

LIFE REstore

Sustainable and responsible management and re-use of degraded peatlands in Latvia



Layman's Report



Sustainable and responsible management and re-use of degraded peatlands in Latvia
LIFE14 CCM/LV/001103

Project duration: September 1, 2015 until August 30, 2019.

Beneficiaries:

Nature Conservation Agency / www.daba.gov.lv

Latvian State Forest Research Institute "Silava" / www.silava.lv

Latvian Peat Association / www.peat.lv

Association "Baltic Coasts" / www.baltijaskrasti.lv

Budget: 1 828 318 EUR

EU LIFE programme contribution: **1 096 990 EUR**

Contribution of Administration of Latvian Environmental Protection Fund: **554 288 EUR**

Contribution of project partners: **177 040 EUR**

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LIFE REstore



@LIFE_REstore



liferestore

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The report contains only the vision of the LIFE REstore project developers.

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Latvijas
aizsardzības fonda
administrācija



Dabas aizsardzības
pārvalde

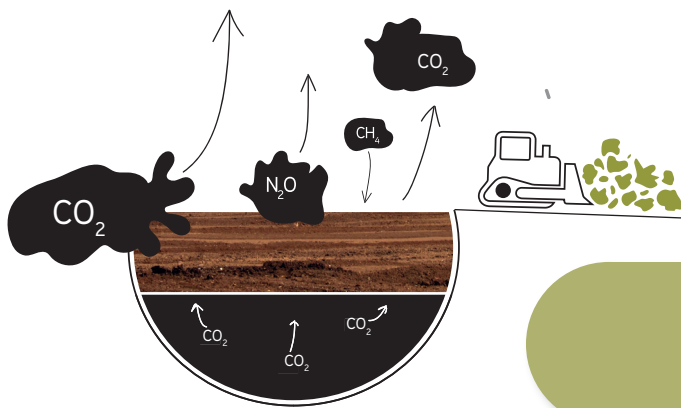


Latvijas
Kūdras
asociācija

BALTIJAS KRĀSTI



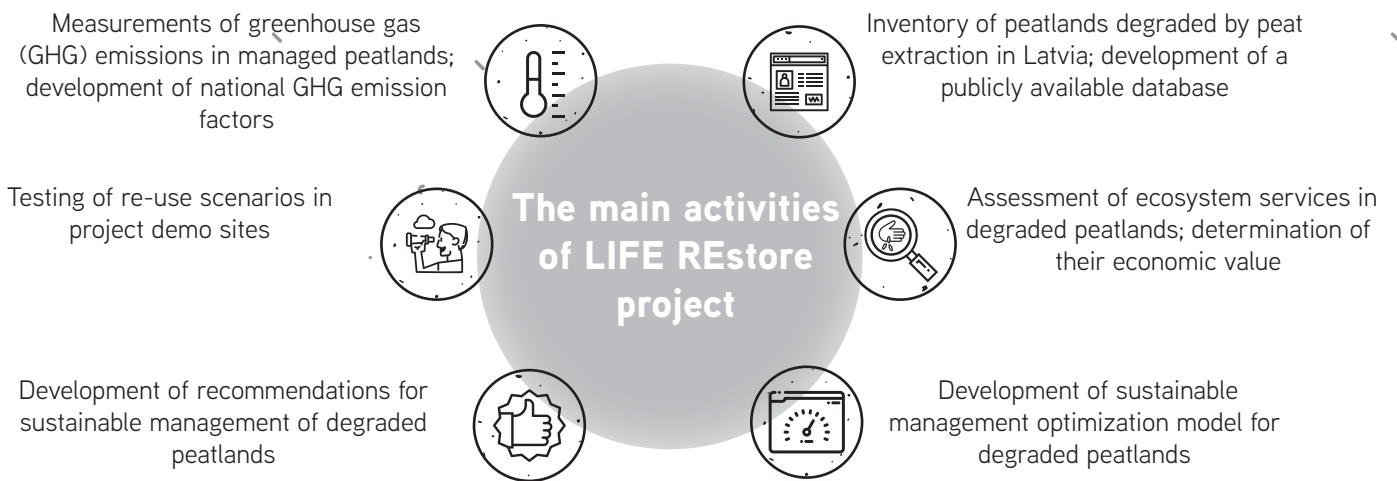
About LIFE REstore



Latvia is a country rich in peat resources. However, peat in mires and other organic soils act as a huge carbon storage as it accumulates atmospheric carbon dioxide which is one of the greenhouse gases. If mires are drained for peat extraction or for agricultural and forestry use, their carbon dioxide emissions increase, contributing to climate change.

The aim of LIFE REstore is to develop recommendations for sustainable management of peatlands after peat extraction, by balancing environmental, climate and economic aspects.

LIFE REstore is the first European Commission LIFE programme project for climate change mitigation in Latvia.



Degraded peatlands

Degraded peatlands are areas where peat extraction has been discontinued or completed, but no after-use measures have been carried out, and there is no valid licence for the use of subterranean depths. Degraded peatlands:

- Create GHG emissions, thus affecting the global climate;
- Do not deliver potential economic benefits;
- Do not ensure the restoration of biodiversity.



 LIFE REstore Demo sites for implementation of after-use scenarios in degraded peatlands

 Sites of GHG measurements

 **Kēmeri Mire**
Renaturalization /planting of Sphagnum mosses/

 **Kaigu Mire**
Highbush blueberry plantations

 **Kaigu Mire**
Afforestation

 **Lauga Mire Nature Reserve**
Renaturalization /rewetting/

 **Kaudzīšu Mire**
Large cranberry plantations

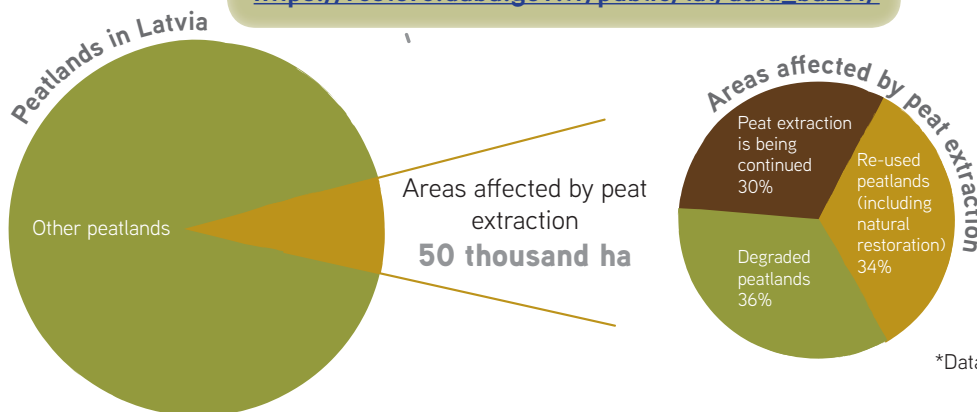


Inventory of degraded peatlands in Latvia and establishment of a publicly available database



Peatlands degraded by peat extraction in Latvia were inventoried during LIFE REstore project, and a database was developed which is publicly available in nature data management system Ozols:

https://restore.daba.gov.lv/public/lat/datu_baze1/



- In degraded peatlands located in protected nature areas, renaturalization should be planned as the future type of management.
- In degraded peatlands where peat deposit has remained in amounts useable for industrial production, peat extraction should be considered before the after-use measures, in order to ensure the rational use of peat resources.
- For other peatlands, a decision on their further use should be made and the most appropriate after-use measures should be selected.

Estimation of degraded peatland ecosystem services; determination of their economic value

Biophysical and economic assessment of degraded peatland ecosystem services has been carried out during LIFE REstore project. Regulation, provisioning and cultural services of the project demo sites were evaluated in current situation and in perspective of five, 25 and 50 years.

Within LIFE REstore project also a nature protection plan for Natura 2000 site Lauga Mire Nature Reserve was developed. For the first time in Latvia, evaluation of the territory's ecosystem services was included in nature protection plan.



Measurements of greenhouse gas emissions in managed peatlands; development of national GHG emission factors

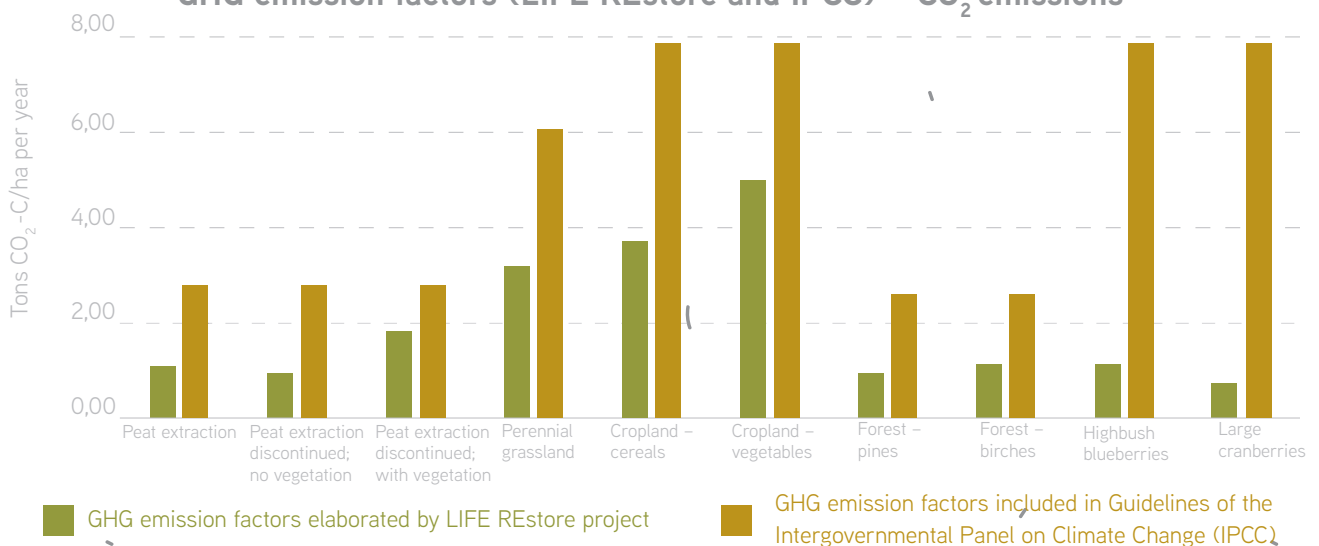
During the two-year period, LIFE REstore project has carried out measurements of greenhouse gas emissions in 41 differently managed peatlands in Latvia. More than 19 000 samples of GHG were collected.

This has made it possible to identify the most efficient peatland management options from the point of view of climate change mitigation, to measure the actual GHG emissions, to appropriate the GHG emission accounting methodology, and to develop national GHG emission factors for managed transitional and raised bog soils in line with the Intergovernmental Panel on Climate Change (IPCC) guidelines.

Interesting

- Latvia is the first of the Baltic States who developed national GHG emission factors
- The actual GHG emissions are on average twice as low as previously assumed

GHG emission factors (LIFE REstore and IPCC) – CO₂ emissions



From a climate preservation point of view, the most effective methods of degraded peatland management are the planting of large cranberries and pines. Transformation of territories into agricultural lands is to be considered as an unsuitable approach.

1,8 million tonnes

In the annual GHG inventory report of Latvia, the so far used internationally established IPCC factors can be replaced with the national GHG emission factors, resulting in GHG emission reduction by about **1.8 million tonnes** of CO₂ equivalent per year, or about 17% of total GHG emissions in the country, including land use, land-use change and forestry sector.



Testing of degraded peatland after-use types in project demo sites

Several after-use scenarios of degraded peatlands were implemented in five demo sites, in order to test the management recommendations.

- **Kaigu Mire – afforestation.** The most suitable tree species for wood biomass production and their combinations for afforestation of degraded peatlands in Latvia were clarified; the doses of the most efficient biological fertilizer – wood ash – were tested for each tree species.
- **Kaigu Mire – highbush blueberry plantations.**
- **Kaudzīšu Mire – large cranberry plantations.**
By adopting the best practices of berry growing in Latvia, the establishment of berry plantations was tested with the aim to reduce GHG emissions from degraded peatlands.
- **Lauga Mire – renaturalization by long-term water level stabilization.** In Lauga Mire Nature Reserve, innovative dams were constructed: for the first time in Latvia, peat dams built in mire were equipped with a system for water level regulation. A long-term conservation of the Nature Reserve and the restoration of important mire habitats in an area of 309 hectares were ensured.
- **Kēmeri Mire – renaturalization by planting of Sphagnum mosses.** Here, by far the largest experiment of Sphagnum moss planting in Latvia was implemented – more than 2 200 kg of Sphagnum were planted in an area of 4 500 m² in order to test the reintroduction of mire characteristic vegetation after peat extraction, as well as to determine the most effective method of Sphagnum planting.



Development of recommendations for sustainable management of degraded peatlands

Within LIFE REstore project, various after-use types which are suitable for degraded peatlands in Latvia were analysed and descriptions were prepared about:



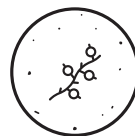
renaturalization



afforestation



cultivation of agricultural crops (cropland)



cultivation of berries (large cranberries and highbush blueberries)



cultivation of perennial grasslands



cultivation of paludiculture plants



establishment of water bodies



Recommendations are summarized in a manual which is available in print and is also accessible online: restore.daba.gov.lv



Optimization model for sustainable management of degraded peatlands

The optimization model for sustainable management of degraded peatlands is a decision-making support tool that allows municipal spatial development planners and owners of degraded peatlands to plan further use of sites after peat extraction.

The model provides recommendations for after-use types which are suitable to a specific area; it allows assessment of their implementation – calculates the necessary investments, as well as reflects the environmental, climate and economic benefits.

Optimization model is available at:

<https://karte.ozols.gov.lv/optimizacijas.modelis/>

Raising public awareness

The LIFE REstore project focuses on educating and informing the public about:

- The potential of peatlands for climate change mitigation;
- Possibilities of sustainable management of degraded peatlands;
- The importance of peatland ecosystem services.

This is done with the aim of promoting the integration of knowledge in the planning and decision-making for management of the areas affected by peat extraction.

Various informative materials were developed – scientific publications, e-messengers, ten documentary short films. Educational and informational events were organized – seminars, meetings with target groups, lectures at universities, as well as an international conference.



Long-term investment of LIFE REstore project

- Proposals for the implementation of environmental policy and climate goals of European Union and Latvia were developed.
- National GHG emission factors were developed for organic soils in extracted peatlands. This will allow recalculating the national GHG emissions in the national GHG inventory report, and more accurate planning of national climate change mitigation policies and measures to be implemented in line with the actual situation.
- Recommendations and a decision-making support tool for planning the responsible use of peatlands affected by peat extraction were developed. In the long term, this will ensure a balance between restoration of biodiversity, economic benefits and reduction of GHG emissions in Latvia. Recommendations are an important part of the future policy planning document "Guidelines for the Sustainable Use of Peat 2019-2030" of the Ministry of Environmental Protection and Regional Development, and will be a significant support for landowners.
- Publicly accessible database on peatlands affected by peat extraction in Latvia and on their actual condition was developed. It allows planning of management measures, thus reducing the significant impact on climate change.
- Co-operation ties which were established and, in some cases, re-established during the project implementation between the parties involved in the management of peatlands are highly significant and to be supported in the future. Cooperation between the Nature Conservation Agency, experts and entrepreneurs in the peat sector, as well as leading scientists from all parties involved contributed to an in-depth understanding of the interaction between nature conservation, climate change and economic development.

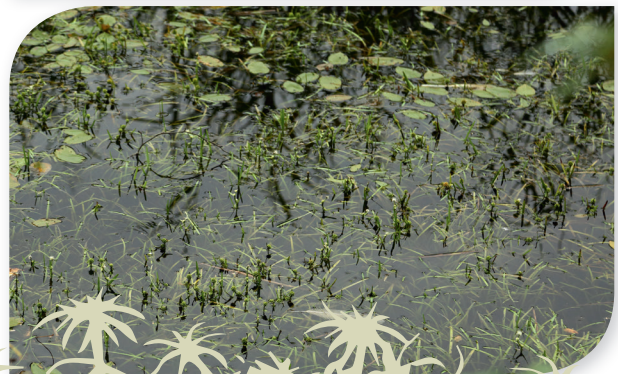




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