Norway grants

### **Enhancement of** sustainable soil resource management in agriculture (E2SOILAGRI)

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A soil deal for Europe – mission possible in the Baltic Sea Region



20.06.2022



#### About the project

- Norway Grants Climate and Environment Program 2014 2021 "Climate change mitigation," 1,56 million EUR and - the national co-financing 0,27 million EUR.
- Partners are:





State Plant Protection Service

of the Republic of Latvia

Ministry of Agriculture of the Republic of Latvia

• Main objective is:

Update national soil data for development and improvement of climate change policy.

adaptation to them and the environment" pre-defined project "Enhancement of sustainable soil resource management in agriculture". The budget is 1,83 million EUR, including the Norway Grant







#### **Planned results**

- Updated historical soil database and digital soil map with data from 15 000 soil profiles
- Improved national soil classification system internationally harmonized with the FAO WRB classification
- Developed soil mapping methodology
- Assessed distribution of peat soils in agricultu agricultural land
- Established 200 soil carbon monitoring sites in agricultural land
- Developed 3 greenhouse gas (GHG) emission factors in drained organic soils
- Participated in experience sharing missions between Norwegian and Latvian experts & strengthened the capacity of the experts

oil map with data from 15 000 soil profiles ternationally harmonized with the FAO WRB

Assessed distribution of peat soils in agricultural land & developed a map of peat soil distribution in

# 1. Improving reliable, country-specific soil information of agricultural land (I)

- Develop new national soil classification methodology, that is harmonized with FAO WRB classification. Approbate the developed soil classification methodology.
- Develop soil mapping methodology at 1:10 000 scale.
- Using the newly developed methodologies dig soil profiles in two pilot areas, describe the profiles, classify the soil and map both areas.
- Extend the mapping methodology and develop guidelines for mapping at 1:50 000 and 1:100 000 scale.
- Calculate cost of the mapping at different scales and detalization levels.





## 1. Improving reliable, country-specific soil information of agricultural land (II)

- Dig 487 reference soil profiles in peat soils. Develop methodology of peatland distribution assessment and mapping.
- Map peat soil on field to aprobate the methodology.
- Create machine learning model to map peatland distribution based on satellite data, maps, etc.
- Create peatland distribution map.







# 1. Improving reliable, country-specific soil information of agricultural land (III)

- Update the historical soil information database by georeferencing 15 000 historical soil profile sites.
- Integrate the geo-referenced historical soil profile sites in the soil maps.
- Update the historically defined soil type contours where necessary.
- Organize training on soil description and mapping.
- Develop proposals to include in other sub-activities created knowledge in regulatory or legislative acts.



#### 2. Establishing national soil carbon monitoring system

- Establish 200 monitoring points in agricultural land, including:
  - soil description (according to developed and WRB classification);
  - lab analyses (C, N, pH, texture, etc.);
  - survey (crops, fertilizers, yields, etc.)
- Create database and integrate it in national agricultural land management system.
- Use the data for C stock calculation and in national GHG Inventory Report.





#### 3. Developing GHG emission factors and drafting of proposals for the inclusion of the elaborated emission factors into the national GHG inventory report

- Establish 3 test sites (low bog peat soils, perennial) grassland or pasture).
- Collect data (CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O fluxes, environmental parameters, ground cover characteristics) for 24 months.
- Develop GHG emission factors for organic soils in perennial grasslands and integrating them in national GHG Inventory Report.







### 4. Exchange of experience on sustainable management of soil resources by Norwegian experts

- Have NIBIO experts evaluate the project's implementation and progress.
- Acquire soil description and mapping experience in Norway.

#### 5. Participation in international activities related to soil issues



• Participate in European Soil Partnership working groups, UN Framework Convention on Climate Change conferences, EU Land Use, Land Use Change seminars and Climate Expert seminars.

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### Thank You for the attention!

