

Deliverable A 1/2 “Report on current situation – applied emission factors and projections of greenhouse gas emissions from organic soils”

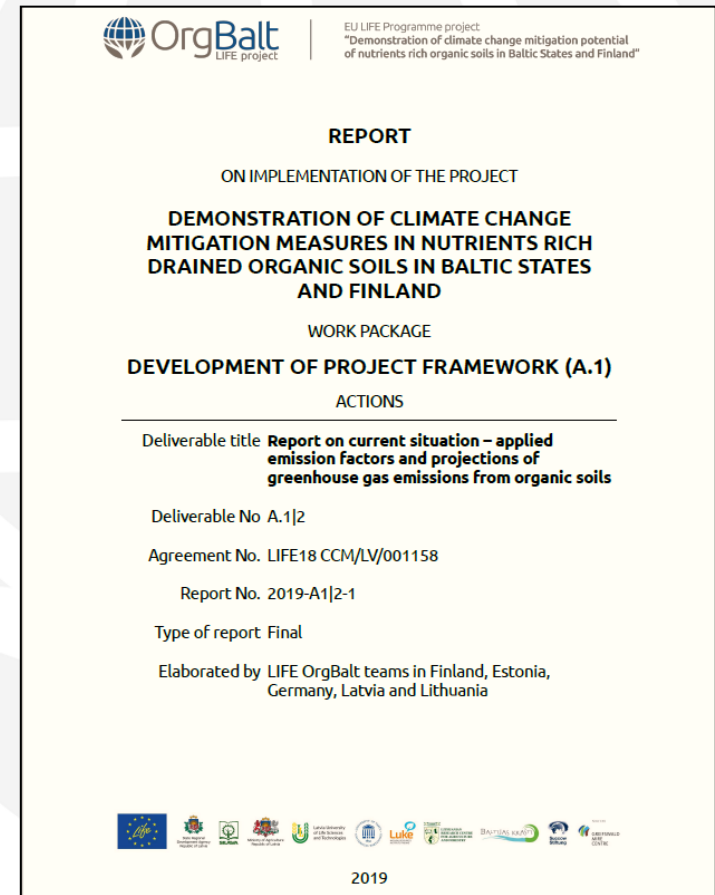
“EF document”

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EU LIFE Programme project
“Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland”

Content

- *Task setting & Timelines*
- *Work accomplished for producing the output*
- *Deliverable produced*
- *Summarized main findings*



The image shows the cover page of a report. At the top left is the OrgBalt LIFE project logo. To its right is the project title: "EU LIFE Programme project 'Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland'". The main title of the report is "REPORT ON IMPLEMENTATION OF THE PROJECT DEMONSTRATION OF CLIMATE CHANGE MITIGATION MEASURES IN NUTRIENTS RICH DRAINED ORGANIC SOILS IN BALTIC STATES AND FINLAND". Below this is "WORK PACKAGE DEVELOPMENT OF PROJECT FRAMEWORK (A.1) ACTIONS". A horizontal line separates this from the deliverable title: "Report on current situation – applied emission factors and projections of greenhouse gas emissions from organic soils". Other details include: Deliverable No A.1|2, Agreement No. LIFE18 CCM/LV/001158, Report No. 2019-A1|2-1, Type of report Final, and Elaborated by LIFE OrgBalt teams in Finland, Estonia, Germany, Latvia and Lithuania. At the bottom, there is a row of logos for the European Union, various national governments, and research institutions, followed by the year 2019.

OrgBalt
LIFE project

EU LIFE Programme project
"Demonstration of climate change mitigation potential
of nutrients rich organic soils in Baltic States and Finland"

REPORT
ON IMPLEMENTATION OF THE PROJECT

**DEMONSTRATION OF CLIMATE CHANGE
MITIGATION MEASURES IN NUTRIENTS RICH
DRAINED ORGANIC SOILS IN BALTIC STATES
AND FINLAND**

WORK PACKAGE
DEVELOPMENT OF PROJECT FRAMEWORK (A.1)
ACTIONS

Deliverable title **Report on current situation – applied
emission factors and projections of
greenhouse gas emissions from organic soils**


Deliverable No A.1|2

Agreement No. LIFE18 CCM/LV/001158

Report No. 2019-A1|2-1


Type of report Final

Elaborated by LIFE OrgBalt teams in Finland, Estonia,
Germany, Latvia and Lithuania



2019

Task setting	Implementation
<p>Task 3: Analysis of existing national and international management practices and previous experiences</p>	<p>Report on current situation on organic soils, EFs, and projections of greenhouse gas emissions based on previous experiences was formed.</p>
<p>The Task will be carried out by the Project team in joint events and studies and by analysing expert's reports.</p>	<p>Project teams attended.</p>
<p>The main tasks are to analyse GHG inventory reports, existing national and international management practices for nutrient-rich organic soils, as well as relevant policy documents.</p>	<p>Country specific latest GHG inventory reports and relevant scientific literature were used and cited.</p>
<p>The starting point for elaboration of country-specific GHG EFs is the IPCC guidelines published in 2006(1) and 2014(2).</p>	<p>Yes</p>

Task setting	Implementaion
<p>The methodologies elaborated and approved in partner countries (specifically, Finland, Germany and Estonia) will be used as methodological foundation of the project.</p>	<p>✓ Yes. For the EF report, current situation was documented.</p>
<p>The report will cover all European countries in TCM climate zone.</p>	<p>✓ For EF report we consider current status reporting for Baltic countries and Finland relevant (data collection and EF development work there).</p>
<p>The state of the art in the research field will be represented by results of project SNS-120</p> <div data-bbox="63 1021 730 1256" style="border: 1px solid black; padding: 5px;"> <p>Biogeosciences, 16, 4687–4703, 2019 https://doi.org/10.5194/bg-16-4687-2019 © Author(s) 2019. This work is distributed under the Creative Commons Attribution 4.0 License.</p> <p style="text-align: right;">Biogeosciences </p> <p>Reviews and syntheses: Greenhouse gas exchange data from drained organic forest soils – a review of current approaches and recommendations for future research</p> <p>Jyrki Jaubhaiainen^{1,2}, Jukka Alm³, Brynhildur Bjarnadottir⁴, Ingeborg Callesen⁵, Jesper R. Christiansen⁵, Nicholas Clarke⁶, Lise Dalsgaard⁷, Hongxing He⁸, Sabine Jordan⁹, Vaiva Kazanaviciute¹⁰, Leif Klemetsson¹¹, Ari Lauren³, Andis Lazdins¹², Aleksi Lehtonen¹, Annalea Lohila^{13,14}, Ainars Lupikis¹², Ūlo Mander¹⁵, Kari Minkkinen³, Asa Kasimir¹¹, Mats Olsson⁹, Paavo Ojanen³, Hlynur Óskarsson¹⁶, Bjarni D. Sigurdsson¹⁶, Gunnhild Sogaard⁷, Kaito Soosaar¹³, Lars Vesterdal⁵, and Raija Laiho¹</p> </div>	<p>Recently published materials from SNS-120 project were analyzed to show which improvements in data materials and data collection methods would be useful for increasing data applicability aiming higher EF Tier levels.</p> <p>✓</p>

Work accomplished for producing the report

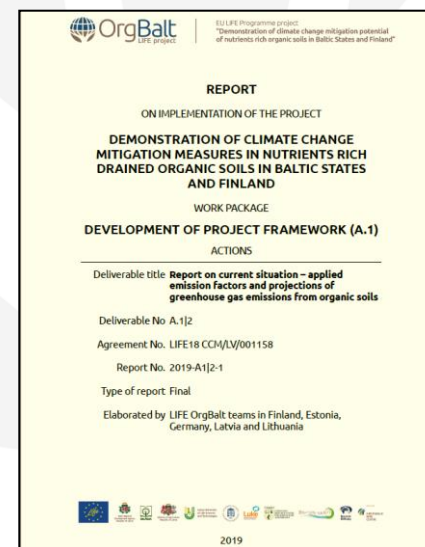
- Outline of "EF" document content was presented by Luke in kick-off meeting (Riga, 24.10.2019)
- Google document for contributions was available in early November 2019
 - Content list
 - Specified locations for each country to add content
 - First draft materials from Finland were available as an example
 - Guidelines for project partners with task allocated resources were provided
- Document was available for adding & editing until end of the year
- Finalizing the document
 - Streamlining textual expressions, organizing draft-numbering for figures & tables, providing list of abbreviations used etc. (Luke)
 - Summary (Luke)
 - Final Life OrgBalt format & polishing of the document (Silava)

Deliverable produced and summarized main findings

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- 64 pages
- 8 figures
- 24 tables
- 85 references



Deliverable produced and summarized main findings

- In cool climate region, e.g. the Baltic region, organic soils are notable land type in relatively flat terrain characterized by higher precipitation than evaporation
- Proportion the highest organic (peat) soil area is in Finland
- Other organic soil types (differing from peat) in notable areas in the Baltic countries.
- Soils have been drained especially for forestry and agriculture, and for peat mining (energy production) in some countries
- By area, forest on organic soils form the main land use category in Finland, Latvia and Lithuania, and agriculture is the most abundant land use in Estonia
 - In agriculture, the proportion of perennial grasslands and annual cropping lands on organic soils vary by country, and grasslands are more abundant in the north
 - Permanent draining is typical for agricultural land, while only part of the forests growing on organic soils can be characterized as drained

Deliverable produced and summarized main findings

- All countries follow IPCC Guidance (AFOLU and IPCC Wetlands supplement) in their national GHG inventories
- All countries implement sampling-based National Forest Inventory (NFI) to estimate their organic soil areas in specific land uses, and may include further details on nutrient status etc. site characteristics in applied classification
- The lowest Tier 1 level is chosen in the country if
 - site type condition specific data is not available
 - climate-, soil environment-, and/or management conditions specific data is not available
 - Some specific emission source in the land use forms a modest component
 - GHG source has minor significance in the country
- CO₂ EFs in these countries included all Tier (1 – 3) levels
 - The highest CO₂ EF Tier 3 level was available for forests in Finland
 - The most applied CO₂ EF for forest was Tier 2 (Estonia, Latvia and Finland), while the default EF was applied in Lithuania.
 - In general, the higher EFs are most often applied for forests on organic soil and Tier 1 for agriculture lands

Deliverable produced and summarized main findings

- Recent analysis on existing GHG data on forests on drained organic soils
 - at least 2/3 of the GHG data is from boreal climate zone (Finland)
 - There is no possibility to inspect this GHG data by category level including forest management options yet
- In addition to GHG fluxes quantifying soil gas dynamics, details on the soil and vegetation characteristics and environment conditions at the monitoring sites are necessary to analyse for synthesizing the general dependencies between the fluxes and environmental parameters.
- For forming higher Tier EFs for CO₂ in the temperate region, studies on aboveground litter production and decomposition dynamics are needed.
- The accuracy of EFs can be improved as more peer-reviewed data become available and the data quantifies a wider set of specific management options and ecological conditions for a given country or region.

Fig 1

Fig 2

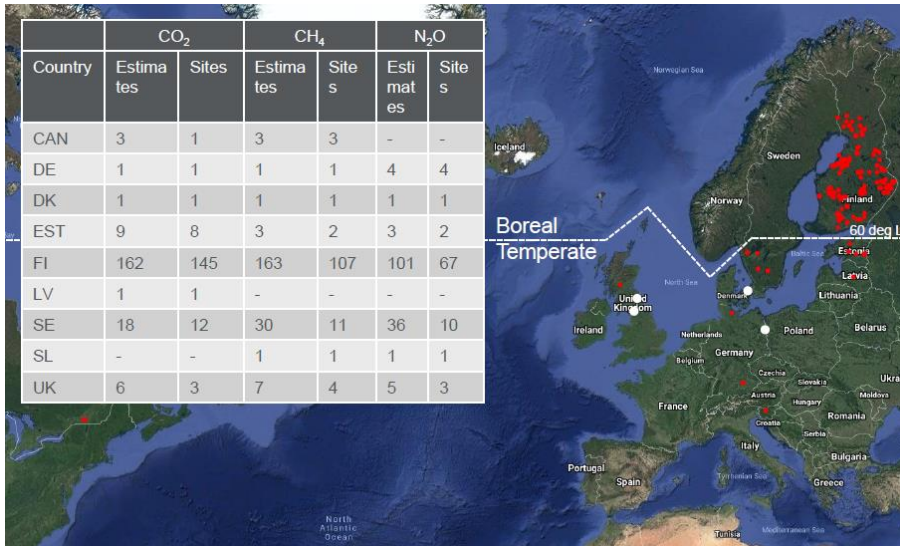


Fig 1

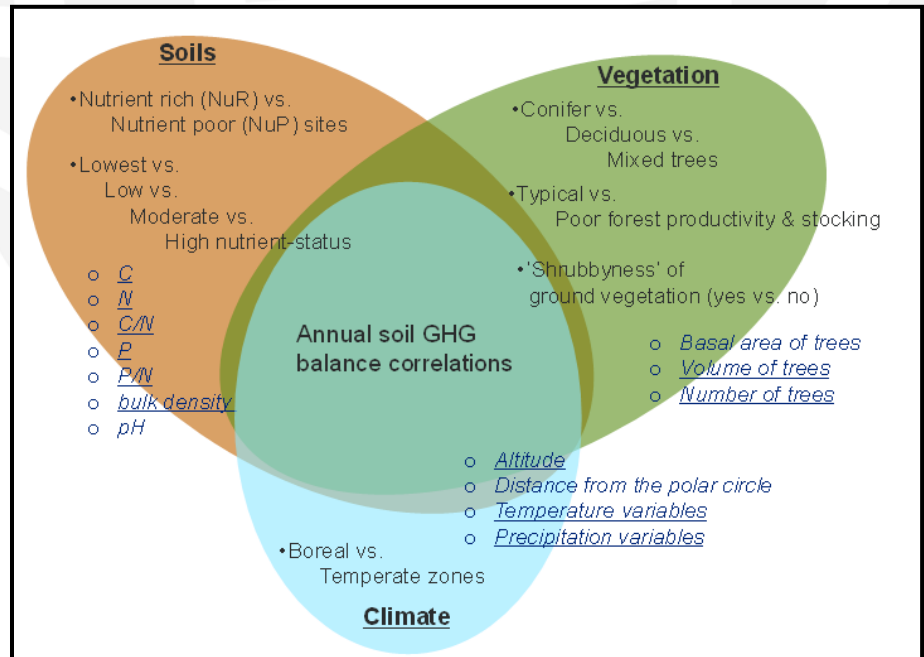


Fig 2

Thank you – kiitos!



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The project "Demonstration of climate change mitigation potential of nutrients rich organic soils in Baltic States and Finland" (LIFE OrgBalt, LIFE18 CCM/LV/001158) has received funding from the LIFE Programme of the European Union and the State Regional Development Agency of Latvia. www.orgbalt.eu

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