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# Report of the Nineteenth Working Session of the Intergovernmental Technical Panel on Soils

FAO Headquarters, Rome, November 13-15, 2023

**REPORT OF THE NINETEENTH WORKING SESSION OF THE  
INTERGOVERNMENTAL TECHNICAL PANEL ON SOILS**

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**Food and Agriculture Organization of the United Nations**

**Rome, 2023**

## Contents

1. Opening of the meeting.....	4
2. Adoption of the Agenda and Timetable.....	4
3. Election of Rapporteur.....	4
4. Report of the work performed since the 18th working session.....	4
a. Progress on soil organic carbon related activities (RECSOIL and GSOC-MRV).....	4
b. Progress on soil pollution related activities (Technical Manual, INSOP updates) .....	4
c. Progress on soil biodiversity related activities (NETSOB and GLOSOB updates) .....	5
d. Progress on soil salinity related activities (INSAS updates, Global assessment of salt-affected soils).....	5
e. Progress on soil fertility related activities (launch of the International Soil Fertility and Fertilizer Network) 6	
f. Progress on sustainable soil management related activities (Soil Doctors).....	6
g. Progress on mapping related activities (progress on GSNmap, GSERmap, GloSIS) .....	7
h. Progress on soil analysis and laboratories related activities (GLOSOLAN updates).....	8
5. Outcome of the Global Symposium on Soil and Water (GSOWA23) .....	8
6. Preparation of the Global Symposium on Soil Information and Data 2024.....	8
7. Preparation of ITPS Letters on soil pollution, soil biodiversity, soil awareness. Other proposals.....	9
8. Updates of the soil health indicators and key performance indicators of the GSP Action Framework.....	9
9. World Soil Day 2023 .....	9
10. Progress on the preparation of the 2 <sup>nd</sup> edition of the Status of the World's Soil Resources Report.....	10
11. Any other business .....	10
12. Date and venue of the next meeting .....	10
13. Closure of the meeting .....	10
Annex I - List of Participants .....	11

1. Opening of the meeting

**Dr Rosa Poch**, Chair of the Intergovernmental Technical Panel on Soils (ITPS), opened the 19th working session of the ITPS by welcoming all ITPS members and acknowledging the importance of meeting in person to be more effective.

**Dr Lifeng Li**, Director of the Land and Water Division and officer in charge of the Global Soil Partnership (GSP) Secretariat, greeted the ITPS members and wished a successful meeting.

2. Adoption of the Agenda and Timetable

The agenda and timetable were both adopted without objection.

3. Election of Rapporteur

**Dr Poch** requested a volunteer for the role of Rapporteur. **Dr Georges Martial Ndzana** put himself forward for the role.

4. Report of the work performed since the 18th working session

- a. Progress on soil organic carbon related activities (RECSOIL and GSOC-MRV)*

**Mr Guillermo Peralta**, from the GSP Secretariat, presented the progress on the RECSOIL initiative (recarbonisation of agricultural soils) and its implementation in Costa Rica, Ecuador, Mexico, and Togo. He also mentioned that the Global Soil Organic Carbon Protocol for monitoring, reporting, and verification (GSOC-MRV) is being reviewed by external experts and ITPS members were invited to contribute to its revision and update.

**Dr Claire Chenu** asked for the duration of the RECSOIL projects, and it was clarified that the projects have a duration of four to five years with FAO funding, but national and local stakeholders are involved since the beginning to ensure sustainability and appropriation of the programme in the long term.

The ITPS welcomed the integration of the various GPS tools into the RECSOIL initiative and agreed to revise the GSOC-MRV protocol and the RECSOIL manual.

- b. Progress on soil pollution related activities (Technical Manual, INSOP updates)*

**Mr Sergejus Ustinov**, from the GSP Secretariat, presented on behalf of Prof Ravi Naidu, Chair of the International Network on Soil Pollution (INSOP) and coordinator of the ITPS working group on soil pollution. Mr Ustinov started his presentation with the updates from the annual meeting, in which various topics of soil pollution were covered. In the annual meeting, the activities of the network for each WG were endorsed by the members. Mr Ustinov went through all the activities in detail, explaining the purpose and expected outcomes. The updates on the two main deliverables for 2023 were given. That is 1) the progress on developing the standard operating procedures (SOPs) for phosphate fertilizers in the soil, with the expected completion date by the end of 2023 and 2) the

progress on the Technical guidelines on soil pollution assessment, mapping, monitoring and reporting, whose expected completion date is early 2024. Finally, the ITPS was provided with the meeting schedules for each WG.

**Dr Jeyanny Vijayanathan** was interested to know if the assessment of fertilizers also included rare earth elements, but Mr Ustinov clarified that the focus was only on heavy metals and radionuclides, particularly cadmium and uranium.

The ITPS welcomed the progress done in advancing the activities and thank the INSOP steering committee for their work.

*c. Progress on soil biodiversity related activities (NETSOB and GLOSOB updates)*

**Mr Jacob Parnell**, from the GSP Secretariat, presented the progress of the International Network on Soil Biodiversity (NETSOB) and the progress on the design of the Global Soil Biodiversity Observatory (GLOSOB). Mr Parnell highlighted recent trends in NETSOB membership that include a recent increase in membership particularly in North America and Pacific regions. The updates included preparation to publicly present the results of a global survey of current soil bioindicators, measurements, and initiatives to be held on November 17. In addition, the timeline for NETSOB deliverables was presented. The use of bioindicators in the SoilFER project was discussed as a prototype for GLOSOB. Many of the documents will be finalised at the annual NETSOB meeting and the in-person board meeting to be held in January 2024.

**Dr Rosa Poch** wondered if there are already some case studies or implementation sites for GLOSOB and which the criteria for those will be. Mr Parnell clarified that GLOSOB has not yet started to be implemented. The SoilFER project will be used as a prototype. The countries involved in this project (Guatemala, Honduras, and Zambia) represent the lowest tier of soil biodiversity measurements to be collected in GLOSOB and will be an excellent case study for building capacity and implementing a biodiversity monitoring programme.

**Dr Claire Chenu** asked if there is an overview of which countries are already monitoring soil biodiversity. EJP-Soil assessed it in 24 countries and identified that there is no harmonization in terms of indicators, they also realised that it is important to include pedo-transfer functions to deliver standardize information. Mr Parnell indicated that this information will be included in one of the documents being prepared for publication in early 2024.

The ITPS welcomed the progress done in advancing the activities of NETSOB and suggested the Secretariat to engage with existing projects and initiatives to harmonise soil biodiversity indicators for GLOSOB.

*d. Progress on soil salinity related activities (INSAS updates, Global assessment of salt-affected soils)*

**Ms Maria Konyushkova**, from the GSP Secretariat, presented the progress of the International Network on Salt-affected Soils (INSAS), including the organization of the hybrid meeting in Uzbekistan and the preparation of the Global Assessment of Salt-affected Soils report. Over 170 in-person and 370 online participants from 86 countries attended the second meeting of INSAS in Tashkent (Uzbekistan). The materials of the meeting are available at <https://www.fao.org/index.php?id=118216>. The special issue 'Integrated soil-water-crop management in salt-affected areas' (Italian Journal of Agronomy, Vol. 18, No. 2, 2023) containing the selected papers from the GSAS Symposium and an opinion paper from INSAS Chair were published: <https://www.agronomy.it/index.php/agro/issue/view/91>. The Global Assessment of Salt-Affected Soil has been prepared for release. The members of the ITPS Salinity working group (Rosa Poch, Ghiath Alloush, Nopmanee

Suvannang and Saeed Saadat) reviewed the chapters of the GSAS report together with the INSAS Chair and Vice-chairs as part of review panel of the report. The regional assessments presented in the GSAS report are summaries of the responses to the INSAS survey from 53 countries. The national reports from 39 countries will be published in a separate volume. The INSAS webinar on the Health of Salt-Affected Soils was announced (November 21, 2023): <https://www.fao.org/global-soil-partnership/resources/events/detail/en/c/1661989/>

**Dr Poch** encouraged all members to contribute and review the report as this threat will not be included in some regional assessments of the Status of the World's Soil Resources Report. The ITPS expressed its appreciation for the progress made. There were no additional comments.

*e. Progress on soil fertility related activities (launch of the International Soil Fertility and Fertilizer Network)*

**Ms Vinisa Saynes**, from the GSP Secretariat, presented the progress made since the launch of the International Soil Fertility and Fertilizer Network (INSOILFER) in July 2023. A recap of the framework and the scope of the working groups (WG) was presented. The three working groups are:

- WG 1. Soil fertility and nutrient monitoring system
- WG2. Sustainable soil fertility and fertilizer management
- WG3. Fertilizer safety and quality assessment

The main activities under implementation are the organization of the first Working Group Meetings, the INSOILFER website construction, and the definition of collaboration with other networks and institutions. The INSOILFER Working Group Meetings will be held on 27-29 November 2023. The WG meeting's agenda includes the establishment of the governance, technical committees, and reference institutions to support the network activities. An overview of the themes, goals, and collaborations of the three WG were presented.

Details on the INSOILFER membership -regional balance, stakeholder, and WG distribution- were provided. The presentation concluded with an invitation to the ITPS to become members of INSOILFER Technical Committees and to participate actively in the WG Meetings.

The INSOILFER concept note has been sent by email to be reviewed by ITPS members of the soil fertility working group.

The ITPS expressed its appreciation for the progress made. There were no additional comments.

*f. Progress on sustainable soil management related activities (Soil Doctors)*

**Ms Carolina Olivera**, from the GSP Secretariat, presented the progress in the implementation of the Protocol for the Assessment of Sustainable Soil Management (SSM Protocol) and the Global Soil Doctors Programme. The SSM protocol is in the process of being published including the changes suggested by the ITPS at the 19<sup>th</sup> working session. Regarding the Global Soil Doctors programme, Ms Olivera updated the members about the pilot projects implemented in several countries in all regions. The [results of the implementation](#) of the Global Soil Doctors Programme show significant impact and widespread interest from countries around the world. A total of 46 countries have expressed interest in the programme, demonstrating its global reach and relevance. In addition, 24 national promoting institutions (soil science societies, universities, extension services) are engaged to ensure

the programme is tailored to local soils and farming systems. The commitment of the programme to farmer empowerment is demonstrated by the [translation of the educational materials](#) into 18 languages, making it accessible to a large number of countries. In addition, capacity building efforts have been commendable, with nearly 500 trainers certified and more than 2 100 soil doctors trained, with the potential to benefit an estimated 17 000 farmers. These achievements underscore the positive trajectory of the programme and the transformative impact it can have on global agriculture.

The [Soil testing methods manual](#) will be updated, and it will include the field exercises formats for farmers, to be printed. Some additional field exercises are being developed with the RECSOIL team. A compilation of SSM practices is planned in collaboration with the GSP technical networks, to include SSM practices general formats and case studies. ITPS members were invited to revise the manual and the field exercises to ensure their scientific relevance.

**Dr Poch** welcomed with great satisfaction the progress of the programme and the great expansion in so many countries.

**Dr Nopmanee Suvannang** asked if collaboration with GLOSOLAN is foreseen for the harmonization of the soil testing kits. Ms Olivera responded that the kit does not include any chemical analysis. Some countries and projects are including some chemical parameters, and, in those cases, close cooperation is needed with GLOSOLAN. Ms Olivera also mentioned that the work with GLOSOLAN will be focused on harmonising the soil sampling methodology and on which soil analysis to request to labs by farmers. Dr Suvannang has also asked if the programme is collecting data on the practices and soil indicators given the high number of countries participating.

**Dr Jeyanny Vijayanathan** appreciated the work of the programme and the role of FAO in supporting farmers. She asked about the sustainability of the programme and which mechanisms are in place to engage other stakeholders to support the programme when FAO funding is not available.

*g. Progress on mapping related activities (progress on GSNmap, GSERmap, GloSIS)*

**Mr Yusuf Yigini**, from the GSP Secretariat, presented the progress done in the development of the Global Soil Information System (GLOSIS) and its soil data products, including the GLOSIS discovery hub. He also updated members on the activities of the working group which is developing the Key performance indicator system of the GSP Action Framework 2022-2030, the soil health indicator system and the Global Soil Health Dashboard. He also reported on the resumption of work to prepare the global soil erosion map in coordination with the Joint Research Centre of the European Commission.

**Mr Marcos Angelini**, from the GSP Secretariat, provided an update of the preparation of the Global soil nutrient and nutrient budget maps (GSNmap). The raster maps will be developed with a resolution of 250 x 250 m and considering a depth of 0-30 cm for total N, available P and K, CEC, pH, texture, and SOC. Currently, the capacity building programme has been completed and countries are preparing the national submissions. Mr Angelini also explained the gap-filling process using globally available information and machine learning technologies. Mr Angelini mentioned that the technical specifications for the second phase of the GSNmaps will be submitted for ITPS review and clearance.

The ITPS expressed its appreciation for the progress made and requested to be included in the working group on soil erosion mapping. There were no additional comments.

*h. Progress on soil analysis and laboratories related activities (GLOSOLAN updates)*

**Mr Filippo Bendetti**, from the GSP Secretariat, provided an update on the activities of the Global Soil Laboratory Network (GLOSOLAN), which currently counts about 1 000 soil laboratories from 160 countries. Mr Benedetti provided an overview on the status of the harmonization of standard operating procedures (SOPs), remarking the fruitful collaboration between GLOSOLAN and the other GSP Technical Networks in developing and reviewing SOPs on soil biological parameters (NETSOB), heavy metals (INSOP) and salt-affected soil related parameters (INSAS). Mr Benedetti informed about the capacity building initiatives done by GLOSOLAN since the last ITPS meeting, including webinars in multiple languages on several topics (including soil spectroscopy) and two in-person training sessions in Uzbekistan (May 2023), organized together with INSAS, and in Senegal (October 2023) for the technicians of soil laboratories operating in sub-Saharan Africa. Moreover, GLOSOLAN organized a training for soil laboratory personnel in Togo in the framework of the RECSOIL project. Three regional proficiency tests (PTs) are currently under implementation: one in Eurasia led by the Russian Federation, one in Asia led by the Philippines and one involving laboratory both in Africa and NENA, organized with the support of the British Geological Survey (BGS) and the French Research Institute for Development (IRD). A global PT will be launched in 2024 aiming to involve around 300 soil laboratories. Mr Benedetti remarked that the exchange of (sterilized) soil samples among countries for research purposes remains a great issue. Lately, GLOSOLAN is exploring collaboration opportunities with external organizations, such as the International Governance Committee for the Internal Conference on Soil and Plant Analysis (ISSPA), ISO, and the Asian Knowledge Hub. Mr Benedetti ended his intervention by inviting all ITPS members to attend the 7<sup>th</sup> GLOSOLAN meeting to be held in virtual modality from 21<sup>st</sup> to 23<sup>rd</sup> November 2023.

**Dr Vijayanathan** asked about the shipment of soil samples to other countries, and she suggested to develop a template for transfer agreements. Mr. Benedetti informed that GLOSOLAN already developed a database in 2020 reporting national import regulations for soil samples for all countries, called [SIMPLE \(Sample Import Legislation\)](#).

The ITPS expressed its appreciation for the progress made. There were no additional comments.

5. Outcome of the Global Symposium on Soil and Water (GSOWA23)

**Ms Natalia Rodríguez Eugenio**, from the GPS Secretariat, briefed the ITPS on the participation and recommendations of the Global Symposium on Soil and Water (GSOWA23). It was proposed that the ITPS works on the preparation of an ITPS Letter on soil moisture management, including the importance of green water. No volunteers were proposed to lead the preparation of this letter.

The ITPS welcomed the results of GSOWA23 and supported the main recommendations that emerged from the discussions. It also agreed to review and endorse the outcome document being drafted by the GSP Secretariat.

6. Preparation of the Global Symposium on Soil Information and Data 2024

**Mr Marcos Angelini**, from the GSP Secretariat, presented the main themes of the symposium and the next steps



for its preparation.

**Dr Suvannang** asked about the title of the symposium and why the quality of the data had not been considered. **Dr Taina Pennanen** mentioned that data quality not only refers to soil analysis but also to soil sampling quality, profile description and aboveground data (landscape, vegetation, etc). **Dr Poch** agreed with Dr Pennanen and mentioned that field description is not being considered in theme 1.

The GSP Secretariat responded to these concerns and the ITPS was informed that the 11th GSP Plenary Assembly had agreed to keep the title short to accommodate promotional materials and languages. However, the ITPS was assured that all aspects related to data quality are central to this symposium and will be addressed extensively, including uncertainty, soil sampling and laboratory data quality.

The concept note will be sent to the ITPS for review and endorsement.

#### 7. Preparation of ITPS Letters on soil pollution, soil biodiversity, soil awareness. Other proposals.

**Dr Poch** presented the pending letters. A letter on soil monitoring has been drafted by **Dr Saeed Saadat** and is being completed by GSP secretariat. The ITPS letter on soil governance will be drafted by **Giacomo Rocchegiani**, from the GSP Secretariat and shared with the ITPS members for completion.

**Dr Adele Muscolo** offered to contribute to the soil pollution letter together with **Dr Ravi Naidu**.

No other commitments were made to advance other letters.

#### 8. Updates of the soil health indicators and key performance indicators of the GSP Action Framework

**Mr Yigini** presented the updates and planned work for the two indicators systems being developed: the GSP key performance indicators and the soil health indicators. All the information is included in a single document that includes the soil health index and the soil health dashboard. GSP AF Working Document: <https://docs.google.com/document/d/1z7VlvViaAZtyAREnrT8aYD72jdaJ6lbUyoz1kMJwhzQ/edit?usp=sharing>

**Dr Muscolo** was interested to know in detail the reasoning behind the selection of the indicators and **Mr Yigini** explained that the indicators under consideration now were not yet final and that this would be addressed at the next working group meeting in January. **Dr Poch** agreed to share the working paper with the ITPS members to seek their feedback before the next ISAF working group meeting.

#### 9. World Soil Day 2023

**Ms Maria Chiara Humura**, from the GSP Secretariat, presented the data, the perspectives of World Soil Day 2022 and the activities planned for the preparation of this year's event. She invited ITPS members to actively participate in the celebration, to organize other events by pinning them on the interactive map of the World Soil Day website, to visit and follow our social channels and to use the campaign materials.

The ITPS appreciated the splendid work done by the communication team and the rest of the GSP Secretariat on the World Soil Day campaign and appreciated that it has become a key awareness raising day around the world.

#### 10. Progress on the preparation of the second edition of the Status of the World's Soil Resources Report

**Dr Dan Pennock**, Chief editor of the second edition of the Status of the World's Soil Resources (SWSR) report, updated ITPS members on the progress of the preparation and particularly on the regional assessments. He also briefed members on the use of maps and highlighted that some already available maps are included in research articles that are not open access and therefore FAO would need to pay for the access if needed. How to use maps and figures from external sources were clarified by the GSP Secretariat. Actions for ITPS Editorial Board to follow as suggested by the GSP Secretariat were:

- Identify the maps and source and send it to the GSP Secretariat to be analysed on a case-by-case basis (e.g., request authors to redo the maps with UN borders, ask for the source data and redo the maps, contact the FAO library for an agreement with the editorial house/journal).
- Ms Isabel Luotto ([Isabel.luotto@fao.org](mailto:Isabel.luotto@fao.org)) has been nominated as the focal point at the GSP Secretariat for mapping issues. ITPS members should send the requests and doubts on compliance to her.

**Dr Lucia Anjos** asked about the role of the ITPS in the review of the report. **Dr Dan Pennock** explained that this is an ITPS report and therefore ITPS has the responsibility to review it. All members will review it and extract key messages to feed the summary for policymakers.

No other comments were made.

#### 11. Any other business

ITPS members were informed of the departure of the FAO GSP Secretary and that the position will be opened shortly. They were encouraged to apply for and/or advertise the position among highly qualified candidates familiar with the GSP to ensure adequate continuity of activities.

ITPS expressed its sincere thanks to Ronald Vargas for all his dedication and efforts in making the GSP a strong, meaningful and impactful partnership. ITPS also expressed its sincere appreciation and thanks to the entire GSP Secretariat team for continuing to work in a highly professional manner.

#### 12. Date and venue of the next meeting

After conducting a survey on the availability of members, it was decided to pre-book the dates from 18 to 21 March 2024 to hold the 20<sup>th</sup> working session of the ITPS at FAO headquarters, allowing one of these days to specifically deal with the SWSR Report.

#### 13. Closure of the meeting

**Dr Rosa Poch** closed the meeting by thanking all members for their active participation and commitment to attend this three-day session.

## Annex I - List of Participants

<b>ITPS members</b>	<b>Region</b>
Dr Adele Muscolo (Italy)	Europe
Dr Igué Attanda Mouinou (Benin)	Africa
Dr Claire Chenu (France)	Europe
Dr David Allen Lobb (Canada)	North America
Dr Gaius Eudoxie (Trinidad and Tobago)	Latin America and Caribbean
Dr Georges Martial Ndzana (Cameroon)	Africa
Dr Ghiath Ahmad Alloush (the Syrian Arab Republic)	Near East and North Africa
Dr Guillermo A. Studdert (Argentina)	Latin America and Caribbean
Dr Jorge Dionisio Etchevers Barra (Mexico)	Latin America and Caribbean
Dr Jeyanny Vijayanathan (Malaysia)	Asia
Dr Ke Jin (China)	Asia
Dr Lúcia Helena Cunha Dos Anjos (Brazil)	Latin America and Caribbean
Dr Nopmanee Suvannang (Thailand)	Asia
Dr Pete Smith (the United Kingdom of Great Britain and Northern Ireland)	Europe
Dr Ranjan Bhattacharyya (India)	Asia
Dr Rosa Maria Poch (Spain)	Europe
Dr Saeed Saadat (the Islamic Republic of Iran)	Near East and North Africa
Dr Sheleme Beyene Jiru (Ethiopia)	Africa
Dr Taina Pennanen (Finland)	Europe
<b>Other participants</b>	<b>Affiliation</b>
Mr Lifeng Li	NSL Director
Ms Carolina Olivera Sánchez	GSP Secretariat

Ms Cruz Ferro	GSP Secretariat
Mr Filippo Benedetti	GSP Secretariat
Mr Giacomo Rocchegiani	GSP Secretariat
Mr Guillermo Peralta	GSP Secretariat
Mr Jacob John Parnell	GSP Secretariat
Mr Kirill Antyukhin	GSP Secretariat
Mr Marcos Angelini	GSP Secretariat
Ms Margherita Furenti	GSP Secretariat
Ms Maria Chiara Humura	GSP Secretariat
Ms Maria Konyushkova	GSP Secretariat
Mr Matteo Sala	GSP Secretariat
Ms Michaela Brown	GSP Secretariat
Ms Natalia Rodriguez Eugenio	GSP Secretariat
Mr Sergejus Ustinov	GSP Secretariat
Ms Vinisa Saynes Santillan	GSP Secretariat
Mr Yusuf Yigini	GSP Secretariat
Mr Yuxin Tong	GSP Secretariat
Dr Dan Pennock	Chief editor SWSR report