The Socio-Economic Impacts of Restoration Activities in Saarde Parish

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Introduction

Estonian and European Union environmental policy is placing increasing emphasis on ecosystem restoration in order to halt the decline in biodiversity and enhance the resilience of ecosystems to climate change. The deterioration of wetlands and small water bodies in recent decades has been linked to the impacts of drainage, intensified forestry practices, and agricultural land use, although the extent of these impacts varies by region. In many areas, a decline in natural habitats, changes in water regimes, and reduced carbon sequestration and storage capacity in drained wetlands have been observed. At the same time, the strengthening of environmental policies and the setting of more ambitious restoration targets have raised legitimate questions about the extent to which regulatory changes may affect the economic environment and the competitiveness of businesses, particularly if the scope or interpretation of requirements changes. As Dechezleprêtre and Sato (2017) emphasize, the impact on competitiveness is particularly evident in situations where the stringency or level of enforcement of environmental regulations varies across countries or regions, potentially causing differences in production costs and thereby affecting firms' market positions.

Although such discussions have primarily emerged in the context of competition between countries, they may also be reflected in local perceptions, particularly where past experiences have fostered sensitivity to changes in land use. When planning new restrictions or restoration activities, uncertainty often arises as to whether and to what extent the changes may affect the functioning of the local economy, employment levels, or business activity. Therefore, it is important to assess the impacts of restoration activities not only from an ecological perspective but also in terms of their potential connection to the risks and expectations perceived within the local economic environment.

The purpose of the local economic impact study is to assess how restoration projects affect the region's economy, employment, and social well-being. In addition to direct ecological benefits (e.g., restoration of biodiversity, improved water quality, reduced flood risk due to the restoration of natural water regimes), restoration projects can also provide indirect benefits and ecosystem services if the restored areas maintain or improve their ecological functionality. This can lead to opportunities such as tourism development, increased demand for local services, or job creation based on these factors. International empirical studies show that land conservation and ecosystem restoration can be consistent with local economic growth: for example, in New England, an increase in the proportion of protected areas is associated with statistically significant growth in employment and the labor force, particularly in rural areas (Sims et al., 2019).

The socioeconomic impacts at the central government and local levels differ, and are more easily and often more quickly recognized at the local level. While various compensation mechanisms at the national level may offset negative impacts, potential accompanying positive macroeconomic effects (e.g., innovation or productivity) may not reach the local level.

In addition to the ecological benefits, the project will have a local economic impact: the procurement and implementation phases will require machine operators, project management, logistics, and temporary accommodation and catering services. This stimulation of the local economy is described in the project parties' reports and documentation; an accurate official

report on the number of full-time equivalent years of work, using Kikepera as an example, is not publicly available, so we will use clearly cited author estimates or separate analyses (Eestimaa Looduse Fond, 2025).

The study focuses on the following questions:

1. What are the direct and indirect economic impacts of restoration projects at the local level (e.g., employment, entrepreneurship, tax revenue) in Saarde Parish?

2. Could restoration projects potentially give rise to new areas of activity, such as tourism and recreation-related services, provided that the municipality and businesses are interested and the necessary infrastructure is in place?

The analysis provides an overview of potential direct impacts (services to businesses, labor utilization) in those project phases where local participation is feasible and service providers are available.

In addition, socio-economic aspects are assessed, including public opinion, the views of opinion leaders, and the willingness to support the restoration.

1. Link to national and EU recovery objectives

The European Union's Nature Restoration Regulation (Regulation (EU) 2024/1991) imposes extensive and binding restoration obligations on Member States, establishing the basic framework for restoration activities and significantly influencing nature conservation priorities in the coming decades. Under the Regulation, restoration measures must be implemented in at least 20% of the EU's land and marine areas by 2030 and in all ecosystems in need of restoration by 2050. The Regulation does not require that all habitats achieve a fully favorable conservation status by 2050; the emphasis is on the consistent implementation of restoration measures and the improvement of status over time (European Commission, n.d.; IUCN European Regional Office, 2024; EUR-Lex, 2024). Such an approach *may* support ecosystem resilience and the achievement of climate goals, and in certain cases also contribute to the economic and social sustainability of regions (see, e.g., Sims *et al*., 2019).

1.1. National Objectives and Policy Framework in Estonia

Estonia currently does not have a separate, comprehensive nature restoration strategy; restoration-related objectives and principles are set out in several national development documents and action plans. These sources provide substantive guidance on how the European Union's restoration objectives are interpreted in the Estonian context.

Restoration activities are most directly guided by the management regulations of protected areas, such as those for the Kikepera Nature Reserve, which require ensuring the favorable conservation status of habitats and restoring the natural water regime where it has been damaged. Restoration is also emphasized in national biodiversity and nature conservation action plans, which identify the need to improve drained wetlands, degraded habitats, and habitats of key species.

The policy framework of the Ministry of Climate and the Environmental Agency focuses primarily on improving the condition of bogs and wetlands. According to estimates, approximately two-thirds of Estonia's mires have been drained, and national reports indicate that at least 25,000 hectares of mire habitats require restoration, setting extensive and long-term goals for restoration activities (Kliimaministeerium, 2024). Restoration decisions and monitoring are supported by several national analytical tools, such as the ELME nationwide assessment of ecosystem services and the Environmental Agency's hydrological expert assessments, which enable an understanding of both the ecological and societal impacts of restoration.

Together, these documents and instruments form a coherent restoration framework focused on improving degraded habitats, restoring water regimes, and improving the connectivity of species and habitats, while significantly reducing climate risks (such as the impacts of floods and droughts).

1.2. Practical Arrangements and Institutions for Restoration in Estonia

Restoration efforts are carried out through cooperation among institutions at various levels and encompass both individual projects and national framework programs. In Estonia, the

Environmental Agency plays a central role in this process, coordinating monitoring and status assessments and preparing expert hydrological assessments - such as the 2025 analysis of the impacts of restoring the water regime of the Reiu River and Kikepera, and the flood risks in the Surju region. The Environmental Board, in turn, is responsible for the management of protected areas and the approval of decisions.

Practical restoration work is carried out by partner organizations, such as the Estonian Nature Fund, which participates in international projects (e.g., Horizon 2020 WaterLANDS), coordinates technical restoration plans, and supports the improvement of the condition of old-growth forests, peatlands, small water bodies, and wetlands. Restoration is supported by several European-level programs, including LIFE and WaterLANDS, which have been important sources of funding and methodological guidance for numerous Estonian restoration projects. Public discussions often highlight individual examples or cases, although restoration activities are actually based on a broad institutional and science-based framework as well as grassroots-level engagement.

1.3. The relationship between EU objectives and Estonia's actions in the local context

The European Union's restoration objectives provide a common framework, which Estonia implements through national strategies and the management of protected areas. The impact at the local level arises primarily because national condition assessments and conservation management identify several habitats and wetlands in areas bordering Saarde Parish that require restoration or improvement.

In its submissions (Nos. 1–9/647), the Saarde Municipal Council has emphasized that, in the municipality's assessment, the proportion of protected areas, compensation areas, and areas requiring restoration within the municipality's territory is high. The high spatial concentration of protected areas means that a significant proportion of the municipality's territory is subject to restrictions on economic use. Consequently, it is perceived that EU and national objectives may lead to additional restrictions on use, which could affect the municipality's economic functioning and business environment.

According to Saarde Municipality, the main areas of concern revolve around three key issues:

1. First, compensation and mitigation areas, along with the associated land-use regimes, impose additional restrictions on land use, which, in the municipality's assessment, may in certain cases affect the conditions under which forestry and other activities are conducted, depending on the scope and location of the restrictions.
2. Second, the municipality's statements and interviews point to concerns that the combined effect of various restrictions may limit the municipality's ability to develop its economic potential or increase its revenue base.
3. Third, according to Saarde Municipality, the explanations provided so far regarding compensation and mitigation mechanisms have been insufficient, and the decision-making processes require greater transparency. In the municipal government's view, both the disclosure of documents and procedural involvement have been insufficient, which increases uncertainty and undermines the sense of justice.

Therefore, it is important for local authorities that the objectives and decisions regarding restoration be clearly explained in a transparent manner and that the local government be involved in the planning and decision-making processes related to restoration.

1.4. Interaction between levels: Europe – national – local

In summary, the impact of the restoration policy manifests itself on three levels:

1. The EU sets binding targets and obligations that determine the scope and timeline of the recovery.
2. The national level interprets these objectives in the Estonian context by developing a monitoring and development framework centered on the restoration of wetlands, forest ecosystems, and water bodies.
3. At the local government level (Saarde Municipality), restoration primarily involves decisions regarding changes to the water regime, infrastructure development, and land-use considerations, depending on the specific areas and the scale of the restoration activities planned.

It is important to emphasize that local governments do not directly fulfill obligations at the EU level, but rather, within the framework established by the state, are responsible for the spatial interpretation of these principles and for managing their impacts in the local context.

According to Saarde Municipality, the impact of these concerns could be significant at the local level, given the spatial extent of the areas requiring restoration and the fact that many decisions are linked to land-use regulations. The local level is therefore most directly aware of both the constraints and the opportunities associated with restoration.

2. Methodology

2.1. Research Framework and Objective

Although most of the restoration activities planned or carried out to date, including those conducted as part of the WaterLANDS project, take place primarily on protected state-owned lands that have already been excluded from economic use, this study focuses on the indirect socio-economic impacts of these changes outside protected areas in the context of Saarde Parish. In particular, the study examines the impacts resulting from the reduction or restructuring of commercial forest use, including the designation of mitigation and compensation areas and the associated restrictions.

The distinction between commercial forests and protected areas is important in this context. Commercial forests can primarily be defined as forest land used for economic purposes that supports timber production and, in many cases, can contribute to the functioning of the supply chain and regional forestry development, depending on the presence of local businesses and the distribution of work. Such forests are not treated as protected areas, and according to the draft of the new Forest Act, at least 70 percent of Estonia's forest land must be managed as commercial forests (see *Looduskaitseseaduse ja metsaseaduse muutmise seaduse eelnõu,* 2025). At the same time, Estonian forest policy, spatial planning, and green network principles define commercial forests as important providers of ecosystem functions. The objective for these areas is to ensure landscape connectivity, the functioning of green network core and buffer zones and natural corridors, and to maintain the balance of the water regime (see *Rohevõrgustiku planeerimisjuhend*, 2018). In practice, achieving these various objectives simultaneously can prove challenging. Court cases and environmental reviews point to instances where planning or management decisions have failed to ensure the conditions necessary for the green network to function. Therefore, the use of commercial forests is shaped simultaneously by both economic and ecological constraints, which may manifest themselves through the scale of forest management, the timing of operations, or the intensity of use. Maran (2025) points out that Estonian forestry policy uses the term *commercial forest*, but the concept is not defined in legislation (see *Metsaseadus*, 2006).

Protected areas are areas designated for nature conservation purposes, where the specific management regime depends on the particular zone: logging is generally prohibited in strict nature reserves, but most restricted zones allow forest management with relatively few restrictions, meaning that nature conservation objectives may not always fully align with economic activities. Since regular commercial forest management does not take place in areas with stricter protection anyway, restoration activities there do not result in an additional direct reduction in economic output; however, they may affect indirect factors (e.g., access, movement, or infrastructure). Since in Saarde Parish, compensation and mitigation areas often extend beyond protected areas and also restrict use in commercial forests located within the parish's territory, the restrictions associated with them may, in certain cases, affect the volume or timing of forestry operations in the region, which in turn may impact businesses operating in these areas or dependent on the work volume there.

The focus is therefore on people and the local economy: the question is how changes in land use may affect businesses and employment opportunities related to forestry work carried out within the territory of Saarde Municipality. Regardless of whether the businesses are located in the municipality or operate on a broader regional level. Such changes may manifest as

shifts in the volume of work, subcontracting, or the use of local labor in certain work phases, depending on the scope of the restrictions and the regional distribution of the work.

In its submissions, Saarde Municipality has emphasized that forestry-related work is often carried out through public procurement; based on the municipality's submissions and interviews, it is not always possible to compete on the terms of the tender at the local level, particularly in the case of large-scale or specialized work. In the municipality's assessment, this may reduce the participation of local businesses and the local workforce in restoration and maintenance activities (Saarde Vallavolikogu, 2025; see Viik, 2025; Retel, 2025).

It is important to emphasize that the public procurement rules themselves have not changed as a result of these projects, and the same procurement practices apply to both routine forestry work and restoration and maintenance activities. Hypothetically, however, changes in the nature and location of the work may reduce the ability of companies operating in the region to participate in procurements or compete successfully.

2.2. Methodological Approach

The study uses available data on entrepreneurship, employment, wage costs, and income tax. These are combined with qualitative interviews to help clarify the mechanisms at play (e.g., public procurement practices and barriers to local participation). The general socio-economic impact framework draws on approaches implemented in the Nordic countries (input–output, employment conversion), which can be adapted to the Estonian context (see Juutinen *et al*., 2024; Ernst & Young Baltic AS & EMPL, 2024). For a supportive sectoral background and numerical comparison, the Erametsakeskus's compiled studies on the economic impact of forestry, added value, tax revenue, and unit costs of work are used (see Erametsakeskus, 2018; Kaimre, 2022). However, these studies are not related to location-specific factors and are presented as background data, the value of which is modest in the socio-economic context of the region under study.

2.3. Analytical Logic

Although restoration activities to date (including WaterLANDS) have taken place primarily on protected state-owned lands that are not dependent on commercial use, this impact assessment is also aimed at analyzing potential impacts in a scenario where restoration measures may be extended to commercial forests in the future. This possibility stems from the framework of the EU Nature Restoration Regulation, which requires Member States to implement restoration measures in ecosystems in need of restoration, but the identification of specific areas and activities is carried out through national planning and condition assessments (Regulation (EU) 2024/1991). In Estonia, this logic of expansion is based on several national policy documents and practice-based principles.

The use of commercial forests is influenced by both economic and ecological conditions, but the extent of their impact depends on the condition of specific areas and the nature of the planned activities. National condition assessments and protected area regulations provide guidance to prioritize restoration primarily in regions where the ecosystem's condition has deteriorated and where restoration is appropriate from an ecological and spatial planning perspective. This means that the potential expansion of restoration beyond protected areas is

based primarily on ecological condition assessments and national priorities, rather than on individual projects or local government decisions.

Therefore, in our impact assessment, we focus on the chain of impacts concerning the expected socioeconomic consequences in a scenario where the EU and national policy frameworks direct restoration efforts toward all degraded habitats, regardless of whether they are located in protected areas or commercial forests:

1. Restrictions on the use of commercial forests may, in certain cases, affect the scope or timing of forestry operations, depending on the extent of the restricted area and the types of activities permitted there.
2. This is accompanied by a decline in demand for local labor and a reduction in wage costs;
3. Income tax revenue based on place of residence is decreasing in the municipal budget;
4. In the case of public procurement, work may be outsourced outside the municipality, especially if specialized skills or equipment are required to win a bid, which local companies may not be able to provide. (See Saarde vallavolikogu, 2025; Viik, 2025; Retel, 2025).

These points are not assumptions underlying the analysis, but rather reflect assessments presented in various sources (statements by the Saarde Municipal Council, interviews, media coverage) and describe the perceived influence of local interest groups. This entire narrative primarily reflects local interest groups' understanding of the role of forestry in the region's economy, rather than an evidence-based claim that forestry work is predominantly carried out by local businesses or workers.

Although sector overviews on the role of the forestry and wood industry highlight its significant contribution to the Estonian economy, any potential regional bias must be taken into account when using them. The EY/EMPL (Ernst & Young Baltic AS, *Estonian Forest and Wood Industry Association*) (2024) estimate, according to which one in eight jobs in Estonia is related to the forest and wood industry, is based on an input-output model commissioned by the sector association, which may include indirect effects and may not adequately reflect the distribution of jobs and value added across regions. Similarly, previous analyses by the Estonian Private Forest Centre have primarily focused on the economic impact of private forestry, and their positive indicators—such as the growth in value added between 2007 and 2017 (Estonian Private Forest Centre, 2018) and the economic effect of private forestry development grants, which can be up to tenfold (Kaimre, 2022), may primarily reflect the situation in more active and economically stronger regions. Regions with a weaker business structure or lower forestry activity may not reap equivalent benefits, which is why aggregate indicators of subsidies or economic impacts cannot be automatically extrapolated to rural areas across the entire country. The OSKA labor and skills forecast (Tilk and Kruusmaa, 2022) indicates, in turn, that the sector's labor demand is regionally uneven: the shortage of skilled labor is greatest precisely outside of centers with a stronger industrial base. This means that estimates emphasizing jobs and value added may paint an overly optimistic picture of regions where the labor supply and supply chains are not sufficiently robust. Therefore, the economic impact of the forestry and wood industry must be interpreted with caution, carefully assessing which regions actually benefit economically and to what

extent client-commissioned studies and statistics focused on private forestry may mask regional development gaps and inequalities. It is important to note here and in the following text that indirect effects arise from companies' purchases within the supply chain, and induced effects arise from employee consumption and household spending.

2.4. Data and Sources Employment and wages.

We use labor force and administrative data from Statistics Estonia (EMTAK classifications: forestry; wood processing) to assess the employment and wage levels of residents in Saarde Municipality and to estimate wage costs as the basis for income tax. The methodology of the labor force survey follows ILO standards, which ensures comparability (Statistics Estonia, n.d.).

State-owned forests and the planning context. The activities and management areas of the State Forest Management Centre (RMK) across municipalities shape the regional distribution of employment and work; the SEA report for the comprehensive plan of Saarde Municipality provides background on the constraints and social impacts (Hendrikson & Ko, 2024). Official appeals by Saarde Municipality do not in themselves change public procurement regulations, but they can highlight issues that influence political attention and the focus of decisions regarding restoration (see Saarde vallavolikogu 1-9/647). However, the municipality's appeals and public debate can influence political attention and the issues considered in national decisions regarding restoration or protected areas. For example, when planning hydrological interventions, making conservation management choices, or designing compensation mechanisms. One of the most pressing concerns in Saarde Parish in recent years has been the uncertainty surrounding the restoration of the water regime and the lack of public involvement. ERR reports (Raidla 2025) point to local residents' fears that wetland restoration could cause flooding or affect the usability of residential areas and infrastructure. Official statements from the municipality express similar concerns, but the Environmental Agency's hydrological expert assessments (2025) indicate that any potential impact depends on the water regime of the specific area and is not necessarily negative. Uncertainty has been heightened by local representatives' assessments that previous explanations and engagement activities have not been sufficiently transparent or timed in a way that supports understanding of the risks. Therefore, local representatives emphasize that when planning restoration activities, the timing of impact assessments, risk explanations, and communication should be clear and understandable to reduce uncertainty and support informed discussion.

Sectoral context. The EY/EMPL report (2024) and (Tilk and Kruusmaa, 2022) link the local picture to national-level sector indicators; Studies and statistical overviews by the Private Forest Center provide data on added value, potential tax revenue, and unit costs (Ernst & Young Baltic AS & EMPL, 2024; Tilk and Kruusmaa, 2022; Erametsakeskus, 2018; Kaimre, 2022).

2.5. Qualitative component

Semi-structured interviews (n≈5): municipal officials, council members, local opinion leaders. Topics: the state of the local economy, the mechanism for collecting property tax and residence-based income tax, and perceived changes. The analysis is based on thematic coding. This study draws on the assessments and experiential information provided in interviews with a local opinion leader and council member (Respondent 1), a municipal official (Respondent 2), and a representative of the State Forest Management Centre (RMK) (Respondent 3), which help to explain the formation of local perceptions and risk perceptions.

3. Description of Saarde Parish

3.1. Population and Development

As of January 1, 2026, 4,290 people live in Saarde Parish (Statistics Estonia). The age distribution of the population shows that the proportion of older adults (65+) is high: approximately 27% of residents belong to this group. People of working age account for 57% (19–64) and those under 18 years of age account for 16% (Table 1). Data from recent years show a moderate decline in the population: 4,349 residents in 2021 and 4,290 in 2026.

Table 1. Demographic Structure

Age group	**Total number**	**%**
Seniors aged 65 and older	1140	26,6
People of working age (19–64)	2435	56,8
Children ages 7–18	483	11,3
Children ages 0–5	232	5,4
TOTAL	**4290**	**100**

Source: Population Register

3.2. Land Use and Protected Areas

Saarde Municipality is characterized by a very high forest cover (approximately 78–80%), which ranks it among the most forested municipalities in Estonia. This assessment is based on the official area of state forests and a comparison of the Land Board's land use data with county forest statistics, which shows that natural areas dominate the landscape alongside agricultural land.

Although state-owned forests cover more than half of Saarde Parish's territory (54%, or 57,251 ha) and play an exceptionally significant role in the parish's landscape, no similarly comprehensive and consolidated statistics on the area of private forests, logging volumes, and long-term changes are published at the local government level. However, logging reports from the forest register (2018–2024) to reconstruct the dynamics of logging in private forests and show that the management of private forests in Saarde Municipality has been of significant scale (Environmental Agency, Forest Register logging reports for Saarde Municipality, 2018–2024).

Based on available data, the approximate annual harvest rate within the municipality's territory ranges from 4.2 to 7.5 m³ per hectare, which in some years is close to the Estonian average (approximately 3–5 m³/ha) and in others is clearly higher, especially in 2018 and 2024, when the harvest rate exceeded 7 m³/ha. Logging volumes in Saarde Parish declined between 2018 and 2022, reaching a low point in 2022, but rebounded by 2024 to the highest level of the period; In private forests, the trend has been one of a moderate decline (peak in 2019 and trough in 2023), while in state forests it has been clearly fluctuating (trough in 2022 and peak in 2024). It is important to note that the share of state-owned forests in the total volume of harvests remains above 57% in most years and reached approximately 65% in 2024.

The extent of forest resources in Saarde Parish is closely linked to the location of protected areas within the parish's territory. Saarde Parish is home to several important nature reserves, including the Sookuninga Nature Reserve (5,900 ha), the Luitemaa Nature Reserve (11,301 ha, part of which lies in neighboring parishes), and the Kikepera Nature Reserve, of which approximately 71% of the total area - 10,717 ha of land and 15.8 ha of water - is located in Saarde Municipality and 29% in Põhja-Sakala Municipality. The Kikepera restricted zone covers 4,932 ha and is one of the region's largest landscape conservation units, directly influencing land use and the conditions for managing the natural environment in the municipality. Such a concentration of protected areas increases the spatial proportion of areas with restricted economic use in the municipality, emphasizing the role of forest ecosystems and potentially shaping the framework of local-level environmental policy, including the formation of public opinion.

This spatial context also helps to understand local points of tension. In a situation where past logging activity in private forests has been significant - for example, based on logging reports from Saarde Parish, annual logging volumes in private forests repeatedly exceeded 150,000–180,000 m³ between 2018 and 2024 (Keskkonnaagentuur, metsateatised Saarde vallas, 2018–2024), restoration taking place in state forest protected areas or their surrounding regions may appear to local residents as a disproportionate restriction or as "additional intervention" in an area where changes to the forest landscape are already frequent. Local points of comparison are often based on visible contrasts: extensive logging in private forests stands in contrast to restoration activities taking place in state forests within protected areas.

It is important to emphasize that these are two distinct operational logics. Logging in private forests is primarily economically motivated, but it is regulated by various ecological and legal requirements, such as the preservation of the green network, habitat protection, nesting peace, maintenance of the water regime, and soil protection. Restoration work in state forest protected areas is aimed at ecological objectives: increasing biodiversity, restoring the water regime, improving the condition of habitats, and complying with conservation regulations.

Tabel 2. Areas under protection regime in Saarde municipality

Name	Total area (ha)	Area in Saarde (ha)
Nigula looduskaitseala	6430.92	797.07

Jäärja hoiuala	1098.00	1098.00
Kikepera looduskaitseala	10733.78	9941.38
Järveotsa maastikukaitseala	27.19	27.19
Allikukivi maastikukaitseala	23.70	23.70
Lähkma looduskaitseala	104.13	104.13
Siiraku looduskaitseala	685.87	685.87
Laiksaare looduskaitseala	401.32	107.48
Sookuninga looduskaitseala	5900.86	5900.70
Soo-otsa looduskaitseala	569.00	569.00
Luitemaa looduskaitseala	11301.99	2359.71
Metsaääre looduskaitseala	159.67	159.67
Tolkuse looduskaitseala	810.34	810.34
Kalita looduskaitseala	146.08	146.08
KOKKU	38 392.85	22 730.32

Source: EELIS, Hendrikson & Ko, 2024

The municipality's territory includes 14 nature reserves, 6 conservation areas, 3 landscape protection areas, 5 protected parks, more than 3,600 sites of protected species, 1,272 valuable habitats, 81 permanent habitats of protected species, and 9 protected individual objects (Saarde vallavolikogu, 2025). Approximately 22,730 hectares are under protection in Saarde Municipality, accounting for about 21% of the municipality's total area.

3.3. Saarde Municipality's 2025 Budget (Revenues)

Saarde Municipality's revenue from core activities in 2025 was €9,522,313, of which €4,855,342 came from income tax and €451,016 from property tax. The annual increase in income tax revenue is approximately 4%. The average revenue per resident is €1,132 (Estonian average €1,525). The average gross monthly wage in the third quarter of 2025 is €1,544 (Estonian average €2,075).

The revenue base of local governments depends to a significant extent on the equalization fund, but in light of recent amendments to the Land Tax Act, the role of land tax in shaping local budgets may increase. As a result of the 2022 regular land valuation, the taxable value of land increased by an average of 8.3 times - and that of forest land by an average of 4.6 times - which increases the potential share of land tax in the structure of local government revenue (Eesti vabariigi valitsus, 2024). At the same time, the legislature has raised the upper limits on land tax rates: Starting in 2025, the maximum tax rate for residential land and agricultural

land (including yard areas) will increase from 0.5% to 1%, and the rate for other land (e.g., commercial land) from 1% to 2% (ERR, 2024; Eesti vabariigi valitsus, 2024). Starting in 2026, local governments will be able to set their own annual land tax growth limits within a range of 10–100%, which will increase their fiscal autonomy and reduce their dependence on central government transfers (RMP/Geenius, 2024).

However, as protected areas and restoration areas expand, the proportion of land exempt from land tax increases, since land designated as nature reserves and special protection zones within protected areas is not subject to land tax (see Land Tax Act, §4, Riigikogu, 2024). Consequently, part of the lost revenue is compensated through the equalization fund, increasing local governments' dependence on state transfers. Thus, land tax is no longer a stable and long-term, unchanging source of revenue, but rather, due to changing legal boundaries and tax assessment values, an increasingly important factor in local financial management and the formulation of long-term budget strategies.

The land tax exemption for nature conservation areas affects approximately 25% of the land, with compensation provided through the equalization fund. It is not yet clear whether the compensation will be paid in full or will fall short of the land tax revenue that would otherwise be collected (respondents 1 and 2).

The main sources of budget revenue are listed in Table 2:

Type of revenue	**Sum**
Income Tax for Individuals	4 780 000
Land tax	460 000
Tax revenue (total)	5 241 400
Sales of goods and services (total)	928 400
Grants (equalization fund, projects)	3 217 819
Mining rights fee	8 000
Fee for special water use	7 500
Environmental compensation for wind farms	103 805
Other operating income	134 694

Source: Saade Municipal Government

Saarde Municipality is large but sparsely populated. From a social perspective, the municipality is characterized by low natural population growth and an aging population. Based on the budget strategy, it can be concluded that despite stable revenue from core activities, investments may lead to a budget deficit and an increase in the debt burden. This, in turn, will affect the municipality's investment and financing capacity in the future.

3.4. Business and Economic Environment

According to data from Statistics Estonia, as of 2024, there are 583 business entities registered in Saarde Parish (sole proprietorships, limited liability companies, public limited companies, general partnerships, non-profit associations, foundations, and local government units). The largest number of companies (119) operate in agriculture, forestry, and fishing, followed by construction (69), wholesale and retail trade; repair of motor vehicles and motorcycles (40), and manufacturing (32). Saarde's economy operates primarily through service and goods-based enterprises, with the Coop Economic Cooperative serving as a major

employer. Together with local service companies and public sector transportation services, this forms a significant foundation for local employment and economic activity (see Saarde Municipal Council, 2025). The Saarde Municipality Development Plan (2026–2035) notes that a large proportion of businesses have no salaried employees or employ only 1–2 people, which corresponds to Estonia's overall business structure, where over 60% of businesses operate without employees and about one-fifth have a single employee. The largest employers and companies are Coop Kilingi-Nõmme Majandusühistu (food, construction, and industrial trade), OÜ Saarde Kommunaal (water and sewer lines, landscaping, snow removal, school transportation, rental properties), and Grossi Toidukaubad, also known as OG Elektra (retail).

Based on the focus of the analysis and the topics raised in the interviews, changes in local employment and the socio-economic situation are likely to occur primarily in sectors related to forestry. In addition to the sectors managed by RMK (forestry, nurseries), other companies operating in similar fields include OÜ Metsis (manufacture and resale of forestry machinery), Similis OÜ (wood industry), Iftar OÜ (forestry), and / OÜ Vasperg (forestry)**.**The municipality's development plan and available business registers list several other companies related to the wood industry, whose most recent financial reports—specifically for 2024—had not been submitted at the time of this study's completion. There are also several companies whose annual reports show very low turnover, or which have not been active in the forestry sector in recent years.

Available registry data indicate that some forestry-related companies have scaled back or ceased operations in recent years, but this study is unable to assess the reasons for these changes or link them to restoration activities. In addition to the above, the Saarde Erametsaühing MTÜ operates, engaging in auxiliary forest management activities.

Although the Saarde Municipality Development Plan (Saarde Vallavolikogu, 2025) states that forest and agricultural land provide a strong foundation for business in the relevant sectors, such specialization cannot be confirmed based on the available data. According to available and existing records, several businesses have ceased operations or significantly scaled back their activities in recent years. Identifying the specific reasons requires in-depth research, but claims of significant changes in the local socio-economic situation cannot be accepted, as the number of companies engaged in forestry-related activities within the municipality's territory is modest. There may be connections and impacts at the individual level and among companies that use local labor to carry out certain work tasks.

3.5. Brief Analysis of Forestry Notifications in Saarde Parish (2018–2024)

Forestry reports for Saarde Parish from 2018 to 2024 show that forestry activity in the region has been significant and highly variable, particularly in state-owned forests. Changes in clear-cutting and thinning volumes are clearly differentiated by ownership type: in private forests, clear-cutting volumes have generally decreased and stabilized at a moderate level, while in state-owned forests, logging volumes have fluctuated greatly from year to year, reaching a very high level again in 2024. Fluctuations in logging volumes in state-owned forests may be related to the timing of public procurement, market conditions, and economic factors, which affect the workload in state-owned forests more than in private forests; however, the exact extent of this impact cannot be determined based on local-level data. For

thinning operations, there is a general upward trend in private forests, while state forests show a period of decline through 2022 followed by a significant increase in volume in 2023–2024.

In terms of productivity (m^3/ha), clear-cuts in state forests show more stable trends (290–310 m^3/ha) compared to private forests, where productivity is more variable. This suggests differences in stand types, management practices, and age structures. The role of local government notifications is marginal and does not significantly affect the municipality's socio-economic landscape. Total harvest volumes (especially in state forests) may influence local labor demand, service sector activity, and tax revenue, depending on what proportion of the work goes to local businesses or workers. In summary, the forestry report dataset provides a robust and time-consistent foundation for analyzing the dynamics of forestry operations, estimating potential work volumes and productivity, and linking these to the local economy, tax revenue, and service needs. Furthermore, with a sufficient amount of comparative data, it is possible to apply the RCC framework and input-output logic to assess what proportion of forestry expenditures remains within the local economic area and what proportion flows out of the region.

3.6. The tourism sector in the municipality

There is no regular, destination-specific, and systematic statistical data set for the tourism sector in Saarde Parish (e.g., visitor, overnight stay, or occupancy figures), which makes it difficult to comprehensively assess the impact of the tourism economy. The lack of such key indicators makes it difficult to assess the impact of the tourism economy as well as to position the destination in a regional or national context. The municipality's own information channels do provide general tourism-related information: the official website lists eight accommodation establishments, and the municipal development plan lists 11 accommodation units, as well as attractions, leisure activities, and cultural and sporting events (see Saarde Municipal Government n.d.).

Strategically, the municipality's development plan addresses tourism as a development direction that supports the business environment, with the stated goal of creating "an environment that empowers entrepreneurship and tourism." At the same time, the municipality does not have an indicator-based system in place to monitor tourism as an economic sector, which means that the development goals are not supported by measurable baseline data.

The State Forest Management Centre (RMK), which manages a significant portion of the municipality's recreational and visitor infrastructure, has compiled an overview of the municipality's visitor management, describing the visitor infrastructure located in state forests, including hiking trails, campfire sites, and visitor attractions, as well as their maintenance and development activities. However, the overview does not include information on visitor numbers or the economic impact of tourism. Similar to the municipality's development plan, the RMK document focuses on the potential uses of recreational areas and the management of visitor load (RMK, 2024). Therefore, it is reasonable to conclude that despite the values associated with tourism and the visitor infrastructure managed by the RMK, tourism in Saarde Municipality is not a sufficiently measured sector, either administratively or

statistically, which in turn indicates its limited visibility from the perspective of local economic analysis and development activities.

Although there are several accommodation establishments operating in the municipality and it participates in tourism platforms, there is currently no unified tourism brand or conceptual framework that would describe the tourism sector's goals and position. However, it can be noted that in the planning of activities for Soomaa National Park (Kikepera Bog), Saarde Municipality has highlighted its potential (Soomaa…, 2020). Tourism planning has paid less attention to the municipality's territory as a unified hinterland for the city of Pärnu from a tourism perspective (Pärnu…, 2018). Based on the available information, Saarde Municipality functions more as a visitor destination based on events and recreational use rather than as a structurally developed tourism destination.

Based on the available information, it can be concluded that, despite the existing tourism infrastructure and the strategic directions outlined in the municipality's development plan, no significant conclusions can be drawn regarding the number of visitors to Saarde Municipality. A more precise interpretation of such results would likely require a more thorough study, which would address, among other things, potential changes should nature tourism opportunities expand within the municipality's territory or a clear vision for specialization emerge. The available evidence confirms that the region can be characterized as a rural area with low tourism pressure, where post-restoration visits are also expected to remain limited in scope and primarily linked to event organization or educational interest, rather than mass tourism.

4. Socioeconomic impacts

4.1. Mechanisms and Methodological Framework for Local-Level Socioeconomic Impacts

This chapter examines the three main types of restoration projects whose ecological and local socio-economic significance - particularly in terms of wetlands, watercourses, and floodplain meadows - was assessed by Strzęciwilk and Grygoruk (2025) have assessed as having significant ecological and local socio-economic importance, particularly in terms of wetlands, watercourses, and floodplain meadows, as well as the structural adaptation of forest communities, with a primary focus on conservation objectives. A comparison of European wetlands (n≈100 projects, 24 countries, 1996–2019) shows that the number and budgets of restoration projects have grown steadily since the beginning of the 21st century; in particular, the share of bog conservation and restoration has increased since 2016 (~75% of the sample) due to lower unit costs and high carbon sequestration potential. The LIFE program has played a central role in this: on average, approximately 60% of costs were covered by EU grants, with the remainder coming from national and local government/private/NGO sources (Strzęciwilk and Grygoruk, 2025).

Typically, the socioeconomic impact at the local level concerns where and how money is spent, and what proportion of spending remains in the region (*capture rate*). Direct impacts on the region during the post-construction period and as land use changes have likely been studied very little due to a lack of statistical data. However, estimates of socioeconomic impacts can be found in the implementation of some large infrastructure or tourism development projects. The direct impact of restoration funds is reflected in jobs, labor income, value added, and output, as well as through indirectly created jobs and consumption. Changes in the economic environment can also be measured by the growth in the number of businesses or in new sectors of activity (see Corradini and Vanino, 2022). Despite the fact that the impact of business growth has not yet been assessed, Cullinane, Thomas et al. (2024) confirm an increase in entrepreneurial activity, though this is measured through cash flows rather than changes in the number of firms.

In smaller and rural economic areas, indirect effects are often less significant, which increases the importance of local procurement and the origin of materials (Respondent 1). A practical impact assessment framework *could theoretically* be based on the RCC methodology (*Restoration Cost Collection)* and input-output metrics, but such an approach requires detailed data on cost categories and purchase locations (Cullinane Thomas et al., 2024), which is not currently collected in the context of Saarde Municipality. Therefore, when assessing local impacts, greater uncertainty must be taken into account, and the analysis should rely on interviews and existing general data (Respondents 1 and 2).

It is important to emphasize that, based on the existing analysis, the restoration of Kikepera under the WaterLANDS project does not involve the use of commercial forests, as the activities will take place predominantly on state-owned lands and protected areas, where regular commercial forest management does not occur anyway (Eestimaa Looduse Fond, 2025). Therefore, a decrease in revenue from forest management is not a direct or expected impact channel in the context of this analysis, as the restoration area is not a commercial forest and the work does not affect the regular forest management activities of private or local enterprises. Respondents 1 and 3 emphasized the loss of revenue from forestry at the central government level.

However, one must take into account the potential effects on the real estate market, albeit only temporarily, as previous international literature indicates that restoring the natural environment can increase the attractiveness of small areas, boost demand for real estate, and influence regional price levels (Good & Pindilli, 2022; Richardson et al., 2022). However, no corresponding empirical studies have been conducted in the Estonian context, so these results cannot be directly applied to Saarde Municipality, and the estimates remain hypothetical.

Given the location of the restoration area, the municipality's dispersed settlement pattern, and the structure of the service network, it is likely (based on interviews and municipal statistics) that the impacts of the real estate and service sectors in the context of WaterLANDS will manifest themselves primarily at the local level and to a limited extent. Since state-owned forests account for approximately 54% (57,251 ha) of Saarde Parish's territory, RMK's logging, maintenance, and nature conservation activities directly affect a large portion of the

parish's forested land and the economic activities associated with it. Consequently, fluctuations in RMK's workload have a potential impact on local services and subcontracting, depending on the extent to which work is performed locally or through nationwide service providers.

Since RMK regularly carries out logging, maintenance, forest improvement, and nature conservation work in state forests and contracts out a large portion of these activities, these operations can influence the employment of local workers and businesses. According to RMK data, approximately 6,500 people (including subcontractors) are employed in state forests across Estonia, meaning that fluctuations in the volume of work may also affect businesses associated with Saarde Parish and, consequently, the wage bill and local income tax revenue. However, this figure does not reflect the specific contribution to Saarde Parish. The local impact depends on what proportion of the work takes place in the parish and which companies are performing the work. The Estonian Fund for Nature (2025) has noted that certain restoration works may alter the nature or timing of traditional forestry operations, which could reduce the involvement of conventional service providers in individual work phases. This is not a general rule, but rather an observation specific to a particular project. According to Respondent 3, the potential economic impacts are rather unclear, as the scale of the procurements is nationwide and local companies have the same opportunities as those coming from further afield. There may, however, be impacts when carrying out smaller projects, where the scale and volume of the work are not attractive to companies coming from outside the region.

According to the Kikepera LKA and Soomaa National Park Water Regime Restoration Plan (Eestimaa Looduse Fond, 2025), activities to restore the water regime of bog areas are predominantly related to state-owned land and are in accordance with protection regulations and management plans. Therefore, the economic impact is likely to be felt primarily in construction and restoration work, monitoring, planning, and services—areas where local participation is possible. However, one prerequisite is the existence of companies and specialists in the relevant fields and their availability at various stages of the restoration work. Given Estonia's small size and the current scale of restoration work, however, it is not realistic to expect that every county or municipality would have its own companies specializing in restoration; rather, this activity is nationwide or concentrated around service providers in a few regions, who operate according to the location of the projects. Furthermore, the impact of restoration work is temporary (see Dechezleprêtre & Sato, 2017), and due to this temporary nature, it is difficult to predict future processes. The Saarde Municipality Comprehensive Plan SEA (2024) defines the spatial framework (green network, settlement pressure) within which economic impacts must be assessed – municipal decisions influence the conditions for infrastructure use and maintenance and may determine the extent to which local service providers (machinery, construction, materials) are involved (Hendrikson & Ko OÜ, 2024). No specific forecasts emerged from the survey of local respondents (respondents 1, 2, 3).

4.2. Key Findings on the Socio-Economic Impact at the Local Level in Saarde Parish

International empirical studies show that nature conservation and restoration efforts can be compatible with local economic vitality. An experimental panel study in New England

demonstrates that the expansion of protected areas is associated with a small but statistically significant increase in employment and labor force size, while housing occupancy rates, property prices, incomes, and population do not show negative effects (Sims et al., 2019). The positive impact is stronger in rural areas, where amenity values (nature, quality of the living environment, heritage, and recreational opportunities) support regional attractiveness (Castro-Arce & Vanclay, 2020). However, the impact is time-limited: increases in competitiveness and employment are primarily short-term and vary by sector (Dechezleprêtre & Sato, 2017). At the same time, the spatial pattern of socio-economic impacts depends heavily on proximity to urban areas: in addition to conservation and restoration activities, the private and public sectors generate jobs primarily near cities, while in remote rural areas, large nature conservation areas can support the growth of a convenience-based economy and so-called lifestyle entrepreneurship (Sims et al., 2019; Osti & Cicero, 2018).

In the Estonian context, similar dynamics are influenced by the shrinking labor force in rural areas, the spatial concentration of services, and population-attracting centers. Therefore, assessing the direct impact of revitalization projects in a region with a small population is complex: general national trends (outmigration, loss of services) and revitalization processes are intertwined.

Based on existing sources and available data, local economic impacts and their scope can be summarized in six points:

1. Direct economic impacts: scope of work, work phases, and local workforce: Restoration work, including hydrological interventions, maintenance and land improvement works, as well as monitoring related to fieldwork, may temporarily increase demand for machinery, transportation, materials, and technical labor. The extent of the impact depends primarily on whether local businesses can compete in tenders and provide services. There are few companies with the appropriate profile in Saarde Parish, and some of the existing service providers have scaled back their operations (Saarde Vallavalitsus, n.d.). RMK's subcontracting logic means that the majority of the work goes to nationwide contractors, so fluctuations in direct work volume only partially reach Saarde's economic sphere. Smaller work phases (e.g., access road repairs, maintenance work, monitoring) may, however, offer opportunities for local workers and micro-entrepreneurs.

2. Indirect impacts: supply chain integration and cost allocation: Indirect impacts arise through supply chains—such as fuel, maintenance, transportation, lodging, and catering—but depend crucially on the extent to which the region can "retain" a portion of these costs. The international RCC framework (Cullinane Thomas et al., 2024) shows that the share of costs remaining in the local economy increases when procurement procedures allow small businesses to compete and when local suppliers are present in the supply chain. Estonian procurement rules do not allow for local preference, so the impact on Saarde Municipality depends primarily on the volume of work, the suitability of work phases, and whether companies are located in or near the municipality. Given the low level of business activity, indirect impacts are inevitably more limited.

3. Risks related to the regulatory and administrative burden as perceived by businesses: According to businesses, one of the greatest sources of uncertainty is the potential increase in administrative burdens and costs associated with the implementation of the

Nature Restoration Regulation (EU 2024/1991). According to the views reflected in the ERR, there is a risk that interpretation difficulties and additional reporting or monitoring obligations could put pressure on the agriculture and forestry sectors, which often operate on small margins (Põlendik, 2026). The impact depends on the specific implementing rules: if obligations increase without a proportional compensation mechanism, this may be perceived as a hindrance to local business. This is particularly relevant in regions where the business structure is weak and investment capacity is limited.

4. Perceived risks at the local level: flooding, public engagement, and decision-making processes: In Saarde Parish, one of the main concerns is the uncertainty surrounding the restoration of the water regime. ERR's analyses (Raidla, 2025) and the municipality's appeals point to fears that restoration could increase the risk of flooding or affect residential areas and infrastructure. Expert assessments by the Environmental Agency (2025), however, indicate that the impact depends on the hydrological conditions of the specific area and is not unequivocally negative. Local uncertainty has been exacerbated by perceived shortcomings in previous explanatory and engagement processes. Therefore, the development of community support depends directly on how clearly and timely the risks, scope of impact, and mitigation measures are explained.

5. Spatial and demographic limitations of socio-economic impacts: Saarde Municipality is demographically vulnerable, meaning that its population is aging and the proportion of working-age residents is declining. This limits the availability of local labor and reduces the ability to benefit from the indirect economic impacts of restoration projects. Fewer residents mean a smaller consumer base for services and a smaller potential labor pool. If restoration projects are not linked to the recreational and leisure areas or tourism hubs highlighted in the municipality's development plan, the economic impact may remain spatially localized and small-scale.

6. Potential positive impacts: infrastructure, tourism, and natural values: Restored wetlands, habitats, and forest communities may, in the long term, enhance the region's ecological value and provide opportunities for the development of educational, cultural, and nature-based tourism. Such impacts will manifest gradually and depend on the integration of local investments in infrastructure and services (e.g., trails, monitoring points, access). The comprehensive plan of Saarde Municipality emphasizes the development of recreational and leisure areas and a cohesive network of green spaces (Hendrikson & Ko, 2024). The planned restoration of the Luiga forest hut is an example of the potential of a small but targeted intervention to provide added value to the community and support the municipality's development priorities.

In summary, the local socio-economic impact in Saarde Parish is shaped by the combined effect of several factors: the nature of the work, the business structure, the demographic situation, the spatial scope of supply chains, and community expectations. Direct impacts remain modest, as a large portion of the work is carried out on state-owned land and with nationwide service providers. Indirect impacts depend on the extent to which costs and work volume can be linked to local businesses and services. Potential positive impacts, such as ecological added value, tourism potential, and quality of the living environment, require targeted planning and clear, reliable communication with the community.

4.3. What is the local impact of the restoration projects being carried out?

When assessing the impacts associated with and resulting from restoration projects, this analysis identifies three main perspectives. For none of the factors identified can numerical values be provided; rather, assessments can only be described:

1. Direct impact: revenue generated by restoration work (e.g., construction, monitoring) and the procurement of local services, which may preserve or create jobs (e.g., machine operators, monitoring teams). However, this impact is largely limited.
2. Indirect effects: Purchases made during construction or through the supply chain (fuel, spare parts, aggregate, plant material, equipment rental, etc.) and the use of local services (retail, services) amplify the initial expenditures. Cullinane Thomas et al. (2024) have described the magnitude of this impact as the proportion of local purchases and procurement determining the size of the multiplier effect.
3. According to international studies, restored wetlands and habitats can increase a region's value in terms of nature excursions, educational activities, and tourism, but the extent of this impact depends on the development of local access infrastructure and services. According to Sims et al. (2019), no negative patterns have emerged in the context of restoration regarding place of residence or income. In rural areas, these effects may lead to increased employment, particularly in rural areas.

The positive effects may not fully offset any potential negative effects, as the balance of impacts depends on the region's economic structure, business activity, and the availability of local labor. Given local specificities, these impact patterns cannot be directly applied to the Estonian context. For instance, several domestic tourism regions have been developed in Estonia, which have gained a significant competitive advantage through existing investments and established tourism-supporting infrastructure. The recognition of the destination and its services is also important.

Although the launch of environmentally friendly services has been initiated by investments from the central government (including protected area managers, etc.) or local governments in various infrastructure elements, the final development of the service is predominantly funded by private investment. Therefore, it is advisable to assess the availability of grants and loan options more broadly. It is certainly necessary to map out the opportunities and areas for joint cooperation between the state, local governments, and businesses.

4.4. Relationship to the European policy framework

The EU Nature Restoration Regulation sets binding restoration targets, emphasizing the economic and social benefits of restoration (for the climate, risk prevention, and food security) and improved connectivity. This framework supports the development of long-term local impacts: reduced flood risk, carbon sequestration, the value of green space, and ecosystem services are prerequisites for improving entrepreneurship and quality of life in rural areas (European Commission, n.d.).

The socio-economic impact also includes businesses' repeated emphasis on the need for a clearer, more proportionate, and more flexible national recovery plan. According to business organizations, the biggest problem is that Estonia has not yet drafted a recovery plan, which

means there is no overview of the actual scale of potential costs and administrative burdens, and there is a risk that implementing the plan will prove unreasonably expensive or bureaucratic (see Põlendik, 2026).

Consequently, the requirements set out in the recovery plan may, in some respects, conflict with the economic expectations of the forestry and agricultural sectors, particularly if the implementation framework fails to take into account local conditions, food security, or national security considerations.

5. Limitations of local impact assessments

The assessment of local economic impact is a practical tool based on input-output logic that describes how the costs of restoration projects "circulate" through the economy and are passed on through supply chains to jobs, value added, and tax revenue. At the same time, this approach entails significant data and methodological limitations, and a conscious consideration of these limitations is a prerequisite for drawing reliable conclusions (Cullinane Thomas et al., 2024).

5.1. Data Availability and Quality

A quantitative assessment of local impacts (e.g., employment, local value added, indirect and direct impacts) requires detailed data on costs and places of purchase: what activity took place, who carried it out, which economic sector the costs belong to, where purchases were made (municipality/county/country), and the amount of labor costs and total hours worked.

Internationally, it is recommended to collect costs by activity type (planning, execution, materials, legal) and link them primarily to EMTAK/NACE codes, which allows costs to be allocated to sectors used in input-output models and to assess direct, indirect, and induced effects (see Cullinane Thomas et al., 2024). The RCC (Restoration Cost Collection) framework mandates the inclusion of information on the point of purchase and the level of the supply chain (manufacturer/retail/wholesale) to assess the proportion of euros remaining in the local economy; RCC also emphasizes the separate documentation of labor costs and working hours to derive job-years (Cullinane Thomas et al., 2024).

Without such details, uncertainty increases and there is a risk of overestimating or underestimating local impacts; Sukhdev et al. (2010) therefore recommend implementing a multi-level assessment (monetary + non-monetary) and sensitivity (or even satisfaction; see Scannell and Gifford, 2017) analyses in conjunction with local monitoring to avoid arbitrary value transfers.

Furthermore, in the context of land areas (e.g., wetlands, forests, etc.), the reliability of economic analysis is supported by the fact that a comparison of costs and benefits can be carried out on a per-unit-area basis if sufficiently standardized cost data are collected and linked to spatial (location) and ecological condition metadata, as demonstrated in the Scottish case study (Glenk and Martin-Ortega, 2018).

5.3. Recommendations for Using the Datasets

Adopt an RCC-type cost collection form that requires data on costs by activity type, sector code (EMTAK/NACE/NAICS), place of purchase (municipality/county/country), supply chain level, labor costs, and hours worked. This will later enable input-output analysis (e.g., IMPLAN logic) and assessment of the capture rate (costs remaining in the region) (Cullinane Thomas et al., 2024) and provides a basis for a cost-benefit comparison at the unit-area level (Glenk and Martin-Ortega, 2018). This is based on the premise that (restored) wetlands directly provide critical ecosystem services such as carbon sequestration, water quality improvement, and habitats for biodiversity.

5.4. Methodological Assumptions and Uncertainty

Input–output models are based on the assumption that production coefficients are fixed and economic relationships are linear: every euro of expenditure generates a proportional impact according to sectoral patterns derived from central government accounts (Cullinane Thomas et al., 2024). However, such a framework does not account for changes in prices, wages, supply chains, or local purchasing behavior. Consequently, the accuracy of the results depends to a large extent on the quality and timeliness of the inputs used (Sukhdev et al., 2010).

A significant source of uncertainty is the geographical scope of the analysis. The smaller the area under assessment (municipality vs. county vs. country), the greater the risk of so-called "economic leakage": part of the project costs are incurred outside the analysis area, meaning less money "circulates" within the local economy. At the same time, indirect and induced effects decrease for smaller spatial units, as the local economy's internal supply chains are short and dispersed (Cullinane Thomas et al., 2024). Therefore, the regional economic area must be clearly defined, and assumptions regarding potential leakage points must be transparently documented.

Uncertainties are also associated with the transfer of ecosystem service values (benefit transfer). International average indicators may prove overly generalizing in specific habitats and regions, which is why the TEEB approach (*The Economics of Ecosystems and Biodiversity*) recommends using a multi-level assessment that combines monetary and non-monetary values and prioritizes the local ecological and socio-economic context (Sukhdev et al., 2010). TEEB distinguishes three levels of assessment:

1. Recognizing value – interpreting ecological, cultural, and social meanings.
2. Demonstrating value – using economic assessments to support decision-making, while taking into account their context-specific nature and methodological limitations.
3. Valuing nature – designing policy instruments that enable the values of natural capital to be effectively taken into account in decision-making.

TEEB emphasizes that transferring values from one region to another is justified only if habitat types, ecological functions, social valuation, and economic context are sufficiently similar, and if sensitivity analysis is used to identify outliers (Sukhdev et al., 2010; UNEP, 2018). Therefore, local monitoring data and adapted assessment models are preferred over international general indicators.

It is precisely this second level of assessment—adapted to the local context—that is applied in Section 2.6 of the Kikepera–Soomaa Restoration Plan. The ecosystem service assessments have been compiled based on local condition data, Natura habitat types, the impact of drainage, connectivity, and landscape structure. The EU's nationwide ecosystem services mapping has been used, which allows for a comparison of the service provision in the Kikepera Nature Reserve, Saarde Municipality, and the Estonian average, and provides a basis for assessing economic impacts in a manner consistent with the TEEB principle of using locally calibrated and spatially accurate valuation methods. This reduces the risk of overestimation and underestimation and ensures that the economic analysis is based on the actual ecological functionality of the areas, rather than on generalized coefficients.

5.5. International Comparison: Economic Impact and Ecological Logic

BenDor et al. (2015) show that ecosystem restoration should not be viewed merely as a cost resulting from environmental regulations or the remediation of ecological damage, but rather as an activity that creates significant economic opportunities, including job creation, revitalization of local businesses, and substantial economic output. At the same time, an experiment conducted by Sims et al. (2019) showed that nature conservation (public + private sector) is associated with a small but statistically significant increase in employment and labor force size; the impact on migration to the region, income, and population was not significantly different from zero. The impact observed in the study was most evident in rural areas where factors related to the amenity-based economy and visits or tourism were present, but this pattern cannot be automatically generalized to all regions.

Based on the international literature (e.g., Chi and Marcouiller, 2013; Herslund, 2019), a comfort-based economy can develop in regions where natural and cultural characteristics create conditions for the emergence of new services, forms of entrepreneurship, or opportunities for visiting. The OECD (1999) describes rural amenities as natural and cultural factors (e.g., landscapes, water bodies, forests, village environments, heritage elements) that can enhance a region's attractiveness. The list is illustrative, not exhaustive. Their value manifests itself in use value (visitation, recreation, living environment) and non-use value (also known as non-consumer value, *non-use value*) such as the existence of a place, the significance of a site, or heritage value.

A convenience-based economy emerges when such natural and cultural characteristics begin to support the utilization of new resources or expanding activities (see Chi and Marcouiller, 2013): for example, leisure and lifestyle entrepreneurship (see Herslund, 2019) as well as nature tourism and place-based services (including services related to landscape and environmental conservation). Rural amenities play a significant role in attracting people to settle in rural areas (e.g., remote workers). Sims et al. (2019) emphasize that it is precisely such "place-based amenities" that can boost population and employment growth in rural areas, particularly where nature conservation creates an attractive and stable environment for the emergence or development of small service and tourism businesses.

Therefore, the findings of Sims et al. (2019) suggest that combining different types of conservation and restoration activities across various distance zones can support the spatial functioning of the economy: in areas close to cities, conservation enhances the attractiveness

of the living environment, while in more remote rural areas, it supports the growth of a tourism- and amenity-based economy.

6. Summary of Economic Impacts

In general, it can be said that assessing economic impacts is difficult because there is a lack of sufficiently accurate baseline data on local-level costs and revenues. At the same time, existing observations suggest that, under the current public procurement procedures and in today's market situation, the economic impacts stem more from the functioning of the procurement system and market instability (e.g., project volumes, and oversupply, scarcity of bidders) rather than directly from the changes brought about by environmental restoration itself. Since procurement rules and market-based practices may limit the opportunities for local businesses and residents to participate (e.g., due to qualification requirements, the volume of work, or deadlines), the majority of the work often goes to external contractors. This, in turn, means that a significant portion of potential employment and tax revenue does not remain in the local economy.

Saarde Parish faces significant demographic vulnerabilities: the population is aging and declining, which also reduces the availability of the local labor force. This means that even if the value of ecosystem services increases and environmental restoration activities generate direct impacts, their indirect economic impact may remain more modest, as the number of potential employees and consumers is smaller than in more densely populated areas

In the long term, the restoration of wetlands may increase the region's appeal for nature excursions, scientific fieldwork, and educational tourism, but the impact generally manifests gradually and depends largely on infrastructure development and the deliberate shaping of usage opportunities. The comprehensive plan of Saarde Municipality emphasizes the development of recreation and leisure areas (PV) and a coherent network of green spaces, which should support nature-related uses and create the conditions for nature-based recreation and tourism activities (Hendrikson & Ko, 2024). In addition, the municipality's development plan for 2026–2035 emphasizes the need to diversify the municipality's economy and develop local services, including tourism-related activities, which aligns with the potential for wetland restoration and creates the conditions for planning new visitor amenities and access solutions (Saarde Vallavolikogu, 2025).

The planned restoration of the Luiga forest hut, combined with purposefully designed yet minimalist infrastructure (such as a nature trail), could serve as an additional anchor for the area's untapped potential and support the community (see Salm and Kohv, 2025). Such small but purposeful investments align both with the comprehensive plan's treatment of land areas designated for recreation and leisure and with the development vision, which values an accessible and high-quality natural environment as a competitive advantage for the region. According to the comprehensive plan of Saarde Municipality, it is reasonable to designate other notable sites in addition to valuable landscapes (Hendrikson & Ko, 2024). Some direct

ecological effects of wetland restoration (e.g., stabilization of the water regime) may manifest in the short term, while habitat restoration and related economic impacts develop more slowly. Economic and visitor impacts typically develop more slowly and depend not only on the local government's planned uses but also on access conditions, supporting services, and regional investments. If these opportunities align with the third strategic direction of the municipality's development plan, the likelihood increases that restored areas will begin to attract visitors and support local service providers.

When assessing the local economic impact, it is important to apply a multi-level and systematic assessment of ecosystem services, in addition to tourism and other activities that support regional development. The final technical report on the monetary valuation of the benefits of Estonia's terrestrial ecosystems shows that the non-monetary benefits of ecosystem services (flood mitigation, recreational opportunities, and quality of the living environment) are quantifiable both in biophysical units and in monetary value, which allows them to be integrated into economic analysis on an equal footing with market-based impacts (Helm *et al.*, 2023). This approach helps highlight benefits that are often underestimated in conventional input–output models and creates a stronger foundation for assessing the socio-economic cost-effectiveness of restoration activities.

In addition to scientific research, the results of ELME2 have also been incorporated into a national map-layer-based system, which enables the use of assessed ecosystem services in planning, monitoring, and evaluation processes, as well as in regional decision-making. According to Section 2.6 of the restoration plan, the overall condition of ecosystems, connectivity, and provision of habitat benefits in the Kikepera Nature Reserve are higher than the average for Saarde Parish and Estonia (Eestimaa Looduse Fond, 2025). The restoration area has additional potential to provide strong regulatory, habitat, and cultural services, which in turn create the foundation for economic benefits regardless of direct market volume. The use of ELME map layers in local-level planning allows for an understanding of the role of restoration in terms of regional development and risk management (e.g., drought and flood risks) and places restoration activities on the same level as other economic development decisions.

When assessing socio-economic impacts, consideration should also be given to opportunities to utilize funding measures that support entrepreneurship and regional development, which may increase the local benefits derived from restoration activities. Restoration does not automatically generate benefits; however, it can increase the willingness and capacity of local governments and businesses to utilize existing programs, provided that the needs arising from restoration are strategically defined and linked to the municipality's development plan. From the municipality's perspective, even if the development needs arising from restoration (infrastructure, services, tourism, monitoring, access) are specifically linked to grant criteria or taken into account through the updating of the LEADER area strategy or the amendment of the Pärnu County regional plan.

The available opportunities may include both business and community grants offered through PRIA (e.g., investments in small businesses, measures supporting local food production and jobs, and the development of village and community infrastructure) as well as the LEADER region strategy's action lines, which enable support for nature and tourism infrastructure, the

development of micro-enterprises, regional services, and the strengthening of local identity (see Pärnu Lahe Partnerluskogu n.d.).

From a revitalization perspective, the use of such instruments can only be effective if the resulting needs and opportunities are clearly defined at the municipal level. Therefore, it is worth considering the development or adaptation of measures tailored to the target area, including discussions among the local government, businesses, and the community to determine which infrastructure and service solutions (e.g., trails, small visitor amenities, guided tours, maintenance, etc.) would support the diversification of local businesses and strengthen the municipality's ability to benefit from restoration activities.

6.1. Practical policy recommendations

1. Implementation of an RCC-based data collection system (at the central government level).

A unified data collection framework (e.g., an RCC-type approach) could support a more accurate assessment of the costs and impacts of restoration projects, as it would allow for the collection of data structured by activity type, place of purchase, and labor costs. Such a dataset makes it possible to estimate *the capture rate*, i.e., what proportion of costs circulates within the local economy and how much flows out.

The use of a similar standardized reporting methodology could also be beneficial for other forestry and land improvement activities, as it would allow for the assessment of their regional economic impact on a uniform basis. Therefore, they can directly influence local employment, the role of businesses in the supply chain, and the region's economic development. The application of a uniform methodology would allow for a comparison of the economic impact of restoration work with other land-use practices (e.g., logging, thinning, and the renewal of land improvement systems), identifying which activities have the greatest local contribution and where economic "leakage" occurs.

If data collection is standardized and made comparable, it will be possible to apply input-output models that provide quantitative estimates of both direct and indirect effects on the regional economy and lay the groundwork for consistent comparisons across different regions of Estonia (see Cullinane Thomas et al., 2024).

2. Defining the economic area across multiple spatial levels (e.g., municipality, county, or country) helps to identify impacts more accurately, as in smaller regions there is a greater likelihood that some costs and impacts will extend beyond the scope of the analysis.

An impact assessment must clearly define the area within which the impact is measured. The smaller the economic area, the greater the proportion of external spillovers. Therefore, the impact must be assessed at least at two levels so that macroeconomic and local impacts can be distinguished. Defining the economic area helps avoid situations where the potential of local impacts is overestimated or underestimated (Sukhdev et al., 2010; Cullinane Thomas et al., 2024).

3. Diversifying local business and strengthening supply chains.

Saarde Municipality's modest business structure may limit the local impact of restoration work, particularly if the scope or requirements of the work do not align with the capabilities of local businesses. Therefore, it is important to plan activities in cooperation with the local government, the community, and businesses that support the expansion of local service provision (Saarde Vallavolikogu, 2025). Potential directions include:

- nature tourism and event tourism,
- specialized services (monitoring, landscaping, equipment maintenance),
- support services (transportation, lodging, meals),
- New service needs arising alongside Rail Baltica and other major developments.

4. The gradual adaptation of the principle of local procurement ("Ankurhankete") to the Estonian context.

International practice (e.g., BenDor et al., 2015) shows that linking supply chains with local service providers increases multiplier effects. In Estonia, it is not possible to require the use of only local companies in public procurement, but local governments and national administrative agencies can still divide contracts into lots that allow smaller companies to compete or prioritize qualification requirements that do not exclude local bidders. This approach may also be applicable in Saarde Parish, as many procurements are small- or medium-scale and may align with the capabilities of local service providers.

5. Valuation of ecosystem services using indicators based on local monitoring.

When transferring international estimates (*benefit transfer*), it is advisable to assess the extent to which habitat types, ecological status, and the socio-economic context overlap, in order to avoid the risk of over- or underestimation. Local monitoring (e.g., water regime, recreational use, access, ecological condition) and linking financial and non-financial benefits (e.g., flood mitigation, recreational opportunities, quality of the living environment) to the Saarde context increases the reliability of the analysis (Sukhdev et al., 2010; UNEP, 2018). The ELME2 methodology provides a strong foundation here.

6. Integrating socio-economic impacts into the mandatory framework of the EU Recovery Regulation.

EU Regulation 2024/1991 requires stakeholder engagement and an assessment of socio-economic impacts. It might be useful to consider establishing a small local stakeholder working group to coordinate information needs, discussions, and development decisions arising from the restoration, with the aim of:

- identify local business opportunities;
- assess which restoration activities offer realistic economic or social benefits;
- align the restoration with the priorities of the municipality's development plan;
- ensure the flow of information between the local and national levels.

7. Targeted use of support measures and funding channels.

Since Saarde's economic structure is rather weak, the impact will depend on whether existing grants and programs can be effectively utilized. Here are a few recommendations:

1. Better utilization of LEADER and regional investment grants for infrastructure development (e.g., trails, small-scale visitor infrastructure);
2. Utilizing PRIA grants for business development, including measures for local entrepreneurs;
3. assessment of potential synergies in services and infrastructure for Rail Baltica;
4. the use of government support programs to combine environmental protection with economic development (e.g., climate measures, green transition investments).

Given that Saarde Municipality has already participated in studies conducted as part of the international WaterLANDS project, it would be prudent to plan Phase II studies in collaboration with universities and applied research centers. The aim of these studies would be to assess the long-term environmental, social, and economic impacts of restoration work and to link the results to local development planning. Such an approach would enable the creation of data-driven scenarios, support the integration of funding measures, and help shape a comprehensive nature-based development strategy for Saarde Municipality.

8. Strengthening risk management and communication at the local level.

The socioeconomic impact also depends on how well the restoration objectives and potential risks (including changes in flood and water regimes) are understood. Clear communication, public consultations, and transparent risk assessments help reduce conflicts and strengthen public support.

Summary

An assessment of the local socio-economic impact confirms that, based on existing data and the economic structure, the impact of the restoration activities at the Saarde Municipality level is likely to be modest. The extent of the impact depends primarily on the details of the cost categories (including sector- and location-specificity), methodological assumptions (fixed coefficients, linear relationship), and the proportion of expenditures that remain within the local economy. International frameworks (RCC; TEEB) offer solutions for the standardized collection of costs, the definition of regional scope, the use of sensitivity analysis, and the local monitoring of ecosystem services, which would help to develop more accurate estimates in the future.

Based on the available data, it appears that the direct socioeconomic impacts in Saarde Parish may be modest, as restoration work is taking place primarily on state-owned land and a large portion of the technical work is being carried out by nationwide service providers. The extent of the impact, however, depends on the volume of specific work and local participation. The local economy's supply chain is modest in scope and there are relatively few businesses, so the impact may be smaller than in regions with more service providers and labor. This trend aligns with patterns observed in international studies (e.g., Sims et al., 2019; Cullinane Thomas et al., 2024), which indicate that in smaller rural areas, the magnitude of economic impact depends largely on local service provision and labor availability.

Economic potential may manifest itself primarily in the long term and indirectly, especially if restored ecosystems are linked to the development of infrastructure, access, and services that support the quality of the living environment and create opportunities for educational and recreational services. These can support local services if Saarde Municipality is able to link these development opportunities to the municipality's development plan and create infrastructure that facilitates small-scale growth in nature, educational, and event tourism.

Potential opportunities are also linked to other major development projects, particularly Rail Baltica and the potential uses of the intermediate station, which could strengthen the region's accessibility and logistical position. At the same time, it is difficult in the current situation to assess the extent to which these developments could amplify the socio-economic impacts resulting from the recovery, as the magnitude of the impact depends largely on the absorptive capacity of the existing business structure and the targeted use of future support programs.

This research is supported by the international scientific literature: Sims et al. (2019) show that conservation and restoration activities can be consistent with local economic growth and support employment, particularly in rural areas, while BenDor et al. (2015) highlight the nationwide economic potential of the restoration sector. EU Regulation 2024/1991 establishes a mandatory policy framework, the effective implementation of which requires robust data, local impact assessments, and stakeholder engagement (Hiraishi et al., 2014; European Commission, 2024).

In summary, it can be said that the local impact of restoration activities at the level of Saarde Municipality is small or moderate given the current economic structures, and depends to a large extent on how the local government, the community, and businesses are able to link the development opportunities arising from restoration to the development of existing resources, support mechanisms, and infrastructure.

The issue of a potential decline in revenue from forestry requires separate consideration and can already be measured as a result of various processes. Saarde Municipality does not receive direct revenue from the forestry sector, as local governments do not receive either logging revenue or RMK's operating revenue. Therefore, the expansion of restoration activities in Kikepera or on other state-owned lands does not directly reduce the municipality's revenue base, as, according to available data, the forests in the restoration areas were not a source of revenue for the local government in the past either. An indirect impact may occur only if the workload of local businesses decreases, and with it, the income tax revenue from some employees living in Saarde Municipality.

Based on interviews and RMK's past procurement practices, a large portion of the logging and forest management services carried out in state forests are provided by nationwide service providers. The extent of local companies' participation depends on the volume, timing, and qualification requirements of the work, which means they may not compete in all procurements. For this reason, the direct financial loss to the municipality resulting from changes in the forestry sector is estimated to be insignificant, and the potential impact is more likely to manifest as a decrease in the workload of individual local businesses rather than a structural change in the municipality's revenue base.

References

Anger-Kraavi, A. (2026). *Looduse hävitamisest looduskaitse sildi all.* ERR Arvamus. https://www.err.ee/1609902394/annela-anger-kraavi-looduse-havitamisest-looduskaitse-sildi-all

Anzani, A. (2020). *Mind and places: A multidisciplinary approach to the design of the contemporary city.* Springer Nature.

BenDor, T., Lester, T. W., Livengood, A., Davis, A., & Yonavjak, L. (2015). Estimating the size and impact of the ecological restoration economy. *PLOS ONE, 10*(6), e0128339.

Castro-Arce, K., & Vanclay, F. (2020). Transformative social innovation for sustainable rural development: An analytical framework to assist community-based initiatives. *Journal of Rural Studies, 74*, 45–54.

Corradini, C., & Vanino, E. (2022). Path dependency, regional variety and the dynamics of new firm creation in rooted and pioneering industries. *Journal of Economic Geography, 22*(3), 631–651.

Dechezleprêtre, A., & Sato, M. (2017). The impacts of environmental regulations on competitiveness. *Review of Environmental Economics and Policy, 11*(2), 183–206. https://doi.org/10.1093/reep/rex013

Eestimaa Looduse Fond, Tartu Ülikool, RMK, & WaterLANDS projekt. (2025). *Kikepera looduskaitseala ja Soomaa rahvuspargi veerežiimi taastamiskava* (2. versioon). WaterLANDS projekt. https://drive.google.com/file/d/1Qo8eHNIgAEhkhpP4g8SDcYlUTUC2Dlis/view

Eesti Vabariigi Valitsus. (2024, 10. mai). *Valitsus kiitis heaks ja saadab parlamenti maamaksu seaduse muudatused.* https://www.valitsus.ee/uudised/valitsus-kiitis-heaks-ja-saadab-parlamenti-maamaksu-seaduse-muudatused

Erametsakeskus. (2018). *Metsamajanduse lisandväärtus ja maksutulu 2007–2017.* Erametsakeskus.

Ernst & Young Baltic AS, & Eesti Metsa- ja Puidutööstuse Liit. (2024). *Metsa- ja puidusektori sotsiaalmajanduslik mõju 2022. aastal.* https://empl.ee/wp-content/uploads/2024/05/EY_EMPL_majandusmojud_2022_final.pdf

ERR. (2024). *President kuulutas välja maamaksuseaduse muudatused.* https://www.err.ee/1609384487/president-kuulutas-valja-maamaksuseaduse-muudatused

European Commission. (2022, June 22). *Proposal for a regulation of the European Parliament and of the Council on nature restoration* (COM(2022) 304 final). Publications Office of the European Union. https://environment.ec.europa.eu/publications/nature-restoration-law_en

European Commission. (2024, August 15). *Nature Restoration Law enters into force.* https://environment.ec.europa.eu/news/nature-restoration-law-enters-force-2024-08-15_en

European Commission. (n.d.). *Nature Restoration Regulation.* https://environment.ec.europa.eu/topics/nature-and-biodiversity/nature-restoration-regulation_en

Glenk, K., & Martin-Ortega, J. (2018). The economics of peatland restoration. *Journal of Environmental Economics and Policy, 7*(4), 345–362.

Good, A., & Pindilli, E. (2022). Estimating the effect of tidal marsh restoration on housing prices: A hedonic analysis in the Nisqually National Wildlife Refuge, Washington, USA. *Land, 11*(9), Article 1432.

Günther, A., Barthelmes, A., Huth, V., Joosten, H., Jurasinski, G., Koebsch, F., & Couwenberg, J. (2020). Prompt rewetting of drained peatlands reduces climate warming despite methane emissions. *Nature Communications, 11*(1), Article 1644.

Heimola, A. (2021). *Metsamuutuste tuvastamine ja analüüs Saarde vallas…* Bakalaureusetöö, Eesti Maaülikool. Eesti Maaülikooli digitaalarhiiv.

Helm, A., Kull, A., Kiisel, M., Poltimäe, H., Rosenvald, R., Veromann, E., Reitalu, T., Kmoch, A., Virro, H., Mõisja, K., Nurm, H.-I., Prangel, E., Vain, K., Sepp, K., Lõhmus, A., Linder, M., Otsus, M., & Uuemaa, E. (2023). *Eesti maismaaökosüsteemide hüvede (ökosüsteemiteenuste) majandusliku väärtuse üleriigiline hindamine ja kaardistamine: Tehniline lõpparuanne.* Tartu Ülikool & Eesti Maaülikool.

Hendrikson & Ko. (2024). *Saarde valla üldplaneeringu keskkonnamõju strateegilise hindamise aruanne* (Versioon 11.2024). OÜ Hendrikson & Ko.

Hiraishi, T., Krug, T., Tanabe, K., Srivastava, N., Baasansuren, J., Fukuda, M., & Troxler, T. G. (2014). *2013 supplement to the 2006 IPCC guidelines for national greenhouse gas inventories: Wetlands.* IPCC.

IUCN European Regional Office. (2024). *EU Nature Restoration Regulation—Briefing* (August 2024). https://iucn.org/sites/default/files/2024-08/iucn-briefing-eu-nature-restoration-regulation-final.pdf

Juutinen, A., Artell, J., Iivonen, S., & Tolvanen, A. (2024). *Socioeconomic impacts of the restoration of peatlands and small water bodies.* Natural Resources Institute Finland.

Kaimre, P. (2022). *Metsamajanduslike tegevuste maksumus 2021/2022. aastal.* Eesti Maaülikool.

Keskkonnaagentuur. (2026). *EELIS – Eesti looduse infosüsteem* (andmed seisuga 31.01.2026).

Keskkonnaagentuur. (2025). *Reiu jõe hüdroloogilise režiimi ja Kikepera looduskaitseala taastamise mõju Surju piirkonna üleujutusriskidele.*

Keskkonnaagentuur. (2025). *Raieteatised: Saarde vald 2018–2024* [andmestik]. Fail „teatised_saarde_2018_24.xlsx“.

Kliimaministeerium. (2024, 2. veebruar). *Eesti jätkab looduskaitseliselt väärtuslike märgalade taastamistöid.*

https://kliimaministeerium.ee/uudised/eesti-jatkab-looduskaitseliselt-vaartuslike-margalade-taastamistoid

Looduskaitseseaduse ja metsaseaduse muutmise seaduse eelnõu. (2025). https://eelnoud.valitsus.ee/main/mount/docList/50c3eba6-e21f-4ee0-851f-4e42a878002b

Maran, T. (2025, 12. november). *Koloniaalhõnguline uus metsaseadus.* ERR Arvamus. https://www.err.ee/1609856925/tiit-maran-koloniaalhonguline-uus-metsaseadus

Metsaseadus. (2006). Riigikogu. https://www.riigiteataja.ee/akt/742707

Osti, L., & Cicero, L. (2018). Tourists' perception of landscape attributes in rural tourism. *Worldwide Hospitality and Tourism Themes, 10*(2), 211–221.

Põlendik, K. (2026). *Ettevõtjad hoiatavad looduse taastamiskava suurte kulude eest.* ERR. https://www.err.ee/1609899227/ettevotjad-hoiatavad-looduse-taastamiskava-suurte-kulude-eest

Pärnu Lahe Partnerluskogu. (n.d.). *Toetused.* https://dev.plp.ee/toetused/

Pärnu maakonna planeering: Seletuskiri. (2018).

Raidla, K. (2025). *Saarde valla elanikes tekitab soostamisplaan üleujutushirmu.* ERR. https://www.err.ee/1609665848/saarde-valla-elanikes-tekitab-soostamisplaan-uleujutushirmu

Retel, B. (2025, 15. detsember). *Kikepera juhtum toob päevavalgele ohtliku topeltstandardi.* ERR Arvamus.

Richardson, M., Liu, P., & Eggleton, M. (2022). Valuation of wetland restoration: Evidence from the housing market in Arkansas. *Environmental and Resource Economics, 81*(3), 649–683.

Riigikogu. (2024). *Maamaksuseadus* (RT I, 30.06.2024, 5). https://www.riigiteataja.ee/akt/130062024005

Riigimetsa Majandamise Keskus. (2024). *Riigimetsa terviktutvustus Saarde valla territooriumil.* https://media.rmk.ee/files/Saarde_valla_riigimets.pdf

RMP/Geenius. (2024). *Omavalitsustele anti suurem otsustusõigus maamaksu määramisel.* https://rmp.geenius.ee/maksud/maamaks/valitsus-kiitis-heaks-ja-saadab-parlamenti-maamaksu-seaduse-muudatused

Rohevõrgustiku planeerimisjuhend. (2018). Keskkonnaagentuur. https://planeerimine.ee/juhendid-ja-uuringud/rohevorgustik/

Räsänen, A., Blom, A., Korhola, A., & Ojansuu, R. (2023). *Estimates for peatland restoration needs in Finland.* Finnish Environment Institute.

Saarde Vallavalitsus. (n.d.). *Ettevõtted: Metsamajandus ja puidutööstus.* https://saarde.ee/ettevotted#Metsamajandus%20ja%20puidut%C3%B6%C3%B6stus

Saarde Vallavolikogu. (2025). *Saarde valla arengukava 2026–2035.* Riigi Teataja. https://www.riigiteataja.ee/aktilisa/4250/9202/5001/Lisa_1_Saarde_valla_arengukava_%202026_2035.pdf

Salm, J.-O., & Kohv, M. (2025). *Kikepera taastamistööd eramaid ei mõjuta.* ERR. https://www.err.ee/1609888711/juri-ott-salm-ja-marko-kohv-kikepera-taastamistood-eramaid-ei-mojuta

Scannell, L., & Gifford, R. (2017). Place attachment enhances psychological need satisfaction. *Environment and Behavior, 49*(4), 359–389.

Sims, K. R. E., Thompson, J. R., Meyer, S. R., Nolte, C., & Plisinski, J. S. (2019). Assessing the local economic impacts of land protection. *Conservation Biology, 33*(5), 1035–1044.

Soomaa säästva turismi strateegia 2020–2025. (2020). https://kaitsealad.ee/sites/default/files/inline-files/Soomaa%20säästva%20turismi%20strateegia%202020-2025_14012020.pdf

Strzęciwilk, K., & Grygoruk, M. (2025). Restoration is an investment: Comparing restoration costs and ecosystem services in selected European wetlands. *Journal of Water and Land Development, 64*(I–III), 221–229.

Sukhdev, P., Wittmer, H., Schröter-Schlaack, C., Nesshöver, C., Bishop, J., ten Brink, P., … Simmons, B. (2010). *The Economics of Ecosystems and Biodiversity: Mainstreaming the economics of nature—A synthesis.* United Nations Environment Programme.

Tilk, R., & Kruusmaa, E.-K. (2022). *Tulevikuvaade tööjõu- ja oskuste vajadusele: Metsandus ja puidutööstus.* SA Kutsekoda.

UNEP. (2018). *TEEB for Agriculture & Food: Scientific and economic foundations.* https://www.unep.org/resources/publication/scientific-and-economic-foundations-report

Viik, K.-A. (2025). *Kuidas rohesildi all loodust hävitatakse.* ERR Arvamus.