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Paludiculture – opportunities and obstacles in Estonia

Analysis of legal rules and strategies

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1. Introduction

Paludiculture is the productive use of wet peatlands. It includes both traditional peatland cultivation (reed mowing, litter usage) as well new approaches for utilization, for example construction and insulation materials from cattail and the energetic use of biomass from wet peatlands.

As a form of modern economic activity, paludiculture is rather a new concept both in Estonia as well as in the rest of the world. In the last few centuries, economic management of peatlands and wetlands has been mainly based on draining the lands to allow them to be managed in a conventional agricultural way. Therefore, it is not surprising that wet utilisation and specific conditions of peat soils have gained little attention in the legislation as well as in agricultural support schemes. In some cases, the effect may even be contrary – the legal acts and support schemes actively prevent or hinder the application of paludiculture.

The aims of this analysis are to assess the legal framework as well as agricultural support schemes in Estonia to identify both opportunities as well as obstacles for the implementation of paludiculture. The analysis also aims to give a first set of recommendations on how to improve the situation for wider uptake of paludiculture in Estonia. The analysis concentrates on existing laws and support schemes, but where advanced draft amendments were present, also looks at future regulations. The analysis was carried out mostly as a desk research based on existing materials, however, a number of interviews with representative of competent authorities were carried out additionally (a list of interviews and interviewees is presented in Annex I)

Similar analyses were carried out in parallel for Latvia and Lithuania.

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The analysis was composed in 2018.

The project “Paludiculture in the Baltic states” is financed by the European Climate Initiative (EUKI). EUKI is a project financing instrument by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). It is the overarching goal of the EUKI to foster climate cooperation within the European Union in order to mitigate greenhouse gas emissions. It does so through strengthening cross-border dialogue and cooperation as well as exchange of knowledge and experience. The authors are fully responsible for the content of this feasibility study report, the European Climate Initiative (EUKI) and the German Federal ministry for Environment (BMU) have no liability.

On behalf of:



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2. Development strategies and policy framework documents currently in force

Among current development plans and strategies in Estonia, four documents address peatlands and their use: Framework for Climate Policy until 2050¹, Nature Conservation Development Plan until 2020², Rural Development Plan 2014-2020³ and Forestry Development Plan 2011-2020⁴. The period of the three sectoral development strategies is coming to an end and new strategies are already being prepared. Therefore, it is appropriate to analyse the content of these development strategies from the paludiculture perspective - the recommendations based on the analysis are presented in Chapter 6.

2.1. Framework for Climate Policy

In April 2017, the Parliament of Estonia adopted Framework for Climate Policy until 2050 (officially named General Principles of Climate Policy), which is the most recent among the development strategies discussed here. This document supports the preservation of carbon stocks in peatlands the most clearly of all policies.

In particular, the topic of peatland is discussed in the chapters "Agriculture" and "Forestry and land use". In the field of agriculture, the framework document sets out the following guidelines: "The soil carbon stock is increased and preserved, and land areas with significant carbon stock are being formed and preserved. Farmers are encouraged to increase the soil carbon stock, to form and preserve permanent grasslands, small-scale wetlands and buffer zones, and to reduce the cultivation of peat soils" (p. 19). In the field of forestry and land use, the strategy provides that "The carbon stock in the mire's peat soils is preserved or increased. The further drainage of the mires is avoided, and if possible, the natural water regime is restored in drained peatlands, or further degradation of the areas is avoided." (p. 28). It states additionally that when regulating the water regime, economic feasibility and the possibility of continued use of these lands as grasslands (e.g. keeping the water level higher during spring high waters and lowering it for haying time) is considered.

Thus, the strategy provides the preservation of carbon stock both in peat soils in agricultural use as well as in peat areas used for forestry while also supporting the continued use of grasslands as grasslands, if possible and economically feasible. The development strategy also contains a significant indication that the agricultural support system should support this objective (agricultural subsidies are the most important means for motivating producers). For forestry and other land use, the framework document does not refer to more specific measures, only to the principle that the further degradation of areas should be minimised in drained peatlands.

Since this strategy is as a policy framework document in today's Estonian strategic planning system, it does not include a specific implementation and action plan. The role of the policy framework document is to provide guidance for developing of sectoral development strategies. Therefore, in order to realise the goals set out in this document, it is necessary to

¹ https://www.envir.ee/sites/default/files/kpp_2050.pdf

² https://www.envir.ee/sites/default/files/lak_lop_0.pdf

³ <https://www.agri.ee/sites/default/files/content/arengukavad/mak-2014/mak-2014-arengukava-v3-2017-08-29.pdf>

⁴ https://www.envir.ee/sites/default/files/elfinder/article_files/mak2020vastuvoetud.pdf

develop specific measures in the development strategies of the sector (nature conservation, forestry, rural development, etc.).

2.2. Nature Conservation Development Plan

The Nature Conservation Development Plan approved by the Government in July 2012, indirectly supports paludiculture. In chapter 3.2. of the strategy it is noted that, as peatlands are degraded and mineralised as a result of traditional agricultural use, such use of peat soils should be avoided and the restoration of peatlands as wetlands should be promoted. For specific soil protection measures, the strategy refers to the rural development plan of the previous period (2007-2013) and there are no separate measures for this in the nature conservation development strategy.

2.3. Rural Development Plan

In several chapters, the current Rural Development Plan recognises the need of protection of peat soils and preservation of the soil carbon stock. Thus, the SWOT analysis description of the current situation (p 4.1.1.) indicates that the use of peat soils, which leads to the degradation and mineralisation of peat, is an important environmental problem. Therefore, it refers to the need to avoid or reduce the cultivation of peat soils and to encourage the transfer of peatlands into permanent grasslands. Peat soils are also considered to be endangered by erosion and they need additional protection in this regard. At the same time, environmentally friendly management of peatland areas provides the opportunity to reduce greenhouse gas emissions of the sector.

As a specific measure that would meet the needs and help to realise the opportunities described above, the development strategy includes the support for regional soil protection, the main requirement of which is to keep land under permanent grassland during the 5-year period. This measure is discussed in more detail in the chapter 4.2.2.

2.4. Forestry Development Plan

The Forestry Development Plan was approved by the Riigikogu in February 2011. The development plan has a negative impact on paludiculture as in section 2 it provides such measure as the maintenance and reconstruction of existing drainage systems and streambeds in places where it does not endanger the conservation of the natural values of protected areas. In order to ensure the existence and maintenance of a functioning drainage and road network, there is a need (in rural development plan) for support measures (Development Plan Chapter 4.4).

This is an important strategic choice in practice, as the preliminary GIS analysis of this project estimates that a quarter of the damaged peatlands in Estonia is forest land.

2.5. Summary of strategies currently in force

To sum up, the clearest support to paludiculture and stocking carbon in soil can be found in the Framework for Climate Policy until 2050. The nature conservation and rural development strategies acknowledge the need to reduce intensive use of peat soils and protect them. Forestry strategy however puts a clear emphasis on timber production and maintenance and reconstruction of the drainage systems needed for it. Therefore, the forestry strategy is in direct contradiction with a strategically higher-level planning document and this contradiction should be removed when drafting the new strategy.

3. Legal rules concerning restoration of natural water levels

From economic point of view the most important factor influencing feasibility of paludiculture are the different support schemes available to land users. At the same time,

successful implementation of paludiculture is also dependent on the possibilities to restore (at least partially) the natural high level of ground water in peat soils, where the latter are currently affected by drainage. Restoration of water levels requires either reconstruction of drainage systems or cessation of use of the systems. The following chapter provides an overview of potential obstacles to such changes in the drainage systems and water levels. Due to some key acts being either recently amended or currently debated in the Parliament, the analysis considers both the existing as well as future legal rules.

The analysis was composed in 2018.

3.1. Water Act (veeseadus)

3.1.1. Current rules

Currently the Art 33¹⁰ of the Water Act provides that landowners and water users may not cause (by either acts or omissions) floods or paludification of the land. This rule is meant to be a way of fulfilling Estonia's obligations stemming from the EU Floods Directive (Directive 2007/60/EC) which, however, does not explicitly require such a prohibition. The breach of prohibition to cause paludification is considered to be a misdemeanour under Art 38³ of the Water Act and may lead to a fine of up to 100 fine units (at the time of this analysis EUR 400) for individuals and up to EUR 2000 for legal persons.

Although there is no clear interpretation of the rule, then an inflexible, grammatical interpretation of the provisions could pose a direct obstacle to implementation of paludiculture in Estonia. So far, however, this provision has not been an impediment to restoration of mires (based on the experience of Estonian Fund for Nature).

3.1.2. Draft Water Act (Draft No 643 SE)

At the time this analysis is written, the Parliament of Estonia is debating a recast of the Water Act (Draft No 643 SE). The draft Act no longer contains a prohibition of paludification of land. The provision is replaced by a new rule that prohibits "causing excessive moisture that impedes intended use of land".

Explanatory memorandum of the draft law explains that the "intended use of land" should be interpreted according to spatial plans, development plans, land use plans, environmental permits and other administrative decisions. As examples of cases where increasing moisture levels in soil would not be against the prohibition, restoration of wetlands, reaching good status of lakes, restoration of mining sites, creation of wetlands for environmental protection and collection of water are mentioned. However, the memorandum also clearly states that in case of drained agricultural land, paludification is prohibited.

Similar to the current text, causing "floods" would also be prohibited⁵. Floods are defined in the EU Directive as "temporary covering by water of land not normally covered by water" so raising water levels for exercise of paludiculture should not be considered "floods" in the sense of the Water Act.

Based on the wording of the draft law and its explanatory memorandum, it appears that the new law offers more flexibility to land owners. However, the restoration of water levels on agricultural land would only be allowed in cases where the landowner follows the

⁵ This requirement is related to transposition of the EU Directive 2007/60/EC (so-called Floods Directive)

procedures for either reconstructing or cessation of use of drainage systems (see next chapter).

3.2. Land Improvement Act (maaparandusseadus)

3.2.1. Current rules

The Land Improvement Act concerns the designing, construction and management of land improvement systems, under which the act means drainage, irrigation, two-way regulation of water regime, and other improvements to agricultural land (e.g. liming of acid soils).

From the perspective of implementing paludiculture on drained agricultural land, key provisions of the Act currently in force (until 31st December 2018) are Article 4 and 45 of the Act. Article 4 (Section 1) provides that the regulating network (including drainage systems) must ensure a soil water regime that is suitable for crop husbandry. Article 45 provides that the owners and users of land must perform necessary management work to ensure that it conforms to the requirements set in Art 4, Sections 1 and 2 of the Act throughout its use.

These rules must be interpreted in conjunction with the Art 51 of the Act. This article provides in Sections 1 and 5 that a drainage system may be deemed to have ceased (which would mean it no longer has to be managed) only if it has become obsolete, fallen into disrepair or for some other reason has lost a significant proportion of its ability to function and it is not possible to restore to working condition by management work (i.e. maintenance or renovation). The decision to deem a system to have ceased is made by the Estonian Agricultural Board (EAB).

In an interview held with representatives of EAB and Ministry of Rural Affairs, the interviewees held that the phrase “water regime suitable for crop husbandry” may include paludiculture (provided this is done as an economic, agricultural activity). Therefore raising of water levels may not be contrary to Art 4 and 45 of the Land Improvement Act.

However, it was also pointed out that most drainage systems are related to more than one landowner’s land. This means that if other “upstream” users of land are not interested in paludiculture, the change in water levels may not be allowed due to impacts on other users of the drainage system. Potential (but costly) solution would be reconstructing the system in a way that redirects the draining part of the system around the area where paludiculture is practiced.

In case a reconstruction of the drainage system (or construction of a new system, e.g. for upstream users not interested in paludiculture) is required (e.g. for (partially) blocking the drainage channels or establishing a regulated water flow), the landowner or user must request design specifications from the EAB. Based on specification, a technical project must be drawn up, based on which a construction permit may be applied for.

It is important to note that in addition to these administrative steps, an environmental impact assessment (EIA) may also be required, which entails significant costs and prolong the proceedings. According to the Estonian EIA Act (Art 6, Section 1, p 31), EIA must be conducted in all cases, where a new drainage system with surface area of more than 100 ha in a forest area or wetlands is planned to be built. “Wetlands” are construed in accordance with the definition of the international Ramsar Convention⁶. So-called “screening” for EIA (a preliminary assessment on whether to conduct a full EIA) is required

⁶ Wetlands are defined in Art 1, Section 1 of the Convention on Wetlands of International Importance especially as Waterfowl Habitat (so-called Ramsar Convention) as „areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres.”

in all cases where a drainage system that would require EIA is changed as well as in cases where:

- 1) a new drainage system (or new part of existing system) with surface areas of more than 200 ha is planned to be built on agricultural land;
- 2) a new drainage system (or new part of existing system) is planned to be built on polder areas;
- 3) a new drainage system (or new part of existing system) is planned to be built in an agricultural or forestry area, where peat soils with depth of more than 1 m make up more than 30% of the area and area of such peat soils exceeds 10 ha;
- 4) a new drainage system (or new part of existing system) is planned to be built on areas with karst formations.

To avoid so-called salami-slicing (i.e. splitting a project into smaller projects which do not require EIA or screening), the above list is indicative and EIA can also be initiated in those cases, where a project is below these thresholds, but has significant impacts nonetheless (either alone or in combination with other projects).

3.2.2. Land Improvement Act coming into force on 1 January 2019

In May 2018, the Parliament of Estonia passed a new Land Improvement Act. The new Act has a similar scope and structure than the current law, with only a few substantive changes that may affect the use of paludiculture.

The most important change in the new Act is related to cessation of use of the drainage system. In addition to the currently existing grounds for deeming that the use of a drainage system has ceased, the new Act would allow such a decision to be made based on "needs of public interests". In this case, the decision on cessation may be made regardless of the fact that the system could be made functional by maintenance or renovation.

The new Act does not define, what could constitute a public interest in this sense, but the explanatory memorandum explains it as being related to another, conflicting activity or building that is planned by a spatial plan, other legal act or strategic document, e.g. restoration of mires as part of a management plan of a protected area or species. In an interview with the EAB and Ministry of Rural Affairs officials, the authorities stressed, that "public interest" is an undefined concept and may include in some cases public interests justifying use of paludiculture (e.g. mitigation of climate change). When interpreting the term, attention should also be paid to the objectives and activities set out in different strategies (see Chapter 2), which also indicate public interests.

3.3. Forest Act

Article 42 of the Forest Act provides general obligations of the forest owner. One of the listed obligations is to "manage and permit their forest to be managed only in such a way which does not damage forest soil or water regime". This requirement is supplemented by the more general obligation to "protect the forest against the deterioration of site conditions".

This requirement was already in place in the previous Forest Act (adopted in 1998), but so far there has been no jurisprudence on these two specific obligations. Therefore, it is hard to give a definitive answer if these obligations could impede the application of paludiculture techniques in forest areas. However, as the wording is quite strict and does not include any derogations, a paludiculture-specific exception to this rule would provide better legal clarity.

3.4. Conclusions

In conclusion, current legislation related to restoring natural water levels on agricultural and forestry areas, where drainage systems have been built may provide a few obstacles if applied in an overly legalistic way. However, with sensible and purposeful interpretation of the acts in force now, paludiculture does not face obstacles that could not be overcome (with some administrative burden and related expenses). The situation will improve further when the new Land Improvement Act will come into force and the draft Water Act is passed (provided that the rules related to paludification of land remain as in the current draft). On forested lands, the current rules on obligations of landowners could also be an obstacle if interpreted and applied in an overly strict and literal way – therefore a specific exception could be considered.

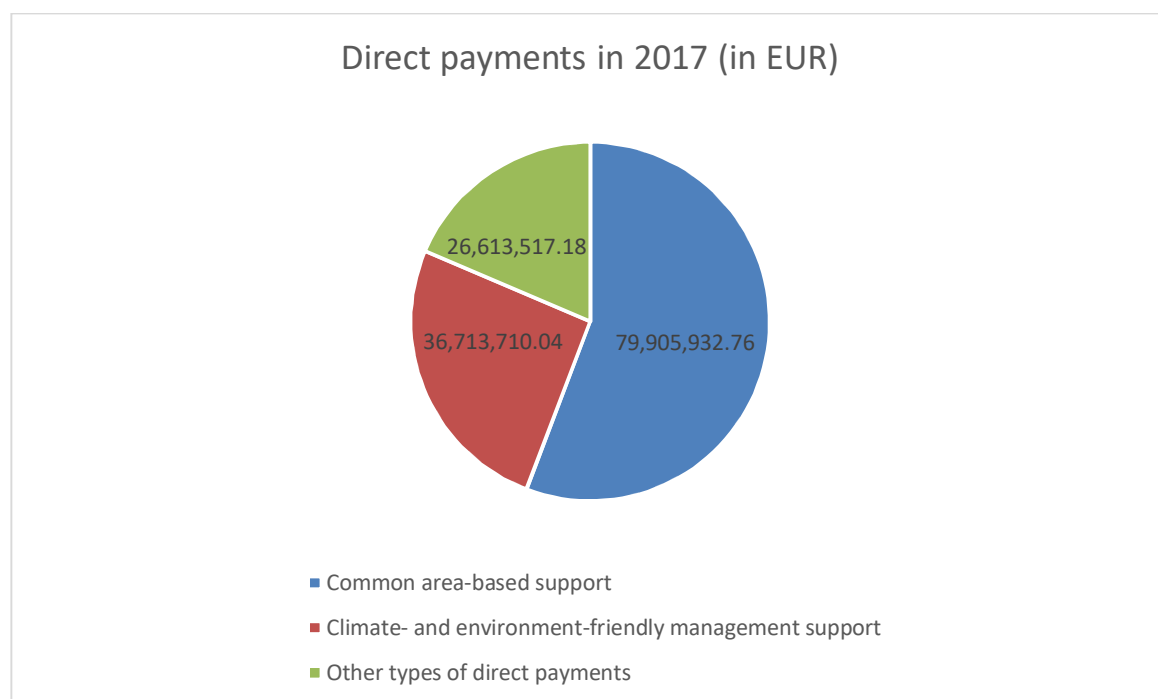
4. Agricultural subsidies

4.1. Direct Payments

In Estonia, the basic conditions for granting support from the 1st pillar of CAP is regulated by the EU Common Agricultural Policy Act (EU-CAPA) and the Regulation No 32 of 2015 of the Minister of Rural Affairs. The main types of direct payments are:

- Single area payment scheme (*ühtne pindalatoetus*) and payment for agricultural practices beneficial for the climate and the environment (*kliima- ja keskkonnatoetus*);
- Young farmers' support (*noore põllumajandustootja toetus*);
- Direct payments for fruit and vegetable husbandry (*puu- ja köögivilja kasvatamise otsetoetus*);
- Small farmers' support (*väikepõllumajandustootjate toetus*).

By far the largest share of direct payments goes to the single area payment scheme (*ühtne pindalatoetus*) and support for climate- and environment-friendly management (*kliima- ja keskkonnatoetus*).



Direct payments made according to the type of payment in 2017

To be eligible for single area payment scheme, the farmer has to fulfil:

- a) General requirements for the support scheme,
- b) Cross-compliance requirements and
- c) Requirements for payment for agricultural practices beneficial for the climate and the environment (APBCE).

This means that the single area payment scheme and APBCE are essentially integrated and a farmer cannot opt for single area payment scheme alone, but must also follow the requirements of the APBCE. In the following chapter, these three sets of requirements are analysed more in depth from the perspective of paludiculture.

4.1.1. General requirements for single area payment scheme

Legal basis	Regulation No 32 of the Minister for Rural Affairs of 17 April 2015 on direct payments ⁷
Key requirements	<p>Support may be applied for by a person, who is an active agricultural producer – e.g. a person who engages in agricultural activity, which is defined as:</p> <ul style="list-style-type: none">• production, rearing or growing of agricultural products, including harvesting, milking, breeding animals, and keeping animals for farming purposes,• maintaining an agricultural area in a state which makes it suitable for grazing or cultivation without preparatory action going beyond usual agricultural methods and machineries – e.g. by leaving the land in fallow and mowing the grass to avoid spread of trees. <p>In addition to the above, single area payment scheme may also be applied for growing cultures of the <i>Salix</i> genus suitable for short rotation coppice under CN code 0602 90 41. However, this is only supported on marginal lands (if the average soil quality rating is up to 35 points). In such cases, the coppice must be rotated at least every 5 years.</p> <p>In addition, single area payment scheme applies to agricultural practice of grass mulching on grasslands that are not being actively used for agricultural production. Such practice competes with other uses of land for production, including paludiculture.</p> <p>Agricultural crops that are considered to be eligible as agricultural products are listed by the payments agency⁸. Among specific crops, it also lists "grasses" as a general category. It is not an enclosed list, therefore in each case it can be assessed if the crops is considered to be eligible as agricultural.</p> <p>Agricultural land must be maintained in a way that prevents the spread of</p>

⁷ <https://www.riigiteataja.ee/akt/122042015027?leiaKehtiv> (in Estonian, dynamic link)

⁸ <http://www.pria.ee/docs/resources/11499.pdf?>

	<p>undesirable plants.</p> <p>As a general rule, agricultural plants must be sown or planted by June 15th and maintenance and production activities must be finished by August 20th and September 1st respectively.</p>
Impacts	<p>General requirements for single area payment scheme are aimed at active agricultural management of the land. A key requirement is that the land must, as a rule, be used for production of agricultural products, under which mostly edible crops or animal feed are meant.</p> <p>Requirements also make it clear that certain agricultural activity must be carried out every year, before fall (with narrow exceptions related to e.g. growing of short rotation coppice <i>Salix</i>, ecological focus areas (EFA) and grasses grown for energy production).</p>
Gaps	<p>Most important gaps related to general requirements are:</p> <ul style="list-style-type: none"> • the list of agricultural crops does not explicitly support growing of crops suitable for paludiculture as activity that may receive support. Some of it may be explained by the more general list of Annex I of the Treaty of the Functioning of EU not permitting it, some of it is related to national-level choices; • Deadlines for maintaining the agricultural land (maintenance and production must be done by end of summer) effectively eliminate the possibility to gain support for crops which do not need sowing/planting, maintaining or harvesting every year or in the summer season (e.g. reed, cattail).

In interviews with the payment agency and the Ministry of Rural Affairs, it was highlighted that the most important criteria for applicability of single area payment scheme is whether paludiculture can be considered active agricultural production activity or not. If the crops grown in the area can be harvested and used (over which some concern was raised), the water level is not a crucial issue. Therefore, wet grasslands seem to have highest potential. However, if the land is constantly and not only temporarily excessively wet, it is regarded as not suitable for agriculture.

An additional requirement is that the land has to be registered in the payments agency.

As regards the requirement to prevent growth of undesirable plants, mostly trees (and other cultures not listed by the payments agency in the list of agricultural crops that would either compete with the main crops or prevent normal maintenance activities, e.g. mowing) are meant. It is presumed that the growth of these plants indicates that the land is not been managed (properly).

4.1.2. Cross-compliance requirements in Estonia

Legal basis	Regulation No 4 of the Minister for Rural Affairs of 14 January 2015 on standards for good agricultural and environmental condition of land ⁹ and Regulation No 32 of the Minister for Rural Affairs of 17 April 2015 on direct payments ¹⁰
Key requirements	<p>Cross-compliance requirements are divided into two subsets of requirements:</p> <p><u>Standards for good agricultural and environmental condition of land:</u></p> <ul style="list-style-type: none"> • Soil protection requirements include the requirement to maintain at least 30% of land under plant cover in winter in certain areas (with a more sloped terrain), using appropriate techniques on sloped areas (with a profile of more than 10 degrees), ban on burning grass and straws and drawing up of crop rotation plans (not required for grasslands, multiannual crops etc.). • Maintenance of landscape elements includes a requirement to preserve ditches that belong to a drainage system. <p><u>Statutory management requirements</u> – the latter do not contain requirements that would relate to paludiculture.</p>
Impacts	Cross-compliance requirements do not explicitly support paludiculture, e.g. the requirement to maintain the draining ditches. However, preserving the draining ditches is not a problem from the perspective of paludiculture as it is possible build a regulator in the ditch to regulate the water lever.
Gaps	Cross-compliance rules on maintaining soil carbon does not address the issue of peat soils (concentrating on erosion of sloped fields instead), which should be considered a missed opportunity.

4.1.3. APBCE (greening) requirements

Legal basis	Regulation No 32 of the Minister for Rural Affairs of 17 April 2015 on direct payments ¹¹
Key requirements	<p>Farmers applying for direct payments may not reduce the total area of permanent grassland (5 years grassland) they hold. A farmer-based approach to preservation of permanent grasslands is therefore applied.</p> <p>Another important requirement is the prohibition of ploughing and change of use of “environmentally sensitive” grasslands. In the Estonian context, only areas within Natura 2000 areas where the soil is 100% peat soil are considered “environmentally sensitive”.</p>

⁹ <https://www.riigiteataja.ee/akt/116112017004?leiaKehtiv> (in Estonian, dynamic link)

¹⁰ <https://www.riigiteataja.ee/akt/122042015027?leiaKehtiv> (in Estonian, dynamic link)

¹¹ <https://www.riigiteataja.ee/akt/125042018015?leiaKehtiv> (in Estonian, dynamic link)

	As a third rule, farmers with more than 15 ha of arable land must have at least 5% of their land covered by so-called ecological focus areas. According to rules applicable in Estonia, drainage ditches are considered a type of ecological focus area (EFA). In addition, fallows and short rotation coppice of the <i>Salix</i> genus are considered EFAs.
Impacts	CAP greening rules have a limited positive impact on the peat soil, requiring the preservation of some areas as permanent grasslands and including short rotation coppice among ecological focus areas. Although the fact that drainage ditches are considered "ecological focus areas" gives an additional incentive to preserve them, it is not problem from the perspective of paludiculture as the simplest way to regulate the water lever is building a regulator in the ditch, which is not contradictory with ditches being considered ecological focus areas.
Gaps	The main gap is the limited approach taken to what constitutes "environmentally sensitive" grasslands. Grasslands with peat soil outside the Natura 2000 areas are not directly protected by the "greening rules" nor are the areas inside Natura 2000 areas, where the soil is not 100% peat soil, but mixed.

4.2. CAP 2nd Pillar Payments

In addition to direct, area-based payments, other payments aimed at policy goals such as environmental protection and rural development are made under the CAP and its implementing legislation in Estonia. Five support schemes, of which the first four are sub-measures of agri-environment-climate measure, may be relevant from the perspective of paludiculture and are therefore analysed in more detail below.

4.2.1. Environment-friendly management support (EFMS)

Legal basis	Regulation No 49 of the Minister for Rural Affairs of 29 April 2015 on support for environment-friendly management ¹²
Key requirements	<ul style="list-style-type: none"> • Outside permanent grasslands, at least 3 different agricultural crops must be grown. There are more detailed rules on crop diversification and rotation, e.g. crop may exceed 75% of the area and two main crops may not exceed 95% of the area and grains may not be grown on the same field for more than three consecutive years; • Use of glyphosate is restricted; • Soil samples must be taken every year; • The farmer must draw up crop rotation or sowing order plans as well as fertilising plans; • At least 30% of the land under support scheme must be covered by agricultural crops in winter.
Coverage	In 2017, the total amount of support paid was € 22.6 mil (which makes up about

¹² <https://www.riigiteataja.ee/akt/102052015001?leiaKehtiv> (in Estonian, dynamic link)

	17.8% of the 2 nd pillar payments. The area for which support was applied to was 450,686.55 ha in 2018 (as a comparison, the areas for which single area payment scheme is applied for is around 950,000 ha).
Impacts	EFMS has a huge potential due to its wide coverage to support maintaining carbon in the soil and supporting paludiculture. However, currently it provides only minimal indirect support, by somewhat incentivising establishment of permanent grasslands (where crop rotation rules do not apply) and requiring some vegetation cover over winter period.
Gaps	The support scheme does not directly tackle the issue of soil carbon, especially in peat soils. However, this can be somewhat explained with the existence of a separate soil protection support scheme.

4.2.2. Regional soil protection support

Legal basis	Regulation No 40 of the Minister for Rural Affairs of 22 April 2015 on support for regional soil protection ¹³
Key requirements	<ul style="list-style-type: none"> • At least in the first year of the five-year support period, the land must be covered with the EFMS scheme; • Support is paid to land which is either grassland or agricultural land where fruit trees or berries are grown; • At least 90% of the land must be made up of with either peat soils or eroded deluvial soils; • The supported land must be covered by grass; • Grass cover may not be damaged by overgrazing and it may be renewed only by direct sowing or sowing on top of existing grassland; on peat soils, renewal with disc harrows and rototillers is allowed once during the five-year period. <p>NB! The support scheme does not cover environmentally sensitive permanent grasslands (grasslands in Natura 2000 areas with 100% peat soil).</p>
Coverage	In 2017, the total amount of support paid was € 520,957.44 (which makes up about 4% of the 2 nd pillar payments. The area for which support was applied to was 11,840 ha in 2018.
Impacts	The support scheme reduces carbon emissions from peat soils by requiring (almost permanent) grass coverage.
Gaps	<p>The support scheme does reduce emissions, but without requiring raising the water level, this effect is limited (land impacted by drainage will most likely continue to be CO₂ source rather than a carbon sink).</p> <p>Support scheme covers grasslands, fruit trees and berries but do not cover potential paludiculture crops (presuming the latter would be considered agricultural crops rather than grass).</p>

¹³<https://www.rigiteataja.ee/akt/124042015009?leiaKehtiv> (in Estonian, dynamic link)

In interviews held with the payment agency and Ministry of Rural Affairs, this support scheme was seen as the main tool to protect peat soils and tackle the issue of carbon leakage from soil. Satisfaction with the support and its uptake by farmers was high.

4.2.3. Environment-friendly gardening support

Legal basis	Regulation No 50 of the Minister for Rural Affairs of 29 April 2015 on support for environment-friendly growing of fruits and berries ¹⁴
Key requirements	<ul style="list-style-type: none"> • The land is used for growing of certain fruits and berries, including agricultural cranberries; • Use of pesticides must be preceded by monitoring of pests and pesticides containing glyphosate may not be used; • Elements supporting biodiversity, such as nests for insects, must be set up; • Soil samples must be taken every year.
Coverage	In 2018, no applications for support of environment-friendly growing of cranberries were made. As a whole (total of all cultures), the support paid out under this scheme in 2017 was about € 323,530.
Impacts	The support scheme would directly support growing of one potential paludiculture crop – cranberries. The support rate is € 160/ha.
Gaps	The support scheme does not give preferential treatment to cranberries, which as the practice shows, is an unattractive culture, at least for this support scheme.

4.2.4. Semi-natural communities maintenance support

Legal basis	Regulation No 38 of the Minister for Rural Affairs of 27 April 2015 on support for the maintenance of semi-natural communities ¹⁵
Key requirements	<ul style="list-style-type: none"> • The main activity for the maintenance of a semi-natural community has to be carried out consistently during 5 years; • The size of the land is at least 0.1 ha, with some exceptions; • The land is registered in the environment register (keskkonnaregister) as a semi-natural community; • The land is covered with meadow type vegetation and can be mowed or herded, or the restoration of a semi-natural community is finished and conditions for the formation of meadow type vegetation are created and the required maintenance can be carried out; • Maintenance work is carried out by methods approved by

¹⁴ <https://www.riigiteataja.ee/akt/102052015002?leiaKehtiv> (in Estonian, dynamic link)

¹⁵ <https://www.riigiteataja.ee/akt/104012018016?leiaKehtiv> (in Estonian, dynamic link)

	Environmental Board.
Coverage	In 2017, conservation subsidies were applied for 30,000 hectares while the goal is to ensure constant maintenance in the areas of semi-natural communities of 45,000 hectares.
Impacts	The support scheme provides incentives to maintain semi-natural communities (some of which are on peat soils) as it partially covers the additional costs and loss of profit resulting from use specific maintenance methods and characteristics of the lands.
Gaps	Two gaps have been brought out in practice. On one hand, quite extensive administrative burden (with two agencies, the payment agency as well as Environmental Board, involved). On the other hand, the support only partially covers the additional costs and loss of profit, meaning the farmers on such land are still relatively uncompetitive.

4.2.5. Investment support for development and maintenance of agricultural and forestry infrastructure

Legal basis	Regulation No 76 of the Minister for Rural Affairs of 29 July 2015 on investment support for development and maintenance of agricultural and forestry infrastructure ¹⁶
Key requirements	<p>Support is offered to agricultural producers, companies who own land under forest cover, forest owners' associations or land improvement associations.</p> <p>Supported activities and rates of support are following:</p> <ul style="list-style-type: none"> • Recipients of drainage water and associated constructions (90%); • Construction, reconstruction and renewal of constructions required for protection of environment (90%); • Reconstruction and renewal of regulating networks, pump stations and dykes (80%); • Construction of new drainage systems or parts thereof (50%). <p>Support is not granted, if the application concerns construction of a new system on land where:</p> <ul style="list-style-type: none"> • Mire soils with depth of more than 1m make up more than 30% of the area of the system or its part (as indicated in the agricultural registry) concerned; • The perspective quality rating of the agricultural land is less than 35; • The forest land is under nature protection
Coverage	According to EAB, about 5000 ha have been covered by supported systems in every call for applications (currently, three calls have been carried out and two

¹⁶ <https://www.riigiteataja.ee/akt/103042018018?leiaKehtiv> (in Estonian, dynamic link)

	completed, in 2016, 2017 and 2018). About 90% of the support has gone into reconstruction of existing systems, less to renewal, and no applications have been made for constructing new systems so far.
Impacts	This support scheme could have either positive or negative impact on paludiculture, depending on which type of systems are (re)constructed or renewed with the support. In theory, the support may be applied for to redesign and construct existing systems into dual-regime regulated systems, however, this is not a common practice (and support rates are lower for construction of new systems). As the support scheme incentivises and supports continuing use of existing drainage systems, it has mostly an opposite effect on paludiculture,
Gaps	Support scheme incentivises and supports traditional (drained) use of peat soils and does not provide support for farmers interested in paludiculture. Although there are limitations to supporting construction of new systems on more sensitive areas (incl. areas with thick peat soil), reconstruction and renewal of existing systems would be supported.

In an interview with the EAB and the Ministry of Rural Affairs representatives indicated that they would actually support more investments into dual-regime regulated systems, as the owners of such systems are likely to be more prudent in their maintenance. However, they also admitted that such systems require both higher investments as well as maintenance costs.

5. CAP post-2020

According to the legislative proposals by the European Commission, published on 1st June 2018, the programming of support schemes in the new CAP period would significantly differ from the current system. They include proposals for greater simplification to be achieved through increased subsidiarity involving a new delivery model, more effective targeting of direct payments, a shift towards a more results-based approach, and higher ambitions in respect of resource efficiency, environmental care and climate action. As the system is more results-based, the regulations are more general.

The new system would give more power to the Member States by means of Strategic Plans which would define the interventions a Member State deems best suited to contribute to the three general objectives and nine specific objectives of the CAP.

The three general objectives and nine specific objectives would be the following:

- a) to foster a smart, resilient and diversified agricultural sector ensuring food security;
- b) to bolster environmental care and climate action and to contribute to the environmental- and climate-related objectives of the Union;
- c) to strengthen the socio-economic fabric of rural areas.

Nine specific objectives following from these would be:

- a) support viable farm income and resilience across the Union to enhance food security;
- b) enhance market orientation and increase competitiveness, including greater focus on research, technology and digitalisation;
- c) improve the farmers' position in the value chain;
- d) contribute to climate change mitigation and adaptation, as well as sustainable energy;

- e) foster sustainable development and efficient management of natural resources such as water, soil and air;
- f) contribute to the protection of biodiversity, enhance ecosystem services and preserve habitats and landscapes;
- g) attract young farmers and facilitate business development in rural areas;
- h) promote employment, growth, social inclusion and local development in rural areas, including bio-economy and sustainable forestry;
- i) improve the response of EU agriculture to societal demands on food and health, including safe, nutritious and sustainable food, food waste, as well as animal welfare.

From the perspective of paludiculture, several of these objectives are beneficial. Most importantly, the objectives recognise the climate aspect of agriculture, need to efficiently manage soils and water, protect biodiversity and preserve habitats as well as promote bio-economy (specific objectives d)-f) and h)).

The achievement of the objectives is measured by common indicators, defined in Annex I of the draft regulation on Strategic Plans. However, the impact indications will have a weak status, as these will not be used to assess whether the Member States are fulfilling their obligations or evaluate if further payments are needed, and because the indicators lack measurable targets.

There are no specific and comprehensive impact indicators for paludiculture. The closest would be one from the climate action: "Enhancing carbon sequestration: Increase the soil organic carbon" (Annex I, Impact indicator 1.11). However, it would be preferable if paludiculture would have a specific indicator (and/or specific measures in the Regulation).

Although Member States would have more discretion regarding design of interventions, this would not be unlimited. The draft regulation sets out intervention types that could be used. As in this period of CAP, these can be divided into direct payments and other payments (e.g. 2nd Pillar payments).

5.1. Direct Payments in the Future CAP

The CAP for the period after 2020 will still see a role for direct payments. Similar to the current system, the direct payments would be linked with mandatory environmental and climate requirements. Under the draft regulation, the "conditionality" would include statutory management requirements as well as maintaining agricultural land in good agricultural and environmental condition, set out in the Annex III of the regulation.

As a new and positive aspect from the perspective of paludiculture, the requirements would include an obligation to grant "appropriate" protection of peatlands and wetlands. Of course, the question of how to specify this requirement on the national level will be an important one from the practical point of view. However, the greater recognition of soil carbon and role of peatlands should in general translate into conditions that are more favourable towards paludiculture.

According to the draft regulations, Member States are obliged to set up agricultural eco-schemes that would be aimed at achieving the environmental objectives of the CAP. These eco-schemes should be financed from the 1st pillar of CAP and Member States would have a wide margin of discretion in creating them. An important distinction between eco-schemes and environmental schemes under the 2nd pillar is that eco-schemes would be applied on an annual basis, whereas farmers should take multi-year obligations under the 2nd pillar.

5.2. Future Rural Development Payments

Rural development payments (2nd pillar of CAP) would be granted also under the Commission's proposal for a post-2020 CAP. One of the types of interventions foreseen are environmental, climate and other management commitments. Under such interventions, Member States are allowed to compensate for costs incurred and income forgone, resulting from commitments made by farmers that go beyond what is required by Member States laws and requirements for direct payments. Such commitments must be undertaken for a longer period (five to seven years). Support for investments can also be granted.

Due to the generally paludiculture-friendly set of new objectives, the new period of CAP would therefore offer willing Member States a chance to provide targeted support for the development of paludiculture.

6. Conclusions and recommendations

6.1. Strategic documents and legal rules

As regards **national strategies**, the Framework Strategy for Climate Policy provides a good framework, based on which to compile new strategies regarding nature conservation, rural development and forestry. Especially the latter needs to acknowledge the issue of emissions from drained peat soils as a significant emitter of CO₂ and include measures how to support restoration of water levels as well as spread of paludiculture.

Regarding **legal rules** on restoration of natural water regime of drained peat soils, the draft Water Act should be passed in such a formulation that it does not impede paludiculture. The explanatory memorandum could also be amended to make a more specific reference to paludiculture as a type of "intended use of land", for which the water regime may be altered. As the draft does not mention the restoration of wetlands as one of its aims, the regulation of flood risk prevention and a ban on causing a flood could be an obstacle to restoring wetlands. A possible issue for paludiculture could also arise from a provision that does not require a water permit for elimination of a wetland smaller than 10 ha. These issues also need to be dealt with, with necessary amendments to the legal provisions, if needed.

The new Land Improvement Act provides at least an opportunity to end the use of drainage system with its generally phrased provision allowing it in "public interests". However, it would be recommended to have specific guidance or "in-house rules" on it. Same applies to application of the Forest Act and obligations of landowners found in it (alternatively, a legislative change could be considered).

6.2. Amendments to agricultural support schemes

As regards the agricultural support schemes, following amendments should at least be carefully considered to support the uptake of paludiculture:

- Clearly listing some paludiculture crops as agricultural crops in the respective national list (which is based on wider categories);
- Reviewing deadlines during which agricultural activity needs to be carried out, to allow an exception for winter harvesting of reed;
- Include peat-soil specific requirements under the cross-compliance rules (and conditionality standards in post-2020 CAP) that would support restoration or maintaining natural water levels in these soils;

- Widening the scope of the term “environmentally sensitive grasslands” to include peat soils outside Natura 2000 areas and/or soils with less than 100% peat in those areas;
- Amending the rules of regional soil protection support scheme so it would (at least in some areas) also require restoration of water levels at least closer to natural conditions;
- Stop supporting restoration and renewal of drainage systems on sensitive peat soils under the infrastructure investment support scheme;
- Create additional support schemes to support paludiculture, especially as regards investments in specific agricultural equipment, production facilities and capacity building of farmers.

Annex I

List of interviews and interviewees

1. Interview with **Reena Osolin** from **Ministry of Rural Affairs**, Head of Land Improvement and Land Use Bureau,
and **Tiiu Valdmaa** from **Estonian Agricultural Board**, Head of Land Improvement Department
On 5th of July 2018
2. Interview with **Ahti Bleive** from **Estonian Agricultural Registers and Information Board**, Deputy Director
On 9th of July 2018
3. Interview with Olev Krist from **Ministry of Rural Affairs**, Adviser in Land Improvement and Land Use Bureau
2nd of August 2018
4. Interview with Marko Gorban from **Ministry of Rural Affairs**, Deputy Secretary General for Agricultural and Rural Life Policies,
and Katrin Rannik from **Ministry of Rural Affairs**, Head of Land Use Policy
22nd of August 2018