CONCLUDING LIFE ORGBALT AND ESTABLISHING DIRECTIONS FOR FUTURE RESEARCH

The LIFE OrgBalt project was designed to explore climate change mitigation (CCM) practices that could decrease emissions from nutrient-rich organic soils used for agriculture or forestry. The goal was to demonstrate how these practices can be sustainable, resilient, and cost-effective.

During the project, proposals for the regional greenhouse gas (GHG) emission factors were developed for nutrient-rich organic soils. The factors are expected to aid in recalculating the national GHG emissions in the national GHG inventory report, improving the GHG inventory methods used in assessment, as well as the projections of GHG emissions and carbon sequestration in relation to the management of nutrient-rich organic soils. Consequently, it is expected to lead to more accurate planning of national climate change mitigation policies and measures to be implemented in line with the actual situation. Proposals for improvement of sectoral strategies and action plans to reduce GHG emissions from organic soils were developed to provide comprehensive and transparent information to ensure a balance between environmental, climate, and economic benefits in the long term. Moreover, a variety of tools- functional land management models, maps, decision making support tool - have been developed within the project.

Overall, the project contributed to the elaboration of 28 peer reviewed scientific articles and conference proceedings. However, the research on organic soils should continue in the future in other research projects. In this article, we summarize the general outlook on what knowledge gaps still exist in the field and how future research could help in better understanding nutrient-rich organic soils in the region.

In the project, a clear need for reliable GHG measurements and measures contributing to the soil C-balance was identified. Reliable data requires site- and site-type specific information on GHGs, vegetation biomass, dead organic matter transfer and turnover. The data should be suitable for advanced modelling, and data collection should include multiple replicated conditions. As was ensured in the OrgBalt project, GHG flux studies should be focused on obtaining accurate data from continuous measurements in typical locations. Continuous data gathering over longer time periods (exceeding 2 years required as a minimum by IPCC) would contribute to more robust outcomes and less uncertainty.

Practices to be explored in depth in future are rewetting measures (not covered within the OrgBalt) and paludiculture. Further studies would be necessary on purposeful regeneration of wet and rewetted peatland forests to prove mitigation effect in comparison to natural regeneration, as well as on the effect of groundwater level regulation and the development of hydrologic regime modelling tools to support remote assessment of areas best suitable for different climate change mitigation measures.

Before the implementation of sustainable soil management practices on a large scale, support for research on evaluation of the impact of these practices on socio-economic indicators on a local and national level is required.

To conclude, as countries are implementing more ambitious climate change measures in the Land Use, Land-use Change and Forestry sector, continuous support for research to improve understanding of soil carbon dynamics and sustainable soil management practices is a must. Policy makers need quality data to make informed decisions on which are the most effective actions to support, and the research community should be continuously supported to provide this data.

LIFE ORGBALT TEAM

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