

## HOW TO REDUCE THEIR CLIMATE IMPACT?

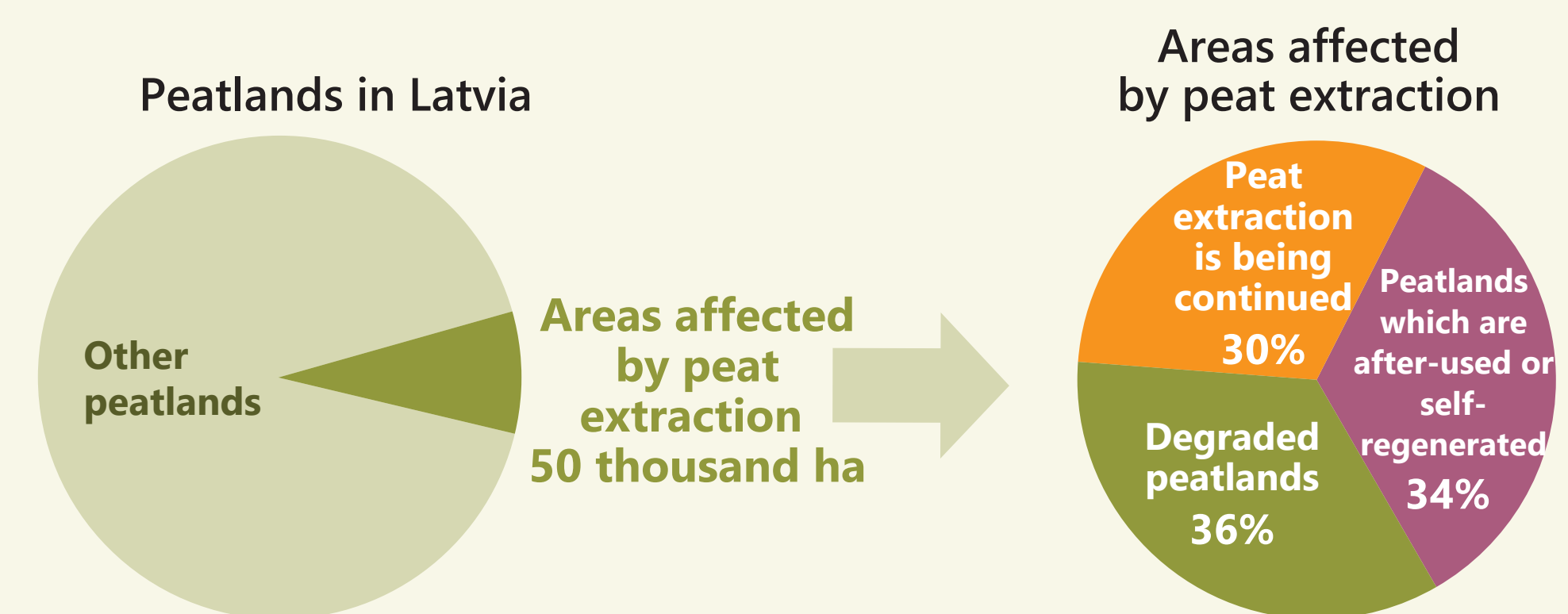
The aim of LIFE REstore project was to develop recommendations for sustainable management of peatlands after peat extraction, by balancing environmental, climate and economy aspects.

Latvia is a country rich in mires. However, in result of economic activity and the use of natural resources (peat extraction, agriculture, and forestry), mires from sinks and huge storages of greenhouse gases (GHG) become GHG sources and, consequently, affect climate change.

## PROJECT ACTIVITIES

### Inventory of post-harvested peatlands in Latvia

LIFE REstore project inventoried post-harvested peatlands in Latvia – studied all sites influenced by peat extraction and developed a publicly available database ([https://restore.daba.gov.lv/public/lat/datu\\_baze1/](https://restore.daba.gov.lv/public/lat/datu_baze1/)). For every peatland, its location, exact area, condition of vegetation, hydrological regime, residual peat layer and its composition were determined.



More than 18 thousand hectares or 36% of post-harvested peatlands are degraded peatlands which:

- generate GHG emissions;
- are not used economically, and do not deliver economic benefits;
- mire-specific vegetation does not regenerate;
- do not promote the restoration of mire specific vegetation.

### Recommendations for the further use of post-harvested peatlands

LIFE REstore project classified post-harvested peatlands, described their most suitable after-use scenarios and provided recommendations for their management. These 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. Recommended after-use scenarios of post-harvested peatlands in Latvia are:

- renaturalization (rewetting, reintroduction of mire plants);
- afforestation;
- establishment of arable lands for agricultural crop production;
- cultivation of berry plants (large cranberries, highbush and lowbush blueberries);
- cultivation of paludiculture plants for biomass production;
- creation of water bodies;
- cultivation of perennial grasslands.

### Measurements of greenhouse gas emissions in peatlands

LIFE REstore project measured greenhouse gas emissions from managed peatlands in order to determine the impact of various types of management on GHG emissions. Over two years, more than 19 000 GHG samples from different types of peatlands throughout Latvia were collected and analyzed.



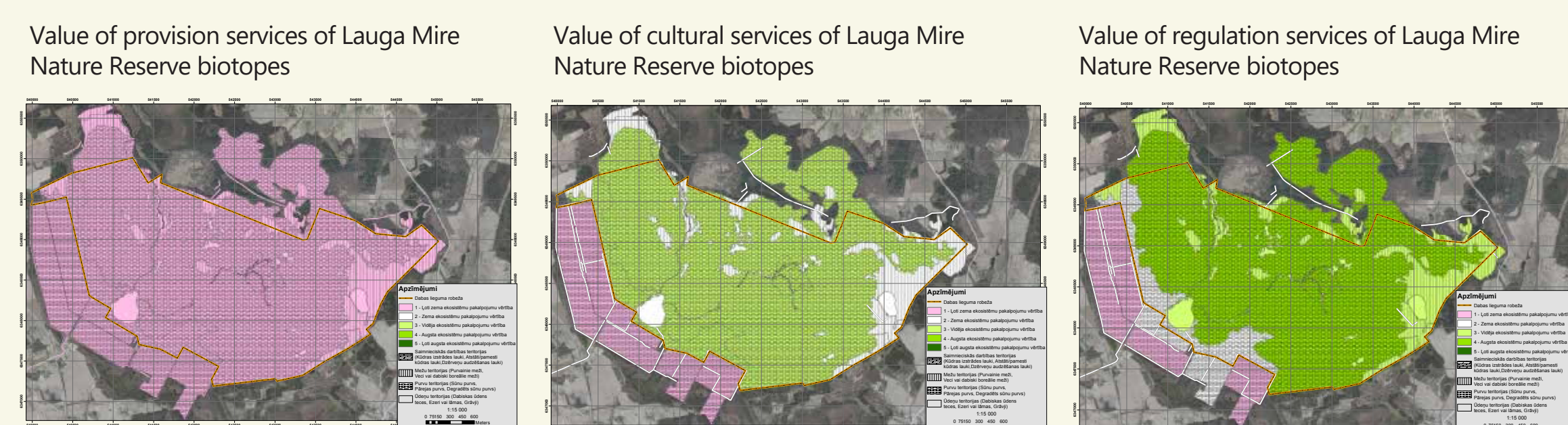
## OPTIMIZATION MODEL – PLANNING INSTRUMENT FOR THE USE OF TERRITORIES

LIFE REstore project developed an interactive tool that allows planners of municipalities and owners of degraded peatlands to plan further use of peatlands after peat extraction.

### Evaluation of ecosystem services

Assessment of ecosystem services of degraded peatlands, including their economic assessment, was carried out by LIFE REstore project in five demo sites; their current situation was analysed, as well as for five, 25 and 50 year development scenarios.

Within the framework of the project, for the first time in Latvia nature protection plan was developed which included ecosystem service assessment – nature protection plan for Natura 2000 site Laugas Mire Nature Reserve.



### Implementation of after-use scenarios in project demo sites

To test in practice the recommendations for the reclamation of degraded peatlands, possible after-use scenarios were implemented in five demo sites. These activities resulted in direct GHG emission reduction – 2227 tons of CO<sub>2</sub> per year.

#### Kauri Mire – afforestation



More than 6 000 tree seedlings were planted. Purpose – to determine the most suitable tree species for wood biomass production (black alder *Alnus glutinosa*, birches *Betula spp.*, Scots pine *Pinus sylvestris*, poplars *Populus spp.*) and their planting combinations for afforestation of degraded peatlands in Latvia, as well as to test the most effective biological fertilizer – wood ash – for various tree species.

#### Kauri Mire – renaturalization (planting of Sphagnum mosses)



About 2 200 tons of *Sphagnum* mosses were planted in an area of 4 500 m<sup>2</sup> in order to test the possibilities of propagation of mire specific vegetation and mire restoration after peat extraction as well as to determine the most effective method of *Sphagnum* planting.

For the first time in Latvia *Sphagnum* mosses were planted in such a large area!

#### Kauri Mire – plantations of highbush blueberries; Kaudzišu Mire – plantations of large cranberries.



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, and to determine exact changes of GHG emissions after the implementation of these after-use scenarios.

#### Lauga Mire – renaturalization



The area is located in Laugas Mire Nature Reserve, which is included in the Natura 2000 network of protected nature areas of European importance. By constructing peat dams on drainage ditches, hydrological regime in Višezers Lake (the largest lake in mire) was stabilized, thus eliminating the potential threat to the natural development of entire Lauga mire ecosystem.