



Food and Agriculture
Organization of the
United Nations

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

Global Symposium on Soil Information and Data 2024

4-6 March, 2025

FAO HQ
Mexico Room
(D211)

Outcome document

Summary of the Latest Comments and Changes

itps

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS



GLOBAL SYMPOSIUM ON SOIL INFORMATION AND DATA MEASURE | MONITOR | MANAGE

September 25-28, 2024 | Nanjing, China

Co-organized by FAO's GSP (ITPS, GLOSOLAN, the International Network of Soil Information Institutions (INSII)) and the Institute of Soil Science, Chinese Academy of Sciences (ISSCAS)

Main Goal: emphasize the significance of data-driven decision-making rooted in soil information

To: enhance the efficacy of global/national/individual efforts towards sustainable development and climate resilience



itps

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS

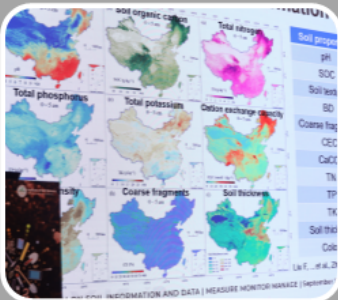
22nd Working Session of the Intergovernmental Technical Panel on Soils (ITPS)
4-6 March, 2025



SCIENCE AS THE BASIS



4 technical themes



289 abstracts selected

69 hours of technical sessions & open discussion

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

4-6 March, 2025



GLOBAL SYMPOSIUM ON
SOIL INFORMATION AND DATA
MEASURE | MONITOR | MANAGE

September 25-28, 2024 | Nanjing, China

itps

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS

Theme 1

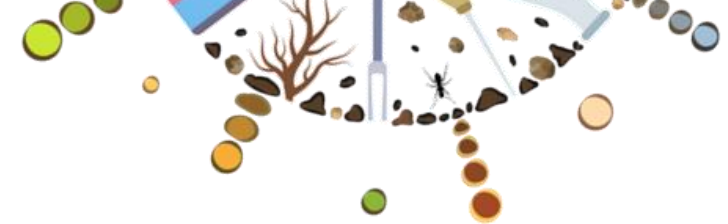
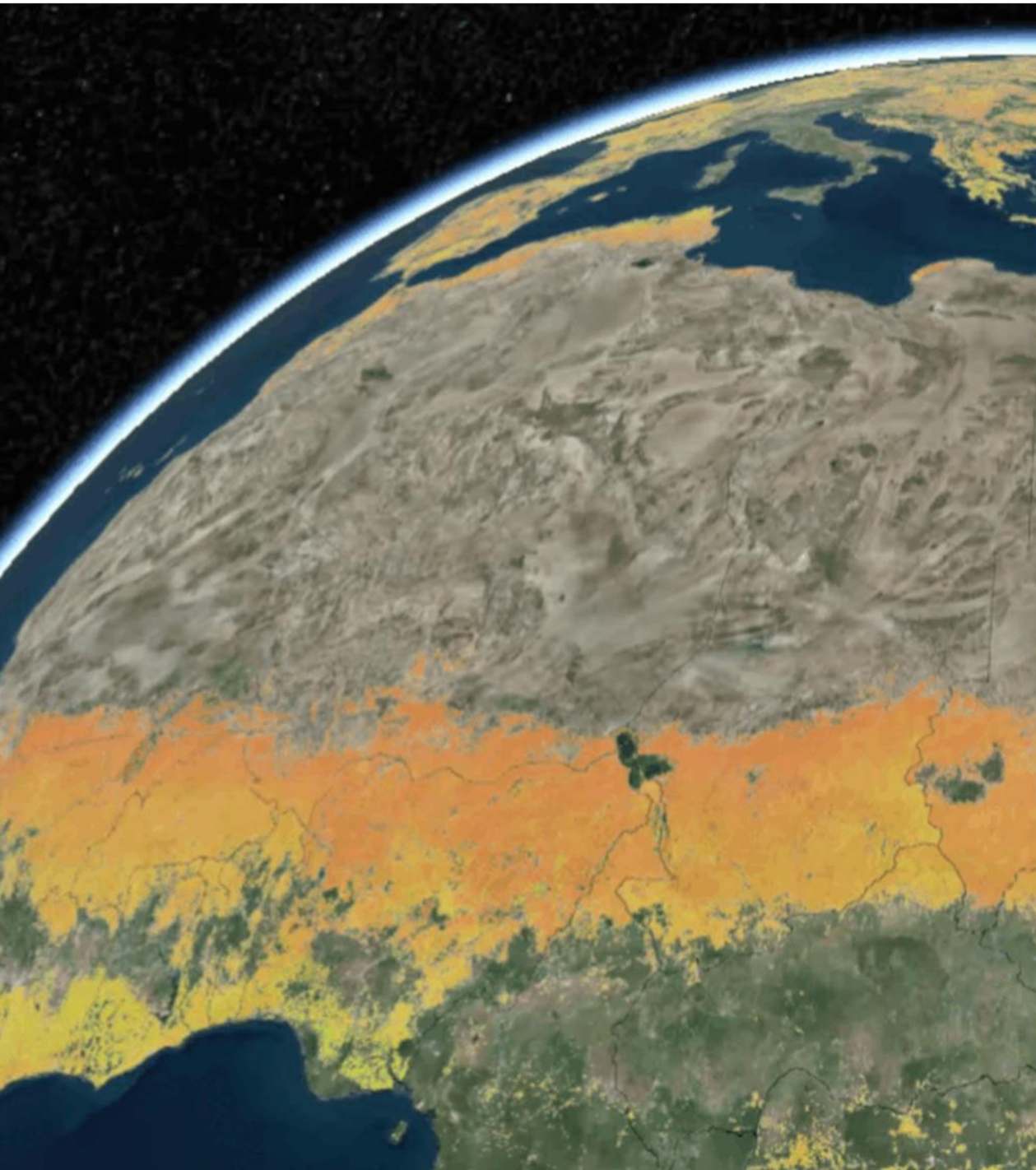
Mainstreaming soil data: innovations in analysis, standardization, harmonization and communication

- Sub-theme 1.1: Laboratory Techniques and Standard Procedures for Soil Analysis
- Sub-theme 1.2: Soil data standardisation and harmonization
- Sub-theme 1.3: Evaluating, interpreting and communicating soil data and its uncertainty
- Sub-theme 1.4: The Emergence of Proximal Sensing Solutions for Soil Analysis

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

4-6 March, 2025





GLOBAL SYMPOSIUM ON SOIL INFORMATION AND DATA MEASURE | MONITOR | MANAGE

September 25-28, 2024 | Nanjing, China

Theme 2 Advances in soil mapping and monitoring

- Sub-theme 2.1: Soil Survey and Monitoring Strategies
- Sub-theme 2.2: Digital Soil Mapping Techniques and Applications
- Sub-theme 2.3 Unlocking the potential of soil legacy data

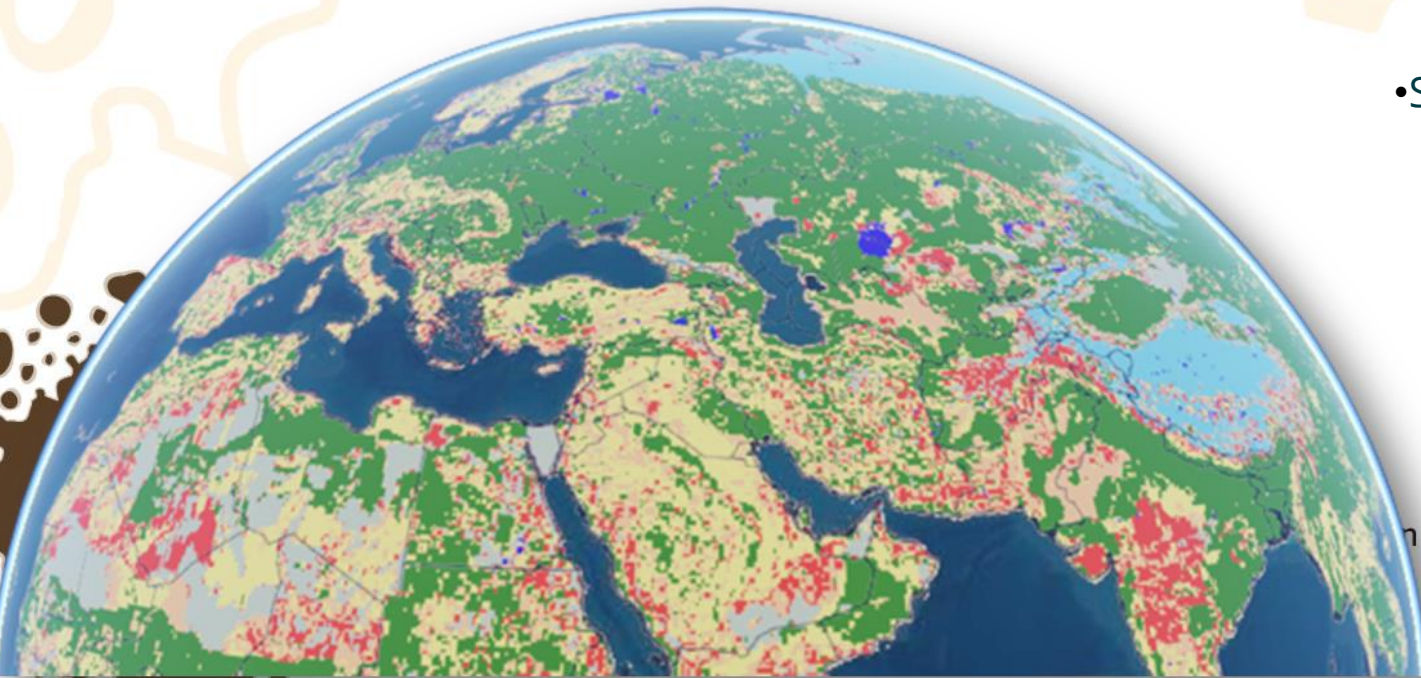
Working Session of the Intergovernmental Technical Panel on Soils (ITPS)
4-6 March, 2025





GLOBAL SYMPOSIUM ON
SOIL INFORMATION AND DATA
MEASURE | MONITOR | MANAGE

September 25-28, 2024 | Nanjing, China



Theme 3

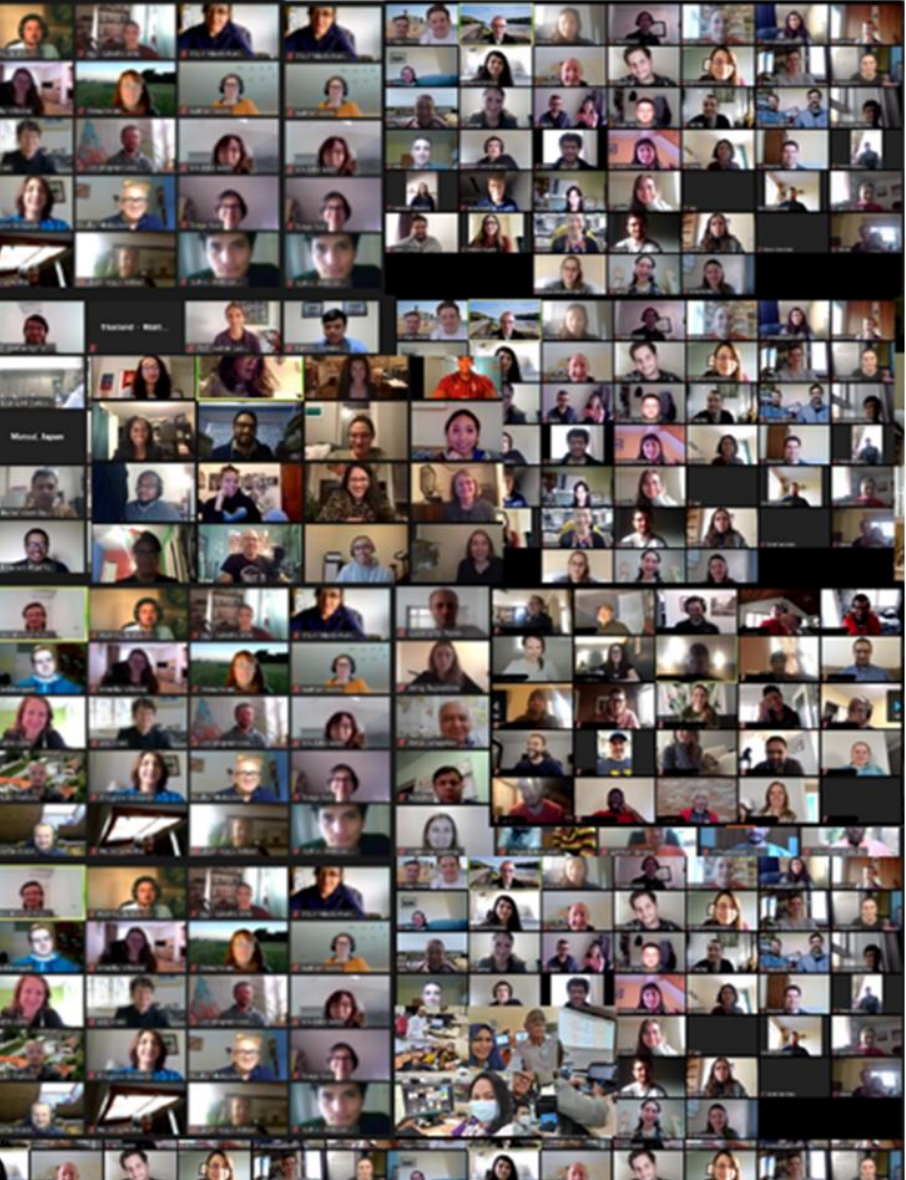
Soil data for policy and decision-making

- Sub-theme 3.1: The Role of Soil Data in Achieving and Measuring the Progress on Global Development Agendas
- Sub-theme 3.2: Soil Data for Improved Food Security and Resource Management

of the Intergovernmental Technical Panel on Soils (ITPS)
4-6 March, 2025



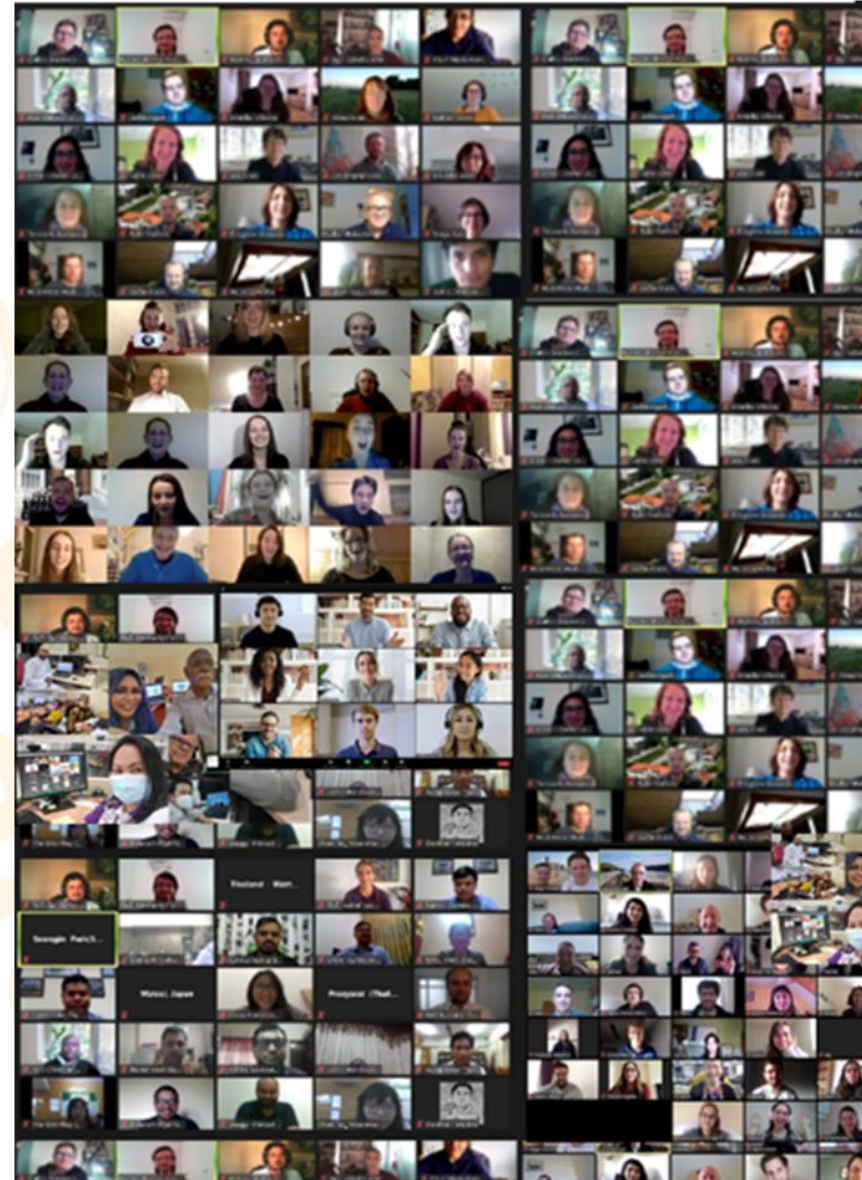




GLOBAL SYMPOSIUM ON
SOIL INFORMATION AND DATA
MEASURE | MONITOR | MANAGE

September 25-28, 2024 | Nanjing, China

Theme 4
Soil data as a common good



Participation



**+ 300 on-site
participants**

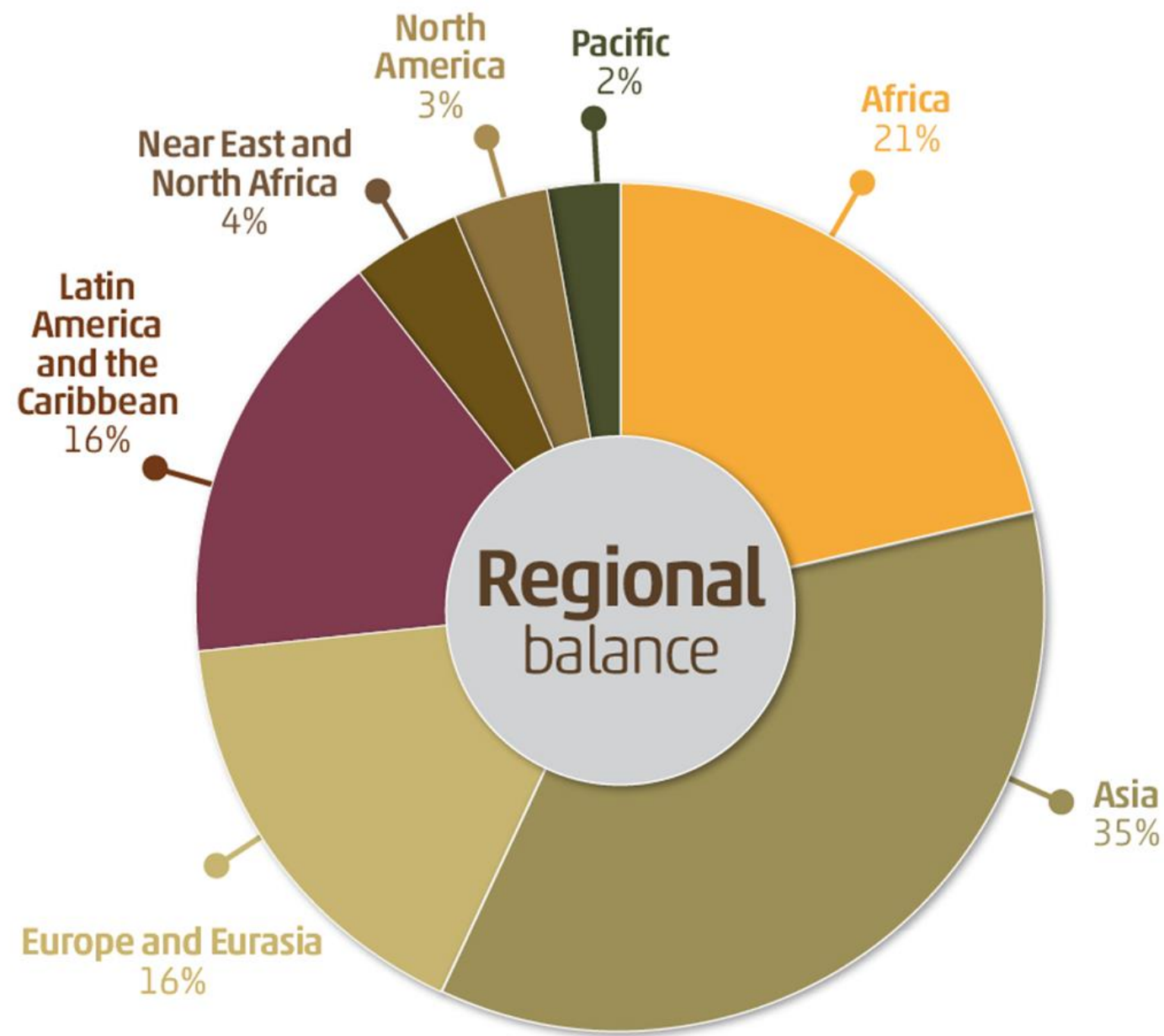
**+ 2000 online
attendees**



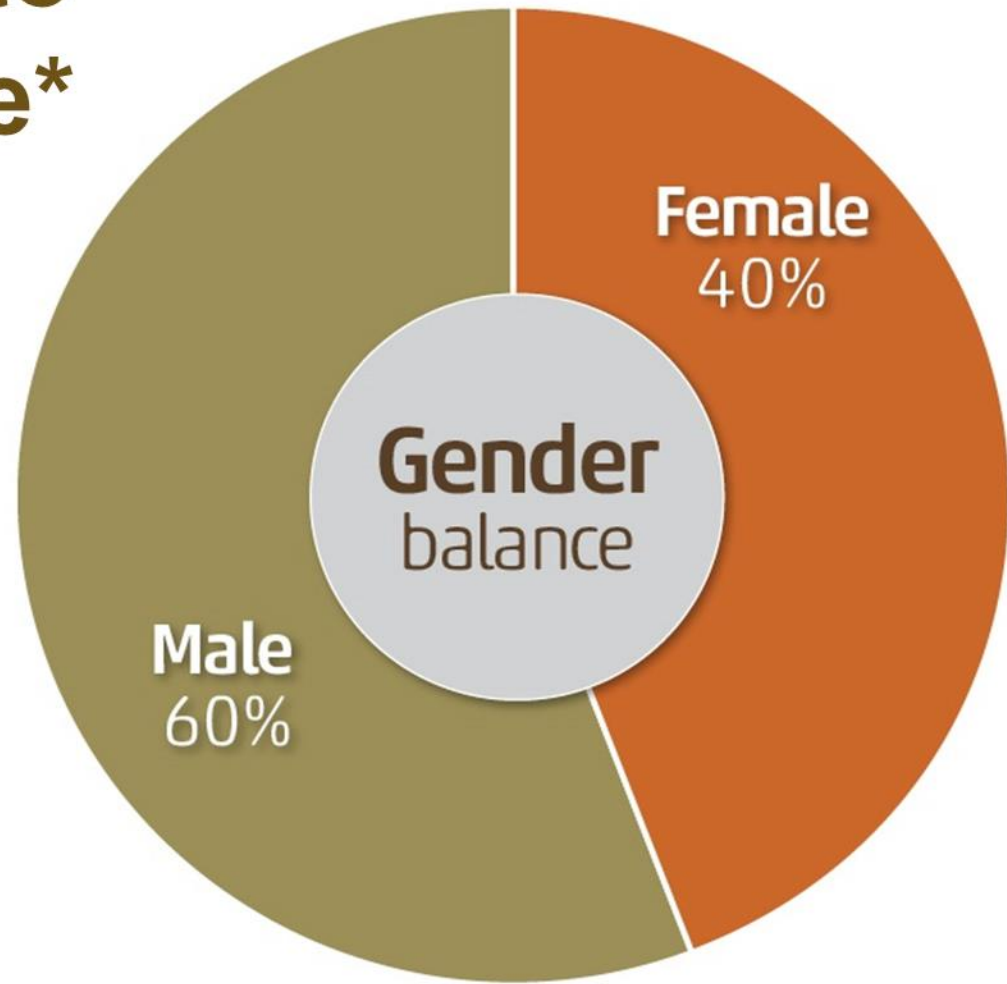
A topic relevant to all
continents and 176
countries*...

itps

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS



... and to
everyone*



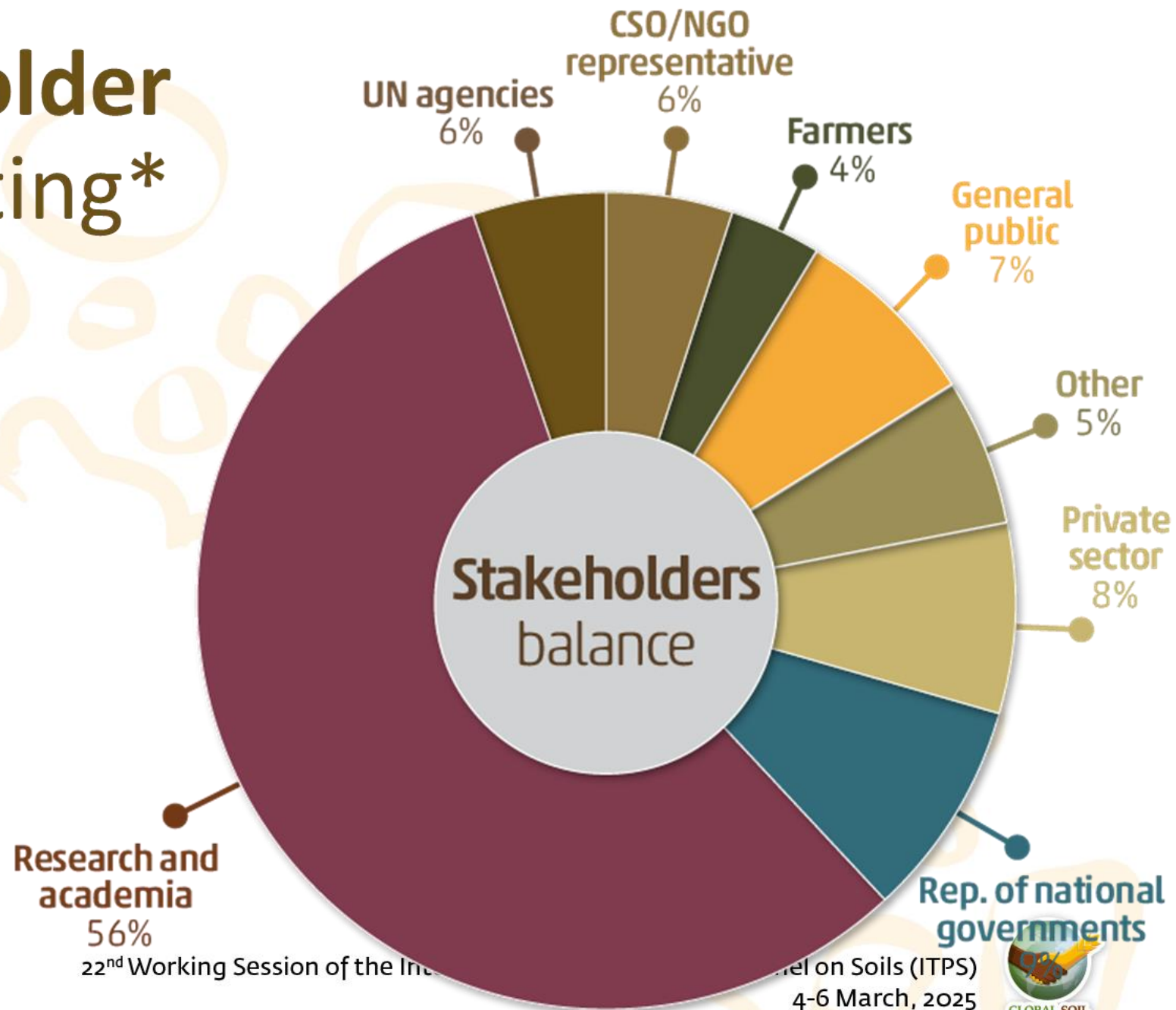
itps

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS

22nd Working Session of the Intergovernmental Technical Panel on Soils (ITPS)
4-6 March, 2025



Multi-stakeholder meeting*



* Data refers to online participants

SYMPOSIUM OPENING

5 distinguished
guests



7 + eminent keynote speakers



Soil information & data are on the news!

...the only way to reach both the general public & policy makers.



借鉴中国经验！全球土壤信息与数据研讨会在南京举行

央视号 | 2024-09-26 09:40:03

2024年9月25日至28日，全球土壤信息与数据研讨会将在中国南京国际青年会议酒店举行。本次会议由联合国粮食及农业组织和中国科学院南京土壤研究所联合主办，有超过500多名现场参会者和5000名线上参会者，以国际论坛的形式，汇聚政策制定者、研究人员和发展从业者等利益相关方，共同探讨可对比且可靠的土壤数据和信息在应对粮食安全、气候变化和土壤可持续管理等全球挑战中的重要作用，旨在推动利用可靠的土壤数据和信息来制定和实施政策。

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS



分享中国经验 助力粮食安全 全球土壤信息与数据研讨会在南京举行

JSTV
荔枝网 .com



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

4-6 March, 2025



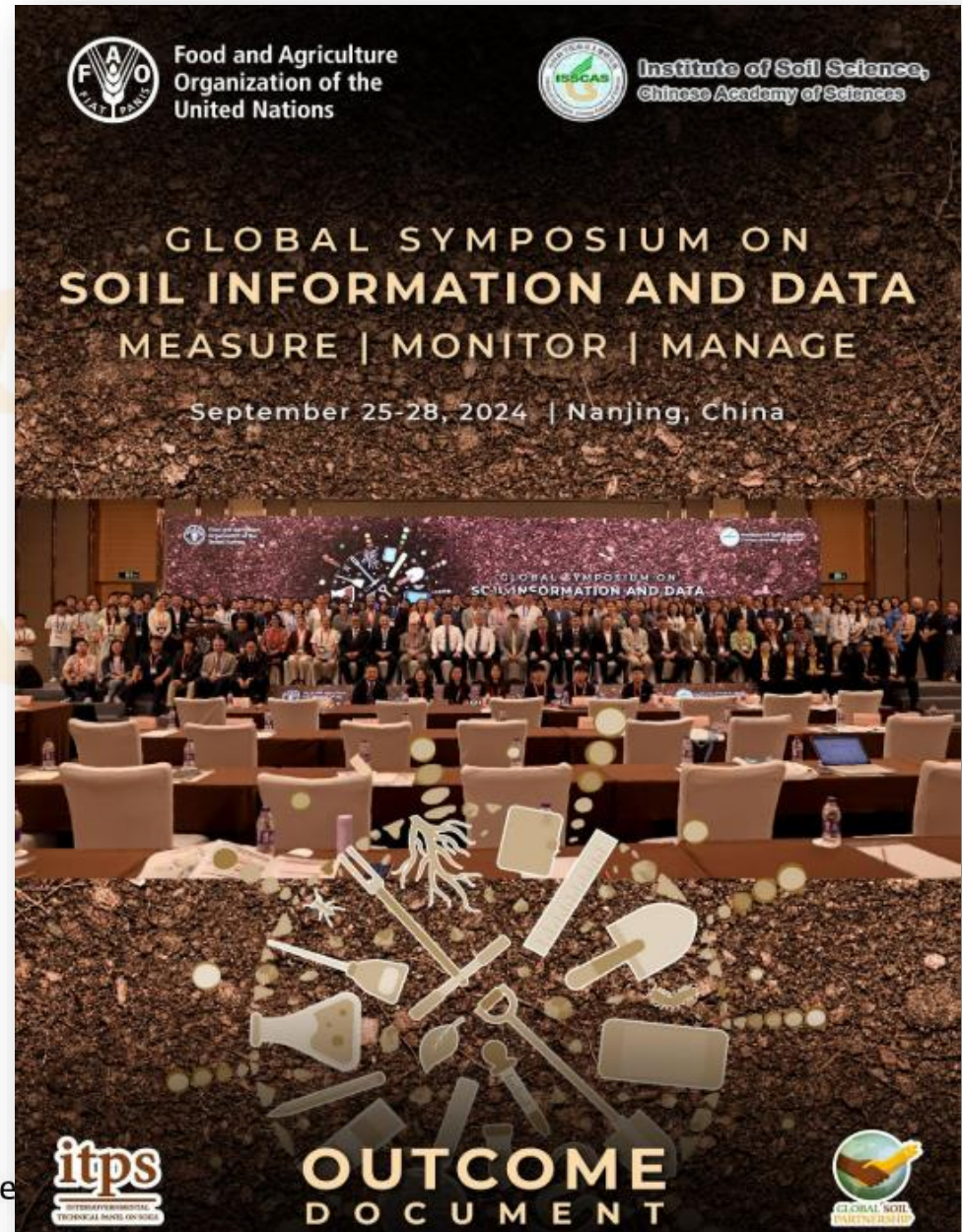
Progress

- **Reviewed** by symposium presenters and GLOSOLAN and INSII members.
- **Refinement:** Currently being edited and restructured based on feedback.

itps

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS

22nd Working Session



Comments - example

Need for better agreement between document summaries and recommendations

analyses among points, referred to as 'The Third Law of Geography,' can improve the predictive accuracy of soil properties at unknown locations by utilizing pattern information derived from similar locations.

Conclusions:

- The wider application of digital soil mapping products is important. More applications would be helpful for the development of digital soil mapping theory and methods.
- The integration of multi-source data, including legacy soil data, in DSM practices is crucial to enhance digital soil mapping products and soil monitoring.
- A global soil monitoring network, built upon harmonized national and local soil monitoring networks, is essential to address the future challenges of soil conservation on a global scale.



Ester Miglio
18:09 6 Jan

I don't understand the link with the previous paragraph. As it currently stands, the text may suggest that existing DMS are of low quality and not suited to real-world scenarios. I think the intended message was more encouraging continuous improvement and refinement...



D Rossiter
15:32 2 Jan

There is no mention of this in the "Discussion" above.



Fenny van Egmond
17:41 6 Jan

was it presented?

itps

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS

22nd Working Session of the Intergovernmental Technical Panel on Soils (ITPS)
4-6 March, 2025



Comments -example

Need for more general recommendations that encompass many conclusions covered by the symposium to provide a stronger direction for the GSP

- There is increasing interest in soil data, not only regarding productivity but also its central role for environmental protection.
- Need of enough funding, capacity development and improved technical expertise to support decision-making processes and efficient policies.



Ester Miglio
18:44 6 Jan

Correct, but there is also the need of an effective data sharing framework across different stakeholders

- Promote the widespread use of digital soil mapping products.
- Integrate multiple sources of data for digital soil mapping and monitoring.
- Build a global soil monitoring network.
- Reinforce continuously the capacity of INSII members



D Rossiter
15:41 2 Jan

... including uncertainty assessment.

itps

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS

22nd Working Session of the Intergovernmental Technical Panel on Soils (ITPS)
4-6 March, 2025



Work in progress

- Better review of the actual abstracts presented
- Need to restructure the document to have a stronger emphasis on the actual recommendations
- Need to revise the recommendations to be
 - Less specific and in some instances not too general
 - Provide a vision less for the GSP-secretariat and more for the GSP as a whole

Recommendations

Theme 1

Recommendation 1:

Enhance the standardization, harmonization, and quality assurance of soil data globally by strengthening quality control mechanisms, and ensuring the interoperability and accessibility of soil data.

- Establishing and enforcing internationally recognized Standard Operating Procedures (SOPs) will improve data comparability, usability, and decision-making in soil and land management.
- Strengthening quality control mechanisms, such as inter-laboratory comparisons, will enhance data reliability and consistency.
- SOPs should be accessible in multiple languages and disability-inclusive formats to enable broader adoption.
- The use of pedo-transfer functions will support data comparability, interoperability, and seamless data integration.

Recommendations

Theme 1

Recommendation 2:

Promote the adoption and integration of soil spectroscopy as a cost-effective and scalable method for improving soil data quality, accessibility, and standardization at global, national, and local levels.

- Integrating visible-near infrared (VNIR) and mid-infrared (MIR) spectroscopy into routine soil testing provides a rapid, non-destructive, and cost-efficient alternative to traditional laboratory analysis, improving soil data availability and resolution.
- Successful implementation requires standardized protocols, calibration models, quality control measures, capacity-building programs, and an open-access global soil spectral library to enhance comparability and adoption.



Recommendations

Theme 2

Recommendation 3:

Establish comprehensive capacity-development programs for laboratories, institutions, and soil data users to enhance their technical skills in data analysis, standardization, harmonization, and quality assurance.



22nd Working Session of the Intergovernmental Technical Panel on Soils (ITPS)
4-6 March, 2025



Recommendations

Theme 2

Recommendation 4:

Advance the integration of Digital Soil Mapping (DSM) with applied soil science to improve the accuracy, usability, and policy relevance of soil information systems.

Recommendation 5:

Establish a coordinated soil monitoring network to enhance long-term soil health assessments and support evidence-based policymaking.

itps

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS

22nd Working Session of the Intergovernmental Technical Panel on Soils (ITPS)
4-6 March, 2025



Recommendations

Theme 3

Recommendation 6:

Enhance integrated soil information systems to improve decision support for land-use planning and sustainable resource management.

Recommendation 7:

Leverage increased interest in soil data for enhanced resource mobilization to support national reporting



Recommendations

Theme 4

Recommendation 8:

Promote open-access soil data infrastructure and collaborative platforms to enhance equitable data sharing, interoperability, and informed decision-making for sustainable soil management.



22nd Working Session of the Intergovernmental Technical Panel on Soils (ITPS)
4-6 March, 2025



Next steps

- Finalize version 2 of the GSID24 Outcome document
- Submit to ITPS for review (March)



22nd Working Session of the Intergovernmental Technical Panel on Soils (ITPS)
4-6 March, 2025





Food and Agriculture
Organization of the
United Nations

itps

INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS

Thank you

22nd Working Session of the Intergovernmental Technical Panel on Soils (ITPS)
4-6 March, 2025

