Legal regulatory framework of peatland exploitation, draining and restoration in Estonia

LIFE Peat Restore

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Reduction of CO2 emissions by restoring degraded peatlands in Northern European Lowland

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National analyses of the legal regulatory framework of peatland exploitation

1. Introduction: Mire conservation and restoration in Estonia

Mire conservation activities in Estonia started c. 100 years ago, when the first Nature Reserve containing mire was established in 1938, the Ratva Strict Bog Reserve, for the protection of *Aquila chrysaetos*. In 2004 a **new period** commenced when Estonia joined the European Union. From this period on, the directives of the European Union must be transposed to Estonian domestic law; in addition to the direct application of EU regulations. This most recent period is characterized by the establishment of the Natura 2000 network, as well as the undertaking of extensive mire restoration and development of long-term conservation plans.

The State Audit

In 2005, the State Audit Office audited the activities of the State in planning the use of peat resources and managing their extraction. The objective was to assess whether the State ensures a sustainable use of peat reserves. It was found that the annual rate of use of peat resources is 2,780,000 tons. According to a research conducted by the Institute of Ecology of Tallinn University in March 2005, all natural peatlands together generate only 400,000 to 500,000 tons of peat annually. Comparing these preliminary estimates by the scientists with the Government-permitted rate of use, it becomes clear that the rate of use of peat exceeds its annual increment more than five times. Although the actual extraction rate of peat, due to the existing weather conditions has been lower than the permitted rate, it has still exceeded the increment two or three times.

Due to the significant impact of peat extraction, it is important to establish specific environmental requirements to obtain extraction permits. The audit found that in the case of most permits issued in the five counties examined, neither environmental conditions nor the purpose of the after use of land damaged by extraction have been laid down. Moreover, in the majority of the cases, environmental impact assessments had not been carried out before issuing the permits, peat companies had been set no requirements for reducing the environmental impact of extraction or monitoring it.

In Estonia, there are approximately 8,000 to 15,000 ha of abandoned areas that were used earlier for peat extraction, but which were not rehabilitated after production. In general, peat moss does not begin to grow spontaneously in drained and extracted areas and therefore no increment of peat can take place. The degraded peatlands are a source of permanent environmental pollution and represent a great fire risk. Most of the abandoned production areas are owned by the State. Although the landowner must rehabilitate the abandoned areas, the State does not have an overview of the residual supply of peat in these areas and of environmental impact - whether these areas have to be re-extracted or rehabilitated. The State has not assigned finances to rehabilitate abandoned areas.

Role of Mires in Climate Change

Peat forming mires and other peatlands affect global climate. Natural mires mitigate climate changes while drained peatlands are the sources of the greenhouse gases. International agreements and

documents (IPCC, UNFCCC, IUCN, PEG, FAO, MICCA etc.) emphasize the role of mires in the regulation of the climatical processes.

Drained peatlands are the second source of the greenhouse gases after the oil shale industry. Thus the restoration of damaged peatlands is important not only for the maintanence of the biological biodiversity, but for buffering the climate changes. GHG emissions are the highest from the abandoned peat fields. It is important to explain the share of peatlands in respest of climate change mitigation prospects and the importance of restoration of mire habitats for the region.

Peatland restoration

Peatland restoration in Estonia started with the LIFE+ project 'Restoration and management of Häädemeeste wetland complex' (2001-2005) to reduce drainage effects on Tolkuse bog in southeastern Estonia.

Several restoration projects have been implemented by the State Forest Management Centre (three on abandoned milling peat fields; two on bog margins drained in the 1960s). In 2012 the first larger-scale (c. 40 ha) restoration work of an abandoned peat field - ditch blocking and diaspore transfer on some 4 ha - started on the Viru bog in North-Estonia. Recently, the Ministry of Environment accepted the plan to restore 2,000 ha of extracted peatlands abandoned during Soviet times by 2020. It also supports the restoration of the near-natural plant cover on several mineral-rich fens affected by drainage and forestry, which are now in protected areas. The LIFE+ project 'SPRINGDAY - Conservation and restoration of petrifying spring habitats in Estonia' (2013-2018) aims to prevent the degradation of this habitat and to achieve or maintain its 'favourable' conservation status.

Monitoring the state of peatlands

According to the Environmental Monitoring Act the country data are collected on the state of Estonian environment, species, communities, habitat types, including the state of different peatland habitat types. Every six years data are collected, analysed and reported, indicating the state of 60 ombrotrophic bogs and 60 minerotrophic fens all over the country. Unfortunately, the monitoring is deeply underfinanced and the monitoring programme is cut back. It results in decrease in the amount and quality of the collected data as the emphasis is turned from collecting quantitative data to the more subjective expert assessment.

Furthermore, since 1951, meteorological, hydrological, peat hydrophysical, and hydrochemical monitoring has been undertaken on the Männikjärve bog (Endla mire system) at Tooma mire station. Later the monitoring was expanded to the Linnusaare bog (the Endla mire system). The long-term hydrological monitoring is extremely valuable for understanding relationships between climate, bog hydrology (cf Valgma 1998, Lode, Küttim, kiivit 2017), microtopography (cf. Valgma 1998) and peat accumulation function (cf. Ilomets, 1982, 1996, 2000).

2. EU and National Legal Framework: EU and Estonian legislations relevant to mire and peatland conservation

Since Estonia joined the European Union in 2004, the EU regulations are directly applicable and its Directives must be transposed into Estonian law.

Habitat Directive

For the protection of wetlands, the Habitat Directive (1992) is one of the key legal acts of the European Union. It is also the basis for a coherent European ecological network of Natura 2000 areas, in accordance with the habitats listed in the annexes of the directive. Before the establishment of the Natura 2000 network (April, 2004) the total area of mires under protection was about 145 000 ha. During the Natura process around 35 000 ha of protected mires were added. The most threatened habitats are still spring fens, calcareous tufa forming spring fens and fen forests. Recently the wetlands group from Tallinn University presented the report about the state of Estonian spring fens (Ilomets et al 2017). The selection of spring fens most valuable for their protection is currently in process.

EU Bird Directive

The Bird Directive (2009) aims to protect all wild bird species naturally occurring in the European Union; many of the species listed in the Annex I habitat are migratory visiters on Estonian mires. Important areas of mires protected as Natura 2000 sites are also designated as Natura 2000 bird habitats.

EU Water Framework Directive (WFD)

The Water Framework Directive (2000) clearly identifies the protection, restoration and enhancement of the water needs of wetlands as part of its purpose at Article 1 (a). The Annex VI part B of the directive provides creation or restoration of wetlands as an additional measure for the achievement of good ecological status of a water body. The Water Framework Directive and the Groundwater Directive (2006) protect indirectly terrestrial ecosystems, which are connected to water ecosystem, including wetlands. The Groundwater Directive also determines wetlands as an object of protection. The Guidance Document n.^{o} 12 "The role of wetlands in the Water Framework Directive" (2003) provides a description of how wetlands are relevant to WFD implementation, describes and provides guidance on the role of wetlands in the achievement of the environmental objectives of the WFD. As a first step to achieve the goals of the Guidance Document n.^{o} 12 Institute of Ecology (Tallinn University) developed the methodical document „Integration of Estonian wetlands into the Water Framework Directive. Methods" (www.envir.ee/sites/default/files/margalad_metoodika.pdf) (Lode et al. 2011). In 2015, the document addressing management of integrated release load (of N and P) from peatlands was developed (Lode et al 2015; www.envir.ee/sites/default/files/erikteinemaa.pdf). The futher achievements in the practical implementation and development of the elaborated document is pending.

The Action Plan for Protected Mires for 2016-2023

At present approximately 190,000 ha of peatlands are under protection in Estonia. Among the goals of the Action Plan for Protected Mires for 2016-2023 is to restore 10 000 ha of peatlands on protected areas up to 2020. Already in the recent past the Estonian Environmental Action Plan for 2007-2013 stressed the need to reach favourable status of peatlands – to keep at least 22% of the whole land territory as peatlands.

In 2007, the Environmental strategy of Estonian sustainable development – Sustainable Estonia 21' was accepted and the Environmental Strategy until 2030' was compiled. This is the umbrella development strategy for the environment.

The Constitution

Section 5 of Estonian Constitution provides: The natural wealth and resources of Estonia are national riches which shall be used economically. According to Section 53 of the Constitution, everyone has a duty to preserve the human and natural environment and to compensate for damage caused to the environment by him or her. The same provision also stipulates that the procedure for compensation shall be provided by law. In the commented edition of the Constitution it is stressed that the purpose of the sustainable use of living and natural environment is to ensure satisfied living environment to the people and necessary natural resources. It means there are certain opportunities to restrict constitutional rights (e.g. right of entrepreneurship and ownership) arising from this constitutional obligation. Therefore, the State can impose restrictions in the exploitation (peat extraction, amelioration etc) over nationally valuable nature objects like peatland, as well as dispossess via compensation or exchange of a piece of land with another of equivalent monetary value.

Act on Sustainable Development

The Act on Sustainable Development entered into force in 1995, as a consequence of the UN Conference on Environment and Development (Rio de Janeiro, 1992). The Act provides that the conservation of the biological diversity will be ensured by the national program and action plan adopted by the Government. According to the Act, the different types of ecosystems and landscapes must be conserved, and for balancing and compensating urbanization and economic activity the network of natural and semi-natural biotic communities must be created. The act was the main reason that peat extraction in Estonia has annual limits. The limit refers to the total annual amount for peat excavation on State and County level in Estonia.

Nature Conservation Act

The basis of environmental legislation is the Nature Conservation Act (NCA, 1990, last updated on 2014). NCA stipulates the prerequisites for placing natural features and areas under protection as well as the relevant procedure. The protected natural objects are divided between three groups - protected areas, limited conservation areas and species protection sites. A Government decision places the area under protection as a protected area or limited conservation area. NCA transposes the requirements of EU Habitats and Bird's Directives; on the basis of NCA the network of Natura sites is also placed under protection.

The protected areas are categorised as national parks, nature reserves and landscape protection areas, which have different protection purposes. The NCA properly covers with its wide range of protection levels all the requirements to protect our peatlands.

The National park is defined as a protected area prescribed for the preservation, protection, restoration, research and introduction of the natural environment, landscapes, cultural heritage and balanced use of the environment of the protected area (§ 26, NCA). A national park may include strict nature reserves, conservation zones and limited management zones. The Nature Reserve (§ 27, NCA) is a protected area prescribed for the preservation, protection, restoration, research and introduction of the natural environment. The zones possible in a nature reserve are the strict nature reserve, conservation zone and limited management zone.

The Landscape protection area is an area prescribed for the preservation, protection, restoration, research, introduction and regulation of use of landscapes of the protected area. A park, arboretum or forest stand is a special type of landscape protection area (§ 28, NCA). The zones possible in a landscape protection area are the conservation zone and limited management zone.

The Strict nature reserve (§ 29, NCA) is a land or water area of a protected area whose natural status is unaffected by direct human activity and where the preservation and development of natural biotic communities is ensured only through natural processes. All types of human activity is prohibited within a strict nature reserve, and persons are prohibited from staying in such reserves, except in events specified in subsections (3) and (4) of this section. (3) Persons may stay in a strict nature reserve only for the purposes of supervision, rescue work or administration and organisation of the protection of the natural object. (4) People may stay in a strict nature reserve for the purpose of monitoring and assessment of the status of the natural object only with the consent of the manager of the protected area.

The Conservation zone (§ 30, NCA) is a land or water area of a protected area prescribed for the preservation of natural and semi-natural biotic communities established or to be developed therein. Mineral resources present within a conservation zone are not deemed to be resources intended for exploitation. Unless otherwise provided by the protection rules, the following will be prohibited within a conservation zone: 1) economic activities; 2) use of natural resources; 3) erection of new construction works; 4) staying of persons in the habitats of protected species and staging areas of migratory birds; 5) driving motor vehicles, off-road vehicles or floating vessels; 6) camping, building fires and organising public events. There is also Limited management zone, which is a land or water area of a protected area where economic activities are permitted, taking account of the restrictions provided by this Act.

Earth's Crust Act

Earth's Crust Act (ECA) entered into force on 2005 and was renewed in 2017. ECA provides the principles and rules for investigation, protection and use of the Earth's crust in order to ensure its economically feasible and environmentally sustainable use. It is obligatory to apply technologies of mining, which ensures minimum damaging effects on the environment and human beings. The holder of an extraction permit is required to restore land disturbed by the extraction of mineral resources on the basis of a restoration project. Upon restoration of land disturbed by extraction of mineral resources, it shall be ensured that: 1. the ground-water regime of the mining area corresponds to the specific purpose of land use; 2. the restored area fits into the surrounding landscape; 3. the relief of the restored area is as nature-identical as possible; 4. the restored area does not pose a danger arising from its special character to the persons in the area.

According to the new ECA (2017), permissions will be given for the extraction of peat only on sites which has been entered in the list of peat areas disturbed by extraction and abandoned or the list of peat areas potentially suitable for extraction. The list is added to the act. Only earlier (during the 1960s and 70s) deeply drained peatlands for forestry or agricultural purposes, also excavated, thereafter abandoned but still with sufficient residual peat resources (with thickness over 1 m on 50 ha at least) peatlands are included into the list. A number of conservationists participated in the process. For excavation of peat, permission must be obtained with positive prior Environmental Impact Assessment. The compilation of the list is certainly considered a progress. Unfortunately, the aims of the WFD are still not very well understood and considered.

Land Improvement Act

The Land Improvement Act (LIA, first version 2003, newest will be approved 2018) regulates drainage and irrigation but also allows the establishment and restoration of wetlands on existing land improvement systems. According to the Act, land improvement means the drainage or irrigation of land, the two-way regulation of the water regime of soils, the liming of acid soils, as well as agricultural improvement, agricultural engineering and other work to manage land improvement

systems that is done for the purpose of increasing the cultivation value of land zoned for agricultural and forestry use or for the purpose of environmental protection.

LIA regulates drainage and irrigation but also allows the establishment or restoration of wetlands on existing land improvement systems. On state owned land the act works quite well. Actually new drainage systems are not built any more. In most cases, the old systems that need improvement are just restored. The EIA is obligatory in every special case. There have been misunderstandings with private land owners as they may illegally excavate new ditches through small and valuable but still not protected mires (especially minerotrophic fens) not having any permission for this activity.

Water Act

The purpose of the Water Act (1994) is to guarantee the purity of inland and transboundary water bodies and groundwater, and ecological balance in water bodies. According to § 17of the Water Act: (2) Damming of a water body means an activity whereby the natural water level of a watercourse is raised by more than 0. 3 metres by the works built in the watercourse (hereinafter the dam). (4) The passage of fish both up- as well as downstream shall be ensured by the owner or possessor of a dam on the dam built on a water body that has been approved as a spawning area or habitat of salmon, brown trout, salmon trout or grayling or on a stretch thereof on the basis of subsection 51(2) of the Nature Conservation Act. As peatlands dominate many catchment areas, drainage works in mires may be questionable.

No permit for the special use of water is required for damming if the natural level of a watercourse is raised by up to one meter, unless the damming takes place in the water bodies that need protection as spawning areas or habitats of salmon, brown trout, salmon trout or grayling, or sections of such water bodies, included in the list established under subsection 51 (2) of the Nature Conservation Act. It may be a problem for peatland restoration because sometimes the artificial water body, dredged earlier in the peatland itself is not (and can't be) the spawing area or habitat for salmon, brown trout, salmon trout or grayling. It is just turned into transport corridor for fishes and result to dredging the part of the waterbody locating upstream from the drained peatland altered to spawing area (what it could not been earlier).

Environmental Impact Assessment and Environmental Management System Act

The Environmental Impact Assessment and Environmental Management System Act (EIA, 2005) state that an environmental impact assessment for open mining of on area >25 ha and for drainage of >100 ha wetland is obligatory. EIA regulates environmental impact assessment of the development projects, which have significant environmental impact and strategic impact assessment, which is carried out to strategic planning documents (development plans and spatial plans).

3. Problematic aspects

Both the WFD and the national NCA stress the importance of wetlands as well as the need to protect peatlands and preserve them in good state. The restoration of drained peatlands back to their natural state is a way to reach this goal. In most cases this aim can be achieved by restoring the hydrological regime, by damming the drainage ditches, of a peatland to the state that allows the peatland to maintain its main function – peat formation. The WA refers to natural level of watercourses. But in most cases there have not been any natural watercourses before drainage systems were made. Moreover, this artificial ditch with its artificially decreased water level (named

now as natural water level) is now protected as spawning areas or habitat of salmon, brown trout, salmon trout or grayling.

4. Recommendations

This contradiction must be solved legally. Presently, species protection is prioritised over habitat protection, with many species forming specific communities the existence of which is in danger result to human intervention. The problem is how to do it in the best, most sustainable way. This is the point for further discussions.