



Food and Agriculture  
Organization of the  
United Nations

# 8<sup>th</sup> European Soil Partnership Plenary Meeting

Yusuf Yigini – GSP Secretariat

Virtual meeting | 24 June 2021



# TOP 4

## Preparations for the GSP Plenary Assembly

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# GSP Stocktaking Review and Recommendations

8<sup>th</sup> GSP PA

- Endorsed** • R1 - Transforming the current Pillars into Outcome Areas for Soil Health.
- Endorsed** • R2 - Recognize two distinct functions within the Secretariat: a Programme unit and a Resource Mobilization unit
- Assessment Needed** • R3 - Undertake consultations on the prospects for elevating the GSP to a more formal statutory body of FAO
- Endorsed** • R4 - Revamp the present regional and national structural arrangements, building closer links to FAO's own decentralized structures
- Endorsed** • R5 - The GSP should also prepare Partnership Framework Agreements with key international conventions and organizations

# 9<sup>th</sup> GSP Plenary Assembly

- Implementation of the Recommendations of the GSP Evaluation: *for decision* (GSPPA:IX/2021/2)
  - New GSP Action Framework: towards a global soil health deal
  - Assessment of the implications of an eventual institutionalization of the GSP

# TOP 2.3

## GSP-Pillar 4 – Soil Information & Data

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# GSP Pillar 4 GIP

- The first implementation period of Pillar 4 (Soil Information and Data) was expired in 2020
- The 8th GSP PA extended the Pillar 4 implementation period until the 9th **GSP PA** and mandated INSII for the further steps.
- INSII (6th), mandated Pillar 4 Working Group to finalize the new Pillar 4 Global Implementation Plan by the 9th GSP Plenary Assembly according to the suggestions made by the INSII members.
- But considering the efforts on the Implementation of the ***Recommendations of the GSP Evaluation***, ongoing development of new ***GSP Action Framework*** and ongoing assessment of the implications of an eventual ***institutionalization of the GSP***, the development of the new plan **has been suspended** until the plenary discussion of Item 2 in September (***GSPPA/IX/2021/2***)

# TOP 2.4

## Report GSP-Secretariat Overview

- **Global Symposia**: Facilitated by the GSP Secretariat, supported by ITPS jointly organized with key international conventions and organizations. Symposia in response to policy developments and needs,
- **Knowledge products** (assessments), based on calls for participation by GSP members (writing teams, ad hoc WGs), including review; quality control and support from ITPS
- **Technical products**: Protocols, Codes
- **Data Products**: Country-driven global data products, facilitated by the GSP Sec, developed by INSII, technically and scientifically supported by P4WG, ITPS

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# GSP SYMPOSIA

- GSOC'17 – Global Symposium on Soil Organic Carbon
- GSOP'18 – Global Symposium on Soil Pollution
- GSER'19 – Global Symposium on Soil Erosion
- Covid'19
- GSOBI'21 – Global Symposium on Soil Biodiversity
- GSAS'21 – Symposium on Salt Affected Soils | 20 -22 Oct 2021



# GSOC'17 Global Symposium on Soil Organic Carbon

21–23 March 2017, Rome, Italy,  
488 participants (111 countries)  
8 recommendations

## Implementation of the Recommendations 2017-2021

### Data products:

- GSOCmap
- GSOCseq
- GBSmap

### Technical products

- MRV Protocol
- Technical Manual on SOC Practices

### Other

- Establishment of INBS
- Capacity Development Programme

#### Recommendation #1

Organize **capacity development** and training for countries to develop national reference values for SOC stocks, as well as the necessary data management capacities and facilities.

#### Recommendation #2

Establish a working group to develop feasible and regionally contextualized **guidelines for measuring, mapping, monitoring and reporting** on.

#### Recommendation #3

In estimates of the potential for SOC sequestration, include the full GHG balance and consider possible interactions between the carbon and N cycles that could affect the climate change mitigation potential of practices.

#### Recommendation #4

The design of **implementation strategies and appropriate soil and land management practices** for SOC.

Identify and specify the tangible **short and long term benefits for farmers of management practices for SOC sequestration** to trigger their adoption, and introduce mechanisms to incentivize the adoption of such practices.

Prevent SOC losses by maintaining current SOC stocks (especially in carbon-rich soils) as the minimum action on SOC management.

#### Recommendation #5

**Prioritize soils with the highest carbon stocks** in the development of national and regional policies on soil conservation to prevent SOC losses.

#### Recommendation #6

Support land-users sufficiently to implement and sustain appropriate soil and land management practices to protect and enhance SOC under local conditions for long-term benefit.

#### Recommendation #7

#### Recommendation #8

# GSOP'18 Global Symposium on Soil Pollution

FAO HQ, Rome, Italy, on 2–4 May 2018 - attended by **525 participants from 100 countries**, including representatives of FAO member states, organizing institutions, the academia, the private sector and civil society, as well as scientists and land users working on soil pollution and related fields

## RECOMMENDATIONS

### Recommendation #1

support the development and implementation of tools and guidelines that would support the prevention and remediation of soil pollution.

### Recommendation #2

include soil pollution assessment and minimization measures in Soil Doctors Programme

### Recommendation #3

advocate for the implementation of existing guidelines

### Recommendation #4

develop guidelines for assessing, mapping, monitoring and reporting on soil pollution.

develop guidelines for the management of polluted soils, including a database of good practices for addressing soil pollution

### Recommendation #5

implement capacity building and training activities covering the full cycle of soil pollution.

### Recommendation #6

implement the activities of the GLOSOLAN, including harmonized methods to identify and measure soil contaminants

### Recommendation #7

Prepare a Global Assessment of the Status of Soil Pollution using a country-driven process in line with the UNEA3 resolution.

### Recommendation #8



# GSOP'18

## Implementation of the Recommendations 2018-2021

- **Global Assessment of the Status of Soil Pollution** – Launched, 4 June 2021
- **Fertilizer Code** – Aspects related to the prevention of soil and water contamination from misuse of fertilizers.
- **Guidelines for assessing, mapping, monitoring and reporting on soil pollution** – Under development. Expected publishing date December 2021/January 2022
- **Guidelines for the management of polluted soils** – Under development. Expected publishing date December 2021/January 2022
- **Capacity Building** – Activity planned for 2022, including e-learning courses as part of EduSOILS
- **Harmonized methods** – Trace elements assessment included in GLOSOLAN workplan for 2021/2022

# GSER'19 Global Symposium on Soil Erosion

FAO HQ, Rome, 15-17 May 2019 and attended by *more than 500 participants from 104 countries*, including representatives of FAO member states, organizing institutions, the academia, the private sector and civil society, farmers, as well as scientists and land users working on soil erosion and related fields.

## RECOMMENDATIONS

### Recommendation #1

Create an expert and multi-stakeholder working group to develop the methodology and guidelines for the preparation of the **Global Soil Erosion map (GSERmap)**

### Recommendation #2

Organize **capacity development** and training for countries to develop national soil erosion assessment, as well as the necessary data management and monitoring facilities

### Recommendation #3

establish a working group to develop **a database of good practices** for addressing soil erosion control

**implement an action plan** on the assessment of effective policies and practices to control soil erosion and to analyze major gaps on the development and implementation of soil erosion control policies at global, regional and national levels

### Recommendation #4

Implement **a global study on the economics of soil erosion** and soil erosion control as a first contribution to the ongoing initiative on the economics of Sustainable Soil Management

### Recommendation #5

Facilitate and support **multi stakeholder dialogue** by creating a multi stakeholder platform to inform and advise on the best approaches and strategies to implement soil erosion control activities at all scales

### Recommendation #6

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# GSOBI'21

161 countries represented

- DAY1: 4802 participants
- DAY2: 3806 participants
- DAY3: 3065 participants



Under the umbrella of the International Initiative for the Conservation and Sustainable Use of Soil Biodiversity, a **Technical Network on Soil Biodiversity (NETSOB)** will be established.

- **Theme-1** Measurement and assessment of SB
- **Theme-2** Sustainable use/management and conservation of SB
- **Theme 3** Economics of SB
- **Theme 4** Policies and legal instruments of SB

## Main GSOBI21 outputs



**Mainstreaming soil biodiversity through key recommendations**

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# RECOMMENDATIONS from GSOBI'21

## Recommendation #1

Establishment of the **Global Soil Biodiversity Observatory**

## Recommendation #2

Create an expert and multi-stakeholder working group to **develop guidelines for measuring, assessing and monitoring (MAM) soil biodiversity.**

## Recommendation #3

Develop and implement a **capacity development programme** on soil biodiversity including national assessments, monitoring, good practices and restoration.

Establish a working group to develop a **Field Manual on Soil Biodiversity Management** that addresses soil biodiversity loss/conservation.

## Recommendation #4

Develop a **Technical Booklet** about the main soil-borne diseases.

## Recommendation #5

Create an expert and multi-stakeholder working group on the **economic valuation of soil biodiversity.**

## Recommendation #6

Implement an **action plan on the assessment of effective policies and legal instruments to control soil biodiversity loss.**

## Recommendation #7

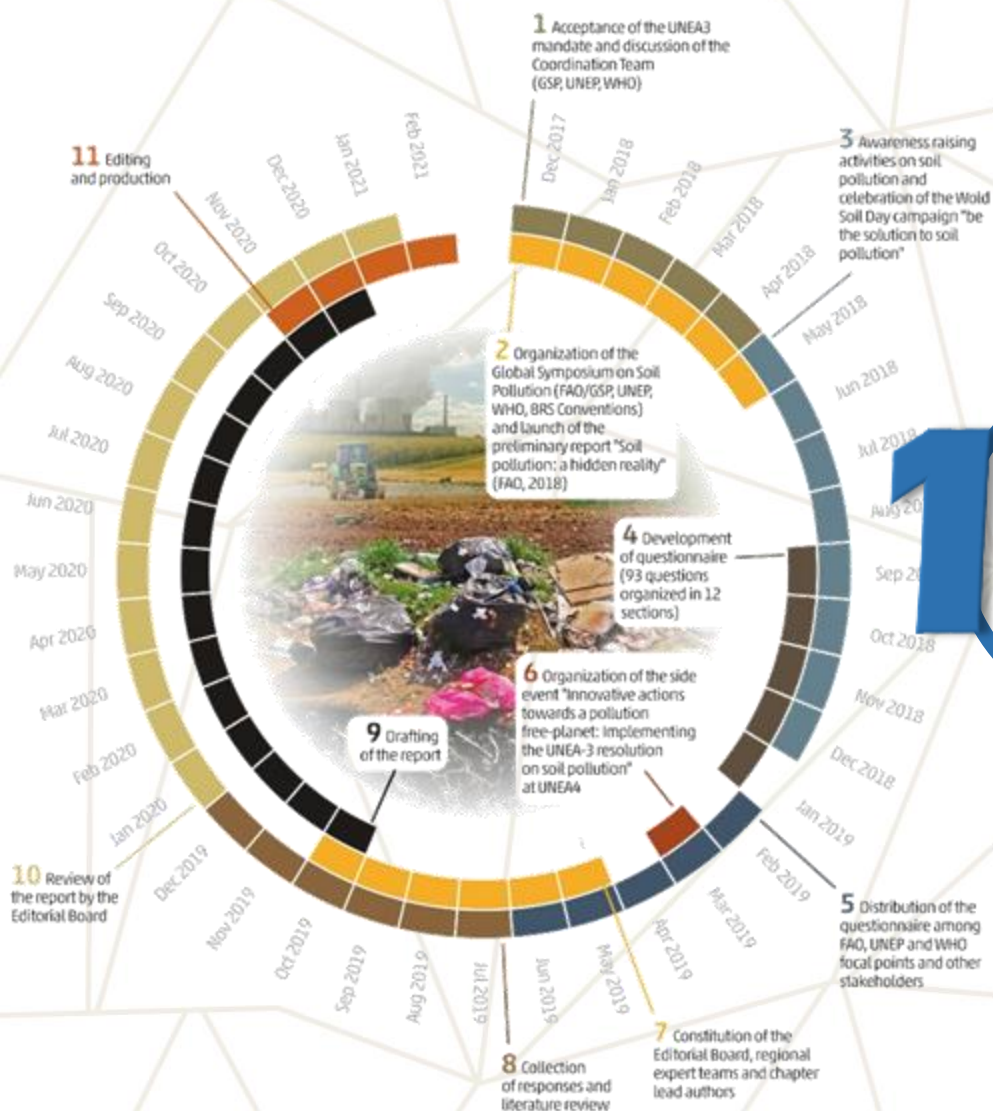
# KNOWLEDGE PRODUCTS

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# Global Assessment of Soil Pollution

**LAUNCHED: June 2021**



**1** 106 responses from 75 countries

**2** 53 contributors 17 companies

**3** 40 members of the Editorial Board

European contributions from ESP focal points coordinated by the JRC, COMMON FORUM, and EEA NRC Soil – Soil Contamination WG

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# Recommendations: Global Assessment of Soil Pollution



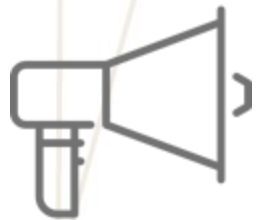
## Fill knowledge gaps

Global Soil Pollution Information and Monitoring System



## Strengthen legal frameworks

Global commitment towards preventing, halting and remediating soil pollution in the framework of Zero Pollution/Towards a Pollution Free Planet ambitions



## Improve awareness and communication

Promote pollution-free options and incentivize 4R approach

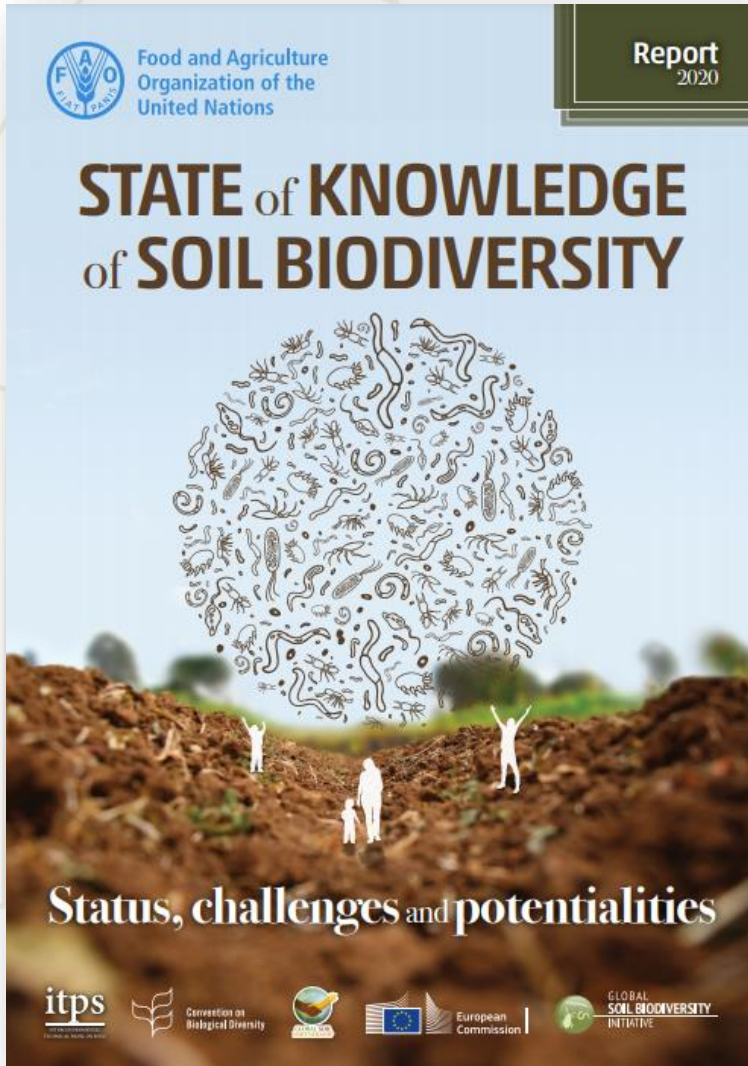


## Foster international cooperation

Advocate for technology transfer and cross-capacity building for the whole cycle of soil pollution, from prevention to detection, monitoring, management, and remediation

# Future activities on Soil Pollution

1. Technical documents: Under development since 2019 31 contributing authors from Europe)
  1. Database of good practices on the management and remediation of soil pollution
  2. Technical guidelines for assessing, mapping, monitoring and reporting on soil pollution
2. Projects on the ground: Remediation and management of hot spots of trace element pollution in agricultural areas by applying nature-based solutions
3. SSM: Strengthening Soil Doctors Programme area on soil pollution



# State of knowledge of soil biodiversity

## Status, challenges and potentialities

The report is a result of an inclusive process involving more than 300 scientists from around the world under the auspices of the FAO's Global Soil Partnership and Intergovernmental Technical Panel on Soils, the Convention on Biological Diversity, the Global Soil Biodiversity Initiative, and the European Commission.

**LAUNCHED: December 2020**

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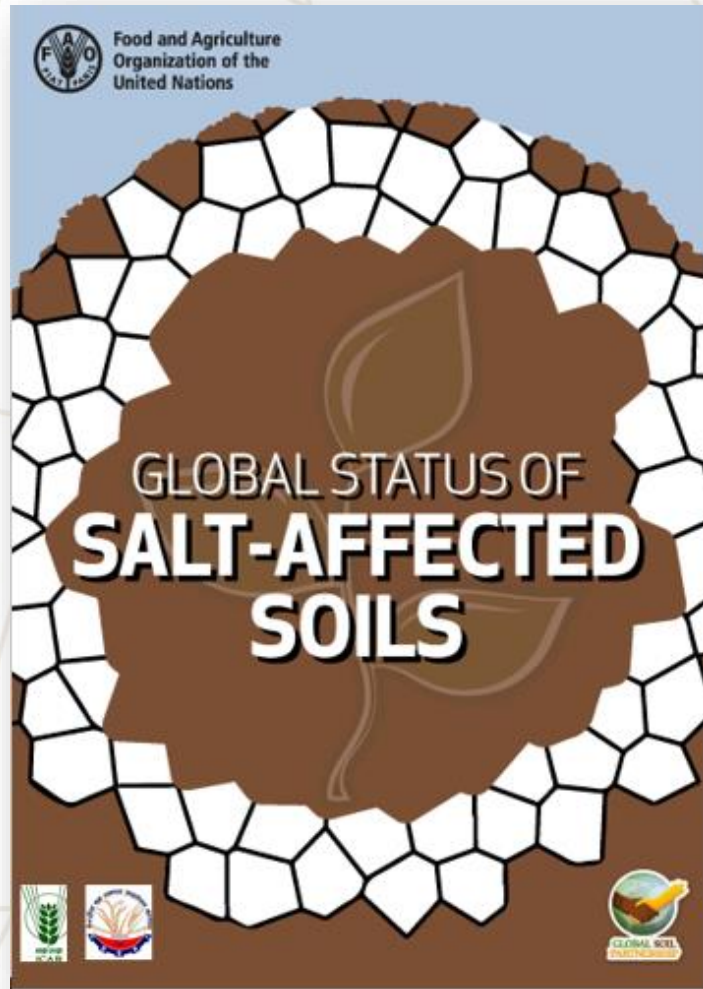
# RECARBONIZING GLOBAL SOILS a technical manual of recommended management practices

## 6 Volumes

### LAUNCH – September 2021

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## **GSAS Report**

Joint GSP publication with country chapter written by national authors.

- Overview of salt problems in the country
- Methodology of salinity mapping
- Assessment of SAS based on mapping results
- Practices for managing SAS

**LAUNCH – December 2021**

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# TECHNICAL PRODUCTS/PROTOCOLS/CODES

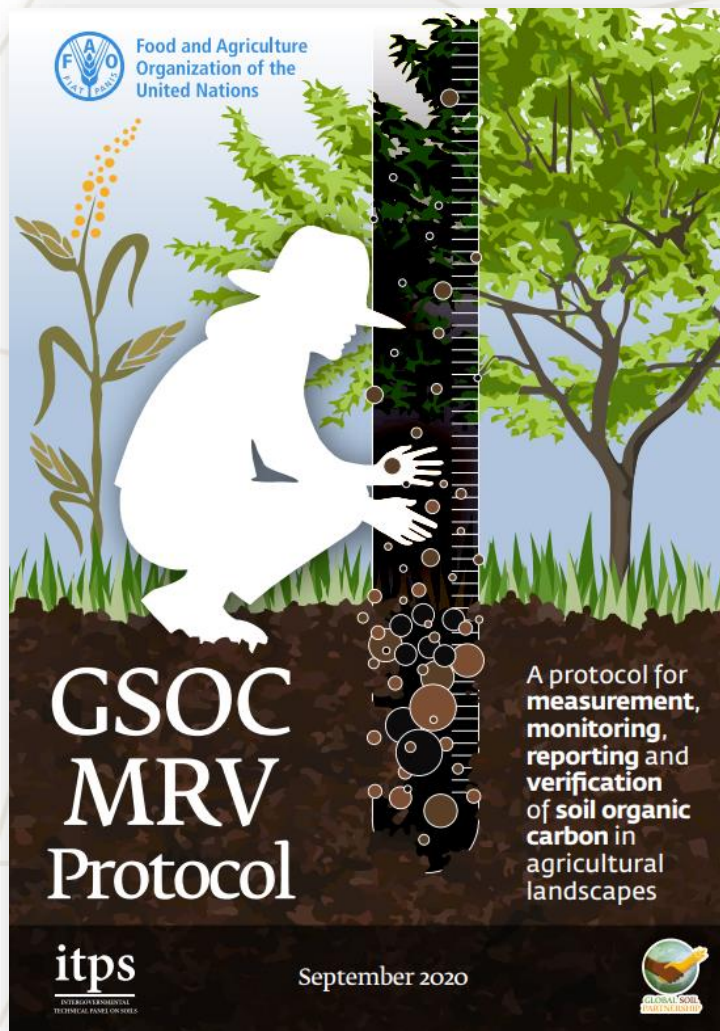
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# GSOC MRV Protocol

**A protocol for measurement, monitoring, reporting and verification of soil organic carbon in agricultural landscapes**

provides a conceptual framework and standard methodologies for the monitoring, reporting and verification of changes in SOC stocks and GHG emissions/removals from agricultural projects that adopt Sustainable Soil Management practices (SSM) at farm level.

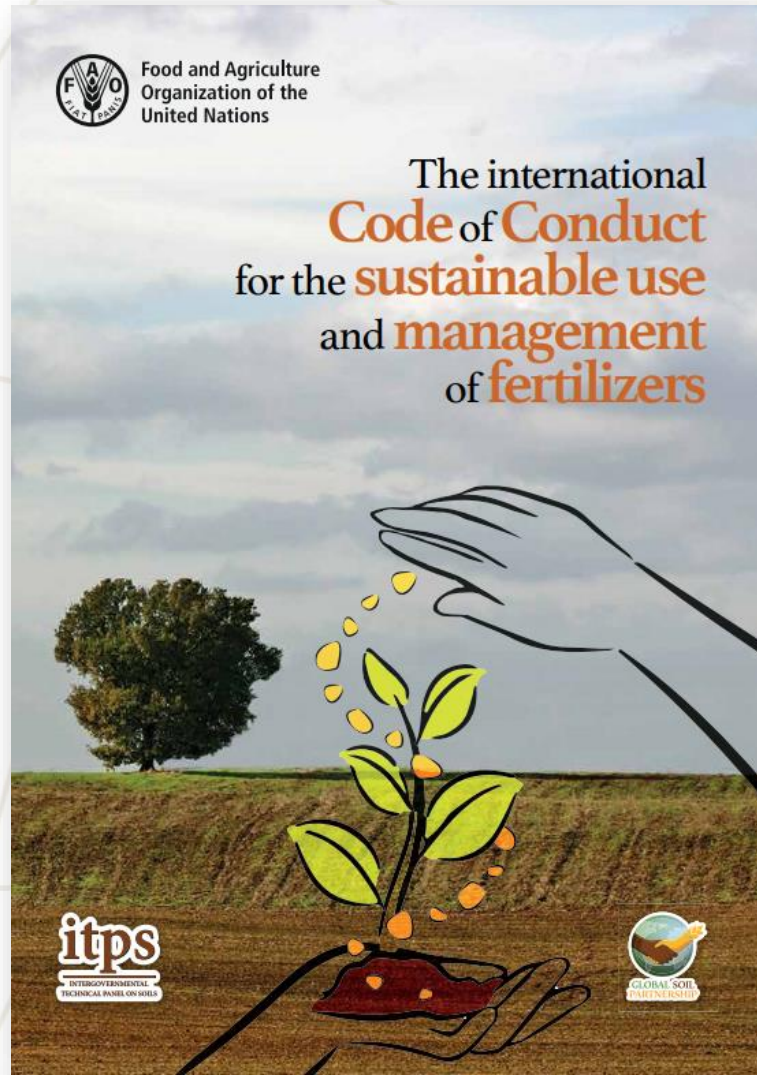


**LAUNCHED: 2020**

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# FERTILIZER CODE



## The international Code of Conduct for the sustainable use and management of fertilizers

The International Code of Conduct for the Sustainable Use and Management of Fertilizers was developed in response to the Committee on Agriculture's (COAG) request to increase food safety and the safe use of fertilizers. It is also a response to the third United Nations Environment Assembly (UNEA3) declaration on soil pollution, while ensuring enhanced support to the implementation of the Voluntary Guidelines for Sustainable Soil Management (VGSSM).

**LAUNCHED: 2019**

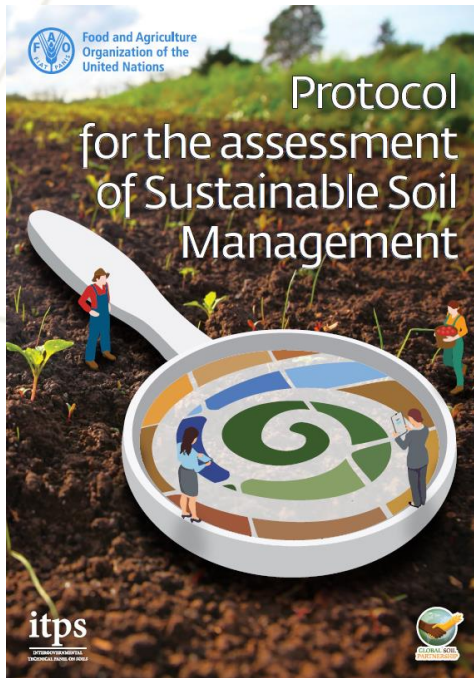
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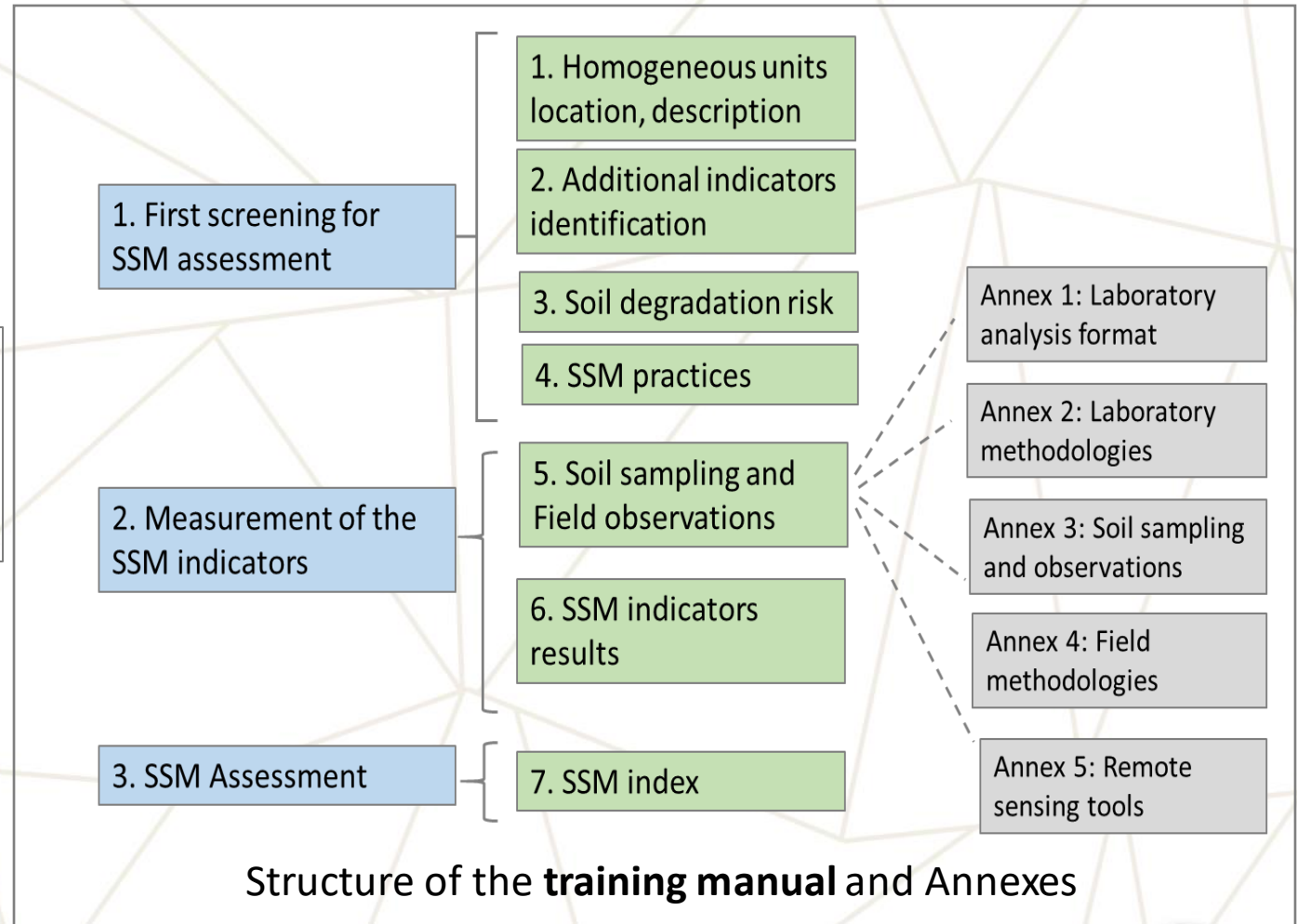
# SSM Protocol

## Protocol for the assessment of Sustainable Soil Management (Indicator System Endorsed)



First screening of the **VGSSM compliance**, identification of the soil degradation risks

provides a framework, based on a set of indicators, to determine if implemented soil management practices are sustainable.



# EUROSOLAN

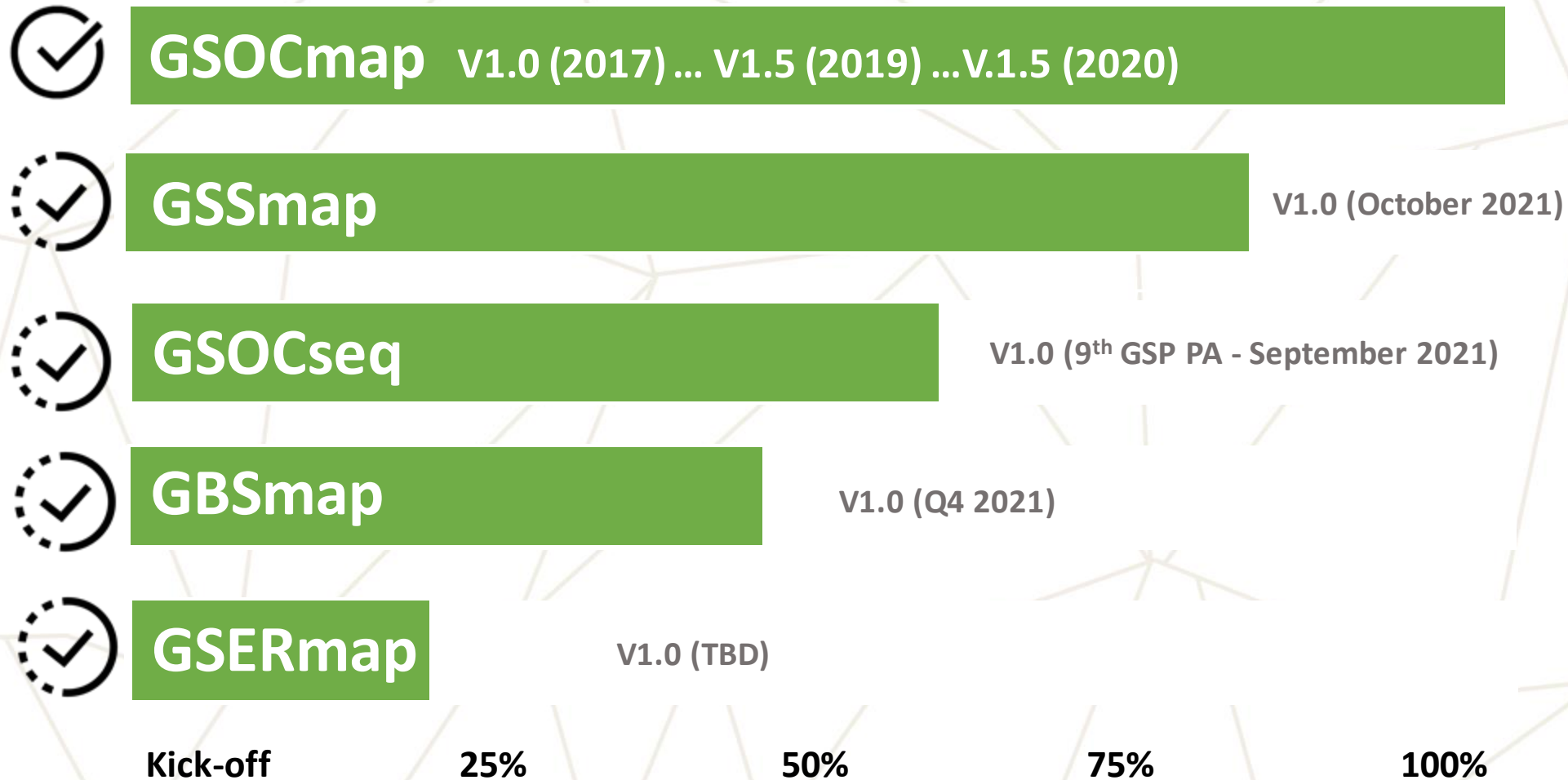
- 134 Registered Laboratories (Europe and Eurasia)
- Mr. Giorgi Ghambashidze - Georgia (Chair), Ms. Špela Velikonja-Bolta - Slovenia (Vice Chair)
- EUROSOLAN members contribute to the harmonization of GLOSOLAN SOPs (Leading & Contributing)
  - Joao Coutinho (Portugal) SOP for total carbon
  - Zhiqin Pei (Germany) WG Chair for the SOP on Microbial enzyme activities
  - Lauris Leitāns (Latvia) is leading the SOP on Available micronutrients
  - Hanane Aroui (France) is leading the SOP working group for soil particle size distribution
- Regional champion Laboratories for soil spectroscopy: Belgium (x2), UK, Greece, Israel

# DATA PRODUCTS

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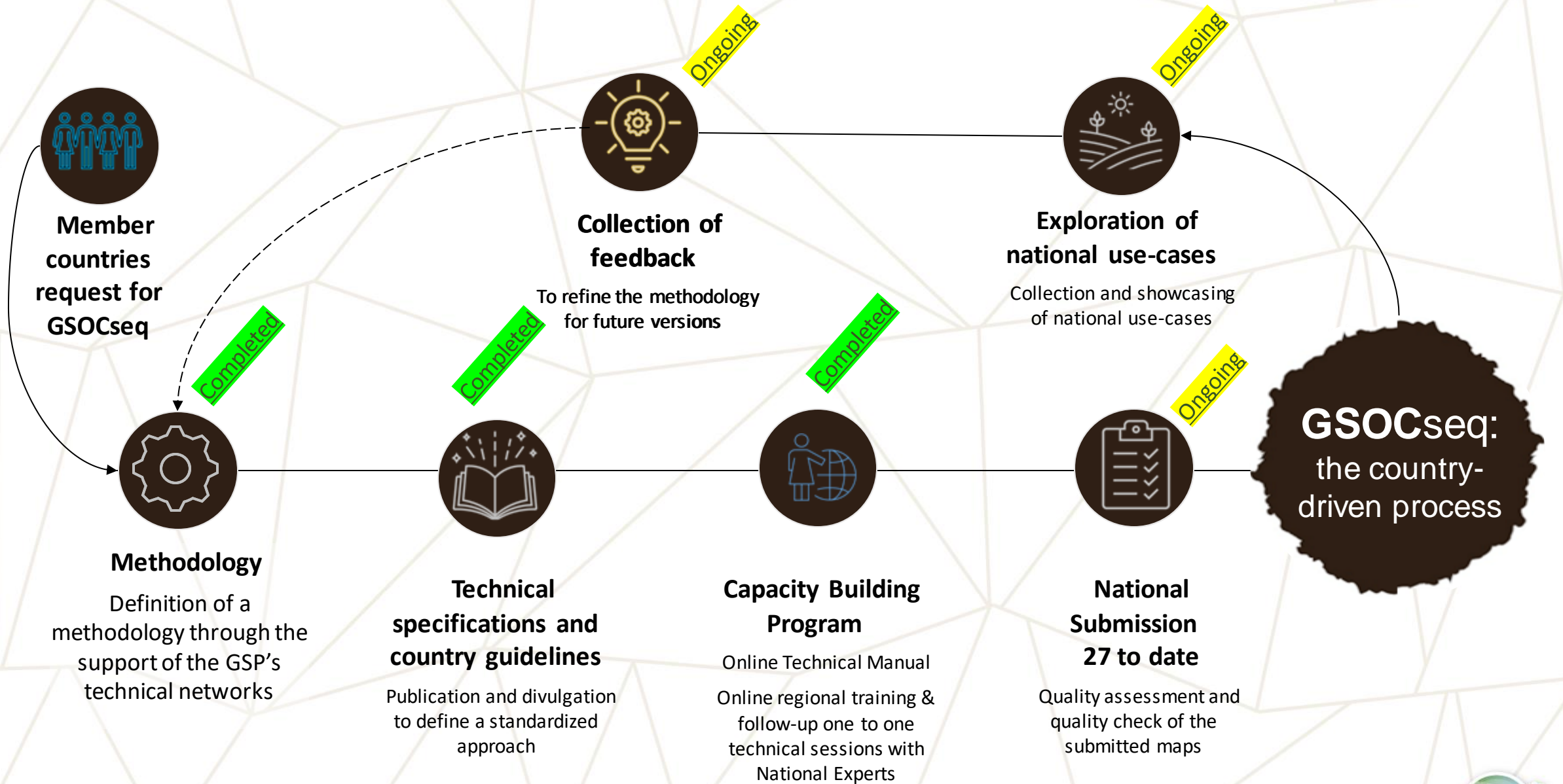
# GloSIS Country-driven Global Data Products



# GSOCseq – Global Soil Organic Carbon Sequestration Potential Map

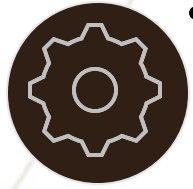
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- National Experts from the ESP have been actively involved in the drafting phase of the methodology



- A Regional European online training on SOC modelling and mapping was held in December 2020
- 50 participants from 27 countries took part in the training
- 10 Countries have leveraged the remote support platform for technical guidance

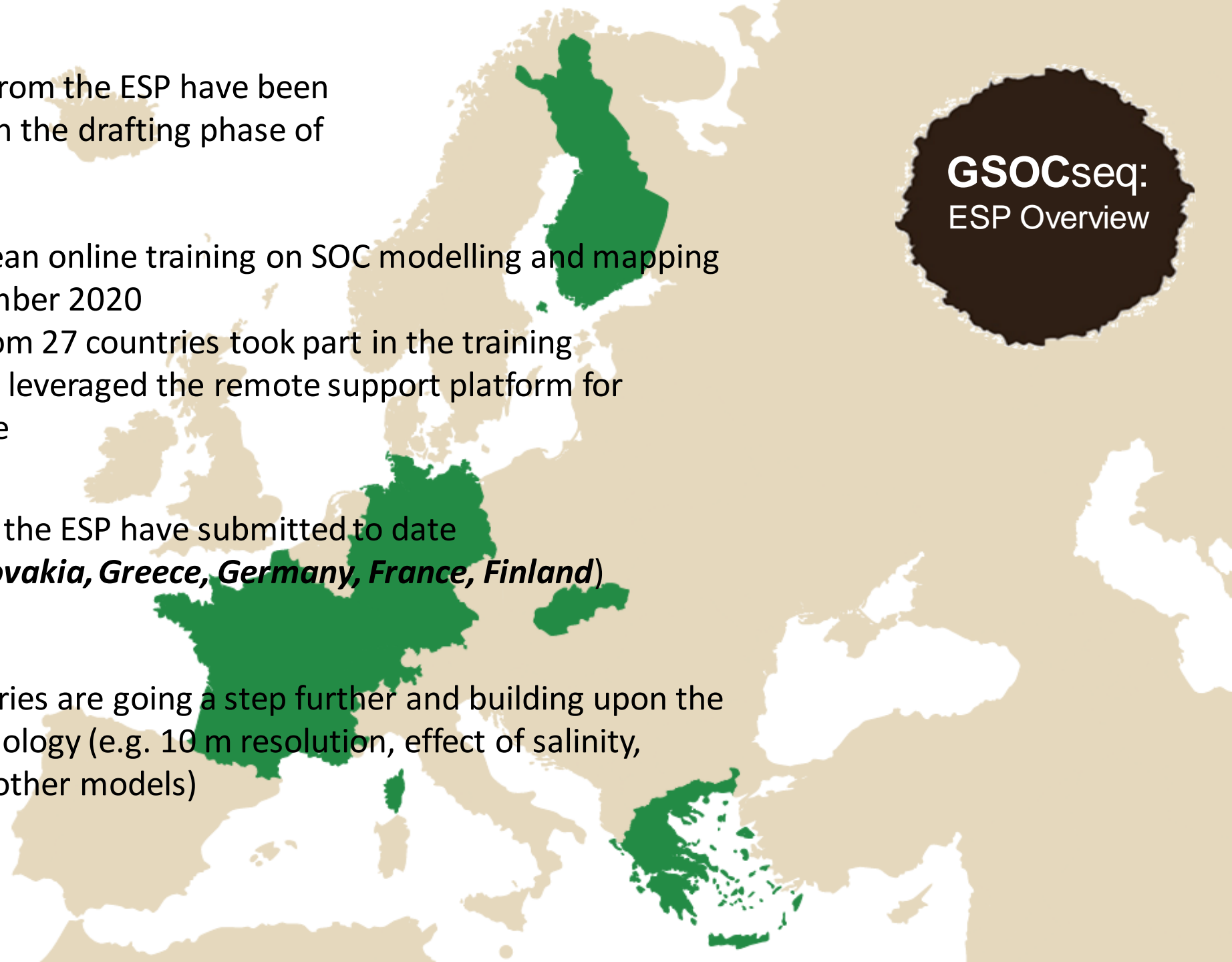


- 6 countries from the ESP have submitted to date  
**(Switzerland, Slovakia, Greece, Germany, France, Finland)**



- Several ESP countries are going a step further and building upon the proposed methodology (e.g. 10 m resolution, effect of salinity, comparison with other models)

**GSOCseq:**  
ESP Overview

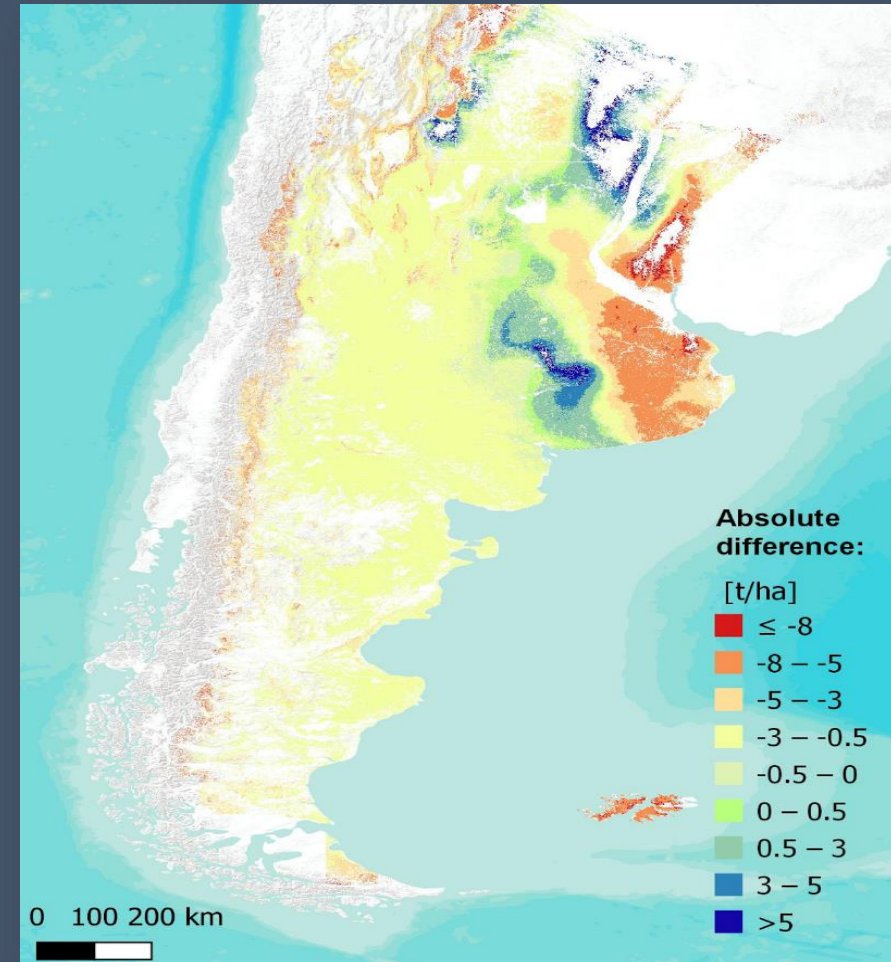


## GSOCseq: Initial Results

### Initial results (ARG) indicate that:

- agricultural systems are currently a source of CO<sub>2</sub> at the national level;
- grassland contribute to a higher share of carbon emissions;
- SSM practices could mitigate about **11-48%** of current annual national agricultural emissions;
- increasing C inputs by 5 to 10% is not enough to achieve a positive C balance;
- SSM3 (20 % C input increase) was the only scenario to turn agricultural areas from sources to sinks of CO<sub>2</sub>

### Areas that will experience carbon loss under the Business as Usual (BAU) scenario in 2040 (ARG)

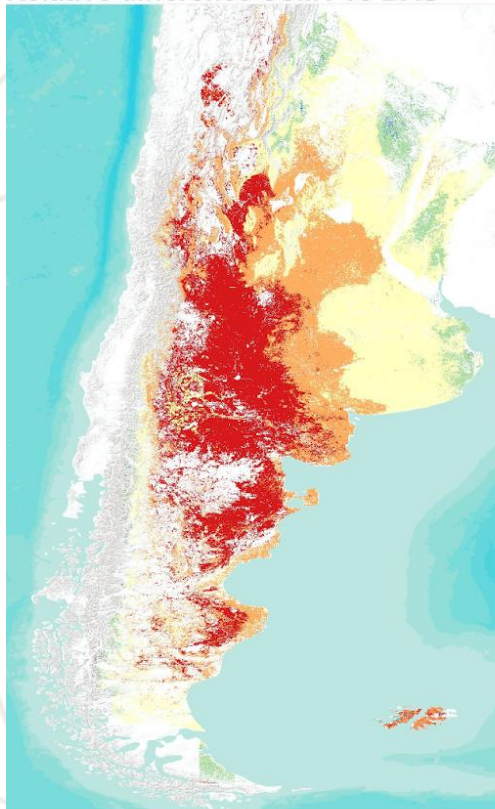




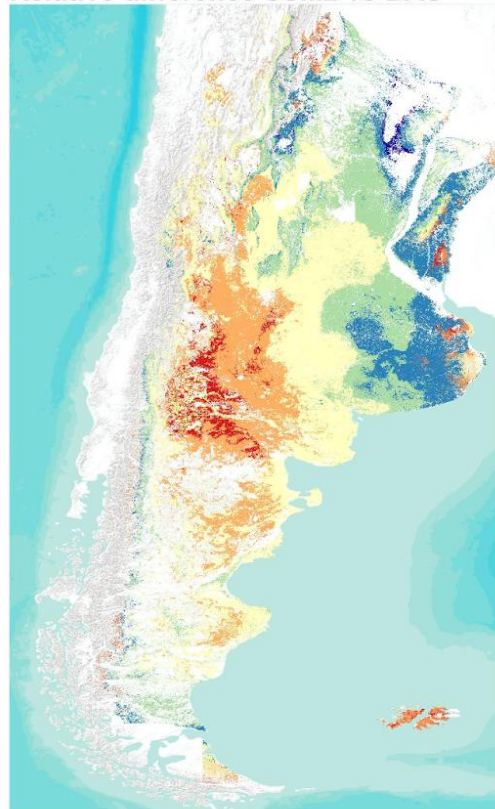


**Increasing carbon inputs by 20 % (SSM3) could lead to significant carbon sequestration and mitigate ~48% of national agricultural emissions.**

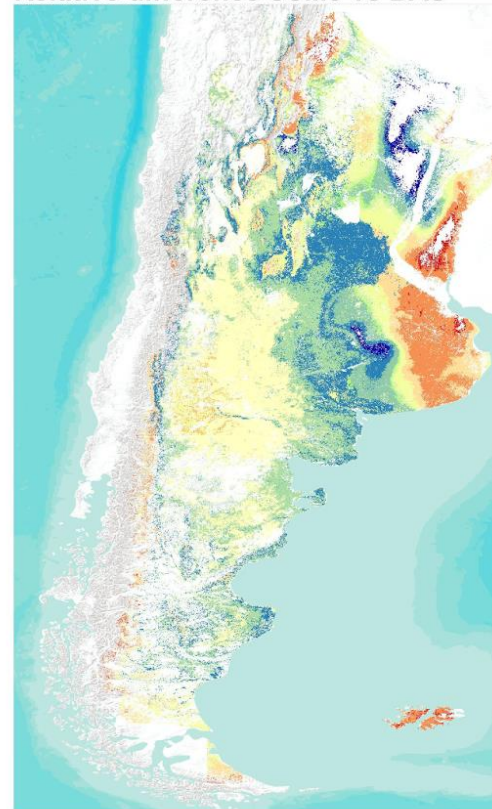
Relative difference SSM1 vs BAU



Relative difference SSM2 vs BAU



Relative difference SSM3 vs BAU



Relative difference [t/ha]

■ ≤ 0.3	■ 0.3 - 0.5	■ 1 - 1.5
	■ 0.5 - 1	■ 1.5 - 2

**GSOCseq:**  
Initial Results  
**ARGENTINA**

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# GSSmap – Global Soil Salinity Map

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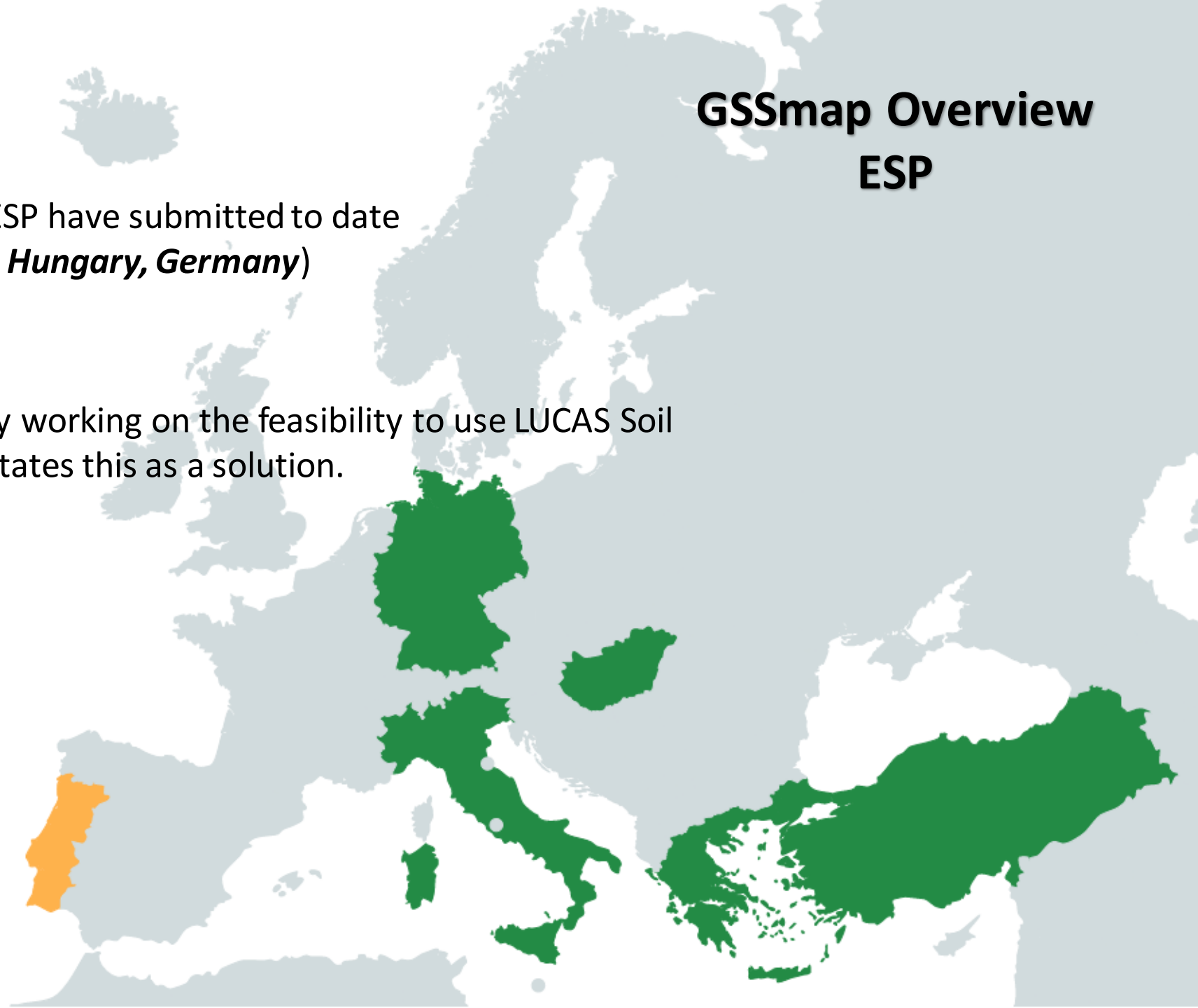
## GSSmap Overview ESP



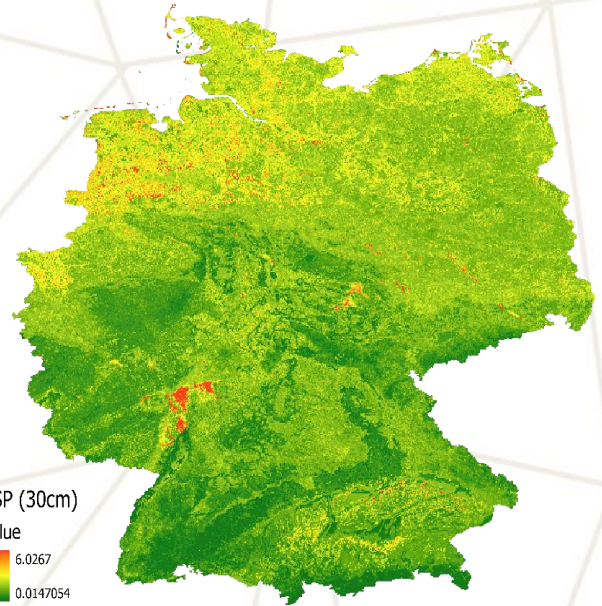
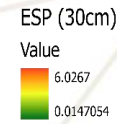
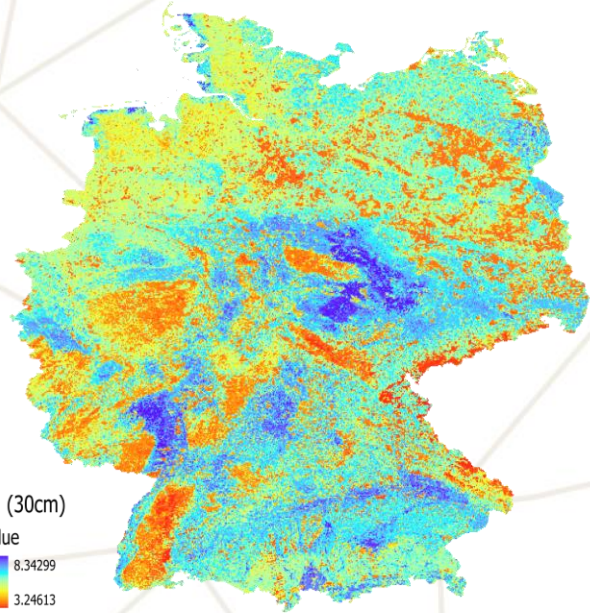
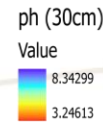
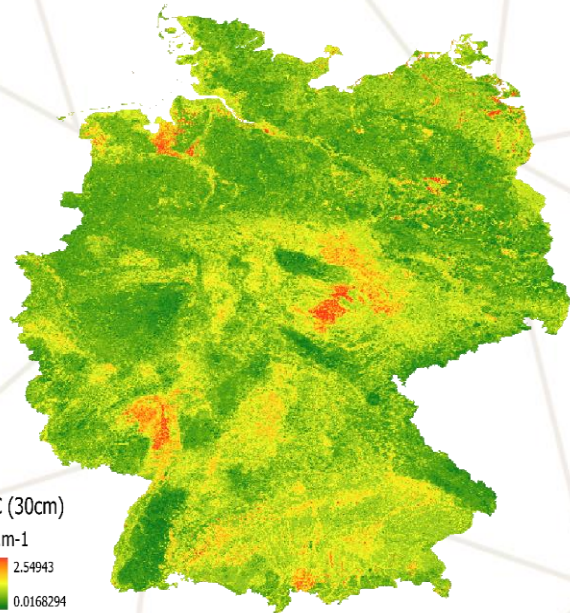
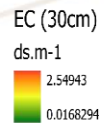
- 5 countries from the ESP have submitted to date (*Italy, Greece, Turkey, Hungary, Germany*)



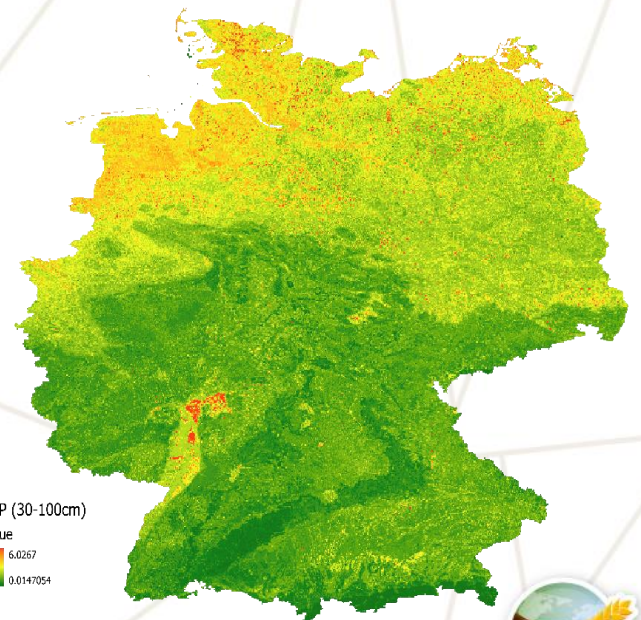
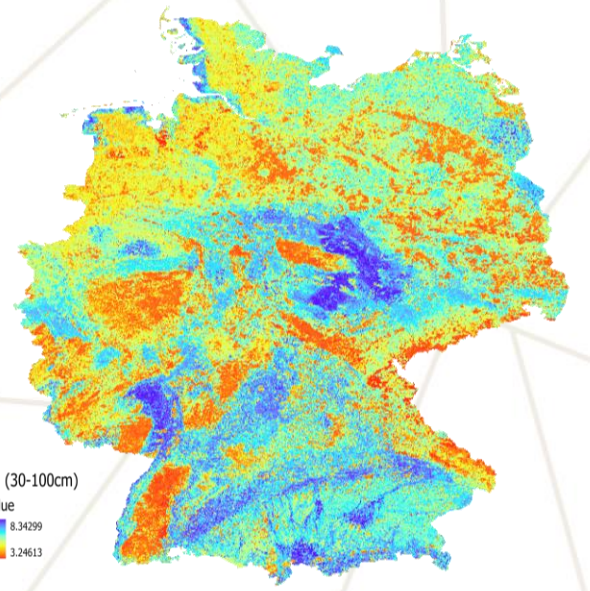
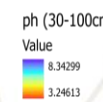
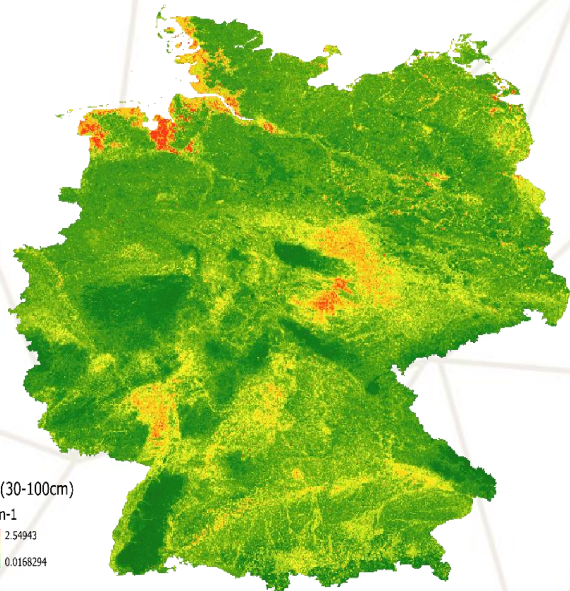
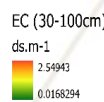
- GSP Sec – JRC jointly working on the feasibility to use LUCAS Soil and bring member states this as a solution.



0-30 cm



30-100 cm



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**Electrical Conductivity (EC)**

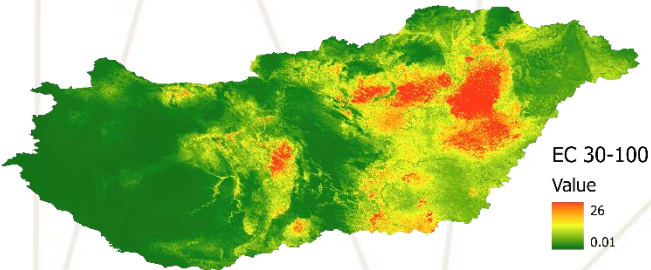
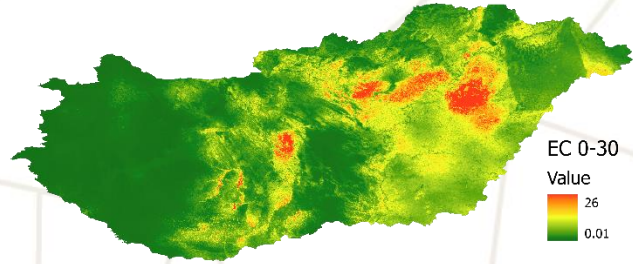
**Soil Reaction (pH)**

**Exchangeable Sodium Percentage (ESP)**

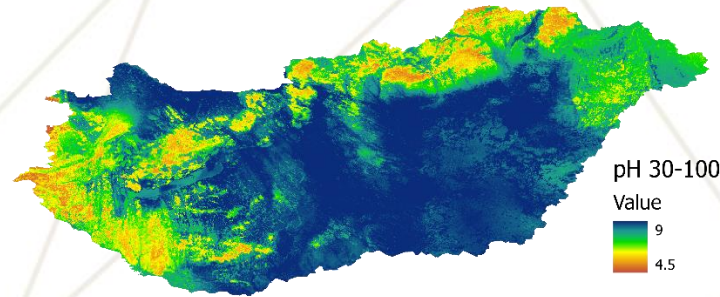
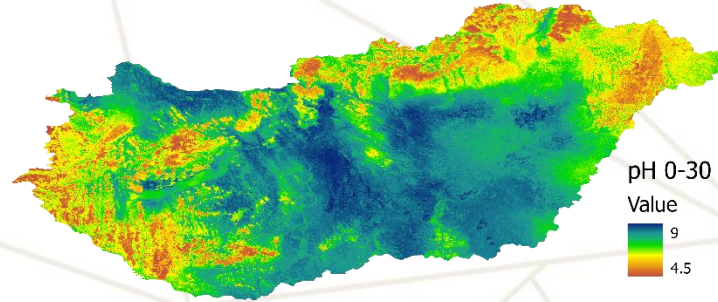


GLOBAL SOIL  
PARTNERSHIP

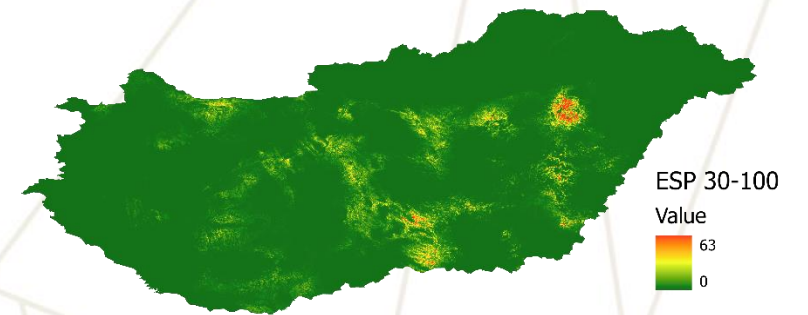
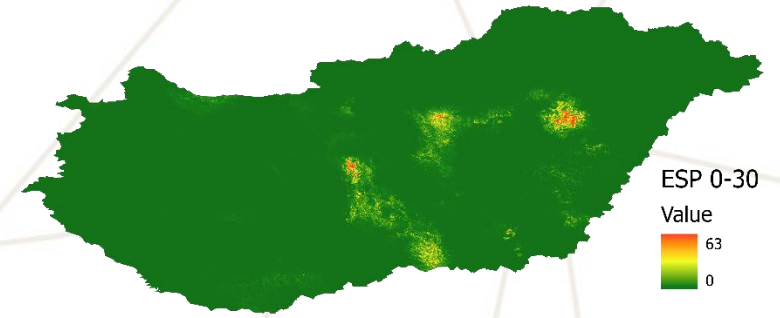
## Electrical Conductivity (EC)



## Soil Reaction (pH)



## Exchangeable Sodium Percentage (ESP)



# GSSmap - HUNGARY

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# DESIGN

- **GloSIS Nodes (National, Regional SIS)**
- **GloSIS Discovery Hub**
- **GloSIS Data Exchange**

# Long & short term goals

## **GloSIS 1.0 (ongoing)**

Short-term goal: Help countries in organizing and sharing their existing data. Create a SIS that increases findability and accessibility of data

*NSIS 1.0 and GloSIS DH 1.0*

## **GloSIS 2.0**

Fully fledged platforms (NSISs & GloSIS DH) for harmonized data storage and exchange with several add-ons/plugin using standards and the latest IT solutions for optimal functionality.

*NSIS 2.0 and GloSIS DH 2.0*

# GloSIS 1.0 Beta Phase



- We named the technologies to be used for NSIS and GloSIS DH
- We introduced GloSIS GeoNode Instructions Guide
- We introduced requirements for beta testing (Checklist - Software, Hardware, Staffing)
- We set our short term goals for beta testing





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