compared with similar research methods such as “observational tracking” or “time- space budgets” (Bauder 2012), GPS tracking offers many advantages; these advantages are mainly due to the high degree of accuracy of the method and the tools applied. The power of GIS data is increased when complemented by survey data. This combined and integrated methodology is well suited to investigate circulation patterns of the Bergpark Kassel Wilhelmshöhe, particularly so in terms of visitor orientation. GIS offers a diverse set of spatial data of great accuracy. On this basis highly differentiated analysis may be performed, for example to gain specific insights into differentiated visitor behavior. Based on the questionnaire, additional data was obtained and correlated with GIS data, and important information was thus generated such as to the origin and interests of visitors. Such information provides relevant contextual background information for researchers to better interpret the GIS data. Combining survey and GPS data has recently been developed also in other areas of geo-informatics (Bauder 2013).

Public open spaces such as Bergpark Wilhelmshöhe provide service to multiple and different user groups. Visitors will probably have different orientation needs based on their sense of orientation and on the aims, objectives, and motivations of their visit. On the basis of research findings, such as the ones obtained in this study, planners and park managers may be better able to derive strategies for improved visitor orientation. For example, park management may decide on enhancing signage to better guide visitors through the park and also to highlight park features that are important to different user groups. In addition, park planners may design different routes for different user groups, indicating trip duration, distances and altitudes. Based on empirical findings such route designs may help visitors to better experience and enjoy the park.

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FIGURES

Fig. 1: (2011) Wasserkünste und Herkules im Bergpark Wilhelmshöhe: Nominierung zur Eintragung in die UNESCO-Welterbeliste, Fig. p. 18

Fig. 2: (2014) picture taken by author

Fig. 3: (2014) picture taken by author

Fig. 4: (2015) Signaletik/ Signage, <http://www.gourdin-mueller.de/leitsysteme?prj=9>.

COMMUNICATION OF VIRTUAL ENVIRONMENTS IN LANDSCAPE ARCHITECTURE RESEARCH LANDSCAPE VISUALISATION FOR PUBLIC PARTICIPATION

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ABSTRACT

In the early ages of digital 3D landscape visualisation it was at best used as a tool for the visual representation of a project, or for visualising the results of the planning process. Since then, visualisation has become more and more interactive and with the development of real-time visualisation software, new opportunities for landscape architects and planners arose due to the availability of these new tools. Participatory processes in landscape planning and decision-making have a long tradition and they have been pursued with varying levels of intensity since several decades. Instead of a traditional formalized top-down process, the importance of integrating the local population and a wide range of stakeholders into the decision-making process is increasingly emphasized. This is paralleled by the trend that the traditional way how planning is communicated, i.e. with reports, diagrams, tables, 2D-plans and static images in perspective view, is also changing. As a logical development stemming from the need to communicate contents of planning and design proposals to stakeholders in recent years we have seen an increased level of research and applications of 3D landscape visualisation in public participation. The Alport Valley in the Peak District National Park (UK) is currently undergoing a major transformation including massive felling schemes taking place over the next decade. Using the Alport Valley forest landscape management project as a real-world case, perceptions of a range of stakeholders while moving through a virtual environment over time, are investigated. In this study dynamic visualisation is preferred compared to static visualisations. Landscape visualisation can help to visually communicate spatial characteristics of potential changes in future landscapes to stakeholders.

* Parts of this paper will appear in a more comprehensive book chapter on static, dynamic and immersive landscape visualisation for public participation to be published in a book edited by Adri van den Brink, Diedrich Bruns, Hilde Tobi and Simon Bell on Landscape Architecture Research Methods, Routledge, Taylor & Francis.

INTRODUCTION

In planning and design static representations of our environment with a pre-determined and fixed viewpoint such as hand-drawn sketches or perspectives are still most commonly used. However, also animated walks or sequences are increasingly used in communicating with stakeholders, experts as well as lay people. Virtual environments offer the opportunity to move around and explore. Gibson (1979), in his theory of ecological perception, underlines the importance of looking around and moving about (see also Nassauer 1995).

This study follows an experimental strategy. A mix of quantitative and qualitative approaches is pursued to investigate how real-time virtual reality models are used in a participatory stakeholder workshop (see also Stokols 2011, Schroth et al. 2011) using the case of the long-term management plan for the Alport Valley in the Peak District National Park in the United Kingdom.

THE ALPORT VALLEY CASE STUDY

The Alport Valley forest landscape management project is used as a real-world case in order to look into the potential use of immersive and freely navigable virtual environments, as opposed to pre-determined animation paths, when engaging with stakeholders.

A time series of future landscapes is developed from a forest management plan and translated into 3D visualisation models. These are explored and assessed in two workshops in an immersive environment facility involving the relevant stakeholders from the National Trust (the main land owner), the Forestry Commission, the Peak District National Park Authority, the British Mountaineering Council, the Campaign to Protect Rural England, Friends of the Peak District and The Kinder and High Peak Advisory Committee.

The Peak District National Park was established in 1951 as the first national park in the UK. While



Fig. 1: Plantations in the Alport valley. Most trees in the foreground are felled, some dead trunks are still present after ring-barking.



Fig. 2: Plantations in the upper Alport valley with tree fellings. Native seed trees on the right side are remaining.

the surrounding upland plateau is very exposed and without any trees, in contrast, the Alport Valley is a sheltered and forested landscape. It is essentially 'traffic-free' and fulfils an important function for tranquil enjoyment for walkers and hikers.

As a result of policies to provide the UK with a strategic timber reserve (see e.g. Essex 1990), mostly in the first half of the 20th century dense coniferous forests dominated by non-native species including Sitka Spruce (*Picea sitchensis* (Bong.) Carrière), with smaller stands of Japanese Larch (*Larix kaempferi* (Lamb.) Carrière), Lodgepole Pine (*Pinus contorta* Dougl. Ex Loud.) as well as native Scots Pine (*Pinus sylvestris* L.) were planted for fast growth.

Such large areas dominated by non-native trees are in conflict with the notion of a national park. Initial proposals for large scale timber extraction, including the construction of suitable access roads for heavy logging trucks, caused major opposition. Subsequently, a joint planning approach integrating the key stakeholders and landowners as well as the views of the public was pursued. As a result of the collaboration among the stakeholders the Alport Valley management plan was developed. This includes unconventional measures such as trees felled to rot on site as well as ring-barking of trees (see Lange & Hehl-Lange 2010a). Both measures had been introduced because of the predicted impact on the tranquil valley associated with the removal of the logged trees and construction of new access roads.

In line with forests requiring adaptation to climate change the overall aim is to establish native woodlands mostly by natural regeneration through the preservation of individual native seed trees and partly if necessary through active plantings and seeding with material of local provenance. This process will take place over several decades.

VISUALISATION

The virtual landscape model of the Alport Valley consists of a digital terrain model (DTM), an orthophoto and a range of object types such as trees, dry stonewalls, buildings, paths and the sky as a backdrop. The DTM is based on an original map scale of 1:10'000 and has a resolution of 10 m. The resolution of the orthophoto is 1 m. This orthophoto is draped over the DTM using the visualisation software Simmetry 3d. The terrain along the access path in the Alport Valley was edited manually to provide a smooth terrain.

The geometry of the buildings is constructed in Sketch-up. In order to achieve a realistic representation of the built objects they were photographed in the field and their textures applied to the building geometry. Similarly, for the vegetation a library of geo-specific textures that were acquired on-site is used. In addition to billboard textures, in prominent locations along the main access to the valley also trees with texture-mapped 3D-geometry (Lenné3d, Paar 2003) were included.

The visualisation of several thousands of trees while still being able to move around in real time was a major challenge that required fine-tuning with several iterations of the model. The landscape is shown in several stages over time (Lange & Hehl-Lange 2010b): '2005' before forest management activities began, '2020' after harvesting most of the existing woodlands, '2030' when new woodlands have started to be established and '2090' the proposed 'final state' with oak-birch woodland.

STAKEHOLDER WORKSHOPS

A key issue for success in conducting stakeholder workshops is to identify and involve the relevant stakeholders. Only then, there is a strong potential that the discussions from stakeholders workshops lead to concrete action on the ground.

The workshops were held in the virtual reality studio of the University of Sheffield. To provide unobstructed views for the participants chairs were placed at the back of the room approximately 3–4 m away from the screen (3 m × 2.5 m) in a semi-circular arrangement.



Fig. 3: Visualisations used in the Stakeholder Workshop

Prior to the actual stakeholder workshops a test run was conducted in order to eradicate any potential issues and provide for a smooth operation. Because of the limited availability of the stakeholders it turned out to be impossible to find a joint single slot, and therefore the workshop was conducted twice. In total 11 stakeholders participated in the workshops.

The workshops gave the stakeholders the opportunity for the first time to see the management plan and the landscape as it would develop over time in three dimensions. In the workshops the stakeholders were shown 4 × 5 static images (each of the four landscape models represented through 5 images, with 5 seconds per image) and animations at 20 frames / s along a stretch of approx. 200 m of the sole access route in the Alport Valley. The speed of 8 km / h corresponds to the pace

of a jogger. Following this the stakeholders had the opportunity to explore the virtual environment on their own. Then they were asked to answer a short questionnaire with four questions for which the answers could be given on a five point scale with tick boxes (ranging from 'not at all' / 1 to 'very much' / 5). The four questions were: 'to what degree do the following types of visualisations help you to envisage the landscape?', 'to what degree do the following types of visualisations help you to understand where you are in the landscape?', 'to what degree do the following types of visualisations help you to understand the visual transformation of the landscape in the future?' and 'how helpful are the different visualisations for you to participate in the forest management plan for the Alport valley?'.

RESULTS

For a detailed quantitative analysis the sample with 11 stakeholders is rather small. A particular focus was put on gathering qualitative feedback (e.g. Lewis & Shepard 2006, Schroth et al. 2011).

After the stakeholders saw the images and the walk-throughs along the pre-recorded animation path they were encouraged to get up from their seats and move towards the screen to try exploring the virtual environment at their own pace and along their own routes. In particular when they moved away from the path and explored the whole valley suddenly they showed spontaneous surprising reactions and commented on the visualisations such as: "It's fantastic, this is brilliant", "The river there! That's actually the view!", i.e. immediately they related their own experiences and geographic knowledge to what they saw on the screen, or even deliberately went to explore particular locations.

In comparison to the still images ("the still images added very little, whereas the real time navigation was amazing and added real value") the stakeholders made it clear that the navigation brought the

landscape to life ("captures the visual sensation of being in the valley from different vantage points"), because it gave them a sense of place and scale, expressing a feeling like being in that landscape, as well as a sense of ownership and control as they could explore the landscape freely ("being able to navigate through the valley was a useful experience"). The visualisations were seen as providing a good representation of how the landscape might look in years to come.

Some stakeholders wanted to see more foreground details such as shrubs or fences ("good to show some more boundaries") to give more reality to the visualisation. For the majority of the stakeholders the overall impression of the landscape as a whole is the key factor ("at the scale of grand landscape the model is at its best") as well as the ability to show how to manage large landscapes ("overall it has given me great benefit and understanding on the impacts that the proposed felling and plantation will have"; "the visualisation will help to consider whether the landscapes we are working towards will meet our original objectives").

The analysis of the responses showed clear patterns in terms of how the different representation media are rated. In general, there is a clear trend for all four questions that the real time self-navigation scored higher than the animations, while the animations scored either equal or in most cases slightly higher than the images. Self-navigation consistently received the highest ratings, with the majority of the responses in the highest possible category (5). Depending on the questions in some cases the stakeholders treat the three representation methods (images, animations, self-navigation) as equal.

DISCUSSION

The results provide quantitative and also qualitative information of people's perception regarding the use of static imagery, animations and

interactive computer visualisations as a basis for making decisions about our future landscapes.

All the stakeholders know this landscape well. The question referring to the role of visualisations for participation in the management plan for the majority of the stakeholders (6 out of 11) either visualisation approach resulted in high scores averaging clearly above 4, whereas 5 out of 11 clearly favour the real-time navigation over images and animations.

In particular the open comments that were gathered beyond the rigidly structured questionnaires gave further insights that would not have been received by only relying on a typical questionnaire format.

In terms of scheduling participatory events a key effort is needed for organising the events. This should not be underestimated and on the side of the hosts it needs thorough preparation and scripting. When digital landscape visualisations are used as an integral component of the process (e.g. Gill et al. 2013) this will add further complexity to the setup. Detailed choreography is absolutely essential but can only account to a certain degree for the unpredictability of the focus of the aspects investigated when involving the public. While the level of complexity is relatively low when only static landscape visualisations are used, the challenge when using interactive landscape visualisations increases considerably. Compared to the classical workshop setting in addition this needs a correct and interactive landscape model, as well as a skilled operator and a moderator guiding and structuring the process. It also needs participants willing to engage.

CONCLUSIONS

In forest management long term planning decisions are made today but they will impact future generations. 3D visualisation gives us the opportunity to decide on the

effects of forest management decisions today and to see what future generation will potentially experience.

Regarding the presentation mode as being perceived by the user/stakeholder it seems not so much a question of static (an image) vs. dynamic representation (an animation along a predetermined route) but the real benefit lies in the possibility to explore virtual environments freely. This resembles the behaviour of a real person in a real landscape the most, or even goes beyond, as in virtual representations of real environments a user can easily navigate to perhaps otherwise inaccessible locations.

In addition to the visualisation approaches used in our research current developments for augmenting the real world with textual or graphical data (e.g. Gill & Lange 2013) are likely to play a more important role in the future.

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LANDSCAPE ASSESSMENT IN GERMANY – THE ROLE OF THE EUROPEAN LANDSCAPE CONVENTION

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ELC, landscape Assessment, Construtivism, Landscape Perception

ABSTRACT

More than 200 different landscape assessment methods exist in Germany, most of them rely on expert judgment and only a few are embedded in participatory approaches. More recently, landscape researchers and practitioners decided to take up the message of the European Landscape Convention (ELC) and started to develop landscape assessment methods that include members of the public. A variety of new approaches of which many make use of modern media, especially PPGIS, online surveys, etc. have been developed and tested. Participatory approaches that are among the most innovative group of methods share common elements of public involvement and this paper provides an overview and critical discussion particularly of WEB/GIS based participatory landscape assessment methods. Examples are selected to illustrate how such methods are applied at different scales, including state, regional and municipal scales. Three classes of approaches can be identified: Expert's methods that are based on singular experts evaluation, participatory methods highlighting the individual and public perception and hybrid methods combining approaches from the before mentioned categories with landscape metrics analysis. For each category one example is presented in detail.

Participatory paradoxes are identified and possible solutions to overcoming challenges of public lethargy, inclusiveness, representativeness and timeliness of involvement are discussed. Findings from German cases are reviewed with reference to similar lessons learned in other European countries. Even though Germany has not yet ratified the ELC, the message of the Convention has, through landscape assessment practice, effectively become part of the everyday planning culture. Moreover the variety of approaches developed in Germany could also offer inspiration to researches and practitioners other European countries.

INTRODUCTION

German approaches to landscape assessment appear to be mainly concerned with 'Landschaftsbild'. 'Landschaftsbild' refers to visual aspects of a 'Landschaft'. Distinctions made between 'Landschaft' and its visual appearance ('Landschaftsbild') in German planning legislation, and the lack of national standards, are at the root of a methodological development that has led practitioners to adopt a variety of different landscape assessment methods. Most landscape assessment in Germany relies on expert judgment and few methods are embedded in participatory approaches. Assessment results inform and guide statutory and informal landscape planning, design and management. Examples are selected to represent identifiable groups of landscape assessment methods that the majority of practitioners use.

'LANDSCHAFT' AND 'LANDSCHAFTSBILD'

In German 'Landschaft' (landscape, countryside) has two main meanings; both are closely intertwined (Ipsen, 2012: 61; Kühne, 2015). First, a 'Landschaft' is a territory, an expanse of land which is distinctly different from any other area. The second meaning refers to the perception that people have of such a particular territory (Kluge & Seebold, 2002). In German planning methodology this perceptual aspect is traditionally reduced to the visual aspects named 'Landschaftsbild'. More recently discussions have been moving towards a broader landscape concept, one that includes not only visual but all of the senses, and also one that considers processes of perception that includes cognitive evaluation.

Ipsen (Ipsen 2006) and, in recent years, Kühne (amongst other Kühne 2006) have developed theories on landscape perception that help to understand landscape perception and valuation (Fig.1). According to these constructivist theories, individual and societal landscape perception is mainly based on emotional and aesthetical landscape appreciation, while expert perceptions are mainly cognitive and based on (largely

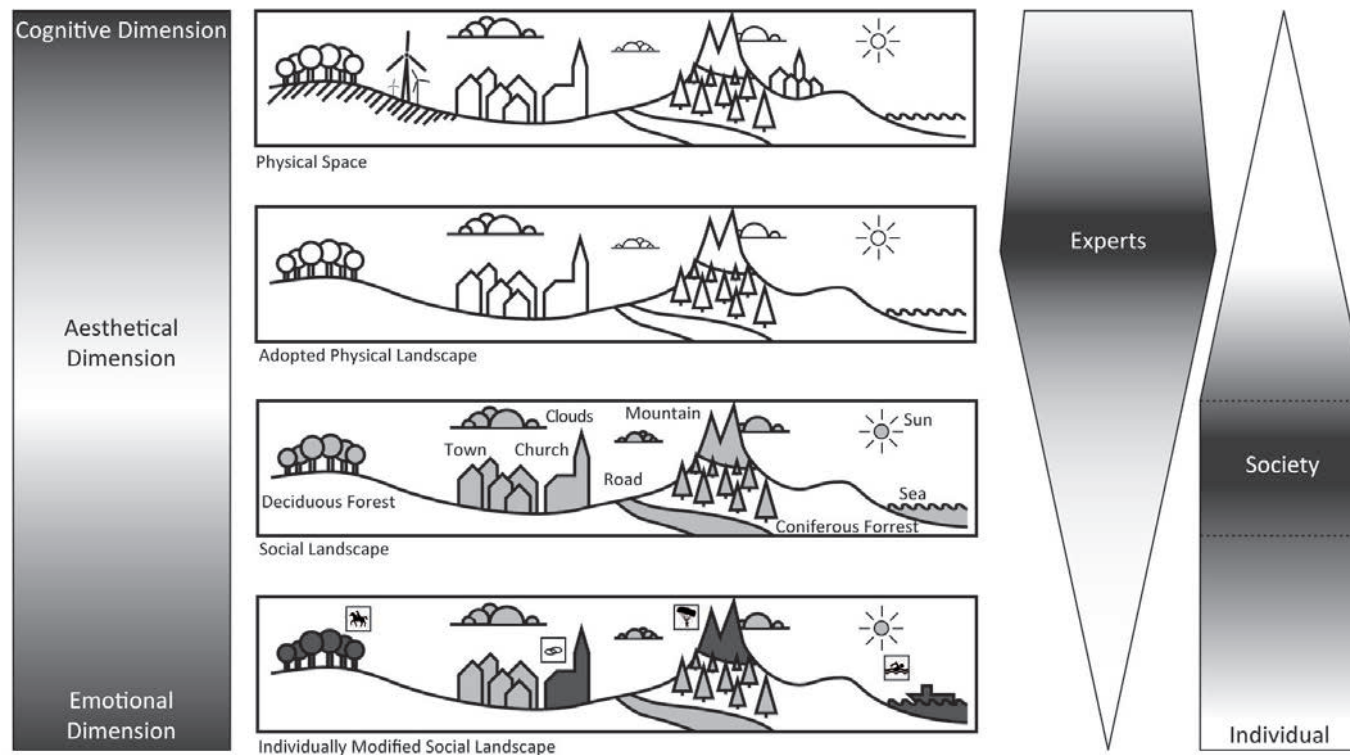


Fig. 1 Construction of landscape according to Kühne 2006 & Ipsen 2006 (Stemmer in Preparation)

positivistic) understandings of physical space and physical landscape elements, while aesthetic and emotional evaluation might run in the background.

A MULTITUDE OF APPROACHES AND METHODS

According to a recent survey more than 200 different approaches and methods to visual landscape assessment are documented in Germany and most are expert based (Roth 2012, p. 84). There is no federal (national) guidance to landscape assessment but, instead, every one of the 16 federal states has issued specific legislation concerning landscape.

The one overarching rule that all administrators and practitioners must follow, at least in the contexts of statutory planning, is that of the Federal Nature Conservation Act (Act on Nature Conservation and Landscape Management (Federal Nature Conservation Act – BNatSchG), most recent and amended version entered into force 01.03.2010.)

According to this legislation three main aims and objectives must be referred to: (1) diversity conservation, (2) material and physical functioning and (3) the experience and perception of nature and landscape (Bruns et al. 2005, p. 222). For the latter the conservation act provides guidance by specifying that beauty ('Schönheit'),

diversity ('Vielfalt') and the specific quality and character ('Eigenart') of nature and landscape must be considered in landscape assessment, planning and management (including the consideration of recreational values).

All of the terms used in the act are vague concepts. Experts are left to define the meaning of each of these concepts for purposes of practical application. Approaches that have been adopted may be grouped by the landscape concepts they subscribe to and arranged along a gradient where the object focus is at the one and the subject focus is at the other end (Roth 2012, pp. 73–86). While the former is concerned with material objects of physical space (positivist), the latter is concerned with the image and picture that people ('subjects') perceive (constructivist).

The object focus pertains mainly to expert based methods, including those that make use of landscape metrics, thus attempting to generate, through surveys of the physical world, information that is processed as sensory experience. On the other hand, in order to better understand the interaction between people's experiences and their ideas of landscape, the subject focus relies, at least partly, on public involvement into landscape assessment. While the object focus approaches derive landscape values from the law and from expert judgement, the subject focus approaches try to learn what people give value to in their surroundings (by applying methods of environmental psychology, sociology, etc.).

Most practical applications include elements of both, the subject and the object focus. The following three examples serve to illustrate current landscape assessment practice.

EXAMPLE 1 LANDSCAPE ASSESSMENT FOR STATUTORY LANDSCAPE PLANNING,

In order to make spatial planning more efficient several municipalities may get together and form planning

Tab. 1 Steps performed for the assessment of landscape in example 1

A	B	C	D	E
Definition and delineation of landscape 'units' according to physical properties:	Landscape survey and inventory of information pertaining to	Landscape assessment, performing rankings separately for	Viewpoint assessments	Cultural heritage (monasteries, castles, ancient monuments) assessment
Topography and land form	Diversity	Diversity	Visibility	Visibility
Land use and land use pattern, visual (structural) landscape features (elements)	"Eigenart" (quality, character)	"Eigenart" (quality, character)	Lines of view	Lines of view
Natural and cultural elements/features that define and lend identity to a landscape	Beauty	Beauty		Impact on appearance of sites
Overall visual appearance of a landscape	Exposure to impact	Exposure to impact		

authorities. In the following example, seven municipalities, including the city of Baden-Baden, organised themselves to prepare documents for Wind turbine planning. Baden-Baden is a city in Baden-Württemberg, a state (Land) in the south-west of Germany. According to state guidelines landscape is important to consider in the context of renewable energy planning. For example, landscape values may lead to excluding wind turbines from areas of high scenic and recreational value.

Statutory planning documents, such as land-use plans and official landscape plans, are expected to be structured as a modular system where the perception and experience of nature and landscape has one important part (Bruns et al. 2005, p. 222). In this example, all relevant documents have been prepared by a private landscape planning office (Hage et al. 2014). In this case, landscape assessment is mainly expert led and methods are employed that subscribe to the object focussed approach. The method used for visual landscape inventory and assessment includes the following steps (see table 1):

In step (A) landscape units are initially defined on the basis of GIS-analysis and the results are then

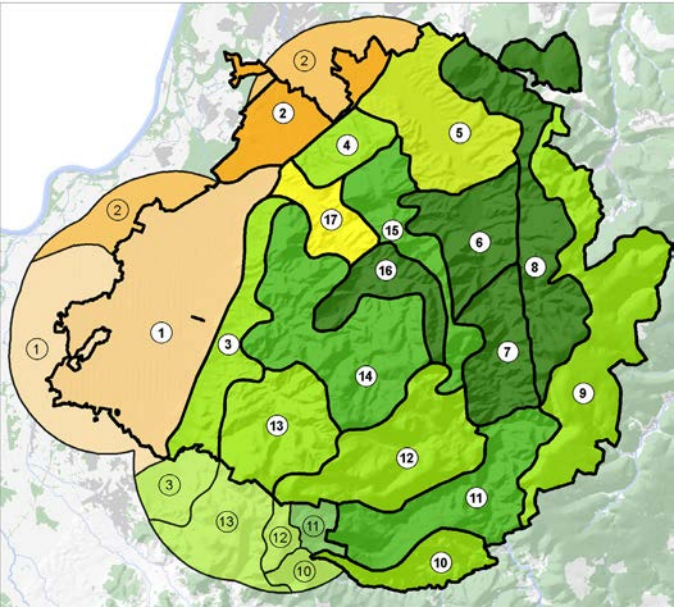


Fig. 2 Result of steps A-C: Assessment of landscape units using identifier numbers (dark green = high value; brown = low value) (Hage et al. 2014, p. 33)

verified and further detailed by field reconnaissance. Surveys and inventories (B) are carried out by employing standardised survey sheets, first starting with a desk study which is followed by field surveys. Collected data are documented using GIS procedures, ranking scales are proposed and decided on, and each landscape unit is individually assessed based on expert judgement (C) (Fig. 2).

A total of 17 discrete landscape units have been identified. These units were presented in the form of maps (Fig. 1) and documented in detail (data base, GIS). The following Steps D and E led to the evaluation of cultural heritage sites as well as of viewpoints and view sheds.

The results of the landscape analysis serve as a basis for municipal land use planning and these official planning documents provide guidance for future development, including landscape management and the assessment of and compensation for landscape impacts.

EXAMPLE 2 LANDSCAPE ASSESSEMENT USING WEBGIS TECHNOLOGIES

The landscape planning for the 'Ostwürttemberg' region is presented as an example where members of the public are invited to take part in landscape assessment procedures. The region is located in the eastern part of the state (Land) of Baden-Wuerttemberg. Landscape planning documents are prepared for purposes of regional planning. Similar to municipal planning most expert led visual landscape assessment at regional scale also employ methods that include a number of different (physical) phenomena, parameters and criteria, such as those explained in the first example above. Different approaches are needed, however, in order to try and understand what non-experts perceive, experience and give value to in their region. The aim, in this particular case, is to perform an expert led landscape assessment and, in addition, a public based landscape assessment, and to perform a kind of co-operative landscape

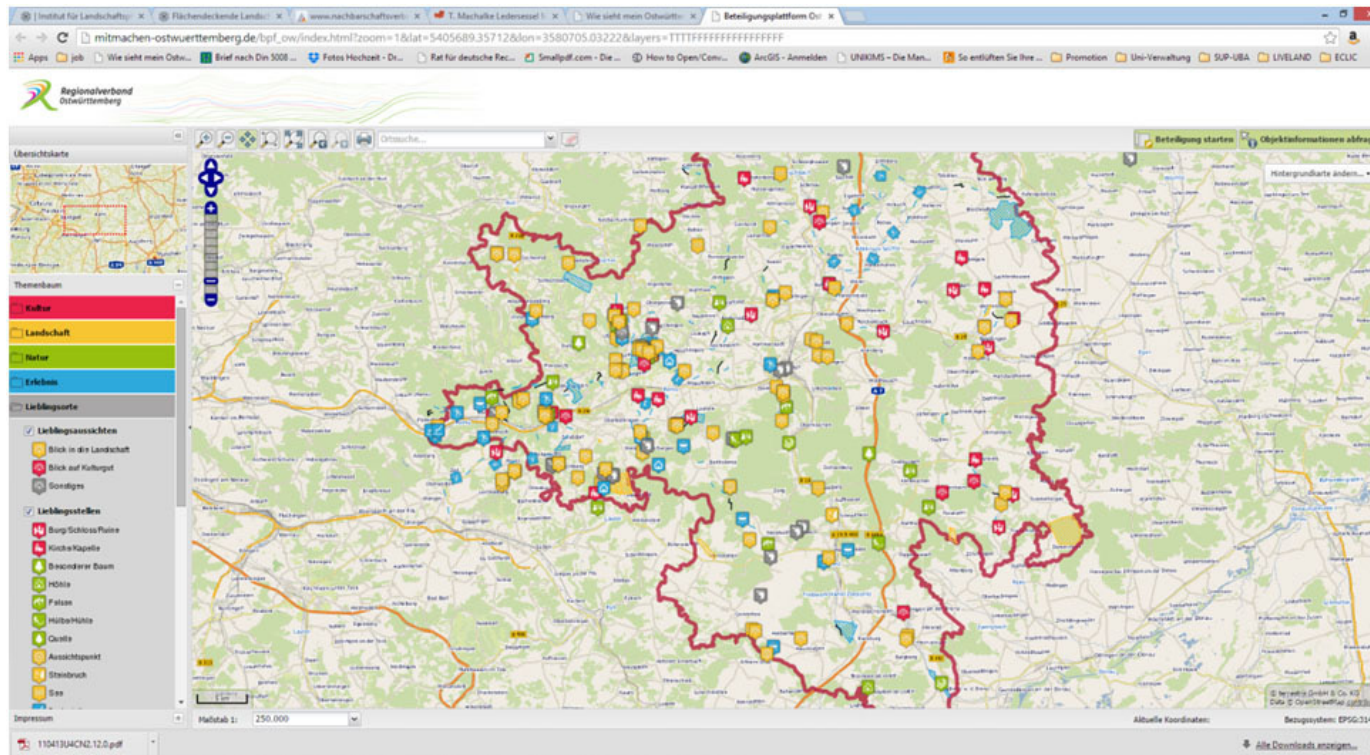


Fig. 3 Screenshot of the online platform „mitmachen-ostwürttemberg.de“

assessment using both. This participatory evaluation is funded by the Federal Agency for Nature Conservation (BfN) and the Landesanstalt für Umwelt, Messungen und Naturschutz Baden-Württemberg (LUBW)

To facilitate public involvement an online platform called 'mitmachen-ostwürttemberg.de' was created. Members of the public are invited to identify and mark their most favourite places, paths and areas on an interactive map (Fig. 3). Using a system of categories people can choose one or more locations and describe them in a narrative way, for example by writing short comments (Stemmer 2015).

The approach taken for the region of Ostwürttemberg aims at establishing cooperative landscape assessment as a standard for regional landscape and spatial planning. One way of making public assessment results compatible with statutory planning is to use predefined categories such as catalogues of landscape features and elements that match those contained in official planning documents. All information that members of the public are unable to fit into existing categories and catalogues may be submitted as written text. These explanations are subjected to systematic content analysis using qualitative methods. All recorded messages are thus processed and entered into the overall landscape assessment which now includes information on people's emotional attachment to

certain places and areas, on people's aesthetic appreciation of landscapes, and on which areas are perceived and noticed as valuable while others are not. Maps that result from public involvement are expressions of which locations and areas are mentally constructed, by local people, as attractive and valuable landscapes.

The areas perceived as special places and as highly valued landscapes are not equally distributed across the region. Some 'hotspots' seem to exist; these may point at areas that are particularly cherished. However, a number of factors must be considered such as the strategy used to invite and activate people to participate and also the fact that ongoing land use changes and projects might influence people's landscape awareness. With 280 inputs the overall participation level was good; this may partly be subscribed to a number of face-to-face events that helped much to engage people. The overall feedback given by those who were involved was very positive (Hoppenstedt et al. 2015). The analysis of this project is still ongoing. However, the results obtained so far provide evidence about people's landscape perception, and this is the evidence needed to help inform landscape assessment regarding the perception and experience of landscape beauty ('Schönheit') and recreational value.

EXAMPLE 3 HYBRID METHODS AND LANDSCAPE METRICS

Using the examples of landscape planning for the states of 'Baden-Württemberg' (Roser 2013) and 'Saxony' (Roth and Gruehn 2010) two similar approaches are presented where expert led and participatory methods are combined and integrated. For the purpose of landscape planning at state scale the aim is to produce landscape assessments that cover all of the state territory. Since it is difficult to activate a large number of people to get involved in state wide planning processes, the task at hand cannot be fulfilled if people are simply invited to highlight those locations that they particularly cherish (as is the case in the second example presented above). A different approach is

needed. A method was selected where people's judgments are considered in an indirect way. GIS support has proven to be extremely useful in this context.

The approach taken employs elements from expert led methods (example 1) and from participatory methods (example 2). As is the case with most "hybrid" landscape assessment methods the assumption is that spatial configurations of landscape features and structural elements are related to people's landscape perception and preferences, and that measures of spatial constellations may be considered suitable to be used as indicators for visual landscape assessment at least at federal state scale; at the same time aspects of immediate landscape experience and emotional attachment are excluded. The method used here is based on results obtained from empirical inquiries into people's landscape preference. Criteria and indices for landscape preference are established and then linked to land-use and land-form data.

The empirical basis for landscape assessment has been obtained by asking people to take part in preference rating exercises where several photographs are ranked according to different criteria (Roth and Gruehn 2010); this kind of approach has a long tradition (e.g. Daniel and Boster 1976). Even though landscape perception is, in this process, reduced to visual perception ('Landschaftsbild'), findings from empirical research suggest that a number of criteria exist that may reliably help predict landscape preference (Roth 2012, p. 105). Landscape metrics are used to link public landscape preference ratings obtained from photograph rankings with measurable landscape features using GIS. Preference rating scales are applied to these landscape features and landscape assessment maps are generated (Fig. 4).

Maps that result from involving members of the public while establishing an expert led assessment system are of a hybrid nature. These maps are expressions of what may generally be considered attractive and valuable landscapes of the state (Land). This

Establishing the empirical basis (public based landscape assessment)

- conduct public survey
- conduct assessment and ranking of photographs
- enter results into a Public Participatory GIS

Identifying landscape features that link to high ranking results

- landscape elements and structures
- landscape objects
- establish links between landscape and ranking results

Establishing landscape metrics in the GIS

- landscape morphology, topography
- landscape objects, elements and structures
- ecosystem information

Analysis of (predicted) landscape preference (GIS based)

Fig. 4 Procedure used to link expert based and public landscape assessment (Stemmer 2015, p. 84)

information is politically highly relevant and, in fact, one that has never before been available in the same quality. The judgements made are, however, not transparently exposed because the information that maps contain cannot be traced back to individual judgments made during picture rating exercises.

The output gained by applying this approach is considered as valid and reliable (Roth 2012). Evidence is being obtained that helps identify landscapes that are highly valued by the public, however the degree to which these may be representative cannot be ascertained. The methods applied allows for indirect public

participation in landscape assessment at regional and state levels. It is here where it is most difficult to engage people for purposes of planning and to include individuals in assessment activities. This method uses general preference as evidence, thus tending to neglect what is locally specific. Results are included into regional and state landscape plans that provide guidance to comprehensive and strategic spatial planning.

DISCUSSION

By and large the methods employed in the examples above represent the upper end in the practice of

landscape assessment in Germany. However, it must be cause for concern that many different visual landscape assessment methods exist and different results may be obtained if two different methods are applied to assess the same area. The analysis of hundreds of assessment approaches by Roth 2012 showed that no method that is currently used in practice meets minimum standards of validity and reliability.

Thus, as a consequence, landscape assessment is, compared with assessments made using natural science methods, not highly esteemed by decision makers. In their search out of this dilemma landscape experts are pursuing different paths. One path is to generate even more quantifiable data; another one is to involve members of the public and to not only rely on judgments made by one or two experts.

The method presented in the context of the landscape planning for Baden-Baden serves as an object oriented example; it typifies the way that most landscape experts currently choose to perform landscape assessments. The second example illustrates how members of the public may successfully be included into landscape assessment; here it is not the object but the subject and the subjective landscape experience which is of interest. Similar approaches are found elsewhere in general assessment practice, but, compared to standard expert assessments, relatively few examples exist. The third approach has proven to be useful for state wide landscape planning needs. Participatory elements are included into expert led methods for assessing large territories. For practicality sake, any links that people make, in their mind, between perceived space and landscape preferences, are very much simplified. At state scale this method is so far the only one that allows for integrating expert and public landscape judgements, and also for identifying landscapes of state importance. Everyday landscapes and landscapes that people identify with at regional and local scales cannot be assessed by using such picture-preference methods.

Non-expert knowledge has played a role at least in the second and third of the three examples, but form and degree of public involvement differed. Only in example two, local knowledge is directly integrated into landscape assessment via public participation. In this case it was possible to include many members of the public and their voice may be taken as giving expression to the 'landscape as perceived by people' that now find their way into official landscape planning documents.

This approach is thus highly compliant with the message of the European Landscape Convention. From the point of view of statutory landscapes planning this approach has one shortcoming; it includes not all of the land and territory but only those areas that people perceive, experience and value. A way forward is to combine object oriented landscape diversity and character assessments with subject oriented assessments of landscape beauty and recreational values (cooperative landscape assessment).

Local landscape values may be seen as synonymous with intangible landscape aspects (Swensen et al. 2013). In his study of public involvement using GIS, Stemmer (2015) used complementary and interdisciplinary methods to address the relationship between (local) people's and official's (expert) perspectives on landscape values; tangible and intangible aspects are thus included. Results from interviews where people are asked to describe places they value in the area in which they live have been compared with results obtained from a study prepared by official planners. This comparison shows that a gap exists between tangible and intangible understandings of landscape. To overcome this gap approaches shown in examples one and two may be combined for landscape assessment done at local and (sub-) regional scales.

When implementing the European Landscape Convention, official landscape activities can no longer be allowed to remain an exclusive field of study or action

monopolized by specialist, scientific and technical. A 'Landschaft' is, after all, "not so much the objective scenic spatial framework of a location, but a place constituted through the tangible and intangible social and cultural practices that shape the land" (Olwig, 2007: 581). It may be time, also in Germany, for a wider conception of landscape assessment, an activity partly geared towards data acquisition, but also a practice aimed at inviting members of the public to take part. In this context, two important challenges were encountered in the three examples above. The first challenge is how to include intangible values into landscape assessment. The second challenge is how to involve members of the public into assessment procedures. These challenges need to be continuously addressed both in practice and in research.

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PATH-MAKING- PERSISTENT ELEMENTS OF LANDSCAPES IN FLUX

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KEYWORDS

Resilience, Path-making, Walking, Performance, Moving

ABSTRACT

When reflecting on landscape in flux we want to understand the relationship between the flow of movement and resilient structures like paths – be it trails or paved ways. The way our landscapes are organized depends to a good degree on how people moved through them: the layout of entire cities is based on paths people used to exchange knowledge and goods. These structures seem to be relatively persistent while vegetation or buildings change more radical. Nevertheless these long-lasting paths were made by the seemingly fleeting act of walking – traditionally seen as an antithesis of permanence. A literature search and field studies in European urban landscapes give rise to say: In the act of moving there can be permanence. By walking the same route over and over again we perform a line of a landscape and we co-produce the spatiality of the path. Through walking we are able to structure the landscape, permanently contributing to a meshwork. While doing that we perceive and change the landscape as well as generate knowledge and ideas. Thus, walking can be a practise of path-making that is fleeting and constitutive at the same time. It brings together processes of landscape performance and landscape design. These findings suggest the need to reflect our concept of landscape. We also have to incorporate performative elements in it and thus extend the still dominant concept of landscape as built, static environment. In order to understand and deal with performance and its effects on the landscape, landscape architects have to broaden their knowledge on the patterns of movement and path-making. And they have to understand the processes of continuous enrooting and anchoring into the spaces we enter.

INTRODUCTION

Many landscapes change quickly and constantly and “chaos and complexity are the order of the day” (www.eclas.org/index.php/70-eclas-conference-2015). These landscapes barely provide order, or link to situations or images we have seen before. They are like encrypted languages. Is there something we can draw on in order to design them? When reflecting on these landscapes in flux it helps to look at patterns of daily life – especially those which affect or shape elements of landscapes. Having researched walking as a methodology of landscape design I say: Understanding the everyday practice of path-making helps us to clarify the relationship between the flow of movement and persistent elements like paths or acts. Creatively analysing the unconscious act of path-making can create knowledge about landscapes and consciously applied path-making can become an important methodology of design research.

The way our landscapes are organized depends to a good degree on how people moved through them: the layout of entire cities is based on paths people used to exchange knowledge and goods. These structures seem to be relatively persistent while vegetation or buildings change more radically (Humpert 2007). And they are likely to be resilient, because they are the almost unbreakable backbone and part of the genetic code of an urban landscape. Even in rapidly shrinking cities, roads and paths often are the last elements to disappear. Paths connect places people have to go to. Modes of transport might be changing but the need to move from A to B remains. Apart from that, the ways people choose to move through a landscape remain mysterious. Klaus Humpert examined people’s movements over years and found out a lot about mechanisms of path-making. However, the motivation to choose one track over another is still murky, making these paths even more powerful.

But apart from these resilient structures there are younger, fleeting ones with the same relevance. French art critic Nicolas Bourriaud describes the way



Fig 1: Weidenpesch 2; Boris Sieverts 2015



Fig. 2: Weidenpesch 2; Boris Sieverts 2015



Fig. 3: Weidenpesch 3; Boris Sieverts 2015

immigrants, tourists, commuters and urban wanderers anchor and translate themselves into the spaces they enter as “radicant” (Bourriaud 2009). These people perform complex practices of path-making, ranging from leaving barely visible traces to forming lines as they move with others to the same hub of information or provisions. These modern nomads have transformed the idea of territory: They anchor rather than settle in countries, contributing to an ever-changing ephemeral meshwork of movement, representation and disturbance. Tim Ingold says, that a meshwork is a field, not of interconnected points, but of interwoven lines (Ingold 2007: 80). For radicants lines are least as important as points.

Both resilient long-lasting paths and ephemeral traces are made by the seemingly fleeting act of walking – traditionally seen as an antithesis of permanence. Today we might have to realize that these practices of path-making are as persistent or fleeting as the built environment. To show the effects of constant movement, I did field studies in European urban landscapes and took part in different walking tours of the artist Boris Sieverts, who is specialised in path-making.

As today’s means of ground transport depends on built streets, some might suspect that constant movement on foot leading to visible paths is a phenomenon of the past. Today we might not create the entire structure of a city by walking – but walking still plays an important role when shaping landscapes, says artist Boris Sieverts. He designs walking tours and accompanies the participants of his tours through urban landscapes, offering a performance that combines situations and sequences of images. These landscape performances rely on paths people formed by following daily routines. For his new booklet Sieverts searched Google Earth and rediscovered paths he used to walk (Sieverts 2015). These paths are very often a result of individual appropriation of sites that were vacant for a long time due to pending or given-up plans to build new roads or buildings (Fig. 1 – 3). Important protagonists of this process of appropriation are dog walkers. They cross and wander about these sites on hold, structuring them with their daily routine of dog walking – often creating a circuit. Others leave traces by taking shortcuts to reach public transport stations. These paths differ substantially from the ones of the dog walkers, because they form a beeline. Sievert’s findings suggest that moving through a landscape is not only a way of using it, but actually creates it.



Fig 4: Path through cornfield in Southeast England; Henrik Schultz 2015

Path-making can be landscape-making, bringing together landscape performances and physical appearance.

The fact that the everyday practice of moving is formative for a landscape is also backed by a field study in southeast England (Schultz 2014b: 281). The right to roam cornfields led to visible paths in suburban areas, connecting points of interest in the urban fringes and depicting the behaviour of inhabitants as well as

hikers and walkers from further afield (Fig. 4). The emerging visible paths are just as much a component of the austere infrastructure as they are fleeting traces of use. Though visible, they disappear when the land is ploughed, only to later reappear again.

Another example exists right in the middle of the German city of Frankfurt along the river Main (Schultz 2015). In the highly popular Main-Park, a long stretch of green along the river, we find a clear system of paths, allowing people to enter the park and move along the river. As well as walkers and cyclists, there is a reasonable number of people who run along the river, often daily, before or after work. Because runners prefer softer ground they use a small strip of grass between the main path and the river. The result is a track, in most places only recognizable by grass that is flattened or that has a different colour because species have taken over that adapted to the constant tread of running shoes (Fig. 5). This track is a distinctive element of the park, a layer that wasn't part of the initial design. (Other elements of this layer are the spaces under the bridges used by youths as a meeting point and by homeless people as a shelter.) The signs indicating the park rules forbid using the grass for running. They are intended to keep the



Fig 5: Runners leaving traces at the river Main, Frankfurt, Henrik Schultz 2015

park as it was designed promoting a static concept that is kept in shape by gardeners. The practice of path-making performed by the runners is seen as disturbance, because it changes the park in an unplanned manner.

But before reflecting on the concept of landscape as represented by the rules allowing people to cross cornfields and preventing them using the grass-strip to run, we can state that the examples give another reason to say: In the act of moving there can be permanence. By walking the same route over and over again we perform a line of a landscape and we co-produce the spatiality of the path (Eliasson 2009: 19). And we also co-produce landscape. The performance is as strong a feature as planted trees or street lamps. Moreover, the performance of walking structures the landscape, permanently contributing to a meshwork.

Path-making is a practice of everyday life, as Michael de Certeau would have called it (Certeau 1984). By following daily routines, walkers create complex spaces. They do not only walk in the landscape – they are part of the landscape. They are a constituent element of the transformative process of landscape. The artist Richard Long has his own way to creatively reflect on the impact of repeated walking. His most famous example is the piece “A line made by walking”. In a field in Wiltshire, Long walked backwards and forwards until he had flattened the grass and a line became visible. His walking performance directly translated into a sculpture. Both Long’s movement and the resulting sculpture formed part of the landscape. Long coupled processes of movement and design and found a visual language for his interest with impermanence, motion and relativity.

In the current debate on walking and design research some argue that the performative act of path-making has always been a means of landscape design: Every walker was a path-maker and every path was an anthropic sign capable of imposing an artificial order on the territories of natural chaos (Careri 2003: 49).

Recent studies show: While walking we perceive and change the landscape and generate knowledge and ideas at the same time. This way walking can become a means of design research (Schultz 2014). Through path-making we orientate ourselves and try to understand the traversed sites. Connecting with them with our mind and through our body allows us to understand them in their relation to the whole and to unlock relevant questions and ideas. The interplay of perceiving, intuiting and reflecting allows designers to grasp the constantly changing spatial elements as an open image, which is, nevertheless, a consistent ensemble. So walking a landscape helps us to connect elements and understand their interplay – we make sense of them. Thus walking can help us to understand landscapes that lack familiar connections and constellations.

When connecting elements through walking we perform a rhythmic act that allows us to rhythmise the landscape. Walkers cross landscapes in motion – animals, people, the wind, moving clouds, sun, and shade, change the landscapes constantly. While moving and connecting views, feelings, and places, walkers get new perspectives, see things from different angles, or in a different light. The scenery becomes a spectacle in which the permanently moving walker plays a role. So walking does not only help us to create ensembles in our mind but to understand them as part of a performance, as forces in a process of transformation.

To sum up the findings so far: The practice of path-making is fleeting and constitutive at the same time. It can lead to resilient structures like paths and to ephemeral marks and performances that might be – e.g. in the case of daily routines – the actual constant of landscapes. Apart from that, walking as a special form of path-making can help us to engage with sites and to actively understand the whole of a landscape – as an image and as a rhythmic multidimensional act. We get an idea of how single paths are interrelated and which role they play in processes of transformation.

So path-making “produces” landscape both as an unconscious act of movement and as a consciously applied methodology of design research. Walking brings together processes of landscape performance and landscape design and generates knowledge. This knowledge emerges in the act of walking and while changing the object of research. When working on landscapes in flux we have to accept and appreciate this kind of knowledge. It is a knowledge that, according to Tim Ingold, “does not take place ‘up’ the levels of a classificatory hierarchy, but ‘along’ the paths that take people from place to place within the matrix of their travelling” (Ingold 2011: 160). The insights reach beyond factual knowledge. It is rather a robust, implicit knowledge (Nowotny et al 2001: 166 ff) and very important to understand complex, rapidly transforming sites.

The finding that walking can be a practise of making landscape and the fact that walking produces knowledge “along the paths” suggests the need to reflect our concept of landscape. It becomes obvious that we also have to incorporate performative elements in it and extend the still dominant concept of landscape as built, static environment. We have to emphasise the relational character of landscape.

Great thinkers have found different approaches to describe the relational character of space. Deleuze and Guattari distinguish between the smooth, nomadic space and the striated space of the sedentary (Deleuze, Guattari 2005: 683). The smooth space cannot be perceived from the distance, we have to engage with it. We have to become part of the multidimensional sensation of unfolding situations. The philosopher Maurice Merleau-Ponty characterized situational space as a space in which the moving body actively engages the world in different situations (Merleau-Ponty 1962). Situations incorporate the physical environment, our perception of it and our contribution to transforming it just by being part of it. The act of walking is an act of engaging with situations and

thus a constitutive element of landscapes. Movement multiplies the already complex process of transformation and change. Nevertheless, or even for that reason, it should be part of our concept of landscape.

There is a strong movement in design research postulating the integration of performative aspects in our concept of landscapes. Hille von Seggern describes the dynamics of landscape as a steadily changing *Raumgeschehen*, a multidimensional performative process (Seggern 2008: 224). Designers have to become part of the *Raumgeschehen* in order to understand, creatively express, and change it to find first ideas. Andrea Kahn and Carol J. Burns say that engaging with a site and perceiving its relations and dynamics is a precondition for understanding and for facilitating design thinking (Burns, Kahn 2005).

Because it helps to dissolve the dichotomy of static and dynamic and because it causes an intertwining of space and time, path-making can become a catalyst of landscape understanding and design. It promotes the fleeting act of moving as a constituent element of landscape. And it makes walking a tool to understand processes of transformation. This involves not only the professional transformation of a perceived landscape but the processes of continuous enrooting and anchoring into the spaces we enter when living our daily life (Diedrich 2013).

So, how can all this help us when designing landscapes that lack the organisation our eyes are used to? Here, the performative elements, e.g. ritualised walks or other forms of repetitive movement, rather than built structures might be the starting point. Landscape architects have to broaden their knowledge of the patterns of movement and practise path-making. We should walk landscapes, engage with them, and take part in daily routines and the process of path-making. This might help us to start experimental design processes, fostering a process of transformation that frames a problem or visualises a question

by intervening with performances. The language of our designs might also have to change. The mappings, drawings, photo-collages and sketches have to be complemented by performative experiments, intervening immediately in the rhythm of the perceived landscape.

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RECOLLECTING LANDSCAPES AND BEYOND. REPHOTOGRAPHY AS A TOOL TO DISCUSS LANDSCAPE CHANGE

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ABSTRACT

Rephotography has a long history as a tool to register flux, for example in the work of physiologist Étienne-Jules Marey who visualised the movement of human beings in time in the nineteenth century, and in the work of photographer Mark Klett who records landscape change in the American West since the 1970s. Today, rephotography is increasingly used as a device to raise awareness on landscape change with a large audience and eventually to influence landscape development policies. Recollecting Landscapes is an ongoing survey project initiated by the National Botanic Garden, the Flemish Architecture Institute and Ghent University, using rephotography to monitor the transformation of 60 landscapes in Belgium, photographed in 1904-1912, 1980, 2003 and 2014. The qualitative research conducted within the project is situated in the line of the 'eclectic atlas' method developed by Italian urban planner Stefano Boeri in the 1990s. A combination of image analysis, interviews with landscape specialists and inhabitants, field work and mapping lead to a better understanding of landscape transformation under the influence of many processes: urbanisation, industrialisation, changes in agriculture, nature conservation, construction of infrastructure, etcetera. The research and communication tools developed in the Recollecting Landscapes project raise the question how rephotography can raise awareness of landscape transformation with different audiences, from inhabitants to policy makers. The research 'goes public' in several contexts: the classroom, the museum and the website. However, a comparison with other rephotographic surveys, especially in France, leads to the conclusion that in order to have an impact on the awareness and eventually the policy concerning landscape change, new forms of public participation and public discussion are necessary.

INTRODUCTION

Rephotography as a means to register flux is almost as old as photography itself. Among the prominent examples is the 'chronophotographical' method of Eadweard Muybridge and Étienne-Jules Marey, who photographed animals and people in movement with very small time intervals in the nineteenth century (fig. 1). A montage of these images results in an almost cinematic experience of movement (SÉMIA, 2003). The same method,

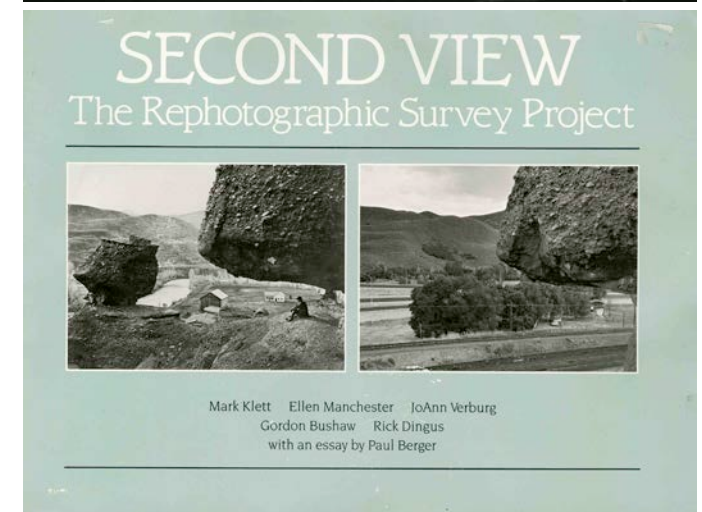


Figure 1: Étienne-Jules Marey, flying pelicans, 1882.

Figure 2: Book on the Rephotographic Survey Project of Mark Klett and colleagues, 1984.

although with much larger time lapses, is useful to register landscape change. The American photographer Mark Klett for example, has been rephotographing nineteenth-century images of the American West since the 1970s (Klett, 2004) (figure 2). European examples are the DATAR mission in the 1980s and the Observatoire photographique du paysage, started in the 1990s, both in France (Ministère, 2000). While there isn't any doubt about the documentary value of these photographic observatories for professionals working on landscape change, an important question is whether these images have any influence outside of a professional circle. This paper investigates in what kind of forums rephotographical surveys operate and how they relate to 'the public at large'. The main case study of this paper is Recollecting Landscapes, a Belgian rephotography project lead by Ghent University, which will be compared to other photographic observatories in the region.

RECOLLECTING LANDSCAPES

Recollecting Landscapes documents a century of landscape transformation in Belgium (www.recollecting-landscapes.be; Uyttenhove et al. 2006; Notteboom, 2011). It is based on the successive photography of 60 sites at four moments in time between 1904 and 2014 (Fig. 3). Each phase of Recollecting Landscapes took place in a specific context and served a specific agenda. The first series was produced by botanist Jean Massart between 1904 and 1911 for his series of photographic albums *Les aspects de la végétation en Belgique* (Aspects of the Vegetation of Belgium) (Massart et al., 1908 and 1912). These albums were commissioned by the National Botanical Garden and the Ministry of Agriculture in order to make Massart's scientific research accessible to an audience beyond university staff and students. The second phase began in 1980, when the Botanical Garden asked Georges Charlier to rephotograph sixty of these sites, resulting in the book *Landschappen in Vlaanderen vroeger en nu. Van groene armoede tot grijze overvloed* (Landscapes in Flanders then and now. From



Figure 3: Rephotographic series of Recollecting Landscapes: Klemskerke, near the coast. Left to right, top to bottom, photographs by Massart (1908), Charlier (1980), Kempenaers (2004) and De Cleene (2014).

green poverty to grey abundance) (Vanhecke et al., 1981). While the first two phases of the project were anchored in a botanical interest, the initiative for the third rephotography originated in a different disciplinary context. In 2004, the Flemish Architectural Institute commissioned

photographer Jan Kempenaers to follow in the footsteps of Massart and Charlier. The rephotography was embedded in a research project on landscape transformation guided by Ghent University under the title Recollecting Landscapes. This context broadened the scope of



37. De Galgeschorre te Lillo

1904. De Galgeschorre, gelegen langs de rechteroever van de Zeeschelde, strekte zich volgens de in 1909 herziene topografische kaart uit over een breedte van 300-400 m en een lengte van ruim anderhalve km. De vegetaties ervan werden nooit in detail beschreven. Wel vermeldt Massart (1910) dat met het verzoeten van de Schelde naar Antwerpen toe, soorten als lamsoor (*Limonium vulgare*), Engelse gras (*Armeria maritima*) en andere, achterwege bleven, terwijl soorten als zeeaster (*Aster tripolium*), zeevoegbree (*Plantago maritima*) en zeebies (*Scirpus maritimus*) aan belang wonnen. De foto, genomen bij hoog water, laat slechts een zeer smal deel van het slik zien. Enkele planten zeeaster zijn zichtbaar links achter de persoon. Een uitgestrekte vegetatie, vermoedelijk van zeebies, strekt zich uit in de diepe inham die zichtbaar is naar de achtergrond toe. Schorre en schorrand gelijken zeer goed op die van Nieuwpoort (zie 14); maar vermoedelijk bestaat hier overwegend uit gewoon kweldergras (*Puccinellia maritima*). Het kortgeschorren uitzicht laat intensieve begrazing vermoeden.



1980. Een flink deel van de Galgeschorre ging verloren door opspuiting (zie 37). Het overblijvende buitendijkse terrein werd sedert lang niet meer begrazen. De hoogopgaande, verruigde vegetatie wordt er gedomineerd door strandweide (*Agropyron pungens*). Lager gelegen delen worden ingenomen door riet (*Phragmites australis*) en zeebies. Het zeldzame lepelblad (*Cochlearia officinalis*), zilte schijpspanie (*Spergularia salina*), zeevoegbree en schorrenzoutgras (*Triglochin maritima*) komen er verspreid in voor (beide laatste voornamelijk langs de schorrand), zeeaster en spiesbladige melde (*Atriplex hastata*) regelmatig. De schorrand heeft erg te lijden van erosie. Het slik wordt alleen door blauwvieren gekoloniseerd. Beelink (1957) bepleitte een reservaat-status gezien de frasië gelegenheid die deze schorre biedt tot studie van brakwater-gemeenschappen. Hoewel verruigd, bezitten de overblijvende gedeelten nog steeds die potentiële waarde. Hoopgevend is dat sedert kort, plaatselijk weer met schapen wordt begrazen. Op de achtergrond petrochemische industrie, hoogspanningsmasten en, op nauwelijks 15 km van het hartje van Antwerpen, de kerncentrale van Doel met zijn twee koeltorens.

Antwerpen (ex Lillo), Galgeschorre, rechteroever van de Schelde, 51° 18' 28" NB, 4° 17' 08" OL, NW.
Foto links: 22.6.1904 (Massart 1908a: pl. 42); foto rechts: 25.7.1980 (Charlier).

Figure 4: Double page from *Landschappen in Vlaanderen vroeger en nu. Van groene armoede naar grijze overvloed* (1981)

interest from botany and agriculture to the field of architecture and urban planning. This was also the case in the last phase of the project in 2014, when Michiel De Cleene photographed the landscapes for a fourth time for the Province of West Flanders and Ghent University.

The series of four photos show landscapes in flux. Some of these changes are the result of large-scale infrastructural works, for example the expansion of Flanders' harbours or dyke works to control the course of rivers, or the development of tourist infrastructure. Other changes are due to millions of individual decisions, such as the gradual re-allotment of agricultural land into

larger parcels, or piecemeal housing development along ribbons or in small allotments. The project is also an indicator of the pace of landscape change: although the intervals between the photos decrease over time (from 70 to 80 years between photo 1 and 2, to approximately 25 and 10 years in the last two phases). However, in the last decade the landscape often changed as much as in the two preceding decades. Whereas the use of the landscape in the time of Massart mostly could be explained by the nature of the soil and the geographical region, the most recent images show a landscape that is less coherent and subject to diverging claims. The images reveal general tendencies of change as well as

many details and together with the textual description of the image they are able explain to a large audience why the landscape looks like it does today. But how does this audience exactly gain access to these images? What are the contexts in which they are on display?

DIDACTIC CONTEXT

To understand the didactic strategies involved in the various stages of the project, it is important to consider not only the maker of the images and the context in which they were created but also the viewer and the context in which images are viewed. In each phase of *Recollecting Landscapes* images have been viewed in a setting that relates to one or more of the following archetypal spaces of knowledge storage and display: the archive, the classroom and the exhibition space. These three types of spaces act – in varying configurations – as discursive spaces that mediate between maker and viewer (Kraus, 1982; Hershberger, 2006).

The natural habitat of Massart's images is the classroom (Notteboom, 2006). His image archive was the main didactic aid for his teaching at the Université Libre de Bruxelles (ULB) but were also used in secondary agricultural schools. Right from the start, Massart conceived of his image archive as a tool for the communication of knowledge: apart from his scientific atlases he published numerous popularizing books, articles, tourist guides and similar material (Massart, 1919 and 1922). Moreover, he made the educational space of the classroom accessible to a large section of the population by means of numerous lectures all over the country and by special courses at the ULB aimed at the middle and working classes (Notteboom, 2009: 83-84).

The context of the 1980 rephotography aligned with the mission of Massart in its didactic ambitions. The results of the rephotography were communicated by means of a travelling exhibition and a didactic book that both unequivocally confronted 'before' and 'after': a selection

of Massart's landscapes on the left pages of the book and their 1980 counterparts on the right pages (Fig. 4), which was technique that made landscape change easily comprehensible by a large audience. However, even if the photographer claims a neutral registration of landscape transformations, the layout and the captions of the book steer the interpretation of the photos in one direction: the decline of biodiversity. In the process of translation from photographic image to presentation, the work of both Massart and Charlier shifted from document to discourse (Buchloh, 1995; Lugon, 2001 and 2005). As a result, the 'objective' exactitude of rephotography was a perfect rhetorical instrument with which to stress only certain aspects of landscape transformation.

The research team behind the 2004 and 2014 rephotography was fully aware of the impact on the viewer of the various kinds of didactic spaces and chose this observation as the starting point for two exhibitions, the first in the Museum for Contemporary Art in Ghent (2006) and the second in deSingel Arts Centre in Antwerp (2015). The tension between document and discourse was in both exhibitions thematised by separating the series of images from their interpretation. (Fig. 5) While the 'dry' display of the photos on the wall evoked the spaces of the archive as well as the museum, the second space, in which the interpretation of the images was communicated, could be considered as a classroom. In 2006 this was an actual volume in which the website and a documentary film was shown; in 2015 this was simply a projection of the website on the wall, to be explored by the visitors. The most prominent media to disseminate the research outside of the walls of academia and the museum, however, are the book *Recollecting Landscapes* (Uyttenhove, 2006) and the website www.recollectinglandscapes.be, which is in essence a transposition of the material offered in the exhibition and the book to the space of the web. However, this medium allows an endless variety of connections between the research materials. The structure of the website allows multiple trajectories through the archive, searching by location, date or photographer,



Figure 5: Presentation of photographic documents (left) and documentary film and website (right) in the exhibition *Recollecting Landscapes* in 2006.

accompanied by textual captions. The website in fact becomes a virtual exhibition space in itself, parallel to the museum. But whereas the museum scenography literally articulates the archive and the classroom as two separate spaces, the website hybridises them.

Although Recollecting Landscapes is indebted in the first place to the methods of analysis of the photographic observatory, the fact that the research is conducted by architects and urban planners also place it in the survey tradition. The project is inspired by the 'eclectic atlas' method developed by Italian urban planner Stefano Boeri in the 1990s (Boeri, 1998): a combination of image analysis, interviews with specialists and inhabitants, field work and mapping in order to understand landscape transformation. A characteristic of this method of analysis is that the researcher moves in and out of the landscape: from the detail and the observation of the terrain, to the encompassing understanding of landscape transformation on a large scale. The detail explains general phenomenon and vice versa.

ACTIVATING THE PUBLIC

The public is in several ways involved in Recollecting Landscapes. First, the medium of the website allows the public to actively create a trajectory through the results of the research. Second, during the research process, local inhabitants and actors were interviewed to explain the mechanisms behind landscape change from their point of view. Third, Recollecting Landscapes does contribute to the public debate on landscape, for example by several articles in widespread newspapers. However, after all the public plays a rather passive role. If the document turns into discourse, it is mostly the discourse of the makers of the image and the researchers who interpret them. The researchers, not the public, generate the information and determine how and where it is available. In the following paragraphs we will explore some recent photographic observatories in Belgium and France in which citizens do actively participate.



Figure 6: Rephotography in the Parc naturel transfrontalier du Hainaut by Edith Roux.

The photographic observatory of the *Parc naturel transfrontalier du Hainaut* (Cross-border natural parc of Hainaut) (www.observatoire-paysages.pnth.eu) determined 60 points spread out over the regional park. Since 2009 they were a couple of times rephotographed by a professional photographer (fig. 6). Because of the nature of the national park these are mostly rural and natural landscapes. However, the rephotography reveals that also these landscapes are in flux and that they are threatened by (sub)urbanisation. The public is involved with the discourse on landscape changes in several ways. Under the heading *Regards sur le*

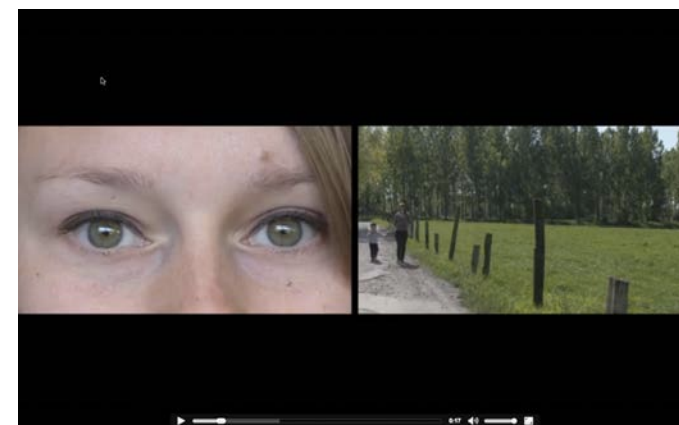


Figure 7: Film 'Regards sur le paysage' bij het Observatoire Photographique Transfrontalier des Paysages.

paysage (Views on the landscape) the website displays a number of short movies (fig. 7) in which people from landscape-related organisations, farmers, inhabitants and a high school student talk about the landscape. Walking through the landscape the interviewees talk about their connection with it, where they like to go and where not, what changes they expect etcetera. Another initiative is the possibility to become the godfather or -mother of a landscape, who rephotographs the landscape on a regular basis. The final goal of the observatory, that is also flanked by educational activities for schools, is to make citizens and actors aware of the how and the why of landscape transformation and to enable them to participate in discussions on how we should deal with the landscape: 'observer pour agir' (observe to act). It is also the intention to become an instrument that informs and affects decision-makers.

This goal is shared by the *Observatoire Citoyen du Paysage* (Citizen's Observatory of the Landscape), an initiative by the Environmental Federation of Wallonia (<http://www.paysages-citoyens.be>). This observatory consists solely of photos that were sent in by citizens and organisations (cultural organisations, regional parks, etcetera) since 2009 (fig 8). The observatory



Figure 8: The urban landscape of Bertrix in 2010 (left) and 2012 (right) in the Observatoire Citoyen du Paysage.

profiles itself explicitly as a subjective way of mapping the landscape, not as a scientific inventory but as a way to understand the way inhabitants look at the landscape. Apart from the website all kinds of other initiatives are taken to raise the awareness of the public: exhibitions in local cultural centres, workshops, walks, etcetera. The observatory aims at weighing in on decision processes and local commissions that are in charge of urban planning, nature preservation and agriculture. The variety of

landscapes is more outspoken than the observatory of the *Parc naturel transfrontalier du Hainaut*, because also urban environments and their more rapid transformations are included. An interesting fact is that candidate-photographers must choose between four categories, 'beautiful', 'under pressure', 'characteristic' and 'ugly', of which the first two categories are chosen the most. This reveals that a connection between inhabitants and the landscape depends on whether they think it's beautiful and the concern that it is under pressure.

A similar concern speaks from a photographic observatory that was initiated twenty years ago in France, the campaign *Mon paysage* (My landscape) started in 1992 (www.mon-paysage-au-quotidien.fr). Also *Mon paysage* relied on images sent in by citizens. Sociologist Françoise Dubost, who conducted research on the corpus of 9000 images, formulated a number of interesting findings about 'the public at large' and how it looks at the landscape (Dubost, 2008). She found out that the participants consisted for two thirds of urbanites – not a single farmer participated. Nevertheless, the landscape that was photographed was mostly a heritage landscape with old houses and farms, country churches etcetera. The image of a traditional countryside seems solidly anchored in the collective consciousness of 'the public'. However, if farmers would have sent in photos of their daily life, they would perhaps have been much more utilitarian.

CONCLUSION

In this paper we studied rephotography and photographic observatories as a way of studying landscapes in flux and communicating with the public. Recollecting Landscapes acted as a prime example of an observatory that is made by researchers (an academic institution) and that searches for places and methods to transfer knowledge on landscape transformation to the public. We argued that the archive, the classroom and the exhibition space are archetypical spaces to do so. However,

the space of the web has blurred the lines between those spaces and enable a more active attitude towards this knowledge transfer. Nevertheless, Recollecting Landscapes is to a large degree a one-directional project, transferring knowledge from specialists to the public. In the several phases of the project, the photographic document was embedded in a specific discourse, however it was a discourse that was not set out by the public itself.

The other case studies, in various degrees, work the other way around, as they consist of images that are uploaded by citizens. However, the definition of 'the public' is somehow problematic, as the last case study showed. Different socio-economic groups have different expectations, and what should become a survey of landscape transformation in the daily lives of citizens, sometimes turns out to be a record of a *preferred landscape*, often determined by stereotypes on rurality. One can wonder what these observatories actually do then, except for adding some images to the endless stream of information that is the internet.

In both types of rephotographic observatories, produced by researchers and professional photographers or by the inhabitants themselves, a 'curator' is necessary who mediates between the academic world, the public and policy makers in order to have an effect on landscape policy. In the case of Recollecting Landscape this was the research cell Labo S of Ghent University and the Flemish Architecture Institute, who organised exhibitions and debates and translated scientific research to articles in the popular press to reach a broad audience. Other policy-oriented studies of Labo S ran in time parallel to Recollecting Landscapes, such as a research by design on the future development of landscapes with a low heritage value, which made the government agencies working on landscape policy aware of what was going on in everyday landscapes. For projects that are not imbedded in a context of scientific research aimed towards policy makers, such as the French and Walloon examples mentioned above, it is

also important that a person or an organisation acts as a 'curator', who transfers the knowledge generated by the inhabitants to a policy-oriented context. Often landscape-oriented organisations working on a regional scale are well placed, because they have a very good local network with inhabitants but also the necessary contacts with policy makers. If any form of photographic observatory wants to have an effect on landscape policy, they cannot only be a passive registration tool, but also a tool of discussion among citizens, specialists as well as policy makers, who turn the photographic documents into a discourse, and eventually in matters of concern for the society as a whole.

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LANDSCAPE IDENTITIES IN FLUX: THE CASE OF EKEBERG SCULPTURE PARK IN OSLO

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KEYWORDS

Sculpture Park, Landscape Identity, History, Reading of Landscapes

ABSTRACT

Over time and across different social and cultural groups, the same area may be perceived as very different landscapes. Landscape identities are even more dynamic than the physical reality. It is important that landscape architects and landscape architecture teachers are aware of the range of fluctuations that exist. An interesting case that illustrates this point is the Ekeberg Sculpture Park in Oslo. The park recently opened as a privately financed public park in Oslo. The Municipality of Oslo bought the area and developed it into a public park around 1900. During the Second World-War, the German occupation forces turned parts of the area into an honorary cemetery. Other parts of the area were minefields to protect anti-aircraft positions. After the War, parts of the area were overgrown, and when the plans for a sculpture park were presented, the general perception was that the area was a natural forest. For this and other reasons, there was a strong opposition to the park. At different stages in this story, landscape architects were involved, based on their different interpretations of the landscapes and political contexts of their time. The case study concludes with a framework for the reading of landscapes with a complex history, focusing on landscape democracy, which can work as a guide for landscape architects' engagement.

INTRODUCTION

Ekebergparken Sculpture Park in Oslo is a privately funded sculpture park established on a municipally owned recreational area. The establishment and maintenance of the park the next fifty years are entirely paid by a fund owned and established by financier and investor Christian Ringnes. The park opened in September 2013 after a long period of organized opposition to the realization of the plans. One of several contentious issues was whether the planning process had been democratic and open; another was whether the development destroyed "untouched nature", and a third was how to deal with the remains of a monumental stair system from WWII that was part of an honorary cemetery for fallen German soldiers and officers.

When the cemetery was built in 1940, the firm „Norwegian Gardens“ was involved. By the end of the war, members of the arts organizations who were accused of having collaborated with the Germans were punished in the so-called „honour trials“ after the war. The Association of Norwegian Landscape Architects, NLA, conducted such a process in the months after liberation in May 1945, and charged the garden architects from Norwegian Gardens for collaboration.

Both the creation of the Ekeberg Park today and the construction of the honorary cemetery in 1940 thematise the relationship between landscape and democracy, and shows how a public landscape easily become an arena for conflicts of interest when their status is contested. In this paper, I use these two examples to show how different perceptions of the same landscape lead to challenges related to democratic values.

LANDSCAPE ARCHITECTURE AND THE PUBLIC PARK MOVEMENT

There is an historic link between the profession of landscape architecture and the democratic tradition of establishing public parks. In the 1700s, garden architects began to change focus from construction of private

gardens for the elite, to the design of so-called 'promenades' or public parks for both workers and the bourgeoisie in the rapidly growing cities. The German-Danish Christian Cay Lorentz Hirschfeld, a professor of history and philosophy at the University of Kiel, described the development in the work "Theorie der Garten Art" from 1779 to 1785, where he refers to such parks in Vienna, Paris, London and Frankfurt. In keeping with the spirit of the Enlightenment Hirschfeld presented a "programme" for how such "Volkgärten" should be designed as permanent features in all major cities. An important element in the programme was that people from all social strata should have access. The park should give all citizens possibilities for contact with each other, encounters with nature and experience of art, for example in the form of national memorials. A successful park would then contribute to greater tolerance, better health and more loyalty towards the authorities. (Hermand, 1997)

Throughout the 1800s such parks were established in most cities in Europe and also in the United States. For garden architects the planning of public parks became an increasingly central task. This led to a shift of focus in the profession from planning of princely gardens to design of urban green structure and a commitment to democratic values and welfare for all.

THE NEW EKEBERG PARK: A STRONG INVESTOR AND POPULAR RESISTANCE

The initiative for the creation of a new sculpture park at Ekeberg came from real estate investor Christian Ringnes. He bought an almost derelict restaurant there in 2003, a modernist building, then recently protected as a cultural monument of Cultural Heritage. He restored the building and contacted landscape architects to make a feasibility study for the establishment of a sculpture park around the restaurant. The area was a public park from 1900, built in accordance to Hirschfeld's programme. It was very popular until the outbreak of WWII in 1940. Then the German forces annexed the

area, and turned parts of the area into an honorary cemetery. Other parts of the area were minefields to protect anti-aircraft positions. After the War, parts of the area were overgrown, and when Ringnes presented the plans for a sculpture park for the municipality in 2006, the general perception was that the area was a natural forest. Ringnes pronounced that the sculpture was a gift to the people of Oslo, and that the park would compete with both the Boboli Gardens in Florence and Vigeland Sculpture Park in Frogner in grandeur. Oslo Municipality set a number of conditions for the realization of the project, related to the preservation of cultural heritage, natural values, art expert assessments, legal issues, etc. and finally approved the plans in 2011.

When the plans for the park were approved, they immediately triggered a series of critical comments. The criticism was primarily that a private investor should not have such a powerful influence over a public area. The protesters established the „People's campaign for the preservation of the Ekeberg Forest“ and created their own website for critical discussion. There have also been demonstrations both at Ekeberg and at Oslo City Hall. A petition against the park collected several thousand signatures. The Nature Conservation Association and Norwegian Ornithological Society have also criticized the plans, claiming that Oslo has taken too lightly on protection considerations. Part of the criticism was directed towards the planned artworks for the park, which were dedicated to represent „a tribute to the female form.“ Opposition to this politically incorrect position reduced after a highly competent jury was appointed, to be responsible for the selection of artwork.

Still, high profile commentators and art reviewers tried to stop the realization through their posts in the press. On January 16th 2013, the major national newspaper VG published an open letter to the government with a claim that the construction should be stopped immediately. The argument was that the park initiative was not founded on democratic principles.

Twenty-two professors, many of them very famous people in Norwegian public debate, signed the letter. (In retrospect, there is hardly shown any error in the democratic processes, and none of the signatories seems to have followed up the matter further.) The government, however, would not intervene, and the municipality allowed the construction process to continue, in spite of this and other protest actions. After a long period of harsh criticism of the plans, the new sculpture park opened 26 September 2013.

Landscape office who had delivered the first feasibility study was also selected by the City of Oslo to prepare the zoning and detailed plans for the park. The office has thus been involved in development of the project from the start. Although it may have been a burden to stand in the media storm, they never doubted whether they stood on the right side in the conflict. Their perspective is that they have worked on behalf of Oslo for the benefit of the town population. The process has followed democratic rules and opponents have been able to voice their criticism in all channels.

Criticism has however subsided and the atmosphere has changed markedly after the park opened. The project got many very positive reviews in both the professional press and the newspapers, and it was nominated for the Oslo Architecture Prize in 2014. Erling Dokk Holm, a well-known architecture critic, wrote in the Norwegian Architectural Review that:

“The overarching strategy Bjørbekk & Lindheim have worked for, has given an extremely delicate result. They have made an aesthetic and functional upgrading of the existing footpaths and trails, and without overly aestheticisation and expressive materials. [...] It is easy to ascertain that the landscape architects have succeeded in making the most with a minimum of means.”

So far, the conclusion is that the landscape architects who chose to defy the “popular resistance” and work for

the “capitalist elite” represented by Christian Ringnes, eventually earned praise for their choice. The general attitude now is that the creation of the park has opened up a beautiful area that previously was available only for a handful of neighbours. In addition, the park offers a collection of internationally recognized work of art.

THE WAR CEMETERY AT EKEBERG

A special point of criticism was a monumental staircase, the remains of the honorary cemetery built by the Nazis in 1940. Critics feared that the place would become a place of pilgrimage for neo-Nazis, while the Cultural Heritage Management in Oslo instructed the developer to treat the remains as WW2 heritage. In this case, the landscape architect's views coincided with the critics, they wanted to build a new staircase, but they had to accept the order from the antiquarian authorities.

It is less known that the staircase hides another story about landscape architecture and fateful choices: After the German attack on Norway in April 1940, the occupying forces urgently needed a graveyard for soldiers and officers who lost their lives in the war. The landscape architects firm “Norske Hager” was engaged to design the Honorary Cemetery. By the end of the war, it had space for about 3000 tombs and was the then largest graveyard in the country.

There was strong resistance to the location of the cemetery in the recreation area at Ekeberg. Oslo municipality suggested alternatives, but faced with the German occupying forces there was little they could do to prevent it. The work started immediately, and already by the end of May 1940 the first funerals took place. The cemetery was developed over a longer period, e.g. with the mentioned monumental staircase, and it seems that the firm Norske Hager continued to work on the project in the years that followed.

There are very few studies of Norwegian landscape architecture from 1940-1945. Head of the parks department in Oslo from 1916 to 1948, Marius Røhne published a book about the history of Oslo's municipal parks 1810 – 1948 in 1967. Here he laments “the loss of the established park culture that had brought so much joy and hope” during “this sad chapter in our history”. He specifically mentions, “the construction of the war cemetery at Ekeberg [...] that without comparison was the worst of all the brutal and ruthless assaults [on Oslo's green structure] conducted during this time.”

After the War, Norwegians who had supported the German occupation forces were punished, in serious cases by imprisonment, fine or, for those who worked in the public sector: loss of position. The infamy and social exclusion that followed such punishments was often experienced as worse than the legal penalty. In addition to the legal settlements a number of artist organizations conducted their own processes, which could lead to a “dishonour penalty”, in the form of exclusion from the organisations and boycotts in cultural life. Artists were regarded, by virtue of their art, to exert great influence over people's minds and they therefore had both a greater authority and responsibility than others. Artists represented the national honour in a particularly sensitive manner, and their betrayal of the nation was regarded as treachery of the national honour (Solhjell and Dahl, 2013 p.15)

The Norwegian Association of landscape architects conducted an “honour trial” shortly after the war was over. The association had 47 members by the end of the war. Five of these members were suspended on suspicion of collaboration with the German authorities. Two of them were the owners of the firm Norske Hager. According to the protocol from the first annual meeting after the war, on June 22, 1945, the two owners claimed they had taken orders from the Germans through the municipal Park Authority in 1940, and that they since they had tried to evade. It was however

clear that they had been actively engaged as late as 1943 in the design of the extensions of the cemetery.

The three other suspended members were excluded from the association later that year. The protocols testify long and heated discussions. However, nothing is said about the two owners of Norske Hager. Maybe they chose to withdraw from the association, to avoid exclusion. There are three theories about why they collaborated with the Nazis: Firstly, it is conceivable that they were “instructed” to do the job. Historian Bjørn Syvertsen suggests this. (Syvertsen, 2006) Secondly, they may have made a pragmatic choice. After all, everyday life had proceed in spite of the war. The firm was one of very few that had the capacity to take on such a major project, not only to design the cemetery, but also the actual execution of the plan. Thirdly, the prominent position landscape architecture had in Nazi Germany and the important role the Nazis envisioned for the profession in shaping the future of Europe, may have seemed flattering for members of the Norwegian team. When the Nazis came to power in Germany in 1933, they established a position as “national landscape architect” with great influence on several areas, such as the construction of the new motorways. Later the institution developed policies and plans for a “Germanization” of the landscape that was implemented when Poland was occupied in 1939 (Gröning 2002). In Norway, garden architects struggled to be recognized.

We will probably never know why the firm Norwegian Gardens chose to work for the occupation authorities. In this context, it is perhaps not so important. The example illustrates, however, different perceptions of the same area, and a need for reflection about ethical norms and democratic values for landscape architecture.

ETHICAL VALUES FOR LANDSCAPE PROJECTS

Ian Thompson (2002) has studied landscape architects' ethical values through a series of in-depth interviews. His results indicate that landscape architects

are committed primarily in relation to three sets of values: ecological sustainability, aesthetic values, and social sustainability in terms of equal access to welfare benefits. The latter indicate that the democratic ideas that lay behind the creation of the first public parks still have significance for landscape architects' attitudes. Yet there is reason to be on guard in relation to a disciplinary tunnel vision that can occur when working for a powerful commissioner.

In such cases, it may be of great importance to have solid knowledge about the ethical challenges and dilemmas in general. A clear and explicit attitude expressed by professional associations may also be important. However, such ethical codes hardly exist: a survey of the codes of standards of the IFLA, ASLA, LI and BDLA (the international, American, British and German professional associations, respectively) show that hardly any of them mentions standards for democratic values or social sustainability, while all mention values regarding aesthetics and biodiversity.

The landscape educational institutions have a responsibility for taking fluctuations in perceptions of landscape and professional ethics for landscape architects into their curricula. The meaning of the term "landscape" is changing – in politics as well as in academic disciplines. From a predominant understanding of landscape as a visual phenomenon, it has changed into a broader and more complex definition of landscape as an area as constituted by the perception of those who relate to it. Both the area itself, and people's perception is formed by both tangible and intangible systems and components. The European Landscape Convention, which entered into force in 2004, supports this understanding of landscape. The definition establishes landscape as a spatial arena for conflicts of interest, and thus as a conceptual space for democratic processes.

A FRAMEWORK FOR DEMOCRATIC STANDARDS IN LANDSCAPE ARCHITECTURE

Landscape architects' abilities to read and interpret the context of their work is key to responsible project development. Landscapes are forever changing and a solution that works well in one place and at one time may be useless in another context. Different users of a park will have different perspectives and different stories related to it and thus, according to the definition above, actually be in different landscapes. There is a need for sensitivity to the different landscapes that can be experienced in a place, including the different political landscapes.

Most, if not all, public landscapes are contested, so it can never be a goal to avoid commissions where there are conflicts of interest. However, three basic investigations can secure keeping high democratic standards in commissions that involve public landscapes. Firstly, the landscape architect must ensure that all procedures leading up to the project proposal are democratic. This means full disclosure of background information about the site to the public and a collaborative governance including all rights for opponents to publish their views. Secondly, there also has to be full disclosure of the intentions for the project. Hidden agendas and contingency procedures for last minute alterations are unacceptable. Thirdly, the landscape architect should proactively seek and review counter-information to the predominant views of a site, to avoid an oppression of minority views. Such views may well prove to be the most sustainable in a future situation.

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IMPROVING CHILDREN'S OUTDOOR LEARNING BY DESIGN: A CASE STUDY FROM BANGLADESH

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ABSTRACT

Primary school children learn effectively when their learning is incorporated with exploration of the surrounding environment and through interaction with their peers. However, research focusing on the formulation of guidelines to design optimal outdoor environments conducive to children's learning is rare in the context of developing countries. This study investigated the prospects of outdoor environments as an effective learning environment. The research question was: is there a significant relationship between specific behaviour setting characteristics of primary schools and children's learning and motivation? A quasi-experimental study in a primary school in Bangladesh was carried out, where the school yard was designed and constructed according to a range of behaviour settings e.g. natural learning area, water learning area, outdoor classroom, area with loose parts etc. identified from literature and also from the opinions of the children, teachers and community. The research methods include behaviour mapping, observation of the children in the school ground, interview of the teachers and focus groups with the children before and after the intervention. Pre-intervention data was collected on the behavioural and attitudinal outcomes of the children and was compared with post-intervention data on the same assessments. The preliminary results showed both an increase in the motivation of pupils as well as in their general educational attainment over the period of measurement. Following further analysis a set of design guidelines for school yards will be developed.

BACKGROUND

Research on children's environments has been increasing across the globe in the recent years. The positive impact of the immediate surroundings of school grounds on children's informal play has been demonstrated in several studies from the USA and Australia. In a California Study Lieberman et al. (1998) found that children perform better in science, maths, language and social science when they learn in a context where the surrounding environment is integrated. Positive changes in children's motivation and attitude as well as social relations can be observed when they are led to perform activities in a local woodland (O'Brien, 2009). However, there are many challenges and threats regarding children's learning in the wilder outdoors, for example safety and security or lack of confidence in teachers (Rickinson et al., 2004), which can be minimized to a great extent when the school grounds offer the outdoor experience instead of a more distant place (Dyment, 2005).

Children's development and play is affected by the quality of the outdoor environment (Malone, 2003). A natural environment usually provides a higher diversity and offers a wide range of educational opportunities (Frost, 1992). In a study of two elementary schools in Australia and Canada, it was found that though manufactured equipment was the focus for vigorous physical activity, the largest number of children were found to spend time in the green area (Dyment et al., 2009). Children like places full of variety, with manipulative and malleable materials to serve that purpose (Nicholson, 1970). One recent movement in the developed world is the use of the outdoor environment for teaching curriculum content. While there is research on how different elements in the outdoors offer opportunities for children's development and learning through informal play, research focusing on how the outdoors can be designed for formal learning is scarce, particularly in the context of developing countries.

This study aims at formulating some guidelines to help the design of school grounds to make them more conducive to children's learning. The context is Bangladesh, where, like other developing countries, drop-out rates in primary schools is high (26.2%). The classes are held in poorly lit and ill-ventilated classrooms with few facilities, yet the potentials of taking classes in the outdoors have not been explored. The research questions addressed by this study are-

- What are the **preferences of children and teachers** that can guide the design of the outdoor spaces of primary schools?
- To what extent does the outdoor environment influence **children's behaviour and motivation towards learning**?
- Is there any significant relationship between the **open space characteristics** of primary schools and **children's learning**?
- What are the **criteria** that can guide the **design of primary school grounds for learning by children**?

METHODOLOGY

A quasi-experimental evaluative study was executed in three different phases. In phase I, focus groups with children and teachers, observation of children in the school grounds, behaviour mapping, children's drawing and model making exercises were conducted in order to learn about children's and teachers' preferences regarding the design of a school ground to help children's learning of the curriculum contents. Phase II included the design of a school ground based on the data collected in phase I supported by evidence from literature, followed by implementation of the design on site. In phase III data were collected through focus groups with children followed by walk-along interviews, interviews

with teachers, behaviour mapping and observation of children during formal learning and informal play in the school ground. Later in the project the children's attainments of learning will be assessed by comparing standard test results from before and after the experiment as well as against a control school with no constructed grounds. The design will then be evaluated in order to derive some guidelines for designing school grounds in terms of which behaviour settings are most effective.

Existing setting

The research was carried out in Tulatoli Government Primary School, Narsingdi not very far from the city of Dhaka, the capital of Bangladesh. The school has a playground measuring 8210 square feet. It is open to the main road to the south and a secondary road to the west. The school is single storey and all the classrooms have direct access to and from the school ground. The school ground, typical for primary schools in Bangladesh, is flat and barren, devoid of any natural or man-made features except some trees at the southern and western boundary.



Figure 1: Part of the school ground before intervention

Subjects

The study was conducted on children enrolled in the school during the academic year 2014 and 2015. All the children present in the school ground during recess were observed for a week each during phases I and III. However, 30 children from Section B, Class IV (9 year olds) were led to the outdoors for teaching purposes and they acted as a treatment or experimental group in the study. 30 children from Section A who did not participate in outdoor learning served as a control or comparison group.

FINDINGS

Phase I- Preferences of teachers and children

While the children mostly asked for play equipment like swing, slide etc both teachers and children unanimously wanted a flower garden in the school. "You can learn about plants, food. Besides flowers are beautiful.. nice colour" said one child. Children also wanted different loose play items like plastic toys, animal figures etc. According to the teachers, children can learn a lot by themselves in an area with manipulative and malleable materials. These materials can be collected locally at minimal or no cost and can be replaced easily. The first thing teachers asked for is an outdoor classroom where the class teaching and demonstrations can take place. Children also wanted some seats. These are combined in an outdoor amphitheatre. Shelter and shade is needed where the children and teachers can protect themselves from the scorching sun and heavy rains. Children drew many items including houses where they want to sit and read and spend some time on their own. The different elements asked for by the teachers and children can be grouped to form a behaviour setting. Behaviour settings are ecological units where the physical environment and behaviour are linked together in time and space (Barker, 1968). They are composed of two set of identifying characteristics- 1) a specific set of time, place and object props (tree logs, sand, rocks) and 2) a specific set

of attached standing behaviour or behaviour episodes (climbing, sitting, walking, reading books) (Barker, 1968, Scott, 2005). Based on the preferences of teachers and children seven behaviour settings can be identified-

- Natural Learning Area
- Growing Area/School Garden
- Wet Learning Area
- Outdoor Classroom/ gathering area
- Manipulative Area/ Area with Loose Materials
- Play Area/ Learning through Play
- Shelter- learning in groups/ Small Houses
- Flat Learning Area
- Pathway

Phase II- Intervention in the school ground

All these behaviour settings have been accommodated in the small school ground. The construction took place between December 16, 2014 and January 15, 2015 during the winter vacation, therefore not disturbing the usual school activities. Children actively participated in the construction phase during the vacation. Not only did the children of this school spend time in the school premises during the construction period but children who attend nearby schools. They wanted to contribute to some extent to the development of the school grounds. An architectural consultancy firm Ghorami.jon, based in Bangladesh, was involved in the development process and some students from Bangladesh University of Engineering and Technology volunteered for this project. The teachers have been using the outdoors for teaching curriculum content to the section B children since

January 2015. After allowing for the teaching routine to settle down and for the novelty to tear off, the next phase data collection began after April 15, 2015.



Figure 2: Part of the school ground after intervention

Phase III- Behavioural Observations

Change in children's use of the school ground

Before intervention the children were generally engaged in locally evolved rule games such as *dar-iabandha*⁸, *kanamachig*, *bombasting*¹⁰, *chi kut kut*¹¹, *vai re vai*¹² etc. The children follow the rules previously set or sometimes make their own rules for these games. Several groups of two or more children were observed moving around together while gossiping. Some children were moving around by themselves without any purpose. On an average 25–30 children were observed in the school grounds during lunch break, most of which was concentrated in the central

area. Sometimes they were given a football and skipping ropes: all the boys instantly start playing football and the girls start skipping. Some negative attitudes were observed at that time as the ball often entered the area where girls were skipping under the big tree at southwest corner of the field. No construction activity has been observed in the children. However, while the construction was going on some children were observed building water fountains with sand and water and some made houses: the raw materials for construction offered children with many affordances.

After 3 months of the intervention it has been observed that the play area attracted most of the users. Though the swing, slide and see-saw are found to be heavily used the most favourite places are the outdoor amphitheatre and small houses. The children love to chat with each other sitting in the houses. "We love to study in the house together...talk about many things...it feels comfortable..." said one child. Though the amphitheatre has been designed for a formal outdoor class it offers many affordances to children- like climbing the steps, jumping from the high end and chatting while sitting there. Several girls were found to invent some new play- they used a coin to mark a step and jump over it. "We love to sit on the pile of tyres while they bump..." said one child while expressing their experience in the area with loose parts. Some children love to roll the tyre along the slope of the hillocks. Some children play in the stepping stones while going to the classroom, some were resting. Previously the children who had left the ground immediately after the last bell had been rung were now observed to be engaged in some sort of activity. Fewer negative attributes were observed as there were more opportunities for children to explore. The number of children on the ground increased to a number of average 40-45 evenly distributed over the whole area.

8 A local court game where children make markings with stick on ground. The number of children in two sides equals the number of boxes in the court.

9 Handkerchief is used to blindfold a child and he/she needs to find the others gaping and guessing.

10 One child throws the ball upward, catches it and throws it to the partner

11 Two or more children make the mark on the ground and play jumping over the boxes which has the coin in it.

12 Local name of tag and chase

USE OF THE SCHOOL GROUND AS A CONTEXT AND TOOL FOR LEARNING

“The science teacher at first demonstrates what we are going to do...we spread in groups to work on things and get back to the outdoor amphi...we love the houses for group work... and the boat shaped shed over the slide... and the loose parts area...” said one child when asked about their science class in the outdoors. According to the science teacher, it is more convenient to teach natural science when amidst nature. “You can easily have a walk around the school, show how pollination happens in flowers in the flower garden...create water habitat with children to demonstrate life under the water in the wet learning area...” The children worked on different materials, carried on experiments with soil and water to learn about different types of soil and even brought different things from their home related to the lesson. The science teacher also said, “In the classroom there is less scope of experiment and exploration but in the outdoors with different settings children often learn by themselves...they observe things and mention about it when something related is taught in the class.”

“We build dens in our maths class and learn counting, addition, subtraction and multiplication...some groups work at the loose parts area...my group worked on the flat area taking materials from there...” said one child. “You know tamarind seeds, marbles, bean seeds...teacher uses those...we learn about singles, tens, hundreds, thousands and so on... we even counted the number of bamboo pieces used in the garden and in the fence of the houses...” added another. One child was explaining, “...here we can see in reality what we read in the textbooks...we can understand easily...” The children made an inventory of different types of flowering plants for different tasks in a mathematics class. The outdoor amphitheatre along with the loose parts area worked as a combined setting in the maths class.



Figure 3: Working in group



Figure 4: Learning with loose parts in Maths class



Figure 5: Making house with loose parts

When asked about the effectiveness of different settings for the purpose of teaching the teachers explained that all the settings are contributing to some extent to teaching of science and maths. “Natural learning area is very important...you can use branches, twigs, leaves for learning science.. Yet it feels better to sit in the outdoor amphitheatre from where you can have a view of the nature...show them different things happening in nature...” said the science teacher. “You need this loose part area where you have these tree pennies to teach addition, subtraction...” said the maths teacher. The teachers think that not only science and maths, some aspects of every subject can be taught more easily in the outdoors.

CHANGE IN BEHAVIOUR AND ATTITUDE

The teachers stated that they observed a positive change in the behaviour and attitude of the children. The teachers found them better-behaved. “The children disturb each other in the classroom, poke someone sitting in the front bench from back which trait I have not yet seen in the outdoors,” said the science teacher, “they are more engaged in what they are doing”. The teachers found them more motivated to learn as they can work on the

things they used to recite by heart only. “To the children the textbook is like an imaginary world, they could not grasp the things of that unreal world in the classroom.. Now all these things from the textbook have started becoming real for them” said the teacher. That was the reason why children can understand things more easily and therefore find study not as boring as before. They eagerly waited for the classes in the outdoors. One child said, “We are freer in the outdoors...feel more comfy...we can see the leaves and branches of the trees and learn something from them... we learn from many things...” The teachers supported this in the interview session saying “children are so engaged that they think about the next class beforehand and ask me what elements they will need in the next class. They can remember things for longer.” Several children showed considerable improvement in their class performance in the outdoor classroom. The teachers had high hopes for these students. Some under-performers were showing progress. There was an inertia in the children previously which they overcame in course of time. “Do you know when you learn? The moment you don’t have any shyness... you can leave the inertia behind to ask for the things you don’t know ... that’s the point when you start learning..” The children were more spontaneous in the outdoor class and “... sometimes they guide me to specific settings saying we might find something there...”

There is change in teachers’ behaviour and attitude too... “Even I feel better teaching in the outdoors... you know sometimes teaching in the classroom is boring... but...you never get bored in the outdoor class...” The teachers observed a change in their thought process too. Previously they conducted the classes maintaining routine but now they found the fun parts in it.

DISCUSSION AND CONCLUSION

According to Moore and Wong (1997), a school ground should accommodate all three aspects of learning. Tula-toli Government Primary School supports all three types of curriculum- the formal, as children learn the subjects from the curriculum in the outdoors under active guidance of the teachers, the informal, where children learn through playing and exploring the environment and lastly the hidden curriculum, as the newly designed outdoor environment speaks of the culture and context the children come from. The newly designed outdoor environment has an impact on children’s motivation and attitude towards learning which is supported by other research conducted in the USA and UK. Richness and diversity of the outdoor environment, which consists of various settings, offers children multiple opportunities for formal learning and informal play. The outdoor amphitheatre and the houses work as the context for learning, which is favoured by both teachers and students. Once the children are in the context they need the tools with which they will work, experiment or explore. The other settings, namely the natural learning area, garden, wet learning area and learning with loose parts, provide children with the tools or elements they will need for their study. Even the play area also provides scope for learning counting- a child can count how many times his or her friend is swinging in the swing. A child can step on a stone and learn a number.

Though the children did not speak of the natural learning area or the gardens as their most favourite places, they were continually referring back to their experiences there. They spoke about how they learnt about concepts of science and maths using both. These are rural children and therefore might see the nature as an inseparable part of their lives which needed no specific mention. “We can look at the trees sitting in the outdoor amphitheatre and learn different things” states one child referring to how the natural learning area comes to the outdoor amphitheatre. The maths teachers’ use of the area with loose parts along with outdoor

amphitheatre make it an inseparable part of outdoor teaching. As a final note, and before all the results are in (since this paper was written before the test results were available for comparison) teachers asked if the design can be implemented in all the primary schools in Bangladesh, so that the children can benefit. Depending on the context, size of space available and other factors, generally, the more settings the designer can provide, the more benefits will be provided to the children. Where the school grounds are really small and it is difficult to designate large areas for each setting, two or more sub-settings can form one setting. For example, the outdoor amphitheatre and the area with loose parts can be combined to make one setting. Thus combinations of smaller settings or sub-settings can be built in primary schools with small grounds therefore providing the children with some variety and diversity which is a key aspect of children’s environment (Van Anel, 1990, Nicholson, 1969). The first results show that the answers to the research questions are: the outdoor environment clearly influences children’s behaviour and motivation towards learning to a very positive extent. There appears to be a significant relationship between the open space characteristics of primary schools and children’s learning as observed on site. The criteria that can guide the design of primary school grounds for learning by children are positively associated with the combination of behaviour settings and elements derived in combination between the literature on the subject and the suggestions of teachers and children.

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WELCOME TO OUR PLACE. HOW SUSTAINABLE TOURISM DEVELOPMENT CAN CONTRIBUTE TO LANDSCAPE IDENTITY

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Landscape Identity, Sustainable Tourism,
Landscape Design, Participation

ABSTRACT

Close links and interdependency of sustainable tourism development and landscape are frequently addressed in research and policies. Some focus on the physical characteristics, others on the meaning of landscape. In this paper we examine how design for sustainable tourism development contributes to different dimensions of landscape identity.

We analysed three landscape design projects for sustainable tourism development, two in Croatia and one in St. Eustatius, an island in the Caribbean. The model of the landscape identity circle, which includes spatial, existential, personal and cultural dimensions, was used as an analytical framework. The analysis showed that cultural-spatial, cultural-existential, personal-spatial and personal-existential aspects of landscape identity were addressed in the projects. Not only will the implemented designs contribute to enhanced landscape identity; the – participatory – design process in itself already did. The process created local awareness of unique qualities and strengthened people's sense of belonging to their living environment. The designs enhanced landscape characteristics and improved the attractiveness, usefulness and meaning of the landscape for locals. Design for tourism development that takes landscape as a central concept, can build strong, lively landscape identities, and empower local communities to become leading stakeholders in tourism development processes.

INTRODUCTION

Landscape, as being both source and product of tourism practices, can be considered as a key concept in sustainable tourism development. The relation between sustainable tourism and landscape is frequently addressed in research and policies (Knudsen 2008; Holden 2008, Bramwell 2004, UNEP/WTO 2005, Hunter 1997). Regions emphasize their uniqueness, their landscape identity, to distinguish from others in the global competition of the tourism market. At the same time landscape identity plays a significant role in the identity building of people and communities (Haartsen et al 2000; Korpela, 1989; Twigger-Ross & Uzzell 1996). Given the importance of landscape identity from a tourist and a local point of view, planning and design for sustainable tourism development must include physical, social and cultural aspects of landscape identity. The objective of this paper is to illustrate how landscape design for sustainable tourism development can contribute to preserving and enhancing landscape identity.

THE LANDSCAPE IDENTITY CIRCLE

As said landscape identity is a versatile concept just like landscape. It includes space and meaning, tangible and intangible aspects, social and personal aspects (Davis & Corsane 2014; Antrop 2007; Ermischer 2004; Palka 1995). The Landscape Identity Circle (Stobbe-laar & Pedrolí 2011) integrates different concepts in a coherent framework (figure 1). The authors distinguish four dimensions: cultural-spatial, personal-spatial, cultural-existential and personal-existential. The cultural-spatial aspect of landscape identity deals with the physical and visible features that distinguish one region from another. The personal-spatial aspect concerns the legibility of an area, coherence and means of orientation. Sites or events linked with community life and the meanings attached to them can be categorized as the cultural-existential aspect, and the personal-existential aspect applies to personal memories, pride or self-esteem attached to sites.



Figure 1: The Landscape Identity Circle
(Image: Stobbelaar and Pedroli 2011)

The authors suggest that the presented framework can be used to determine which dimensions of landscape identity are addressed in projects. Zwiers (2014) demonstrates that the framework can be used as such, and also as a tool to structure planning and design processes. In her study she shows that cultural-spatial and personal-spatial aspects can be identified with common analytical methods in landscape planning and design, such as document studies, map studies and field observations; the cultural-existential and personal-existential aspects of landscape identity require a different approach. Field observations may provide some indication which sites are important for the community and for individuals, but interviews and workshops are much more effective instruments (Zwiers 2014).

METHODOLOGY

We used the Landscape Identity Cycle to analyse three landscape planning and design projects for sustainable tourism development, one on the island of Murter in



Figure 2 Workshop with inhabitants on the island of Murter (image: Van den Berg & Koens 2011)

Croatia (Van den Berg & Koens 2011), a second on the Dubrovnik Riviera in Croatia (Borsje & Tak 2013) and a third on St. Eustatius or Statia, a small Dutch island in the Caribbean (Reiling 2015; Van Kapel 2015). All projects dealt with coastal areas characterized by relatively little tourism at present, though further tourism development is foreseen. The projects were Master thesis works that produced plans on different scale levels and included interviews and workshops with the community. For each project we analysed how the four aspects of landscape identity were addressed in the plans and how the data were collected that substantiate them.

PARTICIPATORY APPROACH

The projects had a similar approach, including participatory activities. They started with a common analysis of the area and the question of sustainable tourism development, providing data about the cultural-spatial aspect such as landscape characteristics and unique qualities, and about the personal-spatial aspect such as spatial structure, cohesiveness, accessibility and orientation. Interviews with local inhabitants and stakeholders provided the designers with a

better insight in local conditions and specifics, and gave information about the meaning of sites for individuals and the community, thus adding details and depth to the spatial aspects and providing input for the cultural-existential and personal-existential aspect.

In the second phase a workshop was organized with the local community and stakeholders. A discussion about landscape qualities and problems, and about different scenarios for tourism development helped the designers to understand local issues, to find out which ideas were supported and which not, and to decide which sites were important from both a tourist and a local point of view. Furthermore, they got feedback on preliminary design ideas. Vice versa the workshop created an awareness and pride of the local population for the unique qualities of the area. They realized taking for granted what the designers from abroad perceived as very special. The workshops also created an understanding that tourism development not necessarily meant bringing in investors from outside; there were ample opportunities for the community to take initiatives. An example: the workshop in the village of Trsteno at the Dubrovnik Rivera gave rise to starting a dialogue between the community and the Dubrovnik Tourist Board on how they could support each other in the development of tourism in the region and in the village.

REVALUING CULTURAL LANDSCAPES

The designers all elaborated on the present landscape structure. Neglected agricultural landscapes were found in all areas, and they appeared to be an important source of personal memories, particularly for the older population. The people in Croatia were very positive about the proposals to restore the characteristic dry stone walls and regenerate local cultivations as a condition for rural tourism. On the island of Murter the designers suggested to preserve and renovate the terraced dry stone walls. A



Figure 3: Design of interconnected network of restored dry stone walls on the island of Murter (image: Van den Berg & Koens 2011)

path network on top of the walls would give access to the landscape again, similar to former times.

At the Dubrovnik Riviera the designers proposed to develop rural tourism in the inland valleys, and to reconnect them with the coastal zone. Overgrown and neglected driveways with dry stone fences could be restored as slow traffic connections between the coast and the hinterland. That way the tourist product of the area as a whole would be extended and diversified, and people in the hinterland could profit from tourism as well.

The people in Statia also expressed the significance of the old plantations in terms of personal memories, but different from Croatia, they were less in favour of reintroducing forms of agriculture combined with agritourism. This probably has to do with the low social status of working on the land; a reason why the designers didn't elaborate on this idea. The local population on Statia seems not prone to be personally involved in tourism development anyway, even if they are definitely positive towards tourism development in general. Recently a research project was initiated to better understand their restraints.

LIVEABLE VILLAGES

Another strategy was giving priority to the existing villages rather than creating new hotels, resorts and secondary homes. Most villages have quite a lot of vacant buildings, which could be used to create tourist accommodations and facilities according to the designers. This strategy kills two birds in one stone: the natural and agricultural landscape will be preserved from urban sprawl and the liveability of the villages will be improved. What is more, several local people in Croatia referred to the past with nostalgia. They remembered that locals and tourists lived together as one big family, looking after each other's children on the beach and having dinners together. Large hotels and isolated resorts washed out this way of living. They characterized the personal contacts as a quality of the island's tourist supply, and supported the idea to develop tourism accommodations in the village.

At the Dubrovnik Riviera on the island of Lopud the designers proposed to re-use old farmsteads as agritourism accommodations and to renovate the harbour area. Their design included the restoration of the harbour front, a green structure to improve the microclimate and the appearance of the boulevard, and a connection of the former Rector's Palace with the boulevard. (Figure 5) The Palace could be developed as a museum for local art and provide additional all-season activities for tourists. The designers proposed to remove the wall that separated the site from the boulevard, to create a new small plaza in the lower garden and to change the former garden into a terraced community garden with typical local products such as the Lopud citrus fruit. A centre for local art, a meeting place and the inclusion of local food were all wishes of the local population that came up in the workshop. In a similar way the designers proposed to refurbish the central plaza of the village of Trsteno in combination with a better access to an old Arboretum and to the historic harbour downhill. (Figure 6)



Figure 5: Design for the Rector's Palace on the island of Lopud (image: Borsje & Tak 2013)

On the island of Murter the harbour area was mentioned as the traditional meeting place for the community too. A part of the former coastline had already been transformed into a generic yacht harbour and boulevard; another part still existed in its original form. (Figure 7) However that part was neglected, with a lot of vacant buildings and inaccessible for pedestrians. It could be characterised as the rear side. The designers proposed to turn the rear side into a new waterfront. The shore could become accessible for pedestrians by connecting the individual quays. The empty sheds could be turned into small accommodations, cafés and 'tavernas'. The irregular alignment could provide space for

small plazas, furnished with grape-covered arbours that would give shade in hot summers and referred to former vineyards that had disappeared due to a disease. Their plan smartly utilized local site characteristics to develop an attractive tourist environment, and at the same time reintroduced public meeting places for locals. Their ideas inspired some people to match their words with deeds and to start painting and transforming their sheds.

On Statia the designers proposed not to develop new tourist accommodations along the eroding coastline – as included in the tourism development plan – but to concentrate accommodations in old, vacant buildings



Figure 6: Rector's Palace: present and future situation seen from the beach (image: Van den Berg & Koens 2011)

in the upper town Oranjestad. This is in line with the aim to highlight the cultural heritage of the island, which gained the epithet of The Golden Rock in the 18th century, when it was an important tax-free port of the Dutch West Indies Company. Lower town with its bars, restaurants, diving shops, and public spaces connected to the beach could be further developed as a meeting place where locals and tourists mingle.



Figure 7 Design for the harbour front (image: Van den Berg & Koens 2011)



Sheds transformed
into catering
facilities or shops

information sign to
learn tourists the
history of the place

restored houses offer
opportunities to sell local
products to tourists

Removal of an old shed and the
creation of a terrace underneath
the almond trees



Figure 8 Harbour front: present and future situation (image: Van den Berg & Koens 2011)

CONCLUSIONS

The results showed that the designers preserved and enhanced landscape identity in their plans and that they included all four aspects: cultural-spatial, personal-spatial, cultural-existential and personal-existential. The cultural-spatial aspect was addressed in the projects by using the landscape as a unique selling point for tourism development, emphasizing local and regional specifics, and including heritage in the tourist offer. The personal-spatial aspect can be recognized in the

Croatian projects, where the designers improved the coherence between the villages and their hinterland by restoring old path networks. All projects gave priority to existing villages and paid special attention to meeting places for the local population, thus taking the cultural-existential aspect into account. The personal-existential aspect came forward in the link with agriculture, which used to be an essential part of people's lives before. In Statia this aspect is put on hold until the community's relation with working on the land is better understood.

In addition to the designs the participatory process played an important role in creating vital landscape identities. The workshops in particular created awareness and pride of the local population for the unique qualities of the area, and empowered communities to become stakeholders in tourism development. We consider the fact that designers '*identify key qualities of places which people want to maintain, develop, enhance and create*' (Healey, 2003 p. 527) as an essential process in sustainable development. Without local support and engagement tourism developments won't ground. Emphasising landscape specifics will then become an act of branding instead of contributing to a living landscape identity.

The designs enhanced landscape characteristics and improved the attractiveness, usefulness and meaning of the landscape for locals. The participatory process was an important condition to accomplish this. Design(ing) for tourism development can build strong, lively landscape identities, and empower local communities to become leading stakeholders in tourism development processes.

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THE IMPORTANCE OF THE LANDSCAPE FACTOR IN MAINTAINING THE IDENTITY OF RELOCATED COMMUNITIES- THE CASE OF ALDEIA DA LUZ

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Alqueva dam, Aldeia da Luz, Impacts, Population Identity

ABSTRACT

Does an exact replica of an urban settlement within a profound landscape change is good enough to maintain its inhabitants' identity, namely their relationship with the surrounding landscape? This paper addresses the case of Aldeia da Luz, a small village sunken by the construction of the Alqueva dam on the Guadiana River, in the Portuguese region of eastern Alentejo. This construction caused the flooding of 250Km² of land, transforming a Mediterranean landscape of olive groves, holm oak montados, vineyards, pastures and fields of grain into a landscape of lakes. To minimize the social impact on the inhabitants of the submerged hamlet -most of them farmers and herders- a new village for 180 families, replicating the old one, was built by the government 3 kms away, beside the water shore. Assuming that the deep changes in the territory caused by the construction of the Alqueva dam affected the relationship between local inhabitants and "their original landscape", this research aimed to assess the real impact of the efforts to replicate the physical built heritage in order to maintain the identity of the inhabitants relocated. Questionnaires and interviews regarding to their activities, landscape and built environment were conducted in the new Aldeia da Luz and its results show that the identity of the inhabitants and its relation with the landscape was seriously impacted. The intensity of this impact varies with the population's age, being broader and more intense in the older inhabitants, who revealed serious difficulties in overcoming the displacement effects. As opposed, younger inhabitants revealed a higher adaptability to the new situation and some degree of satisfaction with the improved comfort provided by the new village. One can conclude that to build a replica of the original habitat is not enough to maintain the identity of a population if one can not restore the disrupted link with their former landscape.

INTRODUCTION

The case of "Aldeia da Luz", a small rural village in the county of Mourão in the Portuguese region of Alentejo which had been covered by water due to the fill up of the Alqueva's barrage, is a strategic study in the research of the factors to be managed to reshape culture and people identities.

The hydrological basin of the Guadiana River, which is located along the Portuguese-Spanish border, covers an area of approximately 68,000 km² and it has over thirty dams on the river basin, the largest being the Alqueva Dam with a capacity of 4150 hm³, creating the largest reservoir in Europe.

Under this new artificial lake lies "Aldeia da Luz" a centennial rural typical hamlet in the middle of Portugal.

The announced objectives of this mega-dam were not only to convert the dry lands of the Alentejo's region into irrigated and more productive lands but also to halt the population exodus through the creation of new jobs both in agriculture and in the touristic industry that would flourish due to the new 250 km² water mirror.

This hydroelectric project received enormous criticism, not only due to its environmental and visual impact on the landscape but also because of its great influence on economics and social issues.

One of the strongest conflicts was the issue on the flooding of "Aldeia da Luz", a small settlement that emerged in the international agenda after centuries of being unnoticed.

To minimize the impacts of such situation on its inhabitants, a new village for 180 families, was built 3kms away from the old one. A kind of anti-Atlantis 'was reborn' as an exact replica of the old village with the logical consequences of billionaire investments just to make it look like the original.

HYPOTHESIS

The profound landscape conversion caused by actions such as the construction of the Alqueva Dam lead us to reflect about the landscape modifications caused by climate changes.

Thinking about the future situation of many coastal cities awash by the rising of the sea level this paper reflects about:

Whether the relocation (by reconstruction) of the built elements (as in our case study) is good enough to maintain the identity of the community, or if the major changes in the surrounding landscape don't allow this identity maintenance? If the second argument is proved, resources don't need to be allocated in this kind of operations and more attention needs to be devoted to the "landscape factor".

Which is the quintessential constitution of the "landscape factor" to have in mind besides its physical built heritage and the urban and architectural landscapes? Accordingly, are the surrounding landscapes and its non-physical components -the interaction between men, nature and landscapes itself- the answer to this question?

HISTORICAL FACTS

Since 1975 the Portuguese government planned to build the Alqueva dam in the Guadiana River. In 1976 the technical works started but in 1977 were stopped for about 20 years. In 1995 the preparation for construction by the EDIA -Enterprise for the Development and Infrastructure of the Alqueva- was initiated, and in June 1997 the IPA -Portuguese Institute of Archeology started the excavations to protect the historical structures in the region and preserve them for future generations, as a definitive answer to the imminent filling of the water reservoir.

HYPOTHESIS (& WHY?)

The fact to re-create the physical assets⁽¹⁾ is not necessarily a condition to preserve the local identity⁽²⁾

(1) constructions, aesthetics, functions, urban landmarks, physical morphology, etc.
(2) cultural, traditional, cognitiveness, landscape&landscaping, etc.

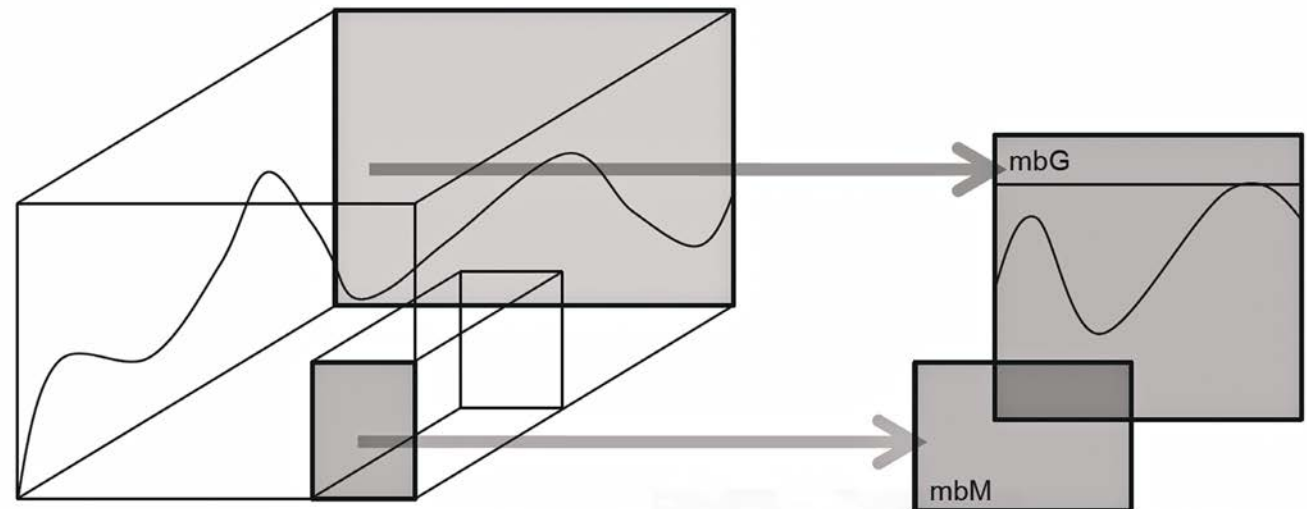


Figure 1: Hypothesis (graphic: Martin Gomez-Tagle, "The Landscape as an important factor on the Identity's preservation of rural communities relocated by anthropogenic impacts. The case of Aldeia da Luz, Luz, Mourão, Portugal")

Before the EDIA decision to reach the 152 meters above sea level, technicians of the LNEC -Civil Engineering National Laboratory suggested to fill the dam between 115 and 130 meters, while environmentalists defended a maximum of 139 meters. Aldeia da Luz was located

137 meters above sea level, and because EDIA decided to maintain the maximum level at 152 meters, the government started to convince its population to relocate to higher lands. From 1998 to 2003 the people of Aldeia da Luz began to be evacuated to a replica of the old

village built 3kms away from the original settlement, with its church and cemetery relocated piece by piece. There were several problems with the indemnification and construction of the houses for the villagers: they received less than what they had before and the sadness, distrust and discontent grew among the population. Because of that, the situation of the people, forgotten for centuries, emerged at the national context and achieved empathy from the entire country.

EDIA built a local museum meant to be a tribute to the submerged village and the villagers. The museum narrates the construction of the dam and the past of the new place. It has several activities, a library, a souvenir shop, meeting rooms and a permanent exhibition about the old village.

EDIA mentions in its web page that in 2002 it initiated the filling of the dam and in 2010 it reached the maximum level of 152 meters above sea level, holding 4,150,000,000 m³ (3,360,000 acre-ft.) in an area of 250 km² (97 sq. miles). The cost of the overall project was 1,800 million euros while the relocation of Aldeia da Luz did cost 137 million euros, i.e., 1.2 million euros per family of 3 members.

LANDSCAPE IN FLUX

- The old landscape, the old hamlet (Luz) and the villagers -

The central region of Alentejo is characterized by a landscape of rolling hills covered with alternating patches of pastures, vineyards, olive groves, wheat fields, cork and holm oak montados. Pigs and sheep are the dominant livestock. The region produces high quality protected designation of origin (pdo) Iberian pork products (such as sausages and other delicatessen), olive oil, and wine. It has a concentrated pattern of small urban agglomerations and few people per village. Regarding to the built landscape, there are remains



Figure 2: Views of the previous and present landscape (photo: Martin Gomez-Tagle and Rosa Santana Piteira)

of stone fortifications and one-floor white houses with orange roofs that make a deep contrast with the blue and clean sky of the region. Cylindrical Arabic-style chimneys delineate the skyline of the villages.

The people of Aldeia da Luz basically developed agricultural, craft and commercial activities. Its main recreations were sightseeing, having meals under the trees by the river and strolling with their families around

the surrounding landscape. They had a bullfight arena and bullfight remains one of the most important activities that detonates a whole day with the neighbors in the streets of the village. Also they are a deep religious community that is devoted to "Our Lady of Luz". The village was founded around the XV century in a place where the Virgin Mary appeared to a young shepherd in the trunk of an oak from where miraculously sprouted a spring of water. Every September there is a big catholic



Figure 3: Collage of national and international newspapers published around the time of the relocation

procession where the population walks around the entire village with the holy images they have in the church. During that celebration people from several parts of the Portuguese nation attend the festivities. The exaltation of the sense of community is exposed from the sacred time of procession departure until the time of the bullfight. We can ensure that the “axis mundi” of the village implies directly on that event in the Alentejo’s landscape and involves godlike images as the Virgin Mary (Our Lady of Luz); the shepherd, the oak tree and the water flow are the iconic elements that define the main identity of Aldeia da Luz.

In 1995, before the construction of the dam, the population of Aldeia da Luz was 363 inhabitants distributed by 132 households (National Census by INE -National Institute of Statistics). 23% of the inhabitants were older than 65 years and 19% younger than 14 years. 15% were students and 57% had a job. Around 60% of the active population worked in agriculture.

- The new landscape, the new hamlet (Nova Aldeia da Luz) and the villagers -

The inhabitants of the old Aldeia da Luz never wanted to leave their community, as was stated in the walls of the public garden “No conditions, we do not move”. However, they had no option but to move to the brand new settlement. During that time the villagers mentioned to the national and international newspapers that “we have everything but our life held in the Old Aldeia da Luz”... “The new town still lacks life”.

And now what? They knew how to graze livestock in the pastures and montados, how to harvest wheat, olives and grapes, and how to pick fishes in the river. Now the new artificial lake offers them the opportunity of tourism, to develop shrimp farms in the reservoir water... or to ask for a job in the foreign companies that produce wine, cork and olive oil... or just to migrate to find opportunities in other regions.

After receive their new houses, about 100 families sold them and moved to bigger cities such as Reguengos or Évora, other families who could not sell theirs just abandoned them and move to other cities too. Nowadays a great number of properties are used as a second

house and are utilized just on weekends or when the migrated families visit old friends. In contrast of it, in the more than five years of transition, some young couples couldn’t obtain a new house or expand the parental one, and were forced to migrate to other settlements in the region. Therefore, while the new village was losing inhabitants and the opportunity to increase their population, other villages won them. In 2010, with the aim to increase young newcomers to the town or give an opportunity to the young couples that leave the town the previous years, the government opened new plots in the proximities for sale, but during that year no one was purchased. According to the census, the number of births per year decreases from 12 in the old village to 2 or 3 in the new village.

Comparing the statistics, we can find that the population drastically decreased from 499 inhabitants in 2001 (336 male and 163 female) to 299 inhabitants in 2011 (158 male and 141 female), a 42% reduction. We also can observe that while in 2001 there was a large gap between male and female, in 2011 these numbers were more alike.

Leon C. Megginson famous phrase “It is not the strongest or the most intelligent who will survive but those who can best manage change” is present in this project. Since 2001 the villagers tried to reorganize their lives. Even though the memories of the past will always be there, they now know how to deal with the new situation. The people that remain in Aldeia da Luz continue with their festivities and restructured their way to coexist, to gather with family and friends and to maintain their social habits. Nowadays instead of visiting and doing activities in the surrounding landscape (I mean in the waterscape), the people meet in church, main square, backyards. During the “Our Lady of Luz” festivities the streets receive locals and foreigners generating a good ambience, interest in the history of the village (old and new) and a new vision for the future of the land, reshaping identities and breaking paradigms.

SURVEY AND INTERVIEWS

To understand the population perception of the forced change in their habitat a survey was conducted with the residents. 186 persons in the village were contacted and asked to fill out a questionnaire. According to the 2011 census, this number represents 64% of them -nevertheless we can say these people were almost all the inhabitants of the village.

The survey revealed a general rejection towards the relocation. Many inhabitants, without being questioned about it, declared that the new local museum cost almost the same as the entire new village; others declare that the old village was better and more beautiful than the new one; and many of them declared that the relationships with their neighbors were severally affected by the new project. During the survey people made many nostalgic comments: “the primary school (the new one) is bigger, modern, with better facilities... but worse than the old one”; “my village was the old one... this is another one... I love the other one, where we were born, where we grew up...”; “before, the landscape had trees and soil... was green... now (just) water!”; “they destroyed everything and changed the landscape... our landscape is finished, it died..”; “the new village does not lend itself to coexistence as before”; “from 100,000 hectares of land where we worked, lived, enjoyed and watched... now only 1,000 are left... the other 90% is water”.

The questionnaire, with 27 items, was designed to understand the population perception of the landscape (based on the Environmental Psychology Concepts of Landscape Perception -Personal Space and Territory, by Harold Proshansky, CUNY) in order to have a better understanding of their place identity, place attachment, environmental consciousness and behavior settings. In general, the survey shows a general discomfort with their situation. Below are some of the questions/answers:

- Did you agree on the construction of the dam? YES 35%, NO 62%, na 2%
- Did you agree on the relocation of the village? YES 67%, NO 33%
- Do you live better now? YES 28%, NO 62%
- Do you consider your house similar and the landscape different? YES 54%, NO 32%, na 7%
- Do you consider your house different and the landscape similar? YES 17%, NO 53%, na 15%
- Do you consider your house different and the landscape different? YES 20%, NO 58%, na 11%
- Do you consider you own the new village? YES 4%, NO 75%, na 11%
- Was the amount of money invested in the construction of a replica of the old village worth it? YES 83%, NO 13%, na 2%
- Was the landscape before the dam important to you? YES 71%, NO 22%, na 3%
- Was the construction of the old village important to you? YES 69%, NO 24%, na 3%
- Was there something more important than the landscape or buildings? YES 76%, NO 17%, na 3%
- Does the new environment preserved the cultural identity of the village? YES 24%, NO 69%, na 3%

Besides the questionnaire several interviews and informal chats were undertaken with the same results. We can say that the young generations (under 14 years old) don't feel too nostalgic about the previous landscape, while the oldest ones (above 65 years old) feel that

their cultural identity died with the submersion of their village. The adults are the ones better adapted to the new village. Besides their daily activities, they organize football matches on holidays and weekends, the bullfight festival and the religious processions. Pitifully, most of the time the open spaces, as the “central square” and even the streets, seem as part of a ghost city. On the contrary, the new museum, where you can revisit the history of the old village, has plenty of activities for schools that visit it daily from all corners of Portugal.

CONCLUSIONS

The people of Aldeia da Luz generally feel that their identity was stolen by the submersion of the old village. They also believe that the construction of the Alqueva dam brought them several economical losses. Most of their cultivation and pasturelands were flooded by the dam affecting their main economic activity, the agriculture. On the new village, EDIA didn't provide cultivation lands to households, just small community fields. Locals are denied access to lands or water reservoir with severe laws. These facts forced the population to look for a job in the larger farms owned by foreign companies, which rely more on technology than on labor force. The people that could not decide to work on these jobs or to adapt to the new conditions were forced to migrate and find opportunities in other regions.

Because of the lack of services and the “catalogued architecture” that prohibit modifying the houses, the young generations migrate to other urban centers. The villagers feel cheated by the promises of EDIA because they never received what they expected to. The old generations have serious difficulties adapting to the new landscape, to the new houses, to the new village. Most of the inhabitants mentioned that almost all the monuments, houses and surrounding landscape could have been “saved” if the water reservoir hadn't been filled to its totality. Still profound bonds with the submerged landscape persist. People



Figure 4: Traditions and traditional buildings, previous and present views (photo: Martin Gomez-Tagle and Rosa Santana Piteira)

try to maintain their traditions in the new village. While all are, step by step, adapting to the new conditions, collected data reveals that the old ones don't want to go outside their homes and they just let pass the time longing for what they had. 69% feel they had lost their cultural identity, 58% preferred their previous homes, and 74% preferred the pre-Alqueva landscape.

Concluding, the people of Aldeia da Luz would rather prefer to maintain its original old settlement than the brand new one that they received from the government. They feel they have been imposed a new way of life with many losses and no significant improvements. This makes them dislike the project and reject their identity loss. Having their urban, cultural and landscape identities destroyed led them only to miss it and having

to adapt gradually to the new reality looking for new opportunities in a total different environment. The government and beneficiated companies should give more and better support to monitoring the adaptation of the villagers to the new environment and provide improvements to their economic situation rather than imposing laws and conditions that historically were not used.

Answering the initial question: Does an exact replica of an urban settlement within a profound landscape change is good enough to maintain its inhabitants' identity, namely their relationship with the surrounding landscape? Survey results suggest that, probably, it should be a better option to invest the millionaire budget to give the population better houses, jobs opportunities and an improved economic situation, rather than making an exact replica of a village that is neither their village nor what they really expected for. The inhabitants' identity was severely impacted by the construction of the Alqueva Dam, as they have lost their home settlement and the landscape that shaped them. And even if the new Aldeia da Luz was built as an approximate replica of the old settlement, the old landscape and associated activities were no longer there. Fields of wheat, montados, pastures, olive groves and vineyards were substituted by an immensity of water, that washed away to a museum all their memories and way of life. The study suggests that an exact replica of the built environment is not enough to maintain the identity of population if the landscape cannot be maintained.

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EVOLVING URBAN LANDSCAPE TYPOLOGIES

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ABSTRACT

While comprehensive rural landscape typologies are now commonplace, landscape approaches to urban areas have always tended to focus on individual green spaces, both official and informal as well as the possibilities for their inter-linkage to create 'green networks'. City-wide approaches to identifying urban landscape types, as called for in the European Landscape Convention, are largely absent. In the context of a recent project investigating the opportunities to mitigate the impacts of global warming on the city of Vienna, a comprehensive urban landscape typology was created for the city with the help of a multivariate analysis of a range of variables relating to urban structure, topography, open space and climate. The variables were collected on the basis of a 500 x 500 metre grid and each of the quadrants was assigned to one of nine classes, or urban landscape types. Three of the more diverse types were sub-divided to create nine further sub-classes. The resulting pattern of landscape types across the city resulted in a convincing reflection of the perceived character of the Vienna's urban landscape. The paper will explain how the approach is being developed further in a search for a more general urban landscape classification for Vienna which can reflect the full range of urban landscape functions rather than just climate. In this context, a key consideration is the way in which urban morphology relates to the various functions of the landscape. Different combinations of landscape structures – open spaces, street patterns, built form etc. – and functions – mainly land use types – have been experimented with to generate and assess a new series of typologies using additional data which was not available for the previous study. Having developed and tested a method for defining the urban landscape types of Vienna, this can be used in comparative studies in other cities.

INTRODUCTION- URBAN LANDSCAPES AND THE EUROPEAN LANDSCAPE CONVENTION

Developing a systematic and comprehensive approach to understanding urban landscapes, is an essential prelude to their 'protection, management and planning' as called for in Article 3 of the European Landscape Convention (Council of Europe, 2000), and is an important goal to aim for if we are to take the implementation of the Convention in urban areas seriously. The research reported on here is working towards achieving this goal by developing a typological approach that can be applied across different cities.

Urban landscape is traditionally seen in terms of individual parks, gardens and squares, but as the Convention applies to the whole territory of signatory states, it follows that the landscape must also cover the whole surface of urban areas, and is not just confined to individual open spaces. So what approaches exist for describing and understanding the totality of urban landscapes in line with the Convention's requirement in Article 6 for each signatory state to 'identify and analyse its [urban] landscapes'?

One common solution to seeking a more comprehensive approach to the urban landscape is to, as it were, 'join up the dots' and to consider the linkages, both actual and potential, between individual green and open spaces to create green networks. But even when these are taken into account, the majority of the urban area is still 'white' on the map, seemingly devoid of landscape.

Identifying landscapes in rural areas, by contrast, usually involves the definition of seamless mosaics of different landscape types. These are usually based on an integrated view of the various biophysical aspects of the landscape, represented by different layers from geology to potential natural vegetation to generate broadly homogenous (landscape) ecological patterns, which are then overlaid by characteristics land cover patterns to define specific landscape types.

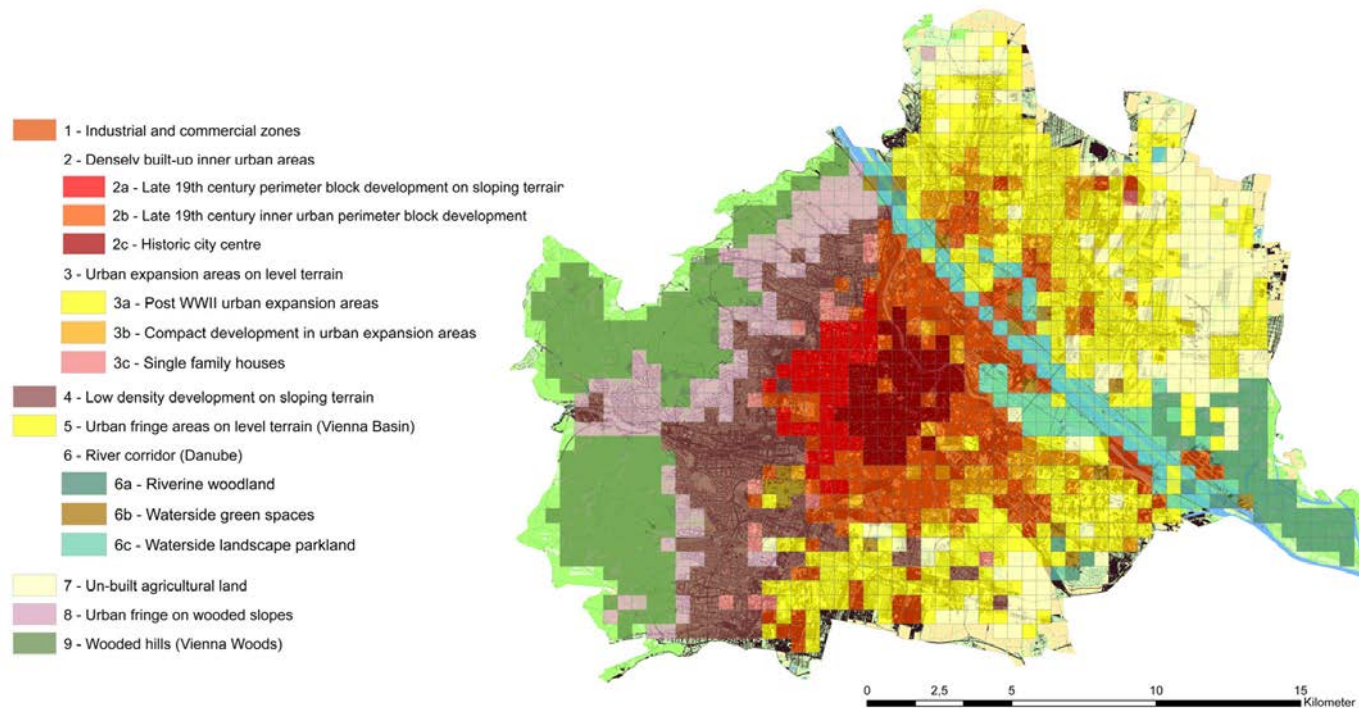


Figure 1: Vienna Urban Landscape Typology including Microclimate Data

So what about when it comes to taking a comprehensive and differentiated typological approach to the landscapes of towns and cities? Certainly it is also possible, and sometimes instructive, to invoke ecological landscape units in trying to come to an understanding of the urban landscape (e.g. Spirn, 1984), but the limitations of such a way of looking at the urban landscape are evident. The biophysical layers of the landscape that are conventionally considered as a starting point for defining landscape typologies are usually submerged, if not largely transformed, in urban areas by significant layers of built fabric such that the influence that the bring to bear on the urban landscape is severely limited. This suggests, not only that we need to look elsewhere for the factors with which to generate urban landscape

typologies, but also that these factors might well be defined in terms of the overlying urban fabric itself.

BACKGROUND / URBAN LANDSCAPE PRINCIPLES – DELINEATING THE URBAN LANDSCAPE

Systematic attempts to map the urban structure exist (indeed urban morphologists are concerned with little else) but the Berlin Environment Atlas, which takes a much broader approach, provides a particularly interesting example to consider. Amongst its many thematic maps, it includes a differentiated map of the city delineating over 50 urban structure types (<http://www.stadtentwicklung.berlin.de/umwelt/umweltatlas/>), that can be seen as providing acceptable representation of the urban morphology, and which uses the

street pattern to define the individual mapping units (urban blocks). These are characterised in terms of their broadly homogenous urban morphology. The resulting maps cannot, however, be described as representing the urban landscape, and not just because they each represent only one facet of it, whereas the landscape is multi-dimensional, it is also a question of scale.

To appreciate why this is so, it is useful to consider an analogous situation in the rural context. Urban street patterns and thus the block structure frequently have their origins in rural land ownership structure and the field patterns which resulted from this. Even if these may have subsequently been 'over-written' by more recent grids, the scale tends to remain similar. In mapping rural landscapes, plans of the field patterns classified according to their 'morphology' i.e. the land cover or the crop types being grown, could not be mistaken for landscape typologies. In the same way mono-structured urban blocks can no more be considered as landscape types than can individual fields with a consistent land cover.

This is partly a question of content and partly one of scale. Landscape is something holistic and integrated and cannot thus be reduced to individual land cover types. But even if additional 'layers' of information were to be added in to make the characterisation more rounded, such as for example by integrating the map of urban habitat types (biotopes) which is also part of the Berlin Environment Atlas, this would still not result in the pattern of urban blocks becoming a representation of the urban landscape.

Scale is another important aspect: to be a landscape, it is not simply good enough to be 'an area of land...' as described in the European Landscape Convention; landscapes have to have a certain scale.

With regard to landscape scale from a landscape ecological perspective, Forman and Godron (1986, p.11) say that:

“Landscapes vary in size down to a few kilometres in diameter. ...Localised areas of a few metres or hundreds of metres across are at a finer scale than landscape.”

Generally, though, discussions of ‘landscape scale’ take place in the context of the rural landscape. Furthermore, these are usually concerned with the distinction between ‘landscape scale’ and ‘site-based’ conservation, and therefore do not refer to any actual scale. In urban areas, by comparison, ‘a few kilometres’ is a long distance, while a ‘few hundreds of metres’ may indeed make better sense as a measure of urban landscape scale.

This view is supported by the fact that in urban areas views tend to be restricted due to the density of buildings and structures. The limited extent of views in urban landscapes also resonates with another important aspect of the definition of landscape in Article 1a of the European Landscape Convention: landscapes are areas ‘as perceived by people’. Thus the areas which people literally ‘see’, and thus perceive, as their immediate neighbourhood might help to define a useful measure of urban landscape scale.

Although urban ‘viewsheds’ are likely to be variable, the consideration given to the importance of the local neighbourhood as the smallest unit of urban landscape, is further reinforced by the growing significance being placed on ‘walkability’ in urban areas. Access to the main amenities and local infrastructure within ‘5 minutes walking distance’ is increasingly considered to be an important criterion for well planned urban districts (see for example Urban Task Force, 1999 p. 55). This suggests that an appropriate sampling scale for characterising urban landscapes should encompass no more than a few blocks, and correspond broadly to five minutes walking distance or a few hundred metres (A five minute walk is usually considered to equate to about 400 metres – e.g. Ottawa Greenspace Masterplan or Urban Task Force, 1999)

Finally, in considering the delineation of an ideal unit of urban landscape as the basis for developing a typology, the goal of the Landscape Convention ‘organising European cooperation’ (Article 3) might suggest selecting a sampling unit which could easily be used in a consistent and repeatable way in different European cities and countries in order to provide comparable landscape information, and which would not be limited by the need to respond to particular local conditions. A

pragmatic solution which would address all the above theoretical and practical considerations would be to use a straightforward quarter kilometre grid such that each quadrant covered an area of 25 hectares, equivalent to several urban blocks and bounding an area to be crossed comfortably by a five minute walk.

Examples of indicators used in generating the urban landscape typologies

Indicators used in generating the urban landscape typologies were chosen in order to capture as closely as possible the factors relevant for describing the landscape conditions in each of the quarter kilometre square quadrants. They have been derived from various datasets for the city of Vienna including a) actual land use, and b) the general purpose digital map of the city, c) inventory of building heights, d) dataset of vegetation heights for Vienna and e) dataset of information about streets in the city.

In most cases the content of a typical quadrant is made up of various proportions of streets, buildings, open spaces, and in some cases water. Indicators were chosen to represent quantitative and qualitative aspects of this information. In the case of streets, for example the total area of street spaces within each quadrant was included, but so also was the total length of streets in order to differentiate between quadrants with only a few wide roads and those with several narrower ones. In the case of buildings, also both the total coverage of built land was included as well as the number of individual buildings so as to be able to distinguish between quadrants characterised by a few large structures and those with a large

number of smaller buildings. The overall built volume was also included in the form of the numbers of buildings in different height classes. Open spaces were also included as land uses in their own right, but also as areas of land forming part of built plots. Within the total area of un-built land, the proportion of unsealed surfaces was also included as was the area of vegetation of different height classes in each quadrant.

Under ‘functional’ information, most of the indicators came from the land use plan, whereas what were regarded as ‘structural’ indicators came mainly from other datasets. Thus, for example, the number of buildings between 9 and 12 metres in height in each quadrant was considered as information about the built structure, but the area of residential or mixed use development within a quadrant was seen as functional information. As is explained in the text different classifications have been carried out using different combinations of structural and functional information.

Additional indicators were intended to provide information on relief and included the average altitude of each quadrant as well as the difference between the highest and lowest points in each quadrant.

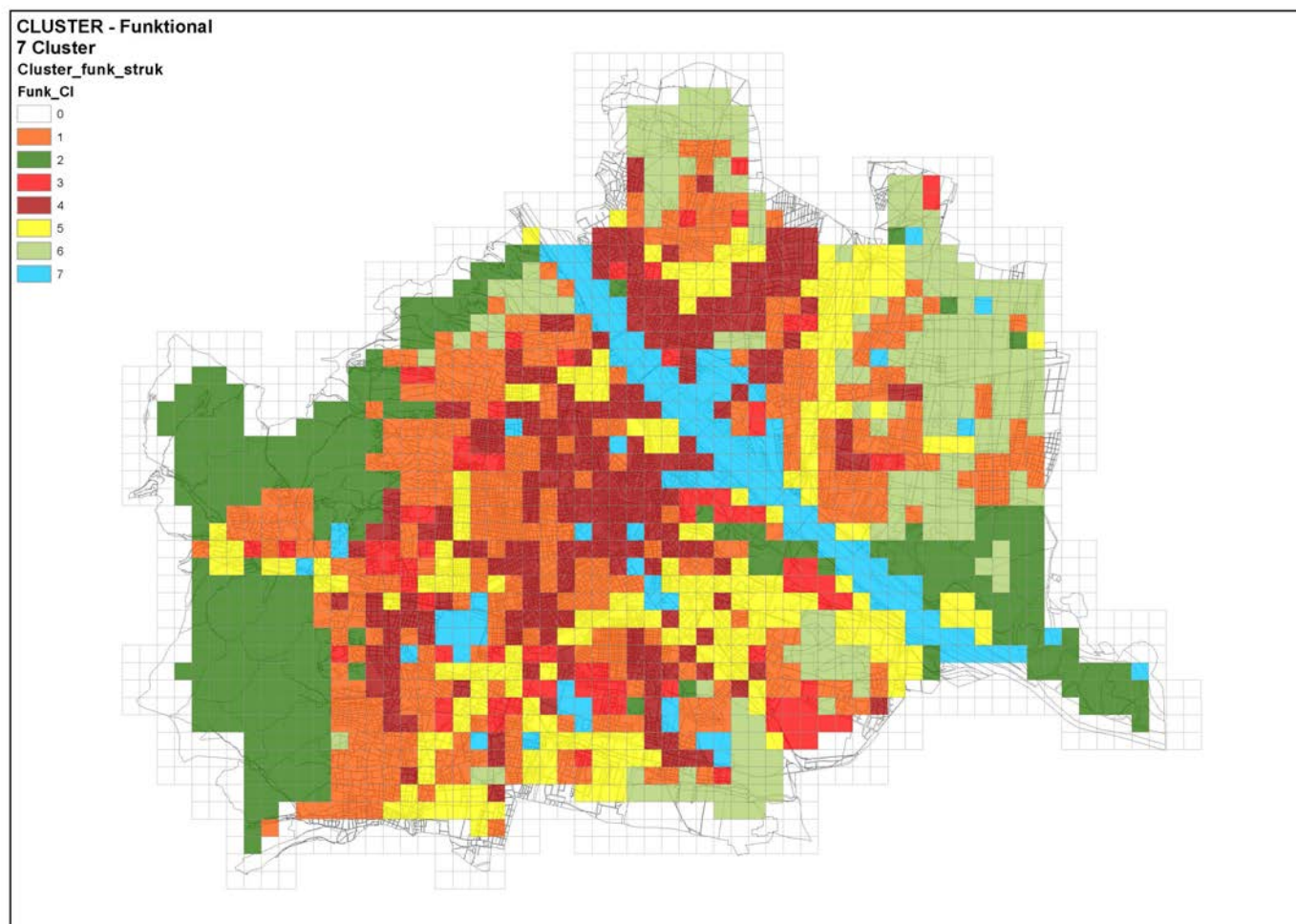


Figure 2: Seven landscape types based combination of 'functional' and structural indicators

AN URBAN LANDSCAPE TYPOLOGY TO INVESTIGATE CLIMATE CHANGE MITIGATION

Within the context of a project funded by the Austrian Climate Research Fund to assess the possibilities for mitigating the impacts of climate change in the city of Vienna (Auer et al, 1989), a landscape typology inspired by the above considerations was created on the basis that different urban landscape types could

be expected to have different sensitivities to climate change and would also call for different combinations of measures for its mitigation. Apart from providing a 'proof of concept' for the concept of an urban landscape typology in general, the intention was to illustrate how such a typology could be used in practice in order to investigate the micro-climatic conditions with regard to typical examples of the most important urban landscape

types and then to make detailed mitigation proposals which would then be applicable to all other urban landscapes of a similar type (Hagen & Stiles, 2010).

On the basis of the arguments outlined above information about a range of key variables was collected for each of the roughly 1600 one quarter kilometre square quadrants which go to make up the city of Vienna. The variables chosen were mainly selected on the basis of their being factors which were likely to influence the urban climate, although many of them could also be used to characterise the urban landscape. From an initial review of some 250 indicators, 44 were selected and grouped into four categories relating to the built structure, open space characteristics, topography and climate. In all cases the reason for selecting the indicators was that it was hypothesised that they would have an influence on the urban (micro-)climate (see Landscape TU Wien, <http://urbanfabric.tuwien.ac.at/index.php/de/>).

Following a factor analysis to eliminate remaining redundant information, a two-step cluster analysis (e.g. Backhaus et. al., 2000) was carried out, which after reviewing various alternatives, resulted in the classification of each of the 1600 quarter kilometre square quadrants into one of nine main urban morphology (landscape) types. When plotted on the map of Vienna, their distribution provided a convincing reflection of the variation and spatial structure of Vienna's urban landscape. Three of the larger of these types were re-analysed to generate three further sub-types, in order to try and differentiate the larger and more heterogeneous classes. The resulting additional nine sub-classes further refined the representation of the urban landscape, to the extent that the landscape types and sub-types generated by the data selected purely to represent possible factors which could influence the microclimate, in fact also closely corresponded with the generally accepted structure of the urban fabric (landscape) of the city (Stiles et. al, 2014).

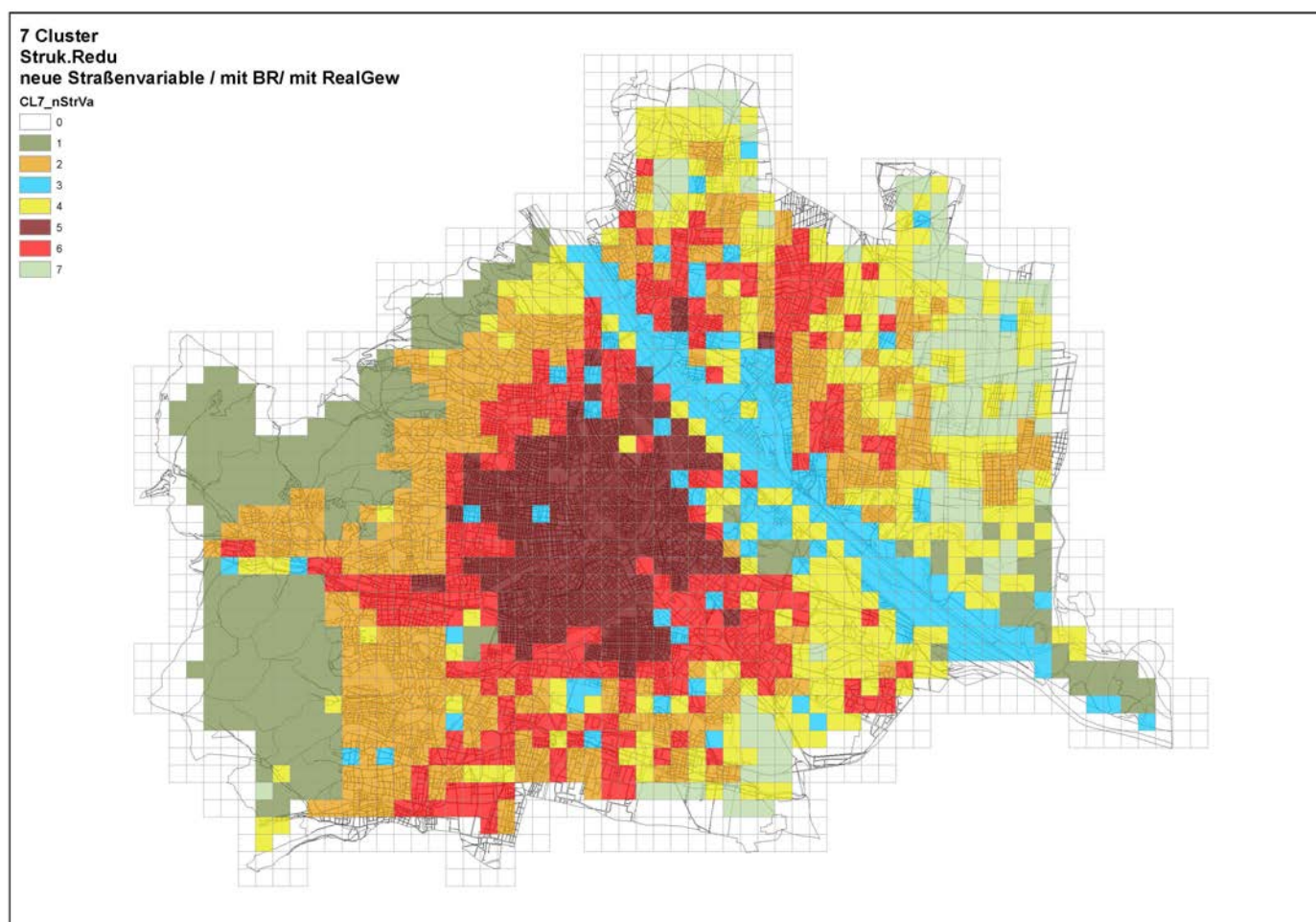


Figure 3: Seven landscape types based on a limited number of structural indicators only

Irrespective of the microclimatic simulations of the status quo and of the effects of the proposed mitigation measures relating to sample quadrants from the key landscape (urban fabric) types, which formed the main focus of this research project, the pattern of the urban landscape typology which the classification had produced appeared to be highly promising, in particular as the pattern it presented closely echoed the subjectively perceived structure of Vienna's urban landscape,

and the nine landscape types and above all the nine further sub-types could all be understood and interpreted in the context of what was known of the city's landscape structure and urban fabric on the ground (see also Wieshofer et al, 2015). This was achieved despite the fact that the indicators chosen to generate the classification were selected purely on account of their likely influence on the urban microclimate.

STUDIES TO REFINE FURTHER THE URBAN LANDSCAPE TYPOLOGY

With the completion of the project referred to above, it was decided to experiment with refining the Vienna landscape typology further with the help of additional digital data. The original intention was to go beyond the previous typology, which had been conceived and created with the specific aim of characterising the urban fabric in terms of its microclimatic responses, toward creating a more general purpose urban landscape typology which could serve broader objectives and would reflect the performance of the urban landscape with regard to a wider range of characteristics.

Rather than build pragmatically on the previous results which had delivered a seemingly plausible typology relating to climatic responses, it was decided to start again from first principles and to devise a new classification using a largely new set of indicators, only some of which had contributed to the previous classification. Several iterations have taken place and the main ones together with the principles behind them as the resulting classifications will be briefly outlined here.

While the data used to generate the typologies were different to those used in the context of the urban climate project, the basic approach of using 500 x 500 metre quadrants as the spatial basis for defining urban landscape types was retained in line with the arguments rehearsed above. The same grid, a standard one used by the Austrian Statistics Agency, continued to be used.

The first, and indeed subsequent, attempts to create a new, and by implication improved, urban landscape typology for Vienna, however, raised more questions than they answered. This process of questioning however, has gone to the heart of ideas about the urban landscape, and in fact has proved more useful than the initial results of the search for an improved typology and also involved going back to consider first principles (e.g. Kropf, 2009). First of all,

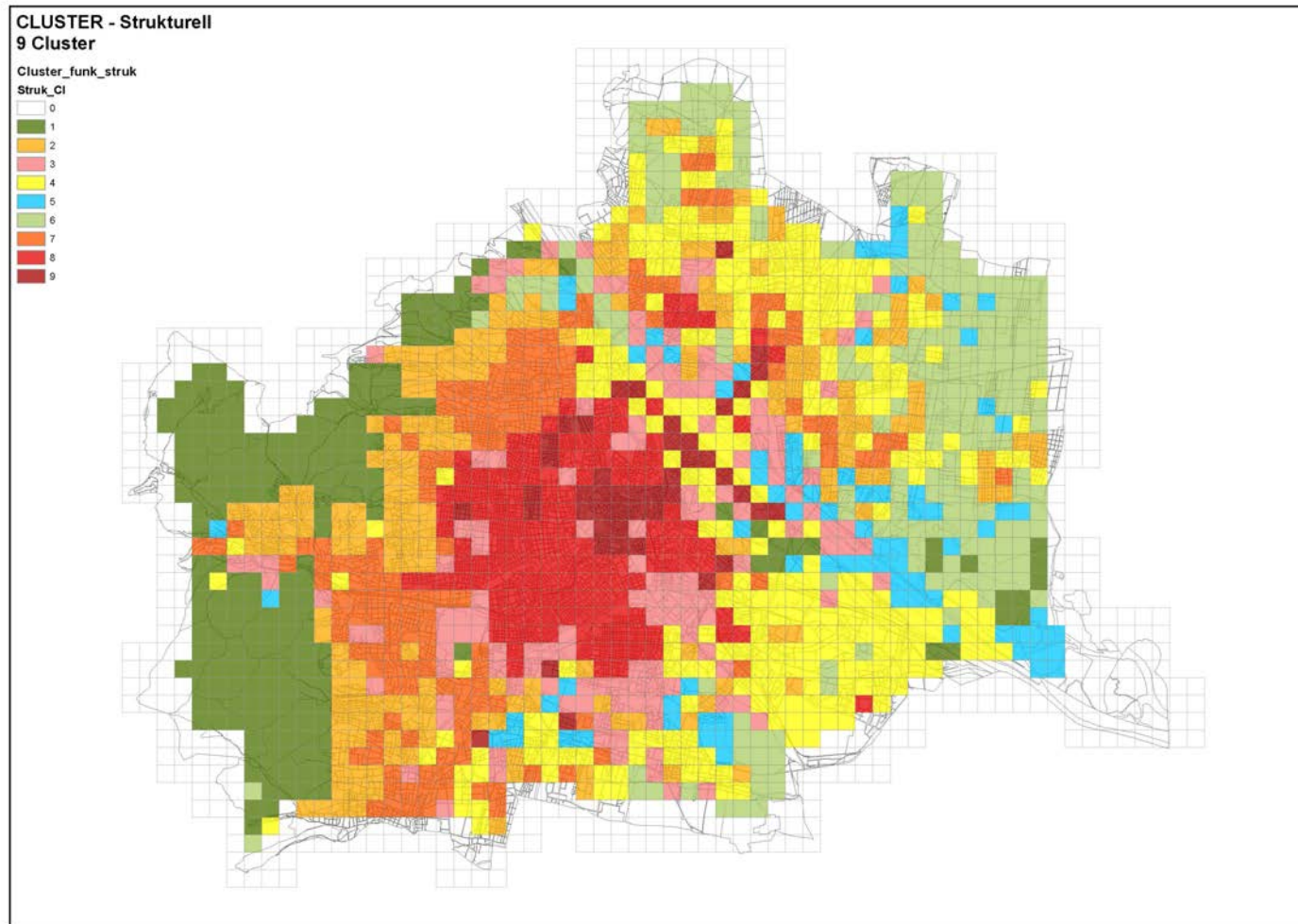


Figure 4: Nine landscape types based on a broader range of structural indicators

though, the initial results will be briefly presented as the basis for this process of further questioning.

The first approach which was tried involved making a largely intuitive selection of factors which were thought to describe the urban fabric and open space structure in terms of the pattern and extent road network (considering these as important open spaces) the block structure

including the proportion of built land and the height of buildings, the open spaces in terms of the areas of non-sealed ground surfaces and the different heights of vegetation, and finally water bodies and water courses. The different use of the buildings was also included in order to differentiate between, for example, residential and commercial development which can have very different implications for the associated urban landscape.

Various combinations of indicators were selected, the analysis of which resulted in different numbers of classes, from three to nine, but in each case the resulting urban landscape pattern was less immediately convincing than that which had been previously generated in the context of the urban climate study. The initial cluster analysis included a mixture of indicators which could be classified as relating to the urban structure, with ones which related more to the function (see text box). To try and resolve this problem it was decided first to focus on indicators which could be said to relate to functional characteristics, such as the land use type, rather than building height or area of roads in each quadrant – as it was the functional characteristics of the urban landscape which were felt to be the most important to focus on. Disappointment with the resulting pattern of landscape types, however, led to a decision to consider the opposite approach and to carry out a classification based purely on structural factors. Here too the resulting pattern of urban landscape classes was less convincing than the original typology which this was seeking to improve on. In a further classification, a reduction in the number of indicators used led to a slightly improved result, but one which was still not as satisfying in the way in which it apparently echoed the urban structure of the city than the classification developed for the microclimate study, which seemed to have resulted in a much finer reflection of the morphological structure of the city.

Given that the major differentiating factor between the original and subsequent approaches to developing a typology was only the inclusion of indicators relating directly to the urban microclimate (examples), one obvious possible conclusion was that these, unexpectedly and perhaps counter-intuitively, were what was actually resulting in the seemingly superior reflection of the form of the urban fabric, despite the fact that the climatic indicators seem to have no direct relationship to the urban form. Although this is indeed the case, the patterns of indicators generated by the climatic factors

used in the initial classification and the perceived structure of Vienna's urban fabric do appear to coincide quite closely. Two factors in particular seem to contribute to this: the heat island effect over the city centre, which coincides largely with the historic mediaeval and indeed Roman old town, and secondly the pattern of higher ground which wraps around the west and north of the city (the Vienna Woods), and which has a strong influence on the temperature and rainfall patterns, also happens broadly to coincide with the transition from perimeter block development and the more open form of suburban villas and single family homes.

OUTLOOK

In order to test whether the inclusion of microclimate indicators is indeed the reason for the seemingly more convincing resultant morphological classification, the next obvious thing to test is to re-run the previous cluster analysis but this time without including the microclimate indicators. If this is indeed results in a classification which is much closer to those produced following the urban climate project, this will help to revive confidence in the follow-up approaches taken so far. Given that one of the goals of developing a reasoned approach to generating urban landscape typologies is that once achieved, this can then be transferred to other cities, in order to be able to make comparisons of aspects of their urban landscapes, then not including the climate data for Vienna makes sense, as it is likely that the way in which it reflects the form of the urban fabric is more coincidental than causal.

A further planned refinement is to experiment with the introduction of differentially weighting the indicators which are being used to generate the typology. So far, all indicators used so far have been treated equally by the cluster analysis, but not all are necessarily of equal importance. As a means of determining which of the indicators should be weighted and by how much, it is proposed to start from a consideration

of the functions of the urban landscape, as the resulting typology ought to reflect these in the first instance, but to use indicators which relate to the structure of the urban landscape to generate the typology. A matrix will be used to compare structural characteristics of the urban landscape with its possible functions, and those characteristics which influence more than one function will be weighted accordingly.

The final goal in developing a plausible well-differentiated urban landscape typology will be to minimise the number of indicators necessary to generate it and, as far as possible, to ensure that the relevant information is also available for other European cities in order to be able to test the approach within a wider urban landscape.

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PLACE-KEEPING PARTNERSHIPS IN PRACTICE: OPEN SPACE MANAGEMENT IN A STATE OF FLUX

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KEYWORDS

Green space, Liveability, Capacity, Funding, Place-making, Place-keeping, Long-term management

ABSTRACT

The UK is undergoing a raft of changes in the provision, design and management of its urban green space. Current and severe public sector budget cuts have led local authorities to think widely about how to deal with these financial challenges. This includes a wide range of options such as selling off assets, levies on nearby businesses and subscription schemes for users. But thinking innovatively about how to deliver effective green space management is not a new phenomenon. This paper calls on research examining an innovative programme, Liveability, of place-based urban regeneration which was funded by national government in the early 2000s and how it was implemented in one English city. This funding was made available in response to a long period of lack of investment for urban green space between the late 1970s-late 1990s. The Liveability approach taken in this particular city was based on partnership working between green space management service providers. This collaboration aimed to pool resources and help sustain the physical transformation of the area through high-quality design and management. The research team analysed the effectiveness of the Liveability approach through a number of in-depth interviews with local Liveability stakeholders. These were framed within the place-keeping themes of partnership, governance, evaluation, funding, policy and design/ maintenance. The paper provides an overview of the successes and failures of how the Liveability approach was implemented in practice. Some of the barriers include an unwillingness to change working practices, a lack of capacity to make such changes and ineffective decision-making structures, in part due to inflexible funding arrangements.

BACKGROUND.

In the UK there were sustained and successful efforts in mid-19th and 20th century by social reformers for publicly accessible green and open space. This ushered in the introduction of parks in cities as well as some philanthropist-driven housing based on a garden city approach: green space was valued, set aside and protected. And this has continued from Letchworth Garden City to Port Sunlight to with landscape planning approaches taken to some of the New Towns such as Warrington, and garden suburbs in parts of London and Sheffield, among others. But this is not the end of the story: it is unfortunately too simplistic to assume that because green space is designed, set aside, valued and protected, it will necessarily be managed and maintained in perpetuity. There was a long period in the UK when there was little investment in urban green space between the late 1970s-late 1990s (Barber, 2005). This had a significant and detrimental effect on the quality, and use, of parks leading to the then Labour government, to respond with a suite of funding streams based around the importance of the local environment for urban regeneration (Shaw et al., 2005).

THE LIVEABILITY PROGRAMME: AN AREA-BASED INITIATIVE

National funding programmes in the late 1990s-early 2000s were initiated by the Labour government as part of a widespread programme of area-based urban regeneration initiatives, predicated on the idea that improvements to the local environment could improve people's lives (Dempsey, 2009). Local authorities applied for the funding in partnership with different sector organisations, as part of national government's aim of giving devolved decision-making powers to deal with local environment issues (Brook Lyndhurst, 2005). Available funding streams included the Single Regeneration Budget (1994-2008), New Deal for Communities (1999-2009), Neighbourhood Renewal Fund (2001-2009), as well as the Safer & Stronger Communities Fund (2005-08) which included the Liveability Fund (Lupton, 2013). Funding

allocation was based on individual areas scoring highly on the Indices of Multiple Deprivation, relating to indicators of income, health, employment, education, crime and the local environment. The national funding was 'matched' with funding from other sources including local authorities, the voluntary and the private sectors, working in partnership. Projects were funded by the Liveability stream in deprived areas to tackle issues of community empowerment in disadvantaged neighbourhoods (Shaw et al., 2004), neighbourhood management and physical improvements to the local environment (Bradford and Jackson, 2005). The concept of liveability in the UK has been described as based on a 'less visionary agenda' that the original American 'livability' principles (dating back to the 1970s) which focus on green space preservation, traffic easement, restoring social cohesion and enhancing economic competitiveness (Shaw et al., 2004, pp. 2-3). The Labour definition of Liveability aimed to provide safe, clean and green neighbourhoods in deprived areas. Specific measures included reducing dog fouling, littering, vandalism and graffiti (Shaw et al., 2004). Liveability was also about giving communities the capacity – in terms of the resources, skills and confidence – to sustain these improved, safe, green and clean neighbourhoods for the long term (Groundwork Trust, 2002). Cross-sector partnerships were strongly encouraged as a vehicle for delivering the aims of these funding streams (Amion, 2010).

This suite of funding streams had the underpinning aim of improving social and spatial equity (Social Exclusion Unit, 2001) to reduce the gap in access to social and economic opportunities, services and goods between residents in poorer and richer neighbourhoods (Lupton, 2013). With local environmental improvements as the linchpin, these programmes aimed at sustainability beyond the life of the funding and improving partnership working in the local areas (Batty et al., 2010). While it is important to understand the context in which the funding programme occurred, it is outside

the scope of this paper to comment on the success or otherwise of the area-based initiatives more broadly.

LIVEABILITY AND PLACE-KEEPING

The area-based nature of the Liveability funding programme and its focus on design, planning and management of environmental improvements means that **place-keeping** has resonance here.

Place-keeping has been developed by the interdisciplinary researcher authors who span the social sciences, particularly landscape planning and design. Its starting point is the large amount of capital spent on creating or regenerating places (*place-making*) without adequate thought or resources given to their long-term maintenance and management, or *place-keeping* (Wild et al., 2008). It is a concept underpinned by principles of resource efficiency, local responsiveness and the delivery of social, economic as well as environmental gains (Dempsey et al., 2014). It embraces the temporal aspect of place, encompassing that initial design and planning stage of place-making through to the ongoing maintenance and management over the long term (Burton and Dempsey, 2010). Place-keeping therefore permits analysis of the Liveability funding programme which aimed for a more sustainable legacy than the typically short-term, politically-driven timescales which can constrain the activities and funding of maintenance and management practices which require longer timeframes (Dempsey and Burton, 2012).

There are six interrelated and coordinated dimensions of Place-keeping: *partnerships*, policy, governance, funding, design and maintenance, evaluation (Fig. 1; Dempsey et al. (2014) provide a comprehensive examination of place-keeping). Partnerships relate to who is involved and, for example, understanding their motivations and drivers. Place-keeping is often referred to in policy guidance (e.g. Neal et al., 2014) but not statutory legislation. Governance relates to the roles, responsibilities

and decision-making processes of stakeholders. As place-keeping is non-statutory, funding for place-keeping activities is insecure, particularly when local authority budget cuts are made. The design and the maintenance of a place is often uncoordinated, when maintenance is not considered in the design process, at times calling into question the extent to which a place is fit for purpose. Evaluation of place-keeping is often desired but not actually carried out given how time-consuming and costly monitoring it can be (e.g. user surveys). The place-keeping framework allows an examination of the overlapping nature of the six dimensions and, for this paper, how they affect partnerships.

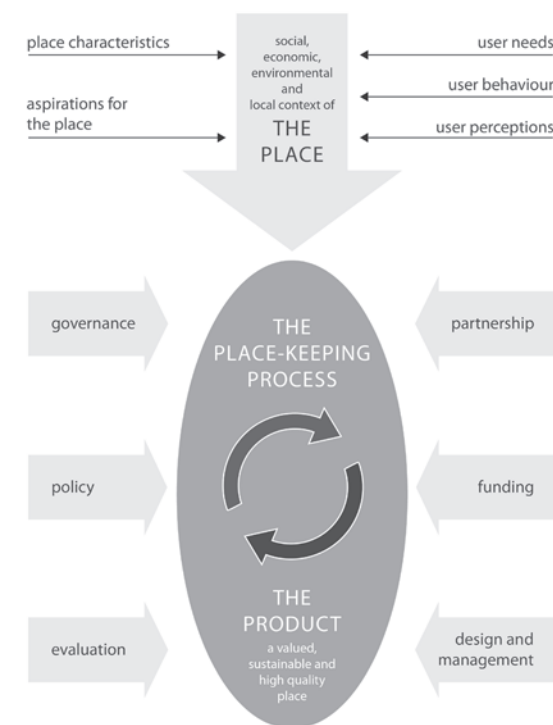


Figure 1: The concept of place-keeping.

METHODS

Applying a place-keeping framework to projects can help us explore the social, economic and environmental benefits of taking a holistic approach to green space management (Dempsey et al., 2014). Place-keeping acknowledges and makes use of the knowledge and expertise of cross-sector – public, private, third sector, community – stakeholders, all of whom were involved in the Liveability funded project examined here. While the concept inherently relates to an ‘ideal way’ of place-keeping in theory, the framework is also practically applied in an evaluative capacity here to examine to what extent place-keeping happens in practice. This paper calls on semi-structured interviews with participants who were involved in the Liveability project in the city of Sheffield. Participants from different sector organisations involved in the cross-sector partnership established which successfully secured Liveability funding were asked questions based on ‘before, during and after’ to explore individual and group motivation and behaviour. The researchers were unable to ask residents about their perceptions as it was outside the scope, time and resources of this short project. A total of 8 participants (of 14 originally targeted) completed an interview in spring 2014 (referred to as No1-08). Thematic coding was employed as a process of content analysis (after Robson, 2011) within the place-keeping framework, to explore the six dimensions and not to exclude any themes beyond partnership discussed by the interviewees. The rest of the paper will focus outlining a number of the successes and failures of the cross-sector partnership, with discussion of reasons behind them.

STUDY AREA FINDINGS

The Liveability funding stream paid for physical improvements to the open spaces of a deprived neighbourhood in Sheffield, with the following aims to:

- improve the quality of life of residents by increasing community participation;

- physically transform the area through high-quality design;
- establish and monitor the maintenance across land-owners (including litter-picking service reform);
- increase site presence.

To achieve this, the cross-sector partnership aimed to create a single client structure to oversee and carry out the open space management with a single operational team, making best use of shared resources, and addressing the highly fragmented land ownership and responsibility for land management.

SOME SUCCESSES

A key success of the Liveability programme was described by all interviewees as the physical improvements made to the green spaces and public realm.

Design/ management: ‘it looks like somebody cares’.

A number of interviewees described greatly improved sites compared to previous condition and quality (No1&04-06&08). This included physical improvements with ‘lots of them [parks] still in a very good state of repair, actually...considering how the parks will have been prior to liveability’ (No5). It should be noted that while Liveability contributed to physical improvements in the area, it does not necessarily mean that they are all in a satisfactory condition today.

Evaluation

As part of the project, evaluation was developed to monitor specific tasks. This ‘started off as elaborate maintenance management plans’ but then was simplified to removing litter and fly-tipping (No6). The capital investment funding was invested in standardised quality indicators were employed to measure quality of green

spaces. This method (the “Sheffield Standard”) continues to be used by Sheffield City Council (SCC) to evaluate the quality of all green spaces across the city (SCC, no date). User numbers are said to have increased in the spaces since before Liveability although no specific figures were cited. Informal site monitoring was also considered to be a success during the Liveability programme based on the Neighbourhood Watch scheme adopted across the whole area – ‘local people taking part in the monitoring of those sites and reporting any issues’ (No5).

Partnership

Consultation was central to the Liveability process, described as a significant reason for the success for Park A (No6), particularly with children engaged in the design stage (No8). Community involvement has also been described as successful and a legacy of Liveability (No5). This included increased community capacity to get involved in the management and funding of parks, e.g. through resident forums (No6&08), learning new skills and associated gains in confidence (No7).

Policy and associated funding

No3 attributes the city’s Open Space Strategy and the ongoing green space evaluation method to Liveability ‘where the language around clean, safe, well-maintained came from’ and underpinned by national policy focus on these issues (after SCC, 2009). Ideas proposed during Liveability are happening now, driven specifically by funding cuts in today’s context (No7). All respondents stated that the Liveability funding stream was sufficient.

So why didn’t the Liveability approach work?

The interviewees discussed a number of reasons why the aims of the Liveability approach were not achieved.

Contextual issues

Interviewees described the characteristics of the area and the resident population as having a negative impact on Liveability success, describing it as too large for the programme to work (No6) and a difficult and deprived area (No3). Green space managers felt that would be unreasonable to expect residents there to get any more involved in the management/ maintenance of spaces than simply report instances of anti-social behaviour (No6). Crucially, the long-term legacy of Liveability was predicated on the success of the business model of the neighbourhood centres providing revenue for long-term management. However, at the end of the Liveability funding timescale, businesses were failing (No7), calling into question the model's viability.

Design/ maintenance

A key observation made by interviewees was about the inappropriateness of some designs and features created because of poor understanding of the context by the non-local professionals employed. For No3 and No8, certain materials and features originally planned by designers were considered inappropriate, such as a laser wall in a local neighbourhood park. Despite widespread positive comments about the physical improvements, maintenance was described as an ongoing problem by all interviewees and vandalism as an issue for all parks. Litter management was highlighted as a top priority for communities and so for managers, however, litter picking was considered a basic grounds maintenance task by service providers. Some operatives felt undermined by their management roles being reduced to litter-picking (No1).

Governance

The 'culture within each of these organisations...were difficult to break down' according to No1, "... where staff in parks have been asked to go and work in another park... they have become very territorial and very

upset about that...". For some interviewees, the single client model was effective at deploying the resources, but other stakeholders did not agree. The Liveability manager was given responsibility for coordinating services locally (No6) but struggled to exercise effective authority or power within existing organisational hierarchies of the main service providers. The manager's role was described as not senior enough to be effective – there was a lack of leadership. This lack of leadership was attributed to a particular understanding of place-keeping as capital investment: 'place-keeping as place-making...based on...big ideas...and a much more public realm front-end agenda' (No7). Once the designs were implemented and people moved on, "there was nobody then left to make the leadership happen" (No7).

Partnership

Interviewees describe a lack of commitment as a key barrier to adopting the Liveability approach. For No6 there was 'some buy-in...but without that real push from the top...the council never really took it on at a senior level and in the end, there was no-one senior enough to really push it through'. This lack of 'buy-in' led to an "often disengaged" workforce (No1) and a reluctance to share information, attributed to a 'lack of shared vision' (No6).

Interviewees discussed the lack of commitment alongside partner organisations' fear of change in management practices (No1&3). The partnership working involved changing working practices – to which the council was very reluctant to commit (No7). There was also a sense that partners felt vulnerable about losing power (No1). The lack of commitment to the Liveability approach was blamed on 'the lack of shared vision [or] shared modus operandi'. 'Nobody wanted the responsibility. Or everybody wanted their own bit of responsibility. Nobody wanted the whole thing' (No7).

Funding

It has been suggested that because the council did not receive Liveability funding directly, they opposed the approach, but that oversimplifies the situation. Council officers felt they were forced to conduct improvements without any reference to their professional expertise: external designers provided this. 'A lot of intellect was focused on spending lots of cash in a short period of time. The brainpower was very limited on thinking about the management – it was easier to think about the place-making, not the place-keeping'. No7 explained how the council was expected to fund the management of these spaces, but this was never discussed with relevant council departments. From the outset, it was clear that this was not going to be possible due to the council's restricted budgets.

Policy

'Everyone knew [Liveability] was the right thing to do...I don't know – maybe it felt like it was too hard?' (No6). This was a sentiment repeated by other interviewees. Despite the available funding, there was no buy-in from the council at the top level to ring fence funding to ensure long-term management. The long-term nature of the vision required for Liveability was simply not adopted (No7).

Evaluation

For all interviewees, the green spaces were in better conditions now than before Liveability. No7 criticised how the focus of the evaluation changed from place-keeping to grounds maintenance: 'high quality spaces, 24hrs a day, the whole animation, use of the space, that was what started to drift away'.

Some reflections

In the 21st century UK context, things, funding has decreased significantly for green and open space design, planning and management due to the current economic climate. This has meant that organisations have had to change their working practices, with increased scope for shared budgets as councils departments integrate as a consequence of austerity. Some partnerships have improved since the pre-Liveability days, particularly where (remaining) staff continue to work in the area.

It should be noted that the majority of interviewees described the Liveability approach here as a failure. The assumptions underpinning the Liveability approach were to some extent flawed and unrealistic, particularly that service providers would engage in shared management practices. Lack of political buy-in and entrenched cultural views were key to the failures of Liveability in Sheffield.

Some of the ideas initiated by Liveability are now happening in practice. Perhaps the partnership working and budget sharing ideas behind Liveability were too far ahead of their time. The findings certainly show that truly long-term action needs political buy-in at all levels, and without that, it is very difficult to take a long-term approach to designing, managing and planning our green and open spaces.

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OUTDOOR RECREATION PATTERNS AND SOCIAL INTEGRATION OF MIGRANTS IN ANTALYA AND BERLIN

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ABSTRACT

Outdoor recreation is activity, voluntarily undertaken in urban and rural outdoor environments, primarily for pleasure and satisfaction, during leisure time and organised for social purposes. Urban green spaces such as parks, beaches or protected areas offer various opportunities for encountering other people with different cultural background. The rationale of the study is emerged from the concepts of outdoor recreation, culture and social integration. Outdoor recreation can be seen as a social institution which helps to construct the social environment. Everyday encounters between residents of different cultural backgrounds give rise to hybrid cultures and bursting with creative potential. Contemporary research emphasizes the importance of direct contacts for reducing inter-group prejudice and conflict. To examine this subject we applied a pilot study on German and German-Turkish migrants in Antalya, Turkey, in autumn 2014 and Turkish descent migrants in Berlin, Germany, in summer 2015. In a focus group meeting in Antalya, information about preferences for recreation activities, perceptions about recreation patterns in the study areas were collected. This step was followed by five qualitative interviews with members of the German speaking community. The results demonstrate that tolerance is the precondition for living in foreign countries and a successful integration into the host society. Urban green spaces are places for encountering and getting in touch with other people. Respondents agree that these areas have high potential for supporting the social integration process. However, common interests are needed as starting point. In addition, respondents stated that Turkish people have a high willingness to accept foreigners and are helpful to get into contact. The language could be a barrier. Respondents also mentioned that cultural differences exist in preferences for outdoor recreation activities and behaviour. Study findings can be used to inform about urban green space policies and planning in both cities.

INTRODUCTION

Outdoor recreation is activity, voluntarily undertaken in urban and rural outdoor environments, primarily for pleasure and satisfaction, during leisure time and organized for social purposes (Bell et al. 2007). Participation in outdoor recreation is related to various benefits, including physically, mentally and socially healthy individuals, access to diverse opportunities, contact with people and nature (Manning 2010). Parks and other public green spaces offer various ecological, physical, health and social benefits which improve the quality of life in an urban environment. Research on the social function of outdoor recreation has focused on many aspects; in particular the role of urban green space (Thapa et al. 2002, Chiesura 2004, Seeland et al. 2009, Stack and Iwasaki 2009, Jay and Schraml 2009, Gentin 2011, Kim 2012, Leikkilä et al. 2013, Jay and Schraml 2013, Kivijärvi 2014, Johnston and Shimada 2004, Krellenberg et al. 2014); cultural differences (Sasidharan et al. 2005, Buijs et al. 2009, Peters 2010, Peters et al. 2010, Sayan et al. 2013, Kamenik et al. 2014); use of green space (Schipppeerijn et al. 2010, Peschardt et al. 2012); and its distribution and provision (Kabisch and Haase 2014, Germann-Chiari and Seeland 2004, Comber et al. 2008). They found that a) people with different cultural background use and value natural areas for relaxation and outdoor recreation differently and b) people are having various and diverse preferences and needs for outdoor recreation opportunities. For example, park users in Turkey utilize “(...) urban parks generally for passive recreational activities such as picnicking, resting and relaxing, in contrast to Western countries where urban parks are generally used for walking, dog walking, sports activities and exercise (Özgüner 2011: 599)”.

Table 1: The role of outdoor recreation and its potential to promote social integration

Basic Assumption	Explanatory variable	Analytic criteria
Cultural factors influence recreation patterns.	Visited places, recreation activities, highlights	Diversity of places that are visited, duration and frequency of recreation experience, group size
Preferences and attitudes are related to respondents' cultural background.	Facilities and infrastructure, park design, opinion about differences in preferences	Stated preferences for parks and facilities
Behaviour is related to respondents' cultural background.	Subjective opinion about differences in behaviour	Respondents' statement and own experiences
Tolerance is a precondition for integration.	Reaction when observing inappropriate behaviour of others	Respondents' reactions to observed inappropriate behaviour
Social integration of different groups is promoted by recreation.	Opinion about integrative capacity	Respondents' statement, own experiences and examples

Table 2: Results of qualitative interviews

Category	Subcategory	Main results
Recreation patterns	Places	Visiting urban parks and beaches on a regularly, on a daily basis
	Main activities	Walking, swimming, resting, sports, socialising
Preferences and attitudes	Facilities	Simple and natural infrastructure; Places with unmanaged character
	Likes	Clean beaches and connection between city and sea; Air quality; Free sporting activity programs; Diversity of parks
	Dislikes	Litter; Absence of safe bicycle lanes; Poor condition and less number of playgrounds; Missing of shade in parks and playgrounds
	Differences	Food-related outdoor recreation activities is very important for locals; Group size; Cycling is not very common in Turkey; Majority of locals do not visit the surrounding national parks
3. Behaviour	Differences	Preferences for personal spaces and minimum distances are different and influencing the outdoor recreation behaviour; Locals have a different attitude towards nature and awareness of environmental problems; Consuming as a main component of recreation experience
	Examples	Littering in the outdoor and beaches; Minimum distances between parties on the beach; Noise pollution (loud music)
4. Tolerance	Opinion	Tolerance is the precondition to live in a foreign country
	Reaction	Displacement; Ignoring inappropriate behaviour or trying to contact the person; Trying to convince people to change their behaviour
5. Social integration	Opinion	Recreation has a high potential to support social integration; Parks are places to encounter other people and get into contact; Common interests or intersection areas are needed as a starting point (i.e. child, sporting activity, dog)
	Perception	Language barrier can be a problem for communication for both sides; Turkish people have a high willingness to accept foreigners and they are very helpful

The starting point of our study is emerged from the following common points which are compiled from the above mentioned studies:

- Urban green spaces play a significant role for everyday recreation activities; stimulate social inclusion and are places for intercultural encounter,
- Culture influences the motivations, preferences, perceptions and needs for outdoor recreation and,
- Recreationists with different cultural background use the green spaces differently.

In the last decades, European societies have become more multicultural societies. Migration is the result of numerous factors and migrants are in search of greater opportunities: i.e. to earn a better living, to live in a more agreeable environment or to join their families or friends abroad (IOM 2013). In fact, understanding visitor characteristics, motivations and expectations of different user groups for recreation opportunities within the city and surroundings is the key to the development of effective management policies and appropriate design strategies for urban green spaces. Information on visitor attitudes, preferences and perceptions can be useful for guiding recreational management decisions (Manning 2010).

The rationale of our study is emerged from the concepts of outdoor recreation, culture and social integration. Outdoor recreation can be seen as a social institution which helps to construct the social environment. Urban green such as parks, beaches or protected areas play a significant role for everyday recreation activities and bring together groups of people regardless of their class, ethnic background, gender and age (Madanipour 1999). Everyday encounters between residents of different cultural backgrounds give rise to hybrid cultures and bursting with creative potential (Matejskova and Leitner 2011). Contemporary research emphasizes the importance of these direct contacts for reducing

inter-group prejudice and conflict. “Interactions are important because by meeting other people, people can become more familiar and may create a more realistic image of other people, which leads them to talk and think less in stereotypes and not to judge on the basis of assumed group characteristics (Peters 2011: 208).”

A large number of theoretical and empirical studies in outdoor recreation have been worldwide conducted over the past several decade (Manning 2010). However except for a few studies (Kabisch and Haase 2014, Matejskova and Leitner 2011, Toprak Karaman 2008) no comprehensive studies concerning outdoor recreation and social integration have been carried out in Berlin (Germany) and Antalya (Turkey). The aim of this study is to explore the potential of outdoor recreation to promote social integration which is influenced by the culture and demographics in two case study areas. Thus following research questions are addressed: How do culturally and demographically shaped recreation patterns effect the social integration? Do they increase or decrease the tolerance; enhance or diminish the cross-cultural communication? How does outdoor recreation support the social integration? How should outdoor spaces be organised and designed to stimulate the integration of societies? Understanding the rationale behind recreation patterns of different user groups and answering these questions can be used to support appropriate design and management strategies for urban green spaces and mitigate possible areas of conflicts (Gobster 2002).

STUDY AREAS

Berlin and Antalya were chosen as study areas since they are well known examples for different aspects of migrant population and integration as well as tourism and recreation. The significance of Berlin and Antalya is a result of a high level of facts and figures and they both have common and different aspects: Berlin is one of the major immigrant cities in Germany and hosts the largest Turkish settlement outside Turkey. Turkish

Table 3: Limitations of Antalya case study

Limitation	Description	Ways to overcome
Small sample size	The sample size is small due to time constraint and difficulty to access the target group.	– Longer study period – Time-saving work by the effective use of the existing contacts – New sampling strategies
Single location	The study area is only limited to the city of Antalya.	– The case study in Turkey will be extended to include another case. – Alanya could be a possible option because of a more organised and settled German population.
Difficulty to access the target group	– Members of the German speaking community are difficult to contact because of lower level organisation – Missing information about the meeting points.	– Informed meeting points of German speaking people could help to access
Exclusion of local people	We limited the study only with German speaking migrants in Antalya. However we experienced that the opinion of local people is also important; since integration is a two-sided process.	– Developing an advanced research design to include the perceptions of the local people.

immigrants in Berlin are the largest ethnic minority group with a population of around 100.000 (Amt für Statistik Berlin-Brandenburg 2014). Antalya is the leading tourist city in Turkey; a popular holiday destination and retirement spot for Germans. According to the tourism statistics Germans are the largest tourist group among 93 nationalities visiting Turkey between 1991 and 2012 (Kültür ve Turizm Bakanlığı 2012) and around 35.000 German or German-Turkish migrants live in the Province of Antalya. So far, only little is known how people with different cultural background use urban recreation areas in their everyday routine in both cities.

METHODOLOGY

A pilot study is initiated to understand and analyse the state of outdoor recreation and social integration relationship at both cases. A multi-method approach is applied in order to develop a holistic perspective (Yin 2003). The case study design based on study objectives and premises was implemented to analyse a) the social and cultural dimension of outdoor recreation and, b) the potential of everyday recreation for social integration/inclusion. The assumptions, explanatory variables

and criteria are based on the characteristics of the case study and the previously reviewed literature. The following table gives an overview of the analytical framework:

This framework is the starting point for two case studies. Data on recreation patterns of German speaking migrants in Antalya were collected by conducting a focus group meeting and qualitative interviews in autumn 2014. In the second step of the pilot study the same procedure is carried out with Turkish migrants in Berlin in summer 2015. In an initial focus group meeting in collaboration with DTF (Mittelmeer Freundschafts Kulturverein, dtfakdeniz.com), information about perceptions and preferences for recreation activities in the study areas were collected. This step was followed by five qualitative interviews with members of the German speaking community in Antalya. The semi-structured interviews lasted between 75 and 105 minutes. The questions are related to the recreation behaviour in terms of activities, places, motives, perceptions and reactions during the recreation experience. According to the research design a category-based analysis of the qualitative interviews was employed.

FINDINGS

Results of the focus group meeting and qualitative interviews demonstrate that tolerance is the precondition for living in foreign countries and a successful integration into the host society. Respondents agree that these areas have high potential for meeting other people and consequently could support a process of social integration. Urban green spaces are important places for encountering and getting in touch with other people, but the language can be a barrier for communication. However, some common interests are needed as a starting point. In addition, respondents stated that Turkish people have a high willingness to accept foreigners and are helpful to get into contact; although the language could be a barrier for Turkish people as well. Respondents also mentioned that cultural differences exist in preferences for outdoor recreation activities and behaviour (see Table 2 for details).

The collected data of the Antalya case study demonstrate that:

- Provision of natural green spaces in the city of Antalya is important and these areas are used for recreation purposes on a regular basis;
- There are differences in a) preferences for recreation in terms of infrastructure and activities and b) recreation behaviour in terms of minimum distances between parties on the beach and noise pollution;
- Litter and littering have been found to be a major problem in the public space;
- Migrants in Antalya are willing to integrate into the society; and
- Common interests or settings are needed for social integration.

CONCLUSION AND CHALLENGES FOR FUTURE RESEARCH

Our international collaboration intends to analyse and synthesise the socio-cultural aspects of outdoor recreation at two study areas. Preliminary results of the first case study in Antalya reveal relevant information about recreation patterns and perceptions of German speaking migrants in Antalya. However there are several limitations, which are presented in the following table:

The preliminary results are not representative on the local level, but provide indications for the relevance of the topic. Enhancing the sample size, including a second location in Turkey and the host community can generate additional information and produce reliable data. After finishing both case studies, the synthesis can be used in Antalya and Berlin to inform urban planning processes and decisions. Urban public spaces are used on an everyday basis by various user groups, for different recreation activities and for encountering people with different cultural background. Knowledge about recreation habits of migrants and host community and their perceptions and preferences can provide useful information for the management and design of urban green spaces.

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IMMIGRANTS IN LISBON - A CROSS-CULTURAL COMPARISON OF THE USE OF PUBLIC SPACES

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Immigrants, Minorities, Public Open Spaces, Lisbon, Cultural Differences

ABSTRACT

Migration is a phenomenon of contemporary societies and it is a major political issue. However, while immigrants are becoming a noteworthy part of our society and cities, there has been little discussion as to how their presence affects the urban fabric, especially the use of public open spaces and even less is known about how, and in what way, such spaces may have an impact on immigrants. This research has been undertaken to increase, and then present, a better understanding of how public open spaces are being used and immigrants' experiences of them. The case study focus is Portugal, with a particular research emphasis on the experience of immigrants from the three biggest communities: Brazil, Cape Verde and Ukraine. Self-completion questionnaires were collected among these nationalities (n=184) using snowball sampling. The collected data set aimed to explore users' preferences, activities, barriers and favourite places. Descriptive analysis and logistic regressions were performed to analyse the data. This paper will present key findings from the questionnaires, focusing on cross-cultural differences and unveiling significant findings, such as: how nationality affects frequency of use ($p < 0,05$); gender differences; how barriers such money ($p < 0,05$) and lack of time ($p < 0,05$) deter immigrants from visiting outdoor spaces; immigrants' favourite places in Lisbon, and their landscape preferences, with a particular focus on the importance of music being played outdoors. These findings add to existing knowledge of public open space usage by providing greater in-depth cross-cultural analysis of particular immigrant communities of which little has been known, up to now.

INTRODUCTION

In 2012, the number of foreign residents (born outside EU-27) living in an EU-27 country was 20.7 million. In addition, the number of people living in a EU-27 member state with citizenship of another EU-27 member state was 13.6 million (Eurostat, 2015). Thus, European cities are experiencing increased pressures due to the high volume settlement of new populations (Bell et al., 2010).

For migrants, once the political border has been crossed, many other challenges arise in their daily life. As a result of their contact with a new culture, migrants enter an adaptation and acculturation process that involves (possibly) learning a new language, engaging with a different culture, values, social, economic and political relations, and this process occurs in different ways, depending on the degree of difference between the new and previous culture (Miyares, 1997). Since immigrants are usually economically fragile and frequently living in sub-standard accommodation, their need for fresh air, to escape crowded living conditions, to take exercise and to meet up with other people from their own background must be met by whatever public spaces are available. Moreover, they may have traditional habits and preferences for public spaces which may not be those of the native population.

Until recently, little attention has been given to ethnic minority groups in the planning, design and management of public green spaces such as parks, urban woodlands and even community gardens, some of the main subjects of landscape architecture (Bell et al., 2008, Rishbeth, 2004). Issues such as ethnicity in relation to green spaces and quality of life have not received the attention they deserve. More recently, Kabisch & Haase (2014) have pointed out the importance of considering users' specific cultural needs when planning and designing green infrastructure.

Planner, designers and politicians, therefore, face challenges in dealing with people from different cultural

backgrounds. As Ward Thompson argues (2002), in democratic societies, it is important to include different needs at different levels, and public spaces such as parks need to be seen as a “‘salad bowl’, where different cultures can find individual expression” (Ward Thompson, 2002: 60). Consequently, the inclusion and study of other cultural values and practices plays a significant role in the creation of an inclusive society.

AIMS

This paper focus on the use of public open spaces by the three largest immigrant communities in Portugal: immigrants from Brazil; Cape Verde and Ukraine. It aim is to gain an insight into how these three particular immigrant communities experience public open spaces in Portugal. How are these communities using public open spaces (their preferences, frequency of use, barriers to use)? Does nationality influence the use of public spaces?

METHODOLOGY

Self-completion questionnaires were distributed in Lisbon (in immigrants’ associations, supermarkets, shops, schools and an immigration governmental department) using snowball sampling. Approximately 600 questionnaires were distributed among the three immigrant communities and the total number of valid questionnaires collected was 184. The questionnaires were completed using paper copies and after checking them, the data was coded and transferred using SPSS (Statistical Package for the Social Sciences) software version 17. The first analysis was mainly descriptive. Prior to further analysis, the variables were examined for normality; none was normally distributed (Shapiro–Wilk $p < 0.05$). As a result, non-parametric tests (Mann-Whitney U and Kruskal Wallis) were used in the analysis to uncover the differences between the groups. In the ranking questions, a Wilcoxonon Rank-Sum Test was performed to assess any significant differences between ranks. Finally, logistic regressions were undertaken.

RESULTS

Favourite places in Lisbon

Respondents listed their favourite places in Lisbon. The beach and green spaces were among their first choices: two green spaces, an urban park (Parque das Nações) and a garden (Belém’s Garden), were the top two favourite places in the Lisbon area for all three nationalities, while Costa’s beach, on the southern margin of the River Tagus, was also a favourite place. Places such as urban forests (Parque Florestal de Monsanto) was only mentioned by the Ukrainian group. The Cape Verdean respondents then added one of Lisbon’s city-centre neighbourhoods, known for its commercial characteristics (e.g. shops, cafés and pedestrian streets) to the list of favourites. The Brazilian and Cape Verdean respondents said that ‘shopping centres’ were among their favourite places.

Frequency of use of outdoor spaces

The three groups’ use of open space recorded different levels of frequency of use ($p < 0.0001$). Ukrainians and Brazilians had higher levels of use than the Cape Verdeans, with more than 50% of the respondents reporting they used an outdoor space at least on a weekly basis or ‘everyday’. The percentage of Ukrainian participants who stated they would go to an outdoor space ‘everyday’ (47.5%) was very high. The Cape Verdeans recorded the lowest levels of frequency. More than 50% of the Cape Verdean respondents used an outdoor space just ‘once a month’ (26.6%) or ‘rarely’ (25%), and a small percentage (3%) claimed they had ‘never’ used an outdoor space.

Barriers to the use of space

Respondents were asked, on a five-point Likert scale, for their level of agreement with different statements (from 1, ‘strongly disagree’ to 5, ‘strongly agree’). Respondents were more likely to disagree that the lack of public transport (mean= 2.25), not being familiar with many

places (mean=2.36) or financial problems (mean=2.68) influenced how often they would use outdoor spaces. However, they were more likely to agree that tiredness (mean=3.15) and lack of time (mean=3.40) were reasons that stopped them from going outdoors

To assess whether these variables were barriers to the frequent use of outdoor spaces, a logistic regression was performed. The model’s accuracy changed from 67.4% (block zero) to 73.9% (block one) with the inclusion of these set of variables, of which, two were proven to be significant when determining the frequency of use. The variables ‘do not have money’ (Wald=6.230, $p=0.013$, Exp(B)=0.670144) and ‘do not have time’ (Wald=4.203, $p=0.040$, Exp(B)=0.737) were likely to influence the immigrants’ frequency of use in an inverse way. Respondents’ frequency of use of public open spaces decreased, with an increase whenever time and financial problems were recognised as barriers.

Preferences

Table 1 – Ranked preferences for different types of activities and facilities in public open spaces by nationality

Nationality	1st	2nd	3rd	4th	5th
Brazilians	Music (2.13)	Barbecue (2.89)	Sports (3.04)	Outdoor café (3.37)	Picnic (3.58)
Cape-Verdeans	Music (1.96)	Outdoor café (mean rank 3.00)	Sports (mean rank 3.26)	Picnic (mean rank 3.37)	Barbecue (3.41)
Ukrainians	Picnic (2.26)	Barbecue (2.67)	Music (3.02)	Sports (3.29)	Outdoor café (3.75)

There were several differences in preferences for facilities and activities while in public open spaces. Table 1 shows the respondents from Brazil ranked ‘music’ in outdoor spaces in first place, and in second, the

chance to have a ‘barbecue’. The ranking of these two variables was significantly different ($p=0.004$), suggesting the overall importance of music to the Brazilians. They put ‘sports’ in third place, followed by ‘an outdoor café’, and having a ‘picnic’ in fifth place. The Cape Verdean respondents ranked ‘music’ in first place. The difference between the first and second position was significant ($p<0.0001$). The differences between all the other variables for this group were not significant, and respondents put having a barbecue in last place. The Ukrainian group’s choices revealed different preferences, however, no significant differences were found between the variables. This group ranked having a picnic or barbecue in first and second place, respectively, they scored ‘music’ in third place, ahead of ‘sports’ in fourth place and an ‘outdoor café’ in fifth.

Gender differences

Female respondents from all three immigrant groups were more likely to perceive public open spaces as being calm and relaxing, compared with male respondents. In terms of activities, the female respondents were more likely, in their free time, to use outdoor spaces in which to read and they also had a higher preference for spaces where children could play, than the male respondents. The female respondents also had a stronger preference for being close to the sea than the males (see Table 2).

DISCUSSION AND CONCLUSION

Immigrants’ favourite places in Lisbon varied across the three groups, however, even though they were given different rankings, Expo and Belém (parks and gardens) and Costa’s beach were among the favourite places for all the groups. This suggests that not only did these spaces have similar attributes which were highly appreciated by all three immigrant populations, but also, in Lisbon, few other places offer the same attributes, thus, that limits the range of places to visit when immigrants think about going outdoors. For the Cape Verdeans and

Table 2 – Gender differences (Mann-Whitney test $p<0.05$)

	Variable	p values	Trend
Leisure activities	Read Outdoors	0,004	Female + Male -
	Where children can play	0,000	Female + Male -
Preferences	Where I can be close to the sea	0,009	Female + Male -
	Being calm and relaxing	0,009	Female + Male -
Safety	Safety: Alone	0,027	Male + Female -

Brazilians, shopping centres were among their favourite places. This may be because of their novelty factor for Cape Verdeans and because shopping centres are not always accessible to all Brazilians in their home country.

According to the questionnaire results, the frequency of use of outdoor spaces was significantly different for the three groups. The descriptive analysis revealed a very high percentage of Ukrainians who reported they would visit an outdoor space every day. This result, however, should be interpreted with caution. This might be because the respondents’ answers to previous questions in the questionnaire about their frequency of use of the ‘street’ as a public open space may reflect not only their leisure and recreation activity in streets but other ‘necessary activities’, as Gehl has suggested (1987). Cape Verdeans, however, were less likely to use outdoor spaces regularly, and more than 20% said they rarely used it, reflecting a different usage pattern by this immigrant group. This finding is in line with studies by Gobster (2002), Jay and Schraml (2009), and Ward Thompson’s et al. (2009) which report different frequencies of use of outdoor spaces for various ethnic groups and immigrants.

Lack of time, economic constraints and tiredness were cited as the main constraints that prevented visits to outdoor spaces. They were mentioned by all three groups, reinforcing other findings in the literature (Juniu, 2000, Stodolska and Alexandris, 2004). In fact,

lack of time economic difficulties were a significant predictors in inhibiting use and frequency of visits.

The Brazilian and Ukrainian respondents valued outdoor spaces that allow barbecues and picnics. All these findings support previous research into barbecuing and/or picnicking (Jay and Schraml, 2009, Peters et al., 2010). A new finding of this research is the preference (mainly of the Brazilian and Cape Verdean immigrants) for having music played outdoors. The Cape Verdeans and Brazilians’ preference for music was strong – they ranked it in first place; while the Ukrainian immigrants put it third, before sports and outdoor cafés. A possible explanation for this preference is that music is culturally rooted in Cape Verdean and Brazilian cultures. The majority of research studies have tended to focus on quietness rather than music, so this finding reveals a gap in the literature regarding this preference which could be further explored. The preference for having sports facilities in outdoor spaces was ranked by the immigrant groups somewhere in the middle, suggesting that provision of these types of facilities was of medium importance.

Women were more likely to engage in calmer activities and to value places in which children could play. They also felt less safe when alone in an outdoor space of the host country than men. This finding is supported by O’Brien (2005) who reported that women are more concerned about their personal safety when visiting green spaces on their own than men.

The findings suggest that each immigrant group uses and experiences public spaces in Lisbon differently. It is important, therefore, not to consider immigrants as one, single homogenous group but as different and with varying needs. In terms of policy development and implementation, policymakers and planners should acknowledge that different immigrant groups have their own preferences with regard to the things they like to do and see in outdoor spaces. For better quality of life and better assimilation of immigrants into the host society, greater effort should be made to ensure that access to free, public open spaces is made available to all immigrant groups and that such spaces are planned, designed and managed, to accommodate the range of activities that they enjoy the most. This research suggests the need for further research, especially in between the relationships immigrants' health and green spaces.

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WATER MUTATIONS – HABITAT TRANSITIONS

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ABSTRACT

The thesis explores the direct relationship and mutual exchange between habitat and water and particularly reflecting on the dynamics generated in the territory. Water mutations-Habitat transitions intended to focus on the topic of mutations and transitions, analyzing and formulating guidelines for the project in heavily modified water context; the damage caused to settlements by natural disasters such as flooding. The aim was to identify the opportunities offered by the landscapes of water for the project of habitat and fringe areas of urban centers. The awareness of homologation pressure of urban forms towards the countryside displaces the theory on the local dimension; the choice of the “local” does not give rise to a waiver of phenomena interpretations, but it uses the history and the layered testimonies of the local micro-history of territory. The method is based on a multi-scale approach of landscape study, through the theories of scaling up elaborating a study that goes from territorial scale until urban form and clusters. Through synchronic and diachronic analysis of the territory based on zenithal photos and cadastral maps, it was possible to produce a taxonomic framework, useful to understand water changing abilities and his deep relation with the urban forms. The study of dynamics of anthropic appropriation of places made possible to build transition maps that show habitat development scenarios in this areas. Mutation and transition maps can be a support to urban planning and urban design, most of all in “weak context” often struck by natural disaster. Exemplar cases in the Sardinia offer the possibilities to deepen the theme of relations between water and habitat in order to demonstrate that architecture and landscape design can be the meter of relationship, médiance, between water and habitat, able to measure his mutations and transitions.

MULTISCALARITY OF LOCAL DIMENSION

The thesis explores the direct relationship and mutual exchange between habitat and water and particularly reflecting on the dynamics generated in the territory. The research aim is to develop a theory of approach to landscape project, through the construction of a scheme that try to analyze the local mutations. Water and habitat are considered by the geographer Eugenio Turri as landscape makers, he talks about *iconems*, (Turri, 2006: 170), such as an elementary images or a system of images, or a network that confer on landscape perception its essential elements. Through a diachronic and synchronic analysis of the territorial shape transformations Eugenio Turri defines these elementary images of landscape, deeply linked to historic context. Carlo Tosco uses the word *stratification*, (Tosco, 2007: 115-127) about the slow work that the history sediment on the territory, through the use of a geologic metaphor. The stratification of the territory is an expression of each time of the history, and outcomes of dynamics of global scale. Reading the historical strata means operating a deconstruction of fragments of stories that have defined the strata making up the history of the place. Each fragment is a specific and exclusive part of that history that makes it unique. This is the importance of micro and local scale, the scale of the micro as a small part to understand the macro. As Tosco reported, physical geography has developed the notion of “unity of local phenomena” that describes a set of forces that interact within the same space. Water and habitat participate actively to the achievement of local balances and imbalances as defining specific characteristics and identity of a certain landscape. The unity of local phenomena can only be interpreted dynamically, considering diachronic transformative variables that run up against phenomena of long or very long term. Gian Giacomo Ortu talks about the *gradation of artificiality* (Ortu, 2014) the transformative capacity of man on the territory, and in particular its ability to produce micro-modifications that generate deeply different places. For sociologists and economists, the place is no longer just a point or an area in a homogeneous surface but a totality

of natural data and micro businesses, institutions and civic values. The study and analysis of the local dimension opens a series of possibilities and approaches to multiscalarity of the micro, and in particular to the strength of an iconem to be an essential element for landscape at different scales, not only from a perceptive point of view but also from a structural one.

The architectural project in this theme could take the role of mediator and maker of new models of innovation through the continuous enrichment of the heritage of values slowly layered in the past. Landscape conservation can only go through a rethinking and, architecture and landscape design should have a prominent role. It is important that the design of the micro scale has the ability to start dynamics of transformation that generate deep changes in the macro scale. The relationship between water and habitat marks a comparison between different degrees of artificiality, several transformative capabilities that have produced different forms of landscapes and places. In particular, the project must have the aim to solve issues of margin between water and settlement, where the relations of proximity produced extremely negative transformation dynamics. Thinking about the natural disasters much more often due to human negligence, such as building in the riverbed or along the coastline, result of the defragmentation of the city in the last years.

The project must be able, as Juan Antonio Cortés says, to affirm, to strengthen and to go beyond the limit, in this sense it is necessary to read the relationship between *mutations and transitions*. (Cortés, 2013: 10)

MUTATIONS SUCH AS TRANSITIONS?

The title *Water Mutations_* habitat transitions can be read as a chiasmus, because the terms mutations and transitions can be attributed both to water and settlement; the issue is understanding their relationship and their possibility to generate transformations. The



Figure 1. Sardinian floods in 2013 caused severely damages to the villages.

words transition and mutation (Koolhaas, 2001) are closer to genetics rather than to the territory, already used by Rem Koolhaas about the series of changes and heterogeneity that urban space is undergoing in recent decades, caused by the transformation of the concept of space and network. In this case the word mutation reflects on the genetic of the territory and its constituents are structural and genetic characters. Water is part of the genetic heritage of the area as a defined space, becoming a way of transport or crossing, or becoming a production element. The relationship between man and water and therefore its control and its management have always been a mutual exchange and continuous relationship, both in terms of defense from the water both in the terms of use of it. Man is constantly looking for a relationship with water, in order to take control, to use it as a constructive element of landscapes and architecture of exceptional value and quality, but at



Figure 2. Temo lake, under the cave of Monteleone Roccadoria. The artificial lake of Temo river is one of the most important project of modernization of Sardinia.

the same time, he often fails to contain the unpredictability of its changes. Pierluigi Nicolín defines resilience as “the capacity of a system for adaptation to change: the ability of a settlement, an initiative or a person to maintain their integrity and the basic reason for their existence in the face of a drastic alteration of circumstances” (Nicolín, 2014: 56). Resilience and biological sustainability require the ability to last, to adapt and maintain a dynamic stability compared with chaotic environments having much more often the capacity to face disasters linked to the action of natural agents: this category describes the phenomena resulting from the river dynamics like flash flooding, the dynamics of the slopes as erosion and landslides and coastal dynamics with variations of the coastline. These are natural processes that continuously change the shapes of the



Figure3. Aerial photo of Baratili San Pietro(OR) in Sardinia. The ecotone is characterized by the extreme fractionation of the ownerships.

earth's surface: they are part of the strength of nature and would act even without the presence of man. Floods can be unexpected and isolated events due to the abundance of rains that cause release phenomena of a stream, a river or a stream from its banks and flooding the surrounding areas. In other cases, the periodic flooding caused by a specific configuration of the territory, they are a part or they are completely absorbed by the same settlement that reads changing tensions. Today we need to pay attention to not separate inhabited soil and water, but it is necessary to define rules and setting boundaries the most permeable as possible.

The territory of Sardinia, field of survey in this research, offers a very different series of examples compared to the mutation of water landscapes. The long season of

reclamation has been the guide project of the modernization of the island that has profoundly transformed the Sardinian countryside, through the systems of water flow which influenced deeply the structure of rural settlements. The canalization and the redefinition of the river is the act of man to control the water, defining a new course, and managing it from large to small private garden through a canal network tens of kilometers long. Mutations take then the sense of a transformation that the territory has in his character and the Man can be the bearer of this changing demand through his manipulations or may even suffer the effects as in the case of floods, where the responsibility is often assigned to the inability to read the natural modifications of the water-course itself. Eugenio Turri speaks about ecotone for a "porous border between two different elements", transitional spaces in constant transformation. The reading of ecotone and its thickness is essential to understand the genetic heritage of the area and identify instances of mutation. The architecture must therefore be able to manage the thickness of ecotone trying to control the water flow and the issue of direct connection with water, through canalization, detention basins or tanks that work as control systems of water but may become interesting fields of architecture project. Water has been one of the major attractor for settlements and through the reading of his ecotone is easy to identify the tension lines of village positioning. This tension lines sign a precise gap between river and settlements, leaving the alluvial soils of the ecotone gap to alluvial soils to agriculture rotation. The river Tirso represents this constant, where the relationship between hydrology and settlement is well defined with place names that identify the precise flood area and the area for settlement, called Bennaxi and Gregori. The strong division between productive alluvial countryside, now canalized, and settlement, draws a landscape profoundly centered on control and management of water and, in some cases, however, the settlement goes incorrectly over the line of the ecotone exposing themselves to dangerous phenomena, such as the case of flooding in the village



Figure4. Aerial photo of San Vero Milis(OR). The ecotone is characterized by the green screen of orange tree gardens.

of Solarussa in 2013. The relationship between water and settlement is quite clear in the centers of the new foundation, in particular that of the agrarian reform of the 50s, cases of Pardu nou and is Pramas in the countryside of Laconi are exemplary despite they have different geomorphological conditions. The first one is located at the mouth of river Tirso, in a wide reclaimed wetland during the 50s, the other one is in the middle of Sardinia, where the lack of water is a serious problem for the agriculture. In both cases the foundation follows a precise rule of water management, in fact, the first issue is the reclaimed water and the proximity and the defense from the river, in the other case the terrace uses rationalization of water from precipitations.

TAXONOMY OF WATER AND SETTLEMENT

A key step in the research is the definition of a taxonomic framework of relationship between water and settlement in Sardinia that can be an important tool to establish an operative approach to the landscape design with the aim to define the guidelines for the intervention. The relationship which has been discussed in the previous chapter about the possibility of change between mutation and transition through the rethinking of water and settlement relations, can generate really different formal structures. The difference of relations between settlements and water is not just a morphological data, but implies dynamics of production involving the countryside both in terms of form and structure partition, but also more specifically in the uses and the type of crop. The different thickness of ecotone defines variations between types and different possibilities of transformation and ability to transition. The capacity to absorb the transformations of this inner margin between water and settlements determines different types of relation. In the construction of such taxonomy it has been essential reading diachronic evolution of sardinian settlements from the historical cadastral maps until the aerial current photo which shows clearly a comparison between three types of fabric: countryside, settlement and water that reason in mutual and reciprocal relation. The project therefore in such areas must necessarily be inclusive of the three fabrics and has to interface with them. Five different types of water/habitat relations have been identified, the framework does not include all Sardinian villages, but it defines some models, formal structures of relations. The division by types is defined both in plan but especially in the section that clarifies the relationship between position of the stream and that of the urban center. It is possible to distinguish between the villages with direct relationship with the water, villages of alluvial countryside, villages of flooded controlled countryside, a series of jointed villages with a river in the middle, and village with a terracing countryside.

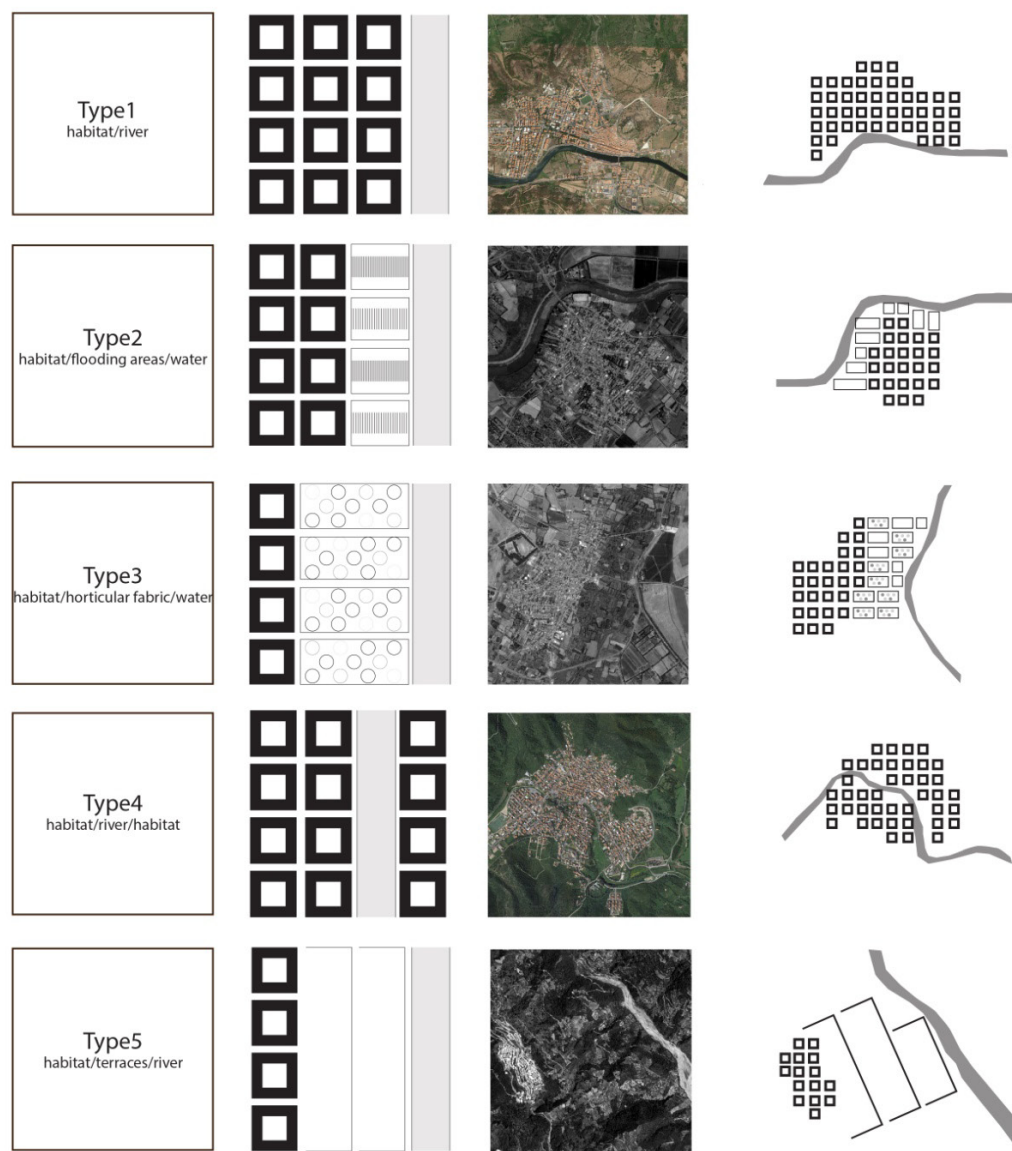


Figure 5. Taxonomic framework of relation water/habitat

The first type is composed by villages in which the relationship with the water front is prominent and are characterized by being harbors or ports and where water becomes a real means of transport or economic activities such as fishing. All the villages of the coast are inscribed within this category, including Porto Torres, Alghero, Cabras, Marceddì, Calasetta, Sant'Antioco and the centers closest to the river such as Bosa. In this case the changing dynamics are especially aiming at adjust a relationship that is oriented to complete or timely opening of the landing towards the water. This category is actually very open and includes two very different cases as that of Cabras and to Bosa, where the water landing in a case is a square-yard, in the traditional uses it was the point of departure and return of the fishermen, in the other a long landing dock.

The second one includes the villages of the alluvial countryside, the shape of which is strongly marked by the flowing of the river and in which the area of the ecotone is heavily biased towards the water that often in cases of exceptional rains, the river floods the areas closest to it. In many cases the main river is canalized in a network of canals that bring the water until the single parcel. In these instances the alluvial soils are often used rice crops that are periodically flooded. It's therefore necessary a proper functioning of the relations settlement/ecotone/water.

This second category includes especially the villages of the lower valley of the rivers, such as the centers at the mouth of the Rio Mannu, as Riola Sardo and Barattili San Pietro, but also Siliqua along the river Cixerri. In these cases, attention must be directed toward the settlement that must be able to control floods and to exploit the layer of ecotone in order to not incur in phenomena of flooding and destruction as those that occurred in Uras and Solarussa in 2013 when a rain of 400 mm fell in 24 hours caused inconveniences and considerable damages to the population.

The third category concerns the villages with horticultural gap, where the ecotone is defined by a strong and specialized agricultural production characterized by a difference in height between the town, productive countryside and water. An example of this type of contribution which the margin is very clear centers of the Flumendosa valley, the villages of the orange cultivation, Muravera, San Vito and Villaputzu, but also the series of villages and Milis San Vero Milis in Mannu, near to Oristano.

The fourth category concerns the relationship between settlement and a water course which crosses the center, in such cases it is a mixed type between the various previous, in which the river becomes an attractor for more villages, or a canal traced for the reclamation of the area or to regularize a water collection point. In these cases the margin between settlement and water course becomes very weak, generating unstable areas along the edge areas, often not properly countryside neither an ecotone of the river. Teulada, Santadi, Marrubiu and Ballao fall under these series of examples. The stream may lose its buffer properties in order to be the bearer of new forms of settlement.

The last category include villages that has often a considerable distance from the river, but it is a way of relation where there is little water, with restraint systems of water from precipitation, through the terraces, that work a key role in the reclamation of hill countryside to make it productive. Within this category there are the centers of the valley of the Rio Pardu in Ogliastro, such as Gairo, Jerzu, Ulassai. An interesting aspect concerns the mutations of the water in the territories of the hill, where the water instead of being brought through the canals it is exploited through works of soil arrangements, such as terracing. Through these techniques, man has transformed the territory to use water through the various possibilities for the collection, production and disposal.

Each category is intended not only descriptive of a state of fact but also highly operative in terms of architectural design and can indicate modification tensions. Some villages depending on the associative dynamics for which they have been generated may be considered into more than one category, this fact must be understood as a first scheme of division, to be followed by variants.

CONCLUSIONS

The taxonomy indeed wants to establish a set of invariant relates between water and settlement, such as the value of the margin and the ecotone and its ability to read and transform the dynamics between the three fabrics that will confront, such as the threads of the water, the mesh of countryside and urban fabric. In the act to settle most of the pre-industrial cultures, struggling assiduously, try to establish a balance between the built and the natural. This meant a close monitoring in water management, its collection, distribution and elimination. Similarly the settlement depended by the woods and fields. Once again the three terms: habitat / countryside / water interface with each other, they generate a complexity of landscapes and different possibilities of intervention on them. How to interpret mutations? The objective of the taxonomy is to implement with the guidelines systematized for the project in such areas, in particular in the edge points, in which fabrics often fray and comparing. Taking up the reference of Juan Antonio Cortés, the project must be able to affirm, strengthen and go beyond the limit, it is necessary to deconstruct the layer stratified upon the margin in order to operate between mutation and transition.

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EXPERIMENTING LANDSCAPE SCALE BIOPHILIC DESIGN- CASE OF KONYAALTI, ANTALYA, TURKEY

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ABSTRACT

Earth population is expected to increase to 9 billion in 2050, and 75% of that population will live in cities. The expansion of built areas causes loss of natural environments in cities, hence diminishing humans' connection with nature. The human need for nature is linked not just to the material exploitation of the environment but also to the influence of the natural world on our emotional, cognitive, aesthetic and even spiritual development. The quality of human life depends on an underlying beneficial relationship to nature. So people-nature connection and its benefits have become a major goal in sustainable urban landscape designs. Biophilic design and biophilic cities concepts could offer new opportunities in this endeavor by creating common language among architects, landscape architects and urban planners. While biophilic design has been implied on many examples on buildings, its urban scale applications have been rare. The present work explores the notion of biophilic city and displays the implementation of the biophilic design and biophilic cities concepts in Konyaaltı, Antalya, Turkey. Antalya Konyaaltı Beach Urban Design project is a nationally awarded design that aims to strengthen the relationship between nature, people and built environment in the city. The project focuses on how the biophilic ideas can be incorporated to the urban matrix by following a system approach.

INTRODUCTION

The foundation of human-nature relation goes back to the ancient times. From its very existence, human beings have interacted with other living beings, while knowing that he is a part of the natural system. However, his tie with nature gradually weakened during time, subsequently he found himself trying to naturalize an artificial system created by him. His detachment from this system and his efforts to dominate it, instead of being a part of it, commenced the alienation process. Industrial Revolution increased opportunities and use of technology but it also caused the destruction of the inherited bond between man and nature.

The concept of "Biophilia," which had been suggested by social psychologist Erich Fromm in his book "The Heart of Man" for the first time in 1964, was later improved by biologist E.O. Wilson in 1984. Biophilia focuses on the "influence of nature over human beings." According to "Biophilia hypothesis" it is necessary for humans to form an emotional and experimental bond with natural systems and organisms. This emotional bond is instinctive and is shaped by several complex learning rules that are different for each person. Emotional reactions and things we learn at the end of this interaction are embroidered into the symbols that altogether compose culture. Thus, even if people estrange themselves from natural environments, biophilic doctrine stays intact and tries to express itself in recent environments created by human (Wilson,1984).

Even though human-nature relation is diminishing, the effort to maintain this relation still exists in sub-consciousness. In this respect, design and planning under the roof of "sustainability" concept, aim to install landscape into cities in the context of contents and approaches, formed by using the affix "eco", but this direction cannot generally bring the human-nature relation beyond being a commoditized city marketing policy. A lot of urbanization movements, which emerged especially in the last 20 years, present

approaches under landscape and ecology themes. However, when considered in biophilic terms, they cannot bring forth a comprehensive and integrative suggestion in terms of “existence of nature” and “protecting and experiencing all kinds of life forms.”

This paper explores the notion of biophilic city and the possibilities in implementing biophilic design concepts in urban areas. It presents a national design competition entry: Antalya Konyaaltı Beach Urban Design project is a nationally awarded design that aims to strengthen the relationship between nature, people and built environment in the city. The project focuses on how the biophilic ideas can be incorporated into the urban matrix by following a system approach. The significance of the work comes in the form of bringing together not only the physical aspects but also the economic-social and environmental aspects while nature is at the core of the design at multiple scales.

BIOPHILIC CITY AND ITS FEATURES

The adjustment of biophilia concept into the design of artificial environments, and its transformation into a hypothesis in the field of design took place after a conference on “biophilic design” in 2004 and a book (Eds., Kellert, Heerwagen & Mador, 2008) published following the conference. S. Kellert defined more than 70 mechanisms required to reveal a biophilic experience in the book, and W. Browning and J. Seal-Cramer presented three types of user experience: “Nature in the Space, Natural Analogues, and Nature of the Space” (Cramer&Browning, 2008).

The discussions developed from technology addiction of modern societies and the lack of interaction with nature, and the intersection of architecture and neuroscience have enabled the concept of biophilia to present input even for green building standards especially in the last decade, and facilitated the rise of indoor environment quality and interaction with nature. Biophilic design has

now become one of the subsidiary applied strategies in terms of job stress, student performance, recovery and rehabilitation of patients, social solidarity, and family and community health (Terrapin Bright Green, 2014).

Arguing that biophilic design should not be limited to buildings, T. Beatley (2010) brings the definition of “biophilic city” up for discussion by asking, “How do we create biophilic cities? How can we create suitable conditions for a biophilic city?” Beatley argues that since efforts of creating sustainable cities generally concentrate on generating renewable energy, setting up green buildings and green systems with a focus on greening, “they leave the idea of “re-building the nature and the bond with nature” out of process (Beatley, 2010).

In order for us to be healthy and productive individuals, we need to live in cities that have a close connection with nature. Cities and nature are not two systems which function contrary to each other; instead we need to think them as parts of a comprehensive system. Biophilic city does not only present biological diversity, it also adapts to and takes lessons from natural systems; and its residents feel, see and experience nature while working or resting in daily lives. These cities host and protect nature within and grow accordingly. Biophilic city provides an opportunity to locals to internalize natural forms and images, to have daily experiences and form deep bonds with nature.

The basic features of biophilic cities are (Biophilic Cities, 2011):

- Biophilic cities are green and growing cities that have wide natural and green fields, biological diversity, and protect, repair and support this diversity.
- The residents of biophilic cities recognize and look after endemic plant and animal species, topography, other genuine elements in the environment.
- Biophilic cities present alternatives to the residents and enable them to spend time outdoors, join physical activities and lead an active life.
- Biophilic cities present environments, addressing different senses. They are rich in terms of natural sounds, images and tastes. They use natural forms, shapes and materials.
- Biophilic cities attach importance to nature and bio-diversity education, and present opportunities to learn by experiencing nature (nature clubs, trekking organizations, urban agriculture activities, programs in city parks, etc.)
- Biophilic cities set up a strong social and physical infrastructure for their residents in terms of understanding and building a bond with nature (natural life centers, parks and recreation programs, eco-tourism programs, etc.)
- Biophilic cities try to limit and decrease the effects of sourcing in nature and bio-diversity and put forth their responsibilities globally.

Biophilic design strategies differ also according to scale and character of the field. Based on the words of R.&S. Kaplan and R.L.Ryan(1998), “there is rarely a solution that is universal. Rather, the correct solution, in our view, is one that is locally appropriate and responsive to situation at hand”, Terrapin Bright Green (2014) emphasizes that biophilic design should be “locally appropriate” and “responsive.” Considering that 75% of population lives in cities, it is observed that biophilic design affects positively the decision-making mechanisms and design process in the cities, which have different cultural, physical and ecological characters and dynamics.

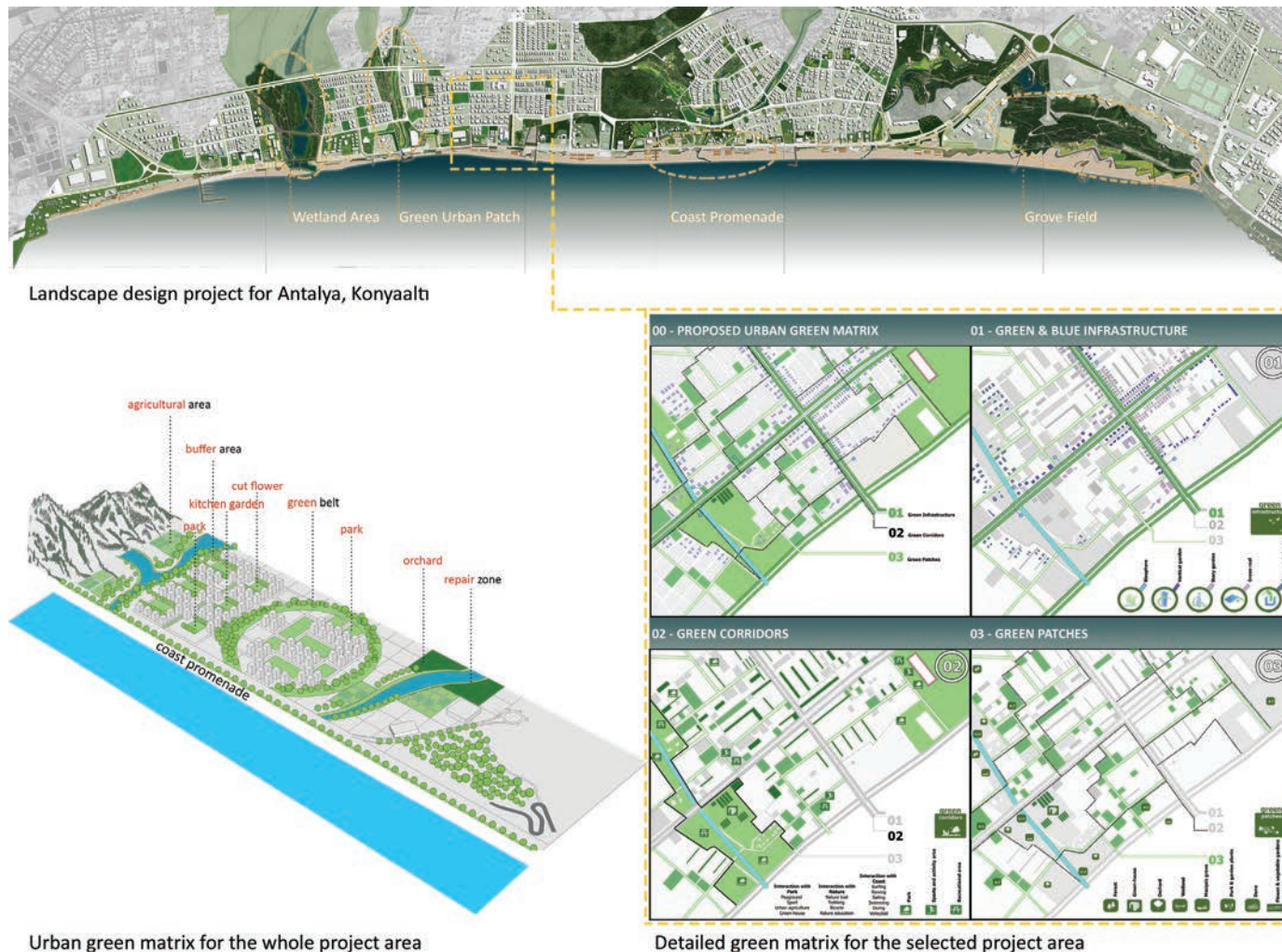


Figure1: Landscape Project and urban green space system suggested for Antalya

HOW TO TURN ANTALYA INTO A BIOPHILIC CITY?

Antalya is located on the western Mediterranean coast of Turkey. It is the fastest growing and most popular tourist destination in the nation due to its long beaches, fresh-salt water springs, and green space diversity.

Being an agricultural city, Antalya experienced serious changes in its physical and natural environment due to evolving demographic structure. Immigration rate of Antalya rose to 91.0% following the rapid development of tourism after 1990s. Today, the city witnesses

competing urban, agricultural and touristic usages. While the city offers interactions between urban matrix and natural system at the periphery of the city, the city center lacks this dialogue and is used only seasonally by tourists due to lack of communication between the city and locals. Unfortunately, the city could not benefited from a holistic approach for many years, subsequently, current facilities, which had been built in the Konyaalti Beach Park and later in the coast stretching from this field to the port, lost their functioning in time. In summers, while Konyaalti is preferred by tourists, the locals do not visit the site much often. In winters, it is almost deserted. In 2014, the Municipality of Antalya organized a competition for the city center and 7 km. long Konyaalti beach to promote more sustainable urban fabric for Antalya: The proposed designs should maintain cultural interaction, enrich Antalya's urban identity; promote original design and fine arts, while enhancing green space structure of the city.

As a response to this brief, honorable mention winner project aimed to define a new form of communication between the city and its inhabitants by using local landscape potentials of Antalya in accordance with biophilic approach.

DESIGN IMPLEMENTATION

The proposed design attempts to repair the instinctual bond between nature and human. In this respect, the common language, which the users from different demographic-cultural groups establishes with "nature", is re-identified by utilizing the user experience stimulants proposed by W. Browning and J. Seal-Cramer.

The proposed urban green system has three components (Figure 1);

- 01 Green and Blue infrastructure: bioswale, vertical gardens, story gardens, green roofs, grey water cleaning areas

- 02 Green Corridors: riparian corridors and their buffers, flow corridors, (green streets, utility right of ways), linear parks, coastal line
- 03 Green Patches: Natural (Forest, dune areas, wetland areas, maquis), Semi natural (agriculture, orchard, parks, flower and vegetable gardens)

These components are utilized at different degrees in 4 main zones according to the site's urban and natural characteristics.; 1- Wetland areas / riparian corridors, 2- Coastal promenade, 3- Green urban patches, and 4- Fruit Groves. The relations of this suggested system with the user experience classification (J. Seal-Cramer2008, Terapin BrightGreen 2014) is presented as a matrix (Table 1). Table 1 shows the degree to which biophilic patterns are implemented successfully. Where and how this design provide these conditions are expressed in Table 2.

As seen in the biophilic pattern implementation matrix (Table 1), adaptation rates in wetland area and groove fields are higher than coastal promenade and green urban patches. While 'visual connection with nature' and 'non visual connection with nature' are the most successfully implied patterns in the project; 'complexity and order' and biomorphic forms and patterns are the weakest.

The explanations regarding which programs and design decisions, the mentioned stimulants and biophilic principles are represented in the main 4 zones are presented in detail in the following sections of this paper.

4.1 Wetland Areas;

By repairing wetland areas, it is aimed to enable the sustainability of water system and thus to perceive the city as part of the nature.

While presenting different wetland area experiences, alternative routes have been created between



Figure 2: Wetland System suggestion



Figure3: Coast promenade suggestion

the city and coast to enable the locals to form visual and non-visual connections with nature (Figure2).

River corridors will bring climatic comfort and thus create new centers of attraction in Antalya where summers are extremely hot. Wetland areas, which

bring out the excitement for discovering nature, will stimulate the idea of spending more time outdoors, will also avail the city ecological benefits by protecting resource values and increasing biological diversity. While providing new refugees for wildlife, it will also get users attention through scents, tastes and sounds.

			PROJECT ZONES			
			wetland areas	coastal promenade	green urban patches	groove field
BIOPHILIC PATTERNS	nature in the space	visual connection with nature	visual connection with river and sea	sea-river connection points	maquis, orchard	sea view- grove view
		non visual connection with nature	orchard (gustatory), aromatic plants (olfactory), flowing river water (auditory), urban agriculture-organic bazaar (olfactory-gustatory)	organic bazaar (gustatory), wave sound(auditory), playgrounds in sand(auditory)	urban agriculture (gustatory-olfactory),	horse riding (haptic), songbirds (auditory), sun patches of woods, cool woods-warm beaches
		non-rhythmic sensory stimuli	reflections of water, insect and animal movement, breezes	fragrant plants, sparkle of waves,	fragrant plants, insect and animal movement	fragrant plants, breezes in the woods, reflectios of water
		thermal& airflow variability	shadow and shade- vegetation with seasonal densification	breezes from sea	heat control by tree canopy, reducing radiant surfaces by green typologies	sun-heat control with vegetated roofs
		presence of water	restorated river and sea	sea and artifical water playgrounds	bioswales	visual and physical access in different levels to sea- river and pond
		dynamic & diffuse light	diffused sunlight by tree canopy	undertree sunbathing places, sparkle of water	diffused sunlight by tree canopy	undertree sunbathing places
		connection with natural systems	providing visual and physical access to existing natural systems(river-sea-green fields)	bioswales, dune playgrounds,	rainwater infrastructure,community gardens, dune playgrounds,	bioswales, dune playgrounds, wildlife habitats in groove,
	natural analogues	biomorphic forms & patterns		beach structures canopy forms	catalyzer structure facades	
		material connection with nature	adaptation of building facade- usage of natural materials in parks	adaptation of building facade and roof, usage of natural elements on the beach, sandy pathways	transparent facedes of greenhouse-cafe	adaptation of building roof and canopy , wooden pathways
		complexity & order	plant selection variety- organik bazaar roof pattern			
	nature of the space	prospect	river basin surrounded by tree species	river basin from levelled observation decks		discovery path and archeological heritage in the river basin surrounded by trees
		refuge	canopy trees, canopy of structures	beach structures	park structures- tree canopy-catalyzer structures	proposed glass structures in the groove
		mystery	discovery routes	infinite sea decks, sound of waves at night	difused light installations in park zones	arceological heritage in discovery path
		risk / peril	infinity paths through sea- passing through water- getting wet	infinity sea decks	catwalk of catalyzer structure	infinity sea paths, pedestrian bridge over woods,
			PATTERN ADAPTATION SCALE			
LEJAND	PATERN SUCCESS RATE		PATTERNS CAN NOT BE ADAPTED	HARDLY ADAPTED	AVERAGELY ADAPTED	SUCCEFULLY ADAPTED
	RATE EXPLANATION		PATTERNS CAN NOT BE ADAPTED	PATTERNS ADAPTED BY <u>DESIGN</u> IN <u>SELECTIVE PARTS OF THE ZONE</u>	<u>AVERAGELY PATTERNS</u> ADAPTED BOTH WITH <u>DESIGN</u> AND <u>AREA'S ASISTIVE POTENTIALS</u> IN <u>SOME PARTS OF THE ZONE</u>	<u>VARIETED PATTERNS</u> ADAPTED MOSTLY WITH THE <u>AREA'S POTENTIALS</u> LEADING <u>DESIGN</u> IN THE <u>BIG PART OF THE ZONE</u>

Table 1: Matrix for Biophilic patterns ve their relationships (Adapted from 2014 Terrapin Bright Green /14 Patterns of Biophilic Design)










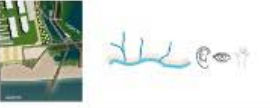

Natural in the Space Natural element's existence and perception in urban space (vegetation, plant and fauna diversity, hydrologic systems)	Natural Analogues Using object, material, colour, shape, texture to match with nature Consider architecture and art works in this context	Nature of the Space Different configuration of space and their evoke on physical and psychologic conditions.
 <p>Visual Connection with Nature</p>	 <p>Biomorphic shapes and textures</p>	 <p>Creating vista points</p>
 <p>Non-visual Connection with Nature</p>	 <p>Evoking nature materials</p>	 <p>Habitation-Shelter</p>
 <p>Climate Comfort</p>	 <p>Consistent Spatial Hierarchy</p>	 <p>Creating sense of explore</p>
 <p>Water Existence</p>		
 <p>Connection with Natural Systems</p>		

Table 2: Biophilic pattern implementations in Antalya

4.2 Coastal Promenade

A great part of shore line which becomes a center of attraction with its beach for tourists in summer, serves as traffic way and parking area; and hotels aligned through the shore line and awkward vacant spaces between them weakens the use of the coast. Occupancy and vacancy is considered as a potential to revive coastal promenade. While re-functioning of vacant spaces are enabled through new green space typologies and urban activities, new social and commercial services are proposed by opening ground floors of hotels as food-courts (Figure 3).

6 meter elevation difference between shore line and sea level is designed to function continuously through amphi or ramp system, infinite decks reaching to sea, and other coastal structures emerging in intersection (Figure 4). This enabled users to experience the shore by alternative seeing, hearing and touching opportunities and explore the nature in the designed space.

Main coastal street which provides daily services (organic market, city square, children play grounds, food-court) is turned into pedestrian-oriented green street by narrowing the traffic road, is integrated with coastal activities by being completely naturalized at sea elevation. Combination of trees with shade structures with biomorphic forms, creates new refugees for users during subtle changes in air temperature. The designed city balcony provides an opportunity to observe sand area and wetland vegetation and to experience the transition between fresh and salt water. It is defined as a new visual connection and sensual experience point where locals can involve randomly in daily life (Figure 5). These observation decks provide new opportunities for biophilic pattern of nature of the space as prospect, refuge, mystery and risk.

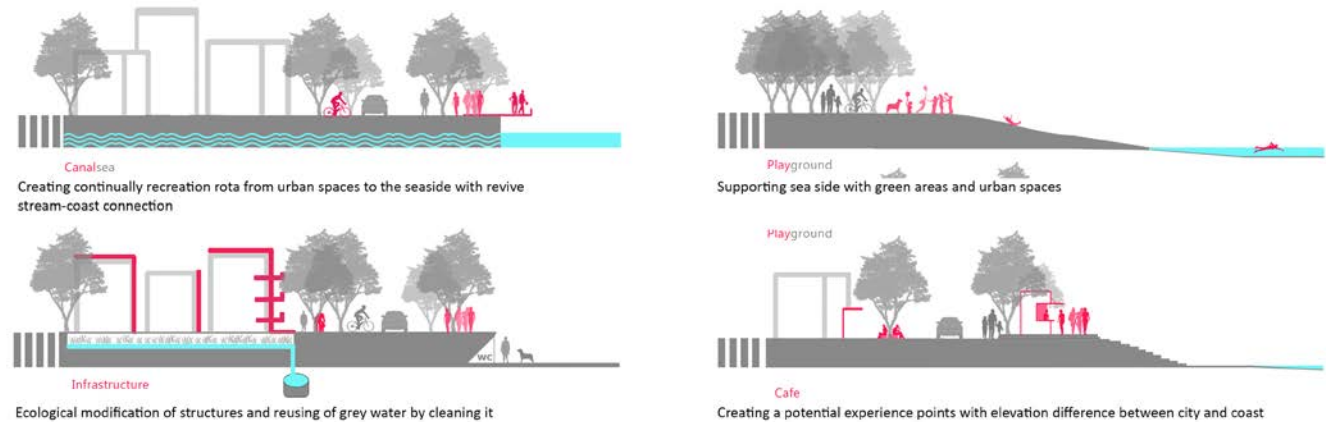


Figure 4: Urban-coast connection range



Figure 5 : Fresh and salt water experience points and coast promenade



Figure 6: Green urban patches and urban agriculture implementation

4.3 Green Urban Patches

In order to experience green within urban matrix whenever possible, the vacant parcels are utilized, hence enabling users to spend more time outdoors and to embrace the city more (Figure 6).

The vacant lots are designed as new outdoor spaces to grow vegetable and ornamental plants. These new forms of orchards and maquis groves are used as children playgrounds, neighborhood parks, urban cultivated areas, and sports fields. These areas are furnished with café, greenhouse, terrace, food-court, fitness and children playing equipments. This consistent spatial hierarchy approach is expected to provide psychological, ecological and economic benefits to Antalya.

4.4 Grove Field

Korupark (name of Grove Field) is situated on the busiest street where the city center is connected with the coast and is integrated with expo-fair area (Figure 7). It has limited functions and programs, although it is one of the biggest green spaces in the city. In order to enable the user to re-discover Korupark, new experience routes connecting city elevation at 30 m height with sea elevation are designed. The main goal of the design is to revitalize Korupark with programs supporting people's curiosity for discovery all day long and year along.

In order to attract both tourists and locals, the design proposed observation terraces and hiking tracks, horse riding track, tent camping area, adventure park inside the forests area, and also under-tree sunbathing areas and beach facilities in the coast. With the planned program the sense of "grove inside city" is promoted sensually and perceptually. The communication types of nature like climatic comfort, vegetation diversity, the opportunity to approach animals will become widespread. The goal behind all these is to let humans to take interest in plant and animal species, and topography again.



Figure7: Grove field suggestion plan – Grove field entrance and suggestion discovery bridge

Figure 8: Coast equipment and Green roof design

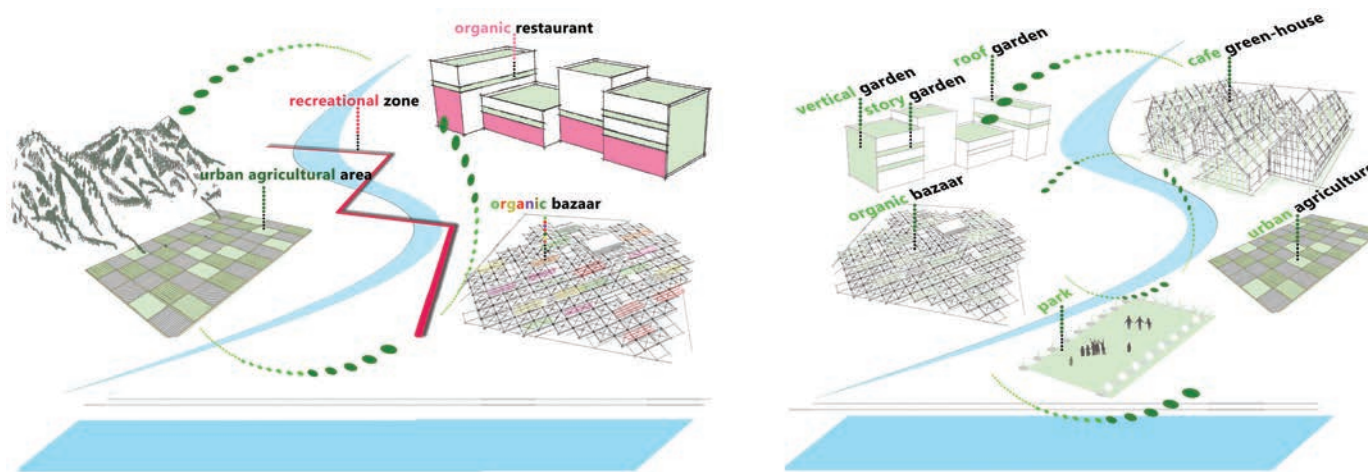


Figure9: Organic market and Cafe Greenhouse



Figure10: Function of the structure and space set up

The roof of coastal structure mass at the beach connected to grove is designed as a green roof as an extension of grove site and is anticipated to be used as grass sunbathing site. The same way, the roofs of the coastal structures are designed with ivy and steel structures in order to maintain the influence of green canopy existing in the grove (Figure8).

By connecting the grove site with archeological site with the suggested green bridge, it is aimed to turn the

designed discovery route into an alternative tourism route which enables people to experience the transition in animal and vegetation types, tree types, water creatures, variable topography and historical textures.

4.5 Architectural Design Decisions

Architectural interventions can be categorized under 3 groups;

Side modifications of the current structures like story garden, green side, green roof, biomorphic texture curtain wall. By making modifications on the exterior of the current structures, the user is enabled to feel nature during the day by supporting natural analogues between user and the building.

Proposed structures and equipment to support biophilic city concept (Figure 9). Café-greenhouses on agricultural lands are the reinterpretation of current greenhouse usages as café and ornamental plant demonstration site, and food-court for today's urban usages. They will enable public to learn about plant materials and greenhouse culture of Antalya (Figure 10). Proposed organic market area will enable people to experience the local agricultural products of Antalya by seeing, sensing and tasting.

Catalyzator structures suggested for enabling the re-usage and support of functionally weakened or idle city parts. These are transformed structures for use as educational facilities, laboratory spaces and information centers in urban agriculture sites, or sports, entertainment and exhibition units in the urban square, or observation towers in archeological sites.

CONCLUSION

Biophilia hypothesis fundamentally teaches that human beings bond with nature instinctively because the essence of human belongs to nature, and thus they tend to incline towards natural. In this respect, biophilic design suggests that in order to have people to embrace cities, they need to feel themselves as a part of it, and to achieve that their relations with nature should be empowered by creating cities inside nature. At this point we observe the formation of a relationship between the user and the urban spaces, accepted as "place"; in this relationship city inhabitants feel themselves as a significant party in communicating with and protecting nature. The principals followed in the Antalya project include; 1- protecting biodiversity, 2- integrating the

users to experience and support of the nature, 3-making nature part of daily life, 4- strengthening the communication of people with outdoor environments in a hot and arid Mediterranean landscape, and 5- Using landscape elements to create identity and sense of place. Emotional reactions given and precepts learned by the users at each contact with nature provide an opportunity to form a deeper bond between the individual and nature.

This project presents that; developing design strategies that is supported by the demographic, ecologic and economic structure can assist in implementing variety of biophilic ideas. While patterns like 'nature in space' are easy to work with in large scales, 'natural analogues patterns' are needed to be discussed in more specific design details in smaller scale.

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TESTING A PARTICIPATORY APPROACH IN THE REVITALIZATION OF SANTA LUZIA NEIGHBOURHOOD, PORTO, PORTUGAL

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ABSTRACT

Communication between decision-makers and civil society can be challenging, especially regarding to interventions in public spaces involving a dramatic change in the perceived everyday landscape. In the city of Porto, neighborhoods revitalization projects fail quite often. In this research, participatory methods were applied to test if the resident's involvement on earliest project steps can improve its success. The neighborhood of Santa Luzia, a 5 ha affordable housing complex, managed by the City council and essentially inhabited by middle-aged, retired people, was chosen as case study. Built in 1994, residents were, over time, appropriating the outdoor space, planting and constructing small garden structures without any order but, on the other hand, also carrying out a large part of the needed maintenance tasks, caring the space as their own. Nowadays, a wide range of constraints can be pointed contributing to a prevalent disordered use and to social conflicts. A methodological multistep process was applied comprising: a field survey; questionnaires to evaluate resident's behaviors on the outdoor, green spaces satisfaction level, needs and expectations; and meetings between researchers, stakeholders and a group of selected residents. Data were gathered to produce three different revitalization proposals. The master plan of each proposal was exhibited in a panel, together with photographs of sceneries similar to the proposed concept. The latter were displayed as a strategy to avoid illiteracy in plans interpretation. Proposals were then evaluated and rated by residents. Results revealed a participatory resident population, aware of the weaknesses of the neighborhood public space. Though, highly attached to their everyday landscape, displaying very rooted behaviours and a high resistance to change. Although the adopted participatory methods proved adequate and easy to implement, a more long-term and wide-ranging action plan is recommended to allow to residents gradually develop a thorough awareness of the benefits of a more organized and multifunctional public space.

I. INTRODUCTION

The residential public space is essential to the quality of life of the inhabitants and plays an important role in strengthening community relationships and fostering feelings of belonging, security and appreciation for the place of residence (Hailing et al, 2009). It is, therefore, essential to take into account the needs and preferences of the resident population to ensure the complete and healthy use of these spaces (Kaplan et al, 1998).

In its multiple aspects, residential public space has been widely studied, and both designers and decision makers already have a set of guidelines for the design and management of attractive spaces with high visual quality. The following are often referred (Marcus and Francis, 1998; Ghel et al, 2004): i) equipment properly distributed and integrated in space, ii) well-planned traffic system and universal accessibility; iii) comfortable dimensions and multifunctional spaces able to meet the needs of various groups of people with different interests; iv) design taking into account the user's sense of security, v) thorough cleaning and maintenance of green areas and urban furniture. When one or more of these parameters are disregarded, the residential public space becomes obsolete and instead of generating synergies between the community members can become an element of conflict and insecurity.

Participatory projects are an excellent resource to involve communities in their residential public space. In these projects, citizen's participation is more than mere consultation to a successful resolution of social, economic, cultural or environmental problems. The main goal is to give responsibility to people. A basic principle of this method is that decisions become better when people who are affected by them become part of the decisive process (Mahdavinejad et al., 2011).

II. SANTA LUZIA NEIGHBORHOOD

In the city of Porto, social housing emerged in the late of the 19th century, in order to guarantee health conditions for many workers that migrated from agricultural areas to the city. Throughout the 20th century the city invested in affordable housing (one in seven Porto inhabitant's lives in a house belonging to the city council) and currently manages 45 social housing neighborhoods with nearly 800 ha of green areas (Vázquez et al, 2015).

With 5 ha, Santa Luzia neighborhood is second largest affordable housing complex, built and managed by Porto City council. Santa Luzia neighborhood is located north and is bordered by two very rapid transit routes, which cause some visual and audible discomfort (figure 1). It was built in 1994 under a Special Re-housing Programme, nationwide, which aimed to eradicate housing in tents. The number of residents is approximately 1561 people, mostly over 45 years (69%). A large part (76%) of the resident population is inactive (retired or unemployed) and the majority (56%) have an above the national minimum wage income. The most common family type is nuclear (two adults) and nuclear with children.

The built space consists of 75 four-storey blocks, with only 6 blocks with more than 10 floors. This neighborhood is almost entirely residential but in the larger buildings there are several support institutions and social animation associations installed (employment office, victim support association, religious institutions, cultural associations, etc.) which significantly increases the number of people who circulate daily in the neighborhood. The housing management responsibility belongs to "Domus Social" and all public space responsibility belongs to the "Municipal Division of Gardens", both under the jurisdiction of the Municipality of Porto.

The public green space is close to half of the total area, however, only 30% is usable for people. Such use is made mainly of circulation or appropriation to install gardens

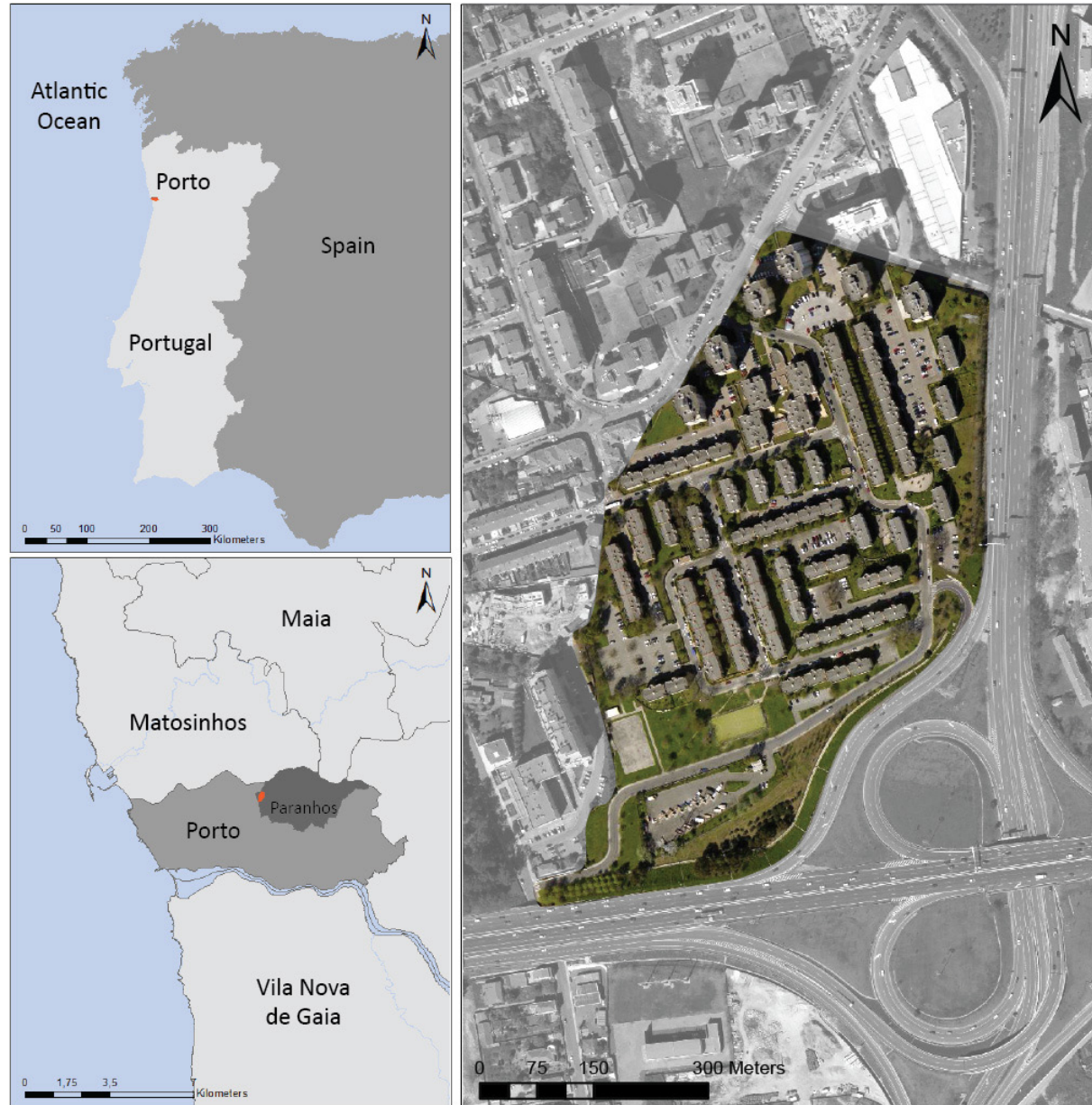


Figure 1 – Location of the municipality of Porto in Portugal. Location of the parish of Paranhos in the municipality of Porto. Santa Luzia neighborhood.

next to houses, since there are no spaces prepared for staying and socializing outside. The public green space of this neighbourhood has several problems. The major is related to the private usage of public areas, despite of the excessive proximity between the trees and the houses also that also generates a lot of complains. At the beginning, first residents, especially the ones occupying ground floor apartments, established a verbal agreement with the city council about installing small gardens and fences with shrubs hedges, as a strategy to limit the access to the windows. Over time, people took initiatives in designing these gardens, making small constructions such as barbecues and fountains, installing statues and planting shrubs and trees as they wished. The boundary between public and private space faded and today there is a deep-rooted sense of private property.

In 2014, after 20 years of construction of Santa Luzia, Porto city council decided to move forward with a profound rehabilitation program in three phases. The first covering the houses, the second directed towards the trees conflicting with the buildings and other infrastructures, ending with the revitalization of the public space. However, the failure of similar rehabilitation programs previously implemented in other social housing neighborhoods of the city of Porto, and also the long and rooted appropriation of public space by Santa Luzia residents led to the understanding that the success of this program would depend on the community early involvement.

This research covered the second and third phases of the rehabilitation program of Santa Luzia neighborhood and intended to test i) the motivation of residents to collaborate on a participatory project, ii) the ability to express their ideas and needs; iii) the degree of involvement with their daily landscape and resistance to change, iv) if the involvement from the earliest stages of the project is reflected in greater receptivity to changes in the organization and use of space.

III. METHODS

Research was conducted in five sequential steps:

1. First meeting. Made to evaluate the results of the first phase related to the buildings rehabilitation; to report on the arboriculture operations that would be carried out, in particular pruning and some fellings; and to present the revitalization project for the public space appealing to the community participation in this research.
2. Field Survey. Held to produce updated plans on the condition of the outdoor space. Consisted of an inventory of the vegetation and built structures, recreation and leisure equipment, street furniture and lighting.
3. Questionnaire & Second Meeting. Produced to assess the perception, behavior, needs and expectations of the residents in relation to the outdoor space To maximize the participation, a mid-term meeting with the entrance-managers (individuals or groups of individuals representing a housing block) was conducted in order to explain the objectives of the questionnaire and to request for their collaboration to distribute it and to sensitize the residents to fill it. 890 questionnaires were distributed, one per apartment, left in envelopes in their mailboxes.
4. Development of designed proposals for the public space. In these stage three proposals for the outdoor environment, representing different combinations of the same services and equipment were developed, taking into account the results of the field survey and of the questionnaires, as well as published guidelines on residential public space design. Each proposal consisted of a master plan of Santa Luzia neighborhood highlighting the areas with major changes. To overcome illiteracy in the interpretation of the plans, photographs

of similar sceneries were used to symbolize the proposed concept. (Al-Kodmany, 1999).

5. Third meeting. Held for the public presentation of the designed proposals. Only entrance managers were called, 28 in total. Proposals were exposed in three placards and a ballot paper was given to each participant in which they should i) select the preferred proposal and ii) build their own proposal by combining scenarios from the three designs, iii) suggest the incorporation of services or equipment not covered by any of the proposals presented. The perception of the degree of landscape change was facilitated by the display of a placard with the master plan and photographs relating to the current situation.

IV. RESULTS

1. First meeting. The presence of political decision makers (city councilmans) and technicians of each involved department contributed to a large affluence of the residents. The meeting was very focused in the buildings rehabilitation once the works were still in progress. There was some space to discuss issues related to trees pruning and felling with many residents speeches both in favour as well as against the planned interventions. The controversy surrounding these concerns left little room to present the participatory research project for the public space revitalization, which was very much put aside.
2. Field Survey revealed that i) the appropriation of space by residents happens mainly near the entrances of buildings and sometimes also at the rear, by the installation of shrub hedges and other barriers as well as by decorative elements, ii) appropriation of space by residents results in its fragmentation, limits the collective use, and generates social conflicts, iii) the existing pedestrian circulation network is confusing and inadequate, missing quick connections, iv) with respect to the

trees there are conflicts with houses, its distribution is unbalanced and overly dominated by a single specie, the poplar (*Populus nigra* 'Italica'), v) there is a lack of sports equipment as only one of the two playing fields can be safely used, vi) street furniture is insufficient, heterogeneous and degraded. These aspects are highlighted in figure 2.

3. Questionnaires & Second Meeting. 243 questionnaires were received which represents 27% of the total distributed. However, it is noted that they may represent resident population since the majority of the respondents belongs to the age group of 45 to 64 years and are retired. Survey results are summarized in figure 3.

An important part of the respondents do not (25%) or rarely use (36%), public green spaces. Between users, daily attendance is equivalent to the attendance on weekends. Most users remains in the space over 30 min, confirming the choice for activities which require a longer stay, such as, the contact with nature (21%), the children's playground (16%) and stay (7%). Yet, an important part of the population uses space only as passageway (29%). These results pointed to two important issues: there is a significant group of residents who do not use the space and within the restricted group of users there is a significant percentage referring a quick use, in passing. Both indicating that attractiveness, quality and functions of the public space need to be discussed.

Regarding changes in the public space, the provision of more children's and sports equipment (respectively 76% and 65%) was much mentioned. There were also an evident desire to solve conflicts between the trees and the houses (63%) and half of respondents wished to maintain the gardening areas (56%). There were also many suggestions to improve green spaces maintenance and street lighting, as well as to create jogging paths and a pet play area.



Figure 2 – Photographs of the public space of Santa Luzia neighborhood. Visible appropriation of space by installing structures such as barbecues (1), water elements (2), fences (3), vases and cultivation (4 and 5); conflict between the trees and the buildings (6); inefficient pedestrian circulation network (7); degraded street furniture (8).

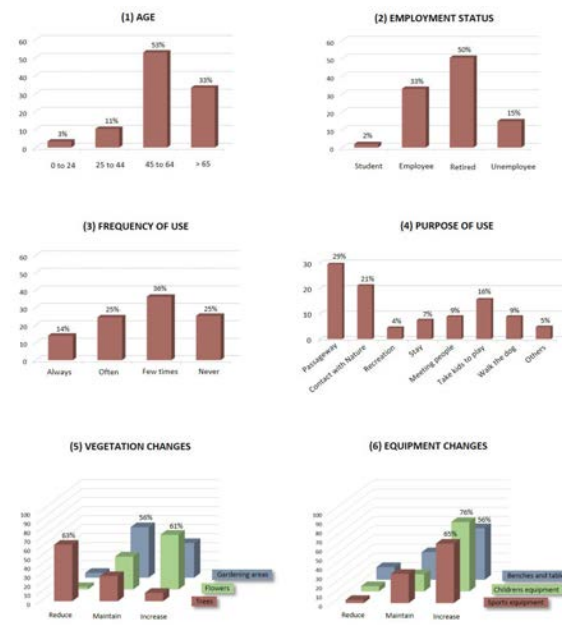


Figure 3 – Graphic results of the questionnaires.

4. Development of designed proposals for the public space.

Proposal 1 (figure 4) was the least transformative of the current landscape and uses. It was designed to provide a more active use by rehabilitating the abandoned sports field, adding a playground and a fitness trail. Trees were reduced and organized mostly in alignments along the streets, parking lots and stay areas. The number of parking spaces was preserved. Small stay areas were scattered throughout the neighborhood taking advantage of pre-existing sites. Gardening areas next to buildings were reorganized and regulated. A pet area was proposed south of neighborhood. An organic type of design was adopted.

Proposal 2 (figure 5) was the more transformative of the current landscape and uses. Abandoned sports field was replaced by an area of gardening plots. A longer and more contemplative jogging path

PROPOSAL 1



Figure 4 – Master Plan of Proposal 1.

was designed. More trees were proposed displayed mainly in groves spread across the neighborhood. Parking lots are rearranged and the central parking lot of the neighborhood was converted into a plaza. A geometric type of design was adopted.

Proposal 3 (figure 6) represents an intermediate situation between the two previous ones with the following main differences: i) gardening is guaranteed by installing standard planters next to the houses; ii) children's play takes place in an informal environment next to the picnic area and amphitheater; iii) the jogging path is of medium length; iv) option for a mixed design.

PROPOSAL 2



Figure 5 – Master Plan of Proposal 2.

Table 1 summarizes the differences between the three proposals regarding to the most significant variables.

- Third meeting. This meeting was attended by 19 entrance managers (68%) (figure 7). It began with the presentation of the survey results, explaining how the identified constraints were solved in each proposal. After, participants analyzed the proposals by themselves, and voted. Proposal 1 was elected with 17 votes, the proposals 2 and 3 got one vote each and there were no suggested changes to the proposals.

PROPOSAL 3

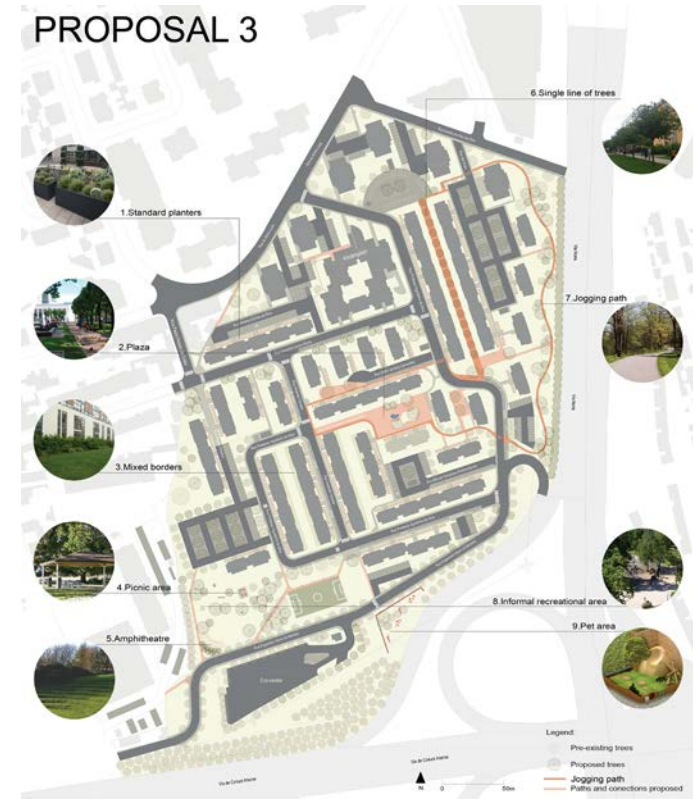


Figure 6 – Master Plan of Proposal 3.

V. DISCUSSION AND CONCLUSIONS

Results are discussed starting from the established objectives:

i) regarding residents participation, the option for the entrance managers as representatives of Santa Luzia neighborhood inhabitants may not have been the most appropriate for two main reasons. First, and foremost, because a large proportion of residents was not represented since several housing blocks still does not have entrance manager(s). Then, because some of the representatives expressed, since the beginning, a very antagonistic view about the rehabilitation program, which may have discouraged more favorable

	Proposal 1	Proposal 2	Proposal 3
Sports field	Rehabilitation	Replaced by raised garden beds	Replaced by informal recreational area and amphitheatre
Jogging path	Shorter length with fitness trail	Longer length	Medium length
Childrens area	Traditional Playground	Themed playground	Informal children recreational area
Pets area	Pets area near the eco-center	No pets area	Pets area near the eco-center
Picnic area	Near sports fields. Simple, traditional style. Tables and benches scattered through space	Near sports field and the raised beds area. Simple, traditional style. Tables and benches scattered through space.	Near sports field and the informal recreational area foir childrens. Paved area with a gazebo.
Plazas	Reuse of small pre-existing areas by introducing street furniture	Replacement of parking lot in the street Alberto Carlos Correia da Silva by a central plaza	Replacement of parking lot in the street Alberto Carlos Correia da Silva by a central plaza
Traffic and parking	Traffic directions are kept as they are. Parking spaces are reorganized.	A shared street is proposed to the street Delfim de Brito Guimarães. Parking spaces are reorganized.	Traffic directions are kept as they are. Parking spaces are reorganized.
Gardening/Cultivation areas	Gardening areas close to the houses.	Raised beds near the sports field	Standard planters in front of the houses.
Trees	Fewer trees organized mostly in alignments along the streets, parking lots and stay areas.	More trees displayed mainly in groves spread across the neighborhood.	Number of trees and provision similar to the current.
Shrubs & Herbaceous	Formal compositions	Mixed borders	Mixed borders
Type od design	Organic	Geometric	Mixed between organic and geometric

Table 1 – Main differences between the three designed proposals regarding the most significant variables.



Figure 7 – Photographs of the third meeting.

opinions. This result is in accordance with Meyer (2011), that refers the importance of identify individuals respected by the community and supporters of the initiative, so they can act as opinion makers, working as a driving force for the accession of other residents.

ii) despite the good initial acceptance and relevant participation in the questionnaires, research was, overall, hampered by the temporal proximity to the rehabilitation works in the buildings. The revitalization of the public space was not recognized as a necessity and was, in fact, much contested. Social conflicts, insecurity and vandalism are huge concerns and, so far, the contribution of a quality public space to solve these problems (Sampson & Raudenbush, 1999) has still not been properly perceived by the participants.

iii) there is a strong bond with the everyday landscape, as well as a high resistance to change. This conclusion was attested by the major election of Proposal 1 as it is the least transformative. This result also seems to indicate that even some subtle, distinguishing, variables between the three proposals were not

prevalent in the decision, as in the case of the location and type of design (more organic or more geometric) of common living areas (Buchecker et al 2003).

iv) this is an ongoing research and no project was yet implemented, so it was not possible to test the main hypothesis that “community involvement in earliest stages of the rehabilitation/revitalization projects improves its success”. However, results obtained so far, allow us to predict that any revitalization work in outdoor spaces of Santa Luzia neighborhood will not succeed without the endorsement of residents. A more wide-ranging, long term, action plan will be necessary, particularly involving training activities, regulation of gardening areas and collaboration with security forces (Denis, 1992). It is also of the utmost importance to give people time to internalize the idea of change and to develop new social skills and ways of living in the public space.

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SOURCE OF THE IMAGES

Figure 4

1. http://images.hotels4u.com/Travel_Images/Resort_10/Building_1824/playground1_at_the_Hipotels_Cala_Millor_Park_Hotel.jpg
3. <https://www.pinterest.com/pin/344806915194131131/>
4. http://upload.wikimedia.org/wikipedia/en/thumb/8/8d/Picnic_area_at_Ohio%27s_Van_Buren_State_Park.JPG/800px-Picnic_area_at_Ohio%27s_Van_Buren_State_Park.JPG
5. <http://nyack-ny.gov/prod/wp-content/uploads/2012/06/basketball-court-june-2012-2-250x188.jpg>
6. <https://geolocation.ws/v/E/2136310/pergola-walkway/en>
7. http://www.myoldsma.com/ImageRepository/Path?filePath=/documents\Intranet\42\51/Bicentennial+Park+Trail+and+Fitness+Equipment_201408081540292232.jpg
9. <http://www.domestika.org/es/projects/57682-pipican>

Figure 5

2. <http://www.firenzeinbici.net/public/spielstr1.jpg>
3. <http://www.trp.dundee.ac.uk/research/geddes/gallery/DightyWaterPicnicArea3550.jpg>
4. <http://to.gstatic.com/images?q=tbn:ANDgGcRubqHyCXnVe4Zf-Whgua5YdTmrg1rVdjir8Sb3SwcUWnWkVEgY>
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Figure 6

1. <https://www.iotagarden.com/image/cache/data/projects/Greenwich%2011-718x475w.jpg>
4. <https://s-media-cache-ako.pinimg.com/736x/14/4d/ee/144deed73e49ff11b389542b9edcf77d.jpg>
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9. <http://assets8.domestika.org/project-items/ooo/271/258/12-big.png?1344874688>

Perceived fear of crime based on different levels of concealment, disorders and human presence – a case in Kuala Lumpur urban parks

Sreetheran Maruthaveeran

Arne Arnberger

Cecil Konijnendijk van den Bosch

Urban Allotment Gardens – a Synthesis of Design Models

Maria Inês Sousa

Frederico Meireles Rodrigues

Laura Roldão Costa

NAMING AND EXPECTATION- THE MUTABLE RECOGNITION TOWARDS PARK IN EARLY 20TH CENTURY CHINA

Yuan Yuan Liu

SUSTAINABLE MANAGEMENT OF URBAN STORMWATER RUNOFF- THE RAIN GARDEN PROJECT

Lucia Bortolini, Paolo Semenzato, Gian Paolo Barbariol

TREE IN CULTURAL LANDSCAPE CONNECTING WITH RESTS OF THE DUTCH SETTLEMENT IN NORTH PART OF MASOVIA

Ewa Zraś-Januszkiewicz, Beata Fornal-Pieniak, Barbara Źarska

Role of manor parks in rural landscape - now and on the past (Poland)

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The **manor parks** are characteristic of the Polish countryside. According to the diagnosis, the condition of all historic gardens in the country is estimated at about 10 000 (Majdecki 1995). As in most European countries, including Poland developed landscaped gardens from the second half of the eighteenth century. They were dominant throughout the nineteenth century and persisted throughout the first half of the twentieth century. The basic elements of the park were a manor house, a garden with the trees, shrubs and underground.



On the past

- political aspects, symbol of richness, power
- natural values
- impressive collection of alien and native plant species resembled the botanic garden,
- diversity of animals, some of them for huntings
- manor house as dominant object in park
- valuable small architecture elements
- occurring sculptures, hydrological elements
- place for works
- manor parks as one of the most important objects on the region
- aesthetic values

Nowadays

- mostly historical buildings, hydrological elements, sculptures, avenues, plants collections were destroyed during the II World War in manor parks.
- many parks have different users for example Agricultural Production Cooperatives, agricultural circles, agro-breeding establishments, councils, municipal
- the parks buildings are represented by schools, health centers or nursing homes
- diversity of vegetation - natural and historical events have influence for succession process development.
- forest vegetation is dominated on abandoned manor parks.
- manor parks are as „green islands” (refuges) in ecological corridors (for plants and animals) in rural landscapes
- aesthetic values

1. Different condition of manor parks after the II World War



2. Changes the composition of Zraśada manor park (A – sketch based on saturnal map and B sketch based on air photo (2014 year))



3. Localization of manor parks (red points) in ecological system of three municipalities



4. Water elements in manor parks



Conclusions
Manor parks have got many roles in rural parks (on the past and nowadays)
Human and natural impacts are observed in these objects
Nowadays mostly manor parks are one of the basic refuges of plant and animal species in rural landscapes

THE ROLES OF MANOR PARKS IN RURAL LANDSCAPE – NOW AND ON THE PAST (POLAND)

Beata Fornal-Pieniak, Ewa Zraś-Januszkiewicz, Barbara Źarska

EXPERIENCES OF OUTDOOR ENVIRONMENTS BY PEOPLE WITH POST NATAL DEPRESSION

Eva Silveirinha de Oliveira

MACHANGARA RIVER, (SNAKE RIVER IN KEWCHA VOICE), QUITO, EQUATOR. INCLUSIVE DESIGN TO RECOVER THE FLUX OF HAPPINESS AND SOCIAL CONSTRUCTION OF IDENTITIES

Mónica Mabel Dazzini Langdon

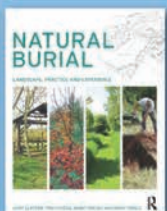
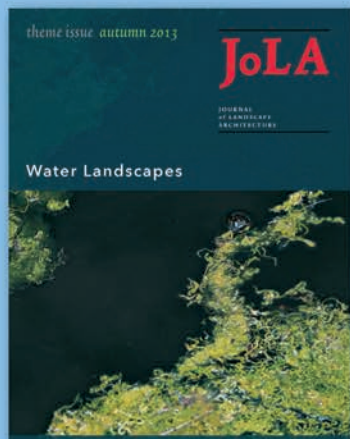
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