LIFE RESTORE PROJECT
INTERNATIONAL CLOSING CONFERENCE

SUSTAINABLE MANAGEMENT OF DEGRADED PEATLANDS AND CLIMATE CHANGE MITIGATION

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Post-harvested peatland vegetation inventory results show that main factors influencing vegetation recovery after drainage and peat extraction is water level and residual peat layer. Establishment of peat-forming vegetation with *Sphagnum* moss takes place in sites where water level is not 0,3 m below peat surface. If peat layer is thicker, more important is the impact of groundwater and recovery of vegetation characteristic for bog/transition mire is limited.

When vegetation has established on post-harvested peatlands, the decrease of greenhouse gas emissions can be expected.

WISE USE OF DEGRADED PEATLANDS – TOOL TO MITIGATE CLIMATE CHANGE

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Peatlands play important role in both the mitigation of climate change and adaptation. However European peatlands are highly degraded, therefore EU counts as the second biggest polluter of global greenhouse gas (GHG) emissions from peatlands following Indonesia, contributing 17 % of global total peatland emissions (Greifswald Mire Centre, 2018). Lithuania is ranked as the 9th in the top list of key countries with emissions from drained organic soils after Latvia (5th place), and Estonia (8th place).

Peatlands cover 10,3 % (653,933 ha) of the country's territory based on recent estimations (Lithuanian Fund for Nature, 2018), out of which about 2/3 (440,000 ha) are considered as drained. According to Lithuania's National Inventory Report of 2018 organic soils emitted 1,900 kt. of CO_2 eq. However, according to the recalculation of emissions using updated IPCC emission coefficients (2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands) Lithuanian drained peatlands appeared to be responsible for fivefold higher emissions reaching 10,810 kt Co2 eq (Nature heritage Foundation, 2018). Majority of emissions originate in agriculturally utilized land, which cover 39 % (251,000 ha) followed by forestry and peat extraction. Peat extraction in Lithuania occupy only 2.1 % (14,000 ha), which are actively mined. 2.9 % of all peatlands (19,000 ha) are considered as abandoned. All together peat mining sites contribute up to 1,242 kt of CO2 eq.

In the light of new climate change commitments of Paris agreement, all sectors, including those, which do not participate in EU Emission Trading System, have to contribute with reductions of GHG emissions. Lithuanian GHG emissions reduction target is 9% for non ETS sectors, where LULUCF bears a target to reduce sector's emissions by 4 %. Therefore change of peatland usage could be "low hanging fruit". Potential of Lithuanian

peatlands to reduce GHG emissions by introduction of paludiculture was assessed by Lithuanian Fund for Nature in cooperation with Michael Succow Foundation (Project Paludiculture in the Baltics – Potentials and Capacities for climate-smart, wet use of peatlands). The results of analyses, based on GIS, legal and economic analyses showed that about 41.7 % of all peatlands (262,700 ha) could be suitable for rewetting and further utilization in form of paludiculture. Majority of such sites are drained and degraded to some level, utilized in agriculture, either arable land and/or meadows. Another more complicated question stands for the type of paludiculture and economic incentives. For example, *Sphagnum* farming could be implemented in almost 5880 ha of abandoned peat extraction sites, but today there is missing well developed technology to process harvested mosses into peat substrates.

Sphagnum farming is applied in Lithuania as part of ongoing project LIFE PEAT restore LIFE15 CCM/DE/000138 "Reduction of CO_2 Emissions by Restoring Degraded Peatlands in Northern European Lowland". Mosses are reintroduced in 10 ha area of extracted part of Aukstumala peatland aiming to restore former ecosystem, which existed before peat mining. It is expensive method due to high costs spent on infrastructure, e.g. installment of fields, water supply system, research etc. Also, LIFE project will restore 4 other abandoned peatlands, covering 460 ha until spring 2020. Main restoration actions: removal of woody vegetation, installment of dams, reintroduction of *sphagnum* in most degraded parts. Additionally, LIFE project will fil the gaps in GEST (*Greenhouse gas emission types on vegetation, Couwenberg, 2011*) approach by measuring direct gases and providing emission coefficients for forested peatlands, which are the most common abandoned peatland type in Lithuania.

EXPERIENCES AND CHALLENGES OF RESTORATION AND USE OF PEATLANDS IN ESTONIA

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Framework for Climate Policy until 2050 of Estonia outlines the necessity for preservation of carbon stock both in peat soils in agricultural use as well as in peat areas used for forestry. In practice it is a big challenge to accomplish as app. 70 % of peatlands are drained and thus are presently sources for carbon leakage. On the other hand, Estonian Nature Conservation Development Plan (NCDP) until 2020 has targeted to restore 11 000 ha of mires by 2020. Due to active role of state, academic and NGO sector, and support from EU (e.g. LIFE programme) and national agencies near future perspective