



Food and Agriculture  
Organization of the  
United Nations



# GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly



23-25  
May 2022

VIRTUAL  
MEETING

## Soil Information & Data

International Network of Soil Information Institutions  
(INSII)

Luca Montanarella (Chairperson) | Yusuf Yigini (GSP Secretariat)





# OVERVIEW

- **At a Glance: 2021-2022**
- **GSP Action Framework & INSII**
- **GloSIS**
- **Global Data Products**
- **Capacity Building**
- **SoilSTAT**
- **The Year Ahead: 2022-2023**

**GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022**





## International Network of Soil Information Institutions

- GSPs first technical network, established in 2016
- Implements the activities under the GSP Area of Work: **Soil Information and Data**
- **120** FAO Member Countries + European Union (JRC)
- INSII develops GloSIS, National Soil Information Systems and Data Products
- Supported by the GSP Secretariat, ITPS, Thematic Working Groups
- Chaired by Mr Luca Montanarella





# INSII in Numbers - 6 Years of Achievements



120

FAO Member Countries & EU

120

Soil Information Institutions

## Global Data Products



36 Map Layers

3

(Q4 2021-Q2 2022)

## System Development



National Soil Information Systems (TCP)

14

(ongoing GSP-TCP)

## Capacity Development



Training Workshops

8

(Q4 2021-Q2 2022)

## Capacity Development

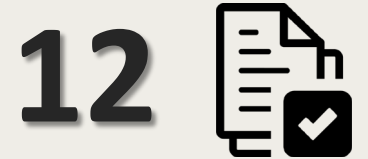


National Experts

150+

(Q4 2021-Q2 2022)

## Publications



Key Publications

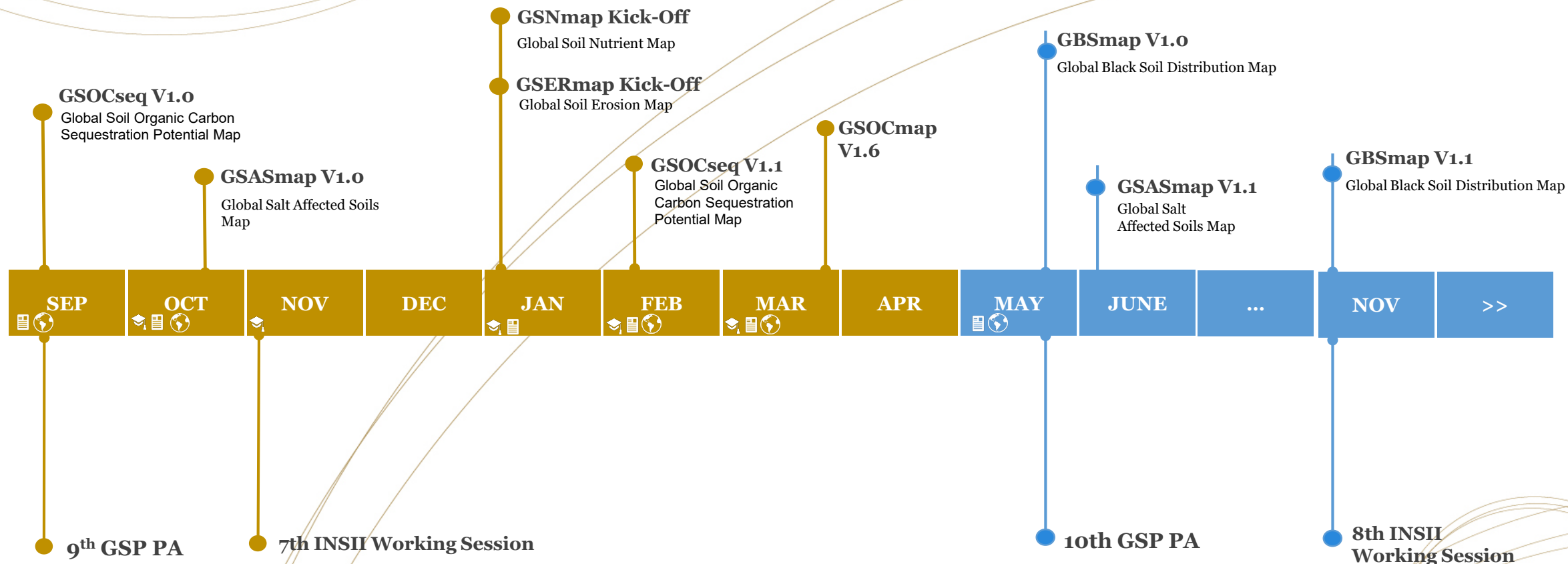
5

(Q4 2021-Q2 2022)

GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022



# The Year At a Glance: 2021-2022



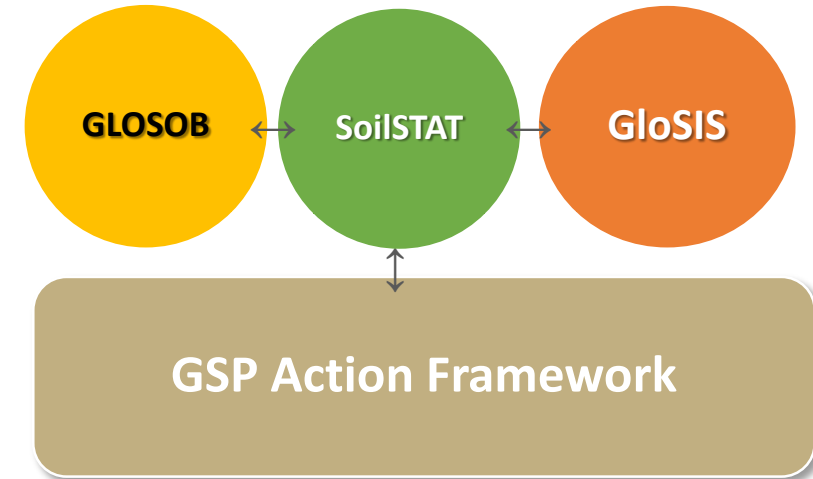
# GSP New Action Framework & INSII

The new GSP Action Framework | **Endorsed** (GSPPA X/2022/2)



*"The Global Soil Information System (**GloSIS**), and the Global Soil Biodiversity Observatory (**GLOSOB**) will be the main global data platforms to **provide soil data and statistics** for data driven indicators , whereas **SoilSTAT** provides official national soil statistics for agreed indicators, following existing UN standards. These statistics are derived from indicators provided by **GloSIS** and **GLOSOB**. "*

- GSP Action Framework 2022-2030



GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022

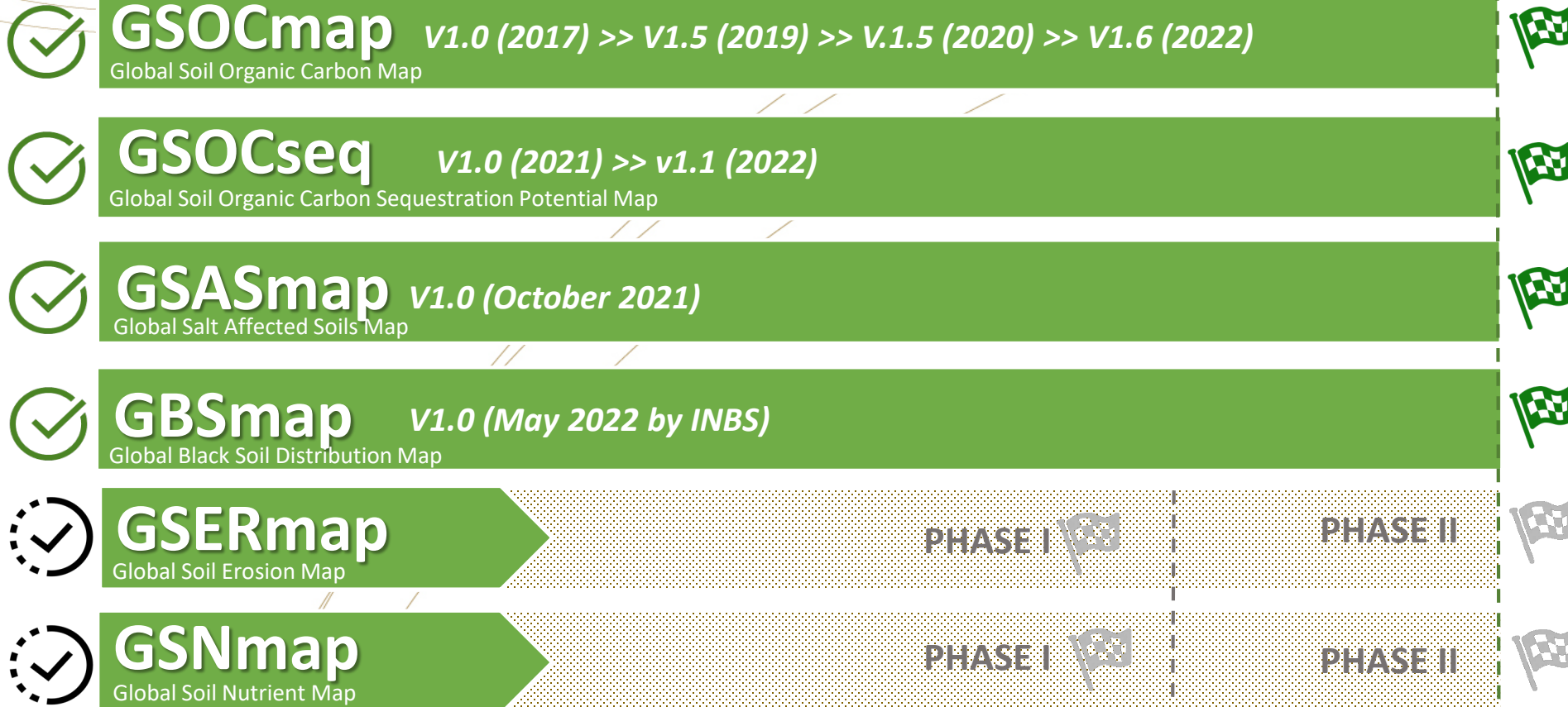


# GloSIS – Global Soil Information System

- GloSIS will play a central role in the implementation of the new GSP Action Framework
- The GloSIS development will continue;
  - GloSIS Discovery Hub (GloSIS DH)
  - National Soil Information System Development Kit (CountrySIS – Guidelines, Software)
- NSIS ↔ GloSIS ↔ GLOSOB ↔ SoilSTAT ↔ **SoLaWISE** *(by FAO NSL)*

# GloSIS: Country-driven Global Data Products

*Of the countries, by the countries, for the countries!*



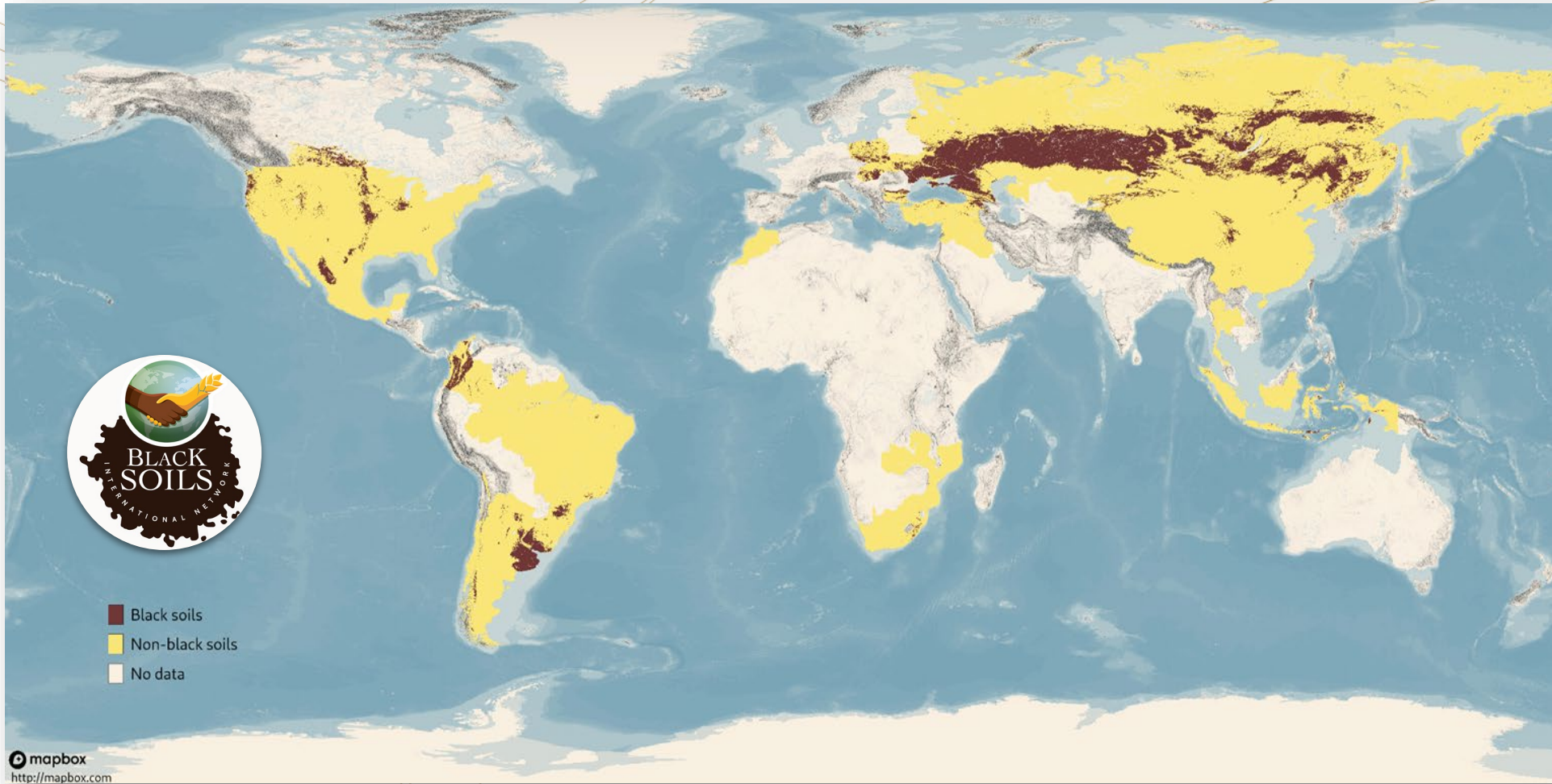
GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022







# Global Black Soil Distribution Map v.1.0 (INBS)



**V1.0 Coverage:**  
INBS Countries (32)

**V1.1 Coverage:**  
Global (INSII) - soon

More Information,  
Statistics &  
Data Access:  
[fao.org/global-soil-partnership/GBSmap/](http://fao.org/global-soil-partnership/GBSmap/)

GBSmap



Dashboard

GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022



# Capacity Development

- **Driver** of success of INSII
- **Key** process element and ***a must*** for all global data products
- **Bridge** the gap between Data and Policy at all scales
- **Key** for data driven policy making

GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022



# Capacity Development



## Capacity Development

1200+



National Experts

60+



Training Workshops



140+ Countries  
All GSP Regions

GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022



# EduSOILS Video Courses - Soon

**EduSOILS - DSM**  
Full DSM Course  
6+ Hours  
10+ Languages

**Video Content:**

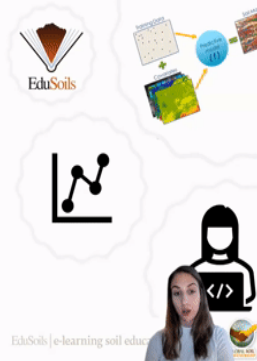
**Main learning outcomes**

**Why was this course created**

- > The Global Soil Partnership (GSP)
- > The Global Soil Information System (GloSIS)
- > Soil Information & Data: Capacity development
- > The Global Soil Organic Carbon Map (GSOcmap)
- > The Global Soil Organic Sequestration Potential Map (GSOcseq)

**Target Audience**

**Course Content**



**Digital Soil Mapping in R**  
Video 2  
**Software and Dataset**



**Digital Soil Mapping in R**  
Video 3  
**Introduction to Spatial Data**



**Digital Soil Mapping in R**  
Video 4  
**Introduction to R**



**Digital Soil Mapping in R**  
Video 5  
**Preparation of Soil Data**



**Digital Soil Mapping in R**  
Video 6  
**Preparation of Covariates**



**Digital Soil Mapping in R**  
Video 7  
**Regression Kriging**



**Digital Soil Mapping in R**  
Video 8  
**Random Forest**



**Digital Soil Mapping in R**  
Video 9  
**Uncertainty and Validation**




GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022





# The year ahead: SoilSTAT

- SoilSTAT Working Group to be established (INSII, ITPS, Topical Experts)
- The SoilSTAT Implementation Plan to be revisited/updated (Indicator System)
- Indicator Factsheets (SoilSTAT Indicators + Action Framework Indicators)



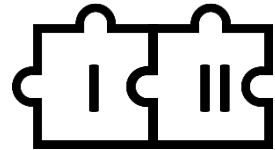
# The year ahead: Country Driven Data Products



## GSERmap

Global Soil Erosion Map

- GSERmap Working Group (GSERmap WG)
- GSERmap Country Guidelines and Technical Specifications (INSII Endorsement)



### 2-Phase Approach

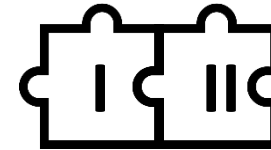
- **PHASE I** – National Soil Erosion Factor Databases/Data Repositories (**2022**)
- **PHASE II** – National Soil Erosion Modelling (**2023**)



## GSNmap

Global Soil Nutrient &  
Nutrient Budget Maps

- GSNmap Working Group (GSNmap WG)
- GSNmap Concept Note (INSII Endorsement)



### 2-Phase Approach

- **PHASE I** – Individual nutrient maps (macro, micro nutrients, associated factors) (**2022**)
- **PHASE II** – Nutrient Budgets (**2023**)

GSOCseq, GSOCmap, GSASmap, GBSmap Updates (2022-2023)

GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022

# The year ahead: Key Events & Trainings



- **Global Symposium: Soils for Nutrition** (*July 2022*)
- **8th INSII Working Session** (*November 2022*)
- **GSERmap Capacity Development Programme** (*September 2022 onwards*)
- **GSNmap Capacity Development Programme** (*September 2022 onwards*)
- **GSOCseq, GSOCmap, GSASmap, GBSmap Technical Support** (*ongoing...*)

**GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022**



# Action Items

## Suggested actions by the GSP Plenary Assembly

The Plenary Assembly may wish to:

### International Network of Soil Information Institutions (INSII)

- welcome the efforts made by INSII to produce soil maps following a country-driven approach and capacity development to build a robust Global Soil Information System;
- recognize the efforts made by INSII for the development and launch of the Global Soil Organic Carbon Sequestration Potential Map (GSOCseq), Global Salt Affected Soils Map (GSASmap) and Global Black Soil Distribution Map (GBSmap); update of the Global Soil Organic Carbon Map (GSOCmap) and *recognise* the efforts made to date for the Global Soil Erosion Map (GSERmap), and Global Soil Nutrients Map (GSNmap) and encourage countries to prepare national datasets as per the technical specifications endorsed by INSII;
- invite countries to establish national soil information systems country-driven global data products on soil threats and basic soil properties, as per INSII guidelines and with the GSP Secretariat support; and
- further invite resource partners to support the establishment of GloSIS and SoilSTAT.



GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022







Food and Agriculture  
Organization of the  
United Nations



**Luca Montanarella**  
*INSII Chairperson*

**SID Team - GSP Secretariat**



**Isabel**



**Marcos**



**Moritz**



**Christian**



**Yi**



**Yusuf**

# Thank You...



**120+ Soil Information Institutions**  
**Thematic Working Groups**



Full Progress Report

**GLOBAL SOIL PARTNERSHIP 10<sup>th</sup> Plenary Assembly | 23 - 25 May 2022**

