



Food and Agriculture
Organization of the
United Nations

22nd Working Session of the Intergovernmental Technical Panel on Soils (ITPS)

Global Soil Erosion Map (*GSErmap*)

4-6 March, 2025

FAO HQ
Mexico Room
(D211)

Isabel Luotto

itps

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS





GSOCmap *v1.0 (2017) >> ...V1.6 (2022)*

Global Soil Organic Carbon Map





GSOCseq *v1.0 – (2021)*

Global Soil Organic Carbon Sequestration Potential Map





GSASmap *v1.0 (2021)*

Global Salt Affected Soils Map





GBSmap *v1.0 (2022)*

Global Black Soil Distribution Map





GSNmap

Global Soil Nutrient and Nutrient Budget Maps



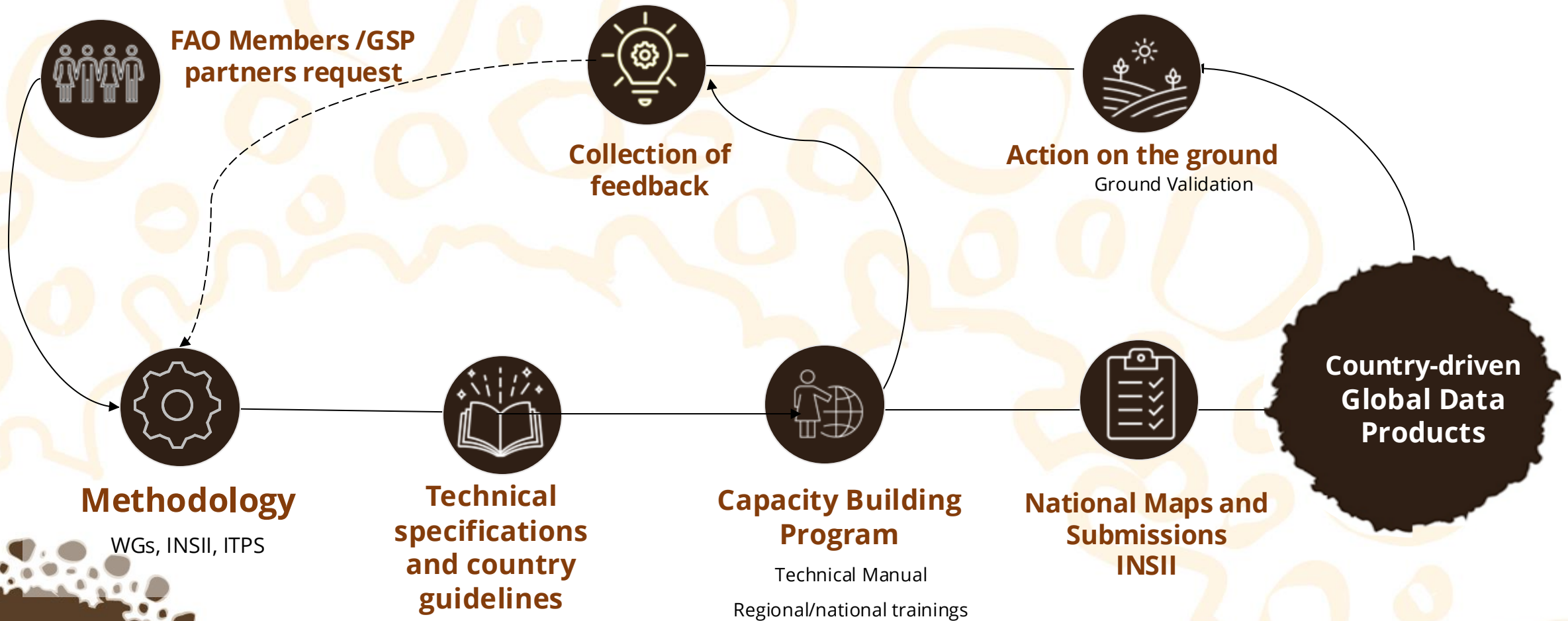


GSERmap

Global Soil Erosion Map

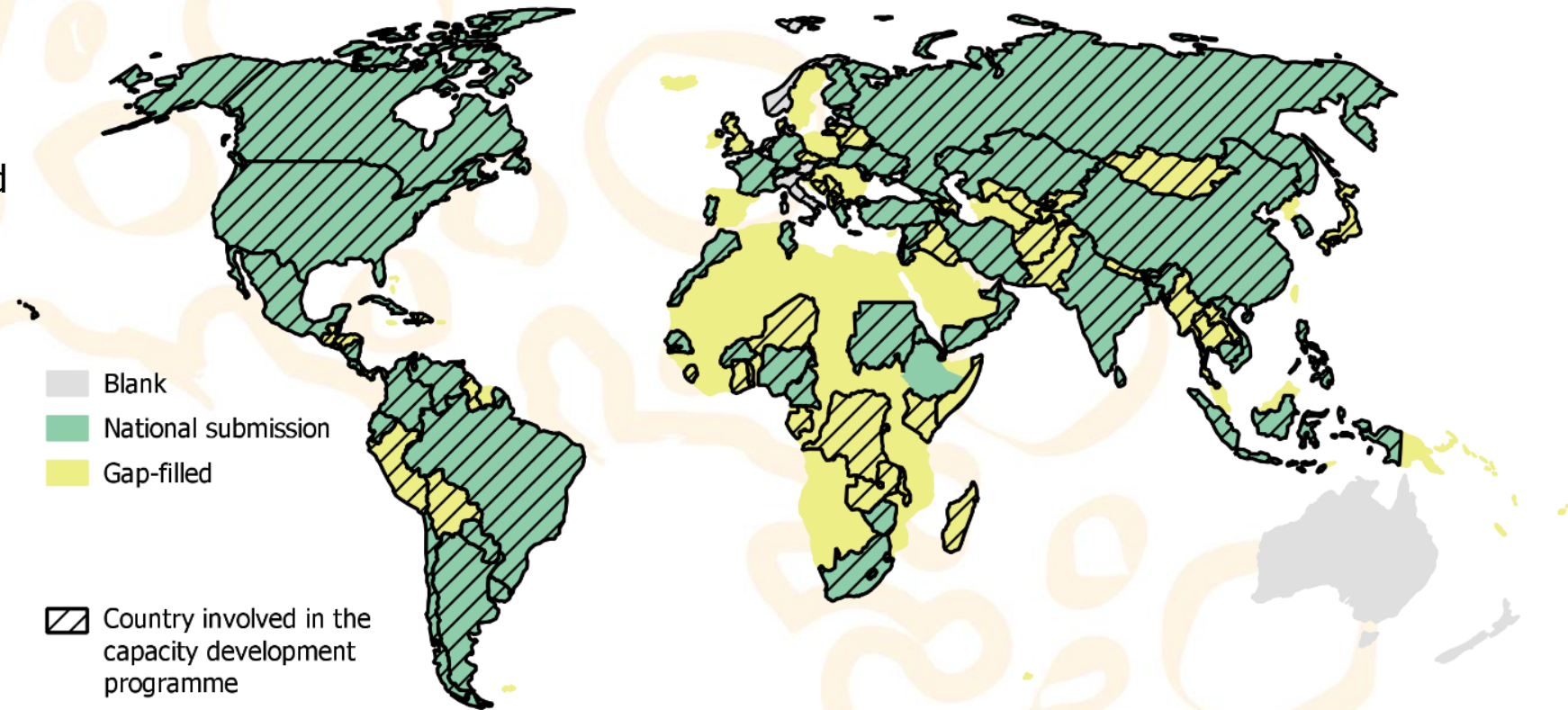


GSPs Country Driven Approach



Example of a country-driven global soil property map: *GSOCseq v1.1*

- No complete global coverage, countries can remain blank and submit at a later stage





1.Introduction, 2.General framework; 3.Methodology ...

4. Product specifications

4.1 Mandatory products

4.2 Optional datasets

4.3 Spatial entity

4.3.2 Spatial reference

4.3.3 Extent

4.3.4 Excluded areas

5. Uncertainties and validation

6. Data submission

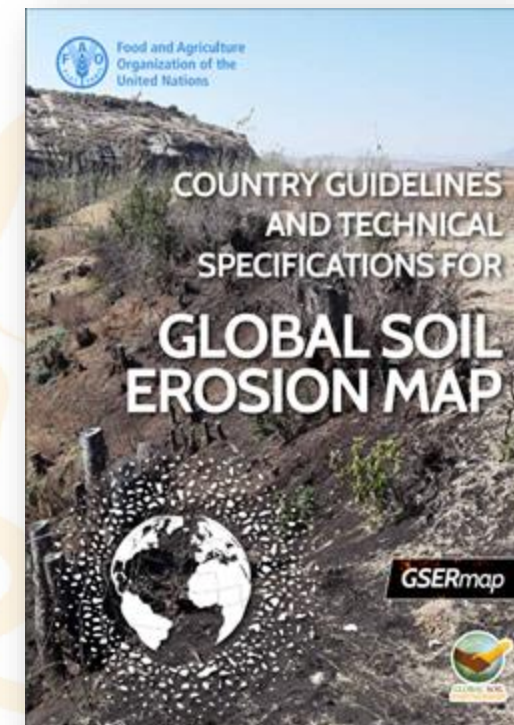
6.1 File naming conventions and directory structure

6.2 File formats

7. Quality assurance/quality check

8. Data policy

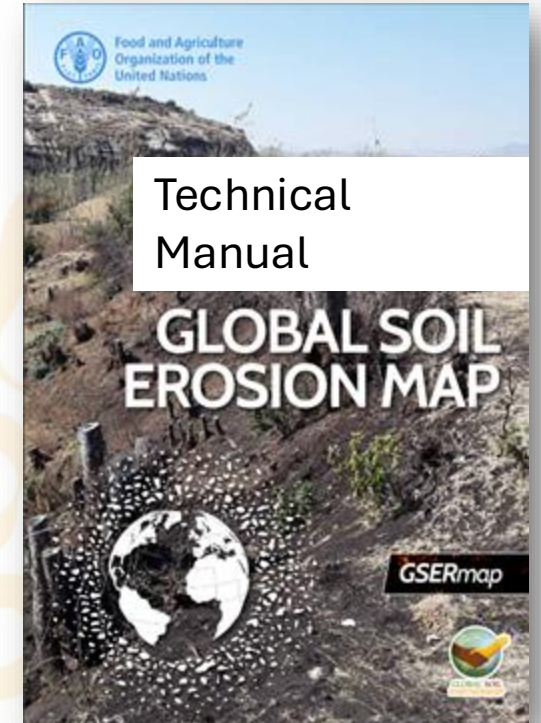
**World Association of Soil
and Water Conservation
(WASWAC)** volunteered to
develop a methodological
note





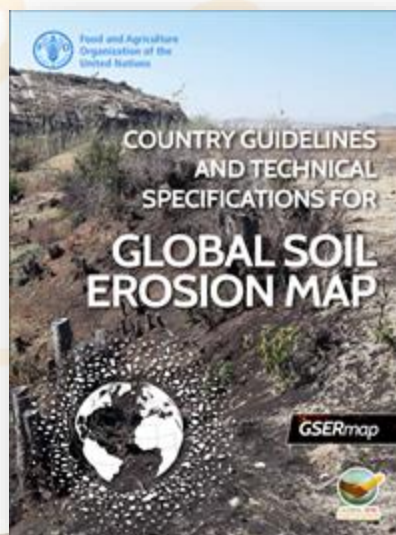
Step by step guidelines:

- Background theory
- Datasets and inputs
- Software requirements
- Running the scripts (example structure)
 - Stage 1 – Input data preparation
 - Stage 2 – running the model
 - Stage 3 – map generation
 - Stage 4 – reporting and delivery

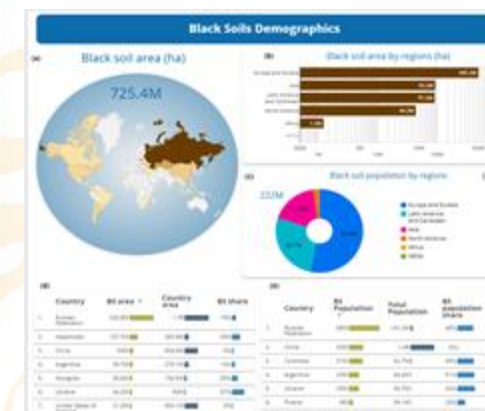
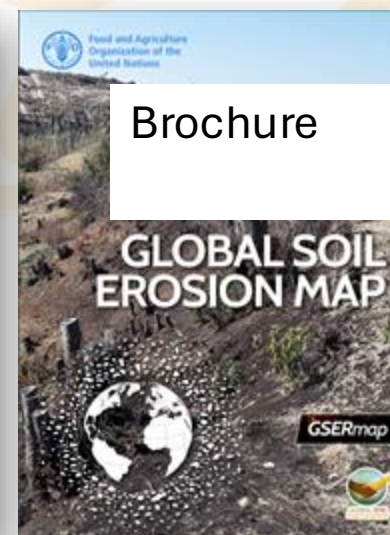




Development



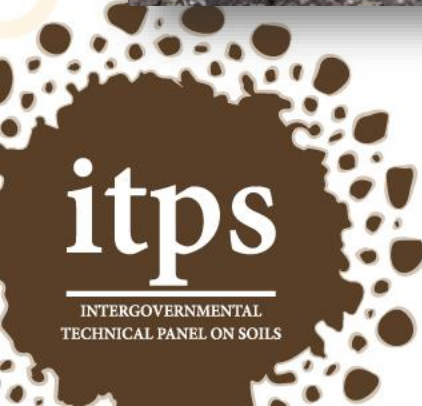
Launch



+ Scripts, input data

+ GSERmap, GSERmap Dataset, Web services, Dashboard

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Proposed Methodology for Global Soil Erosion Mapping

- *Proposals pending GSERmap Working Group review and endorsement*
- **Water Erosion**
 - Model: USLE-based models (Universal Soil Loss Equation)
- **Tillage Erosion**
 - Model: TillERI (Tillage Erosion Risk Indicator)
- **Wind Erosion**
 - Model: RWEQ (Revised Wind Erosion Equation)

Recommendations from the 10th INSII meeting

- **Review the GSERmap Methodology:**
 - INSII recommends organizing a **GSERmap Working Group meeting** to finalise the **technical specifications**
 - More discussions are needed on **how different erosion models (USLE, RWEQ, TillERI) will be applied and validated.**
- **Strengthen Country Participation:**
 - INSII members emphasized the importance of **ensuring that country representatives are directly involved.**
 - Clear **technical guidelines** should be provided for countries to develop and validate their own national erosion maps.
- **Ensure Practical Applications:**
 - The GSERmap should focus on providing **actionable insights** for soil and water conservation policies.
 - The final outputs must be **usable by national agencies** for **decision-making** rather than just being a research-driven initiative and aligned with the GSP Action Framework

Next steps?

- Co-ordination meetings with lead technical institutions EC-JRC, WASWAC, Univ of Manitoba (CAN)
- Update and convene the GSERmap WG (March)
- Facilitate and ensure reviewing of the technical documents (March)





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Thank you

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