

ITPS-XV/21/Report



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



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

Virtual Session November 2021

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

**Virtual Session November 2021**

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

**Rome, 2021**

1. Opening of the meeting.....	4
2. Cooperation with SPI, 4per1000, and others ( <i>for information</i> ) .....	4
3. Decisions of the ninth GSP Plenary Assembly concerning the ITPS, welcoming of new ITPS member ( <i>for information and decision</i> ) .....	5
4. Report of the work performed since the fourteenth working session ( <i>for information and decision</i> ) .....	5
a. Report of the SOC working group .....	5
b. Report of the soil pollution working group .....	6
c. Report of the soil biodiversity working group .....	6
d. Report of the salt-affected soils working group.....	7
e. Report of the soil fertility working group .....	7
a. Report of the black soils working group.....	8
b. Report of the mapping working group .....	9
5. ITPS soil letters ( <i>for information and decision</i> ) .....	9
6. Protocol for Sustainable Soil Management ( <i>for information</i> ) .....	10
7. Discussion on the second edition of the SWSR Report ( <i>for information and decision</i> ) .....	10
8. Any other business .....	12
9. Date and venue of the next meeting.....	12
10. Closure of the meeting .....	12

## 1. Opening of the meeting

The fifteenth working session of the Intergovernmental Technical Panel on Soils (ITPS) took place over three days, from 15 to 17 November 2021, from 13:00 to 15:00 CET (Central European Time), in a virtual format through the Zoom platform.

**Dr Rosa M. Poch**, ITPS chair, opened the meeting and greeted all the participants. She especially thanked the ITPS members and the GSP Secretariat for carrying on the excellent work.

**Mr Ronald Vargas**, GSP Secretary, greeted participants and welcomed the new ITPS member. He went on to briefly comment on the outcomes of the 2021 United Nations Climate Change Conference, more commonly referred to as COP26<sup>1</sup> and the recognition of the agricultural sector not only as a driver of climate change but also as one of the solutions. He pointed out that the European Commission would be adopting a new Soil Strategy that week.

He thanked the ITPS members for the splendid work done since the fourteenth working session, especially on the ITPS soil letters, reiterating that the letters were an excellent tool to raise awareness of complex issues in a simple and straightforward way and were highly appreciated by the GSP community.

With no one against, the agenda and timetable were both adopted and a volunteer for the role of Rapporteur was requested. **Dr Peter de Ruiter** put himself forward for the role.

## 2. Cooperation with SPI, 4per1000, and others (*for information*)

**Dr Rosa Poch** presented the different organisations cooperating with the ITPS, together with their contributions to the different GSP initiatives, such as the Global Symposium on Salt-affected Soils and publications like Recarbonizing global soils- a technical manual of recommended management practices. She summarised the discussion held during the twelfth meeting of the Scientific-Technical Committee (STC) of the 4per1000 Initiative that took place from 8 to 9 November 2021 in Glasgow, Scotland, and during the 4p1000 Initiative Day on 10 November, in which she had participated as an observer.

During that meeting, Dr Poch had informed the delegates about the activities of ITPS, in particular those included in the RECSOIL initiative (the publication of the Technical manual on SOC management and GSOCseq), as well as the state-of-art methodologies related to SOC analysis in GLOSOLAN. She also summarised the main discussions carried out during COP26 on soil governance.

---

<sup>1</sup> <https://unfccc.int/conference/glasgow-climate-change-conference-october-november-2021>

3. Decisions of the ninth GSP Plenary Assembly concerning the ITPS, welcoming of new ITPS member (for information and decision)

**Dr Poch** went briefly through the main decisions of the GSP Plenary Assembly (PA) concerning the ITPS. First, she officially welcomed **Dr Aleksey Sorokin** (Russian Federation) after the ninth session of the Plenary Assembly of the Global Soil Partnership (GSP) had endorsed his nomination in the replacement of Ms Maria Konyushkova<sup>2</sup>.

She recalled the decision of the GSP PA to extend the mandate of the current panel until the next PA in 2022 and reviewed the approved work plan for this period. **Mr Ronald Vargas**, GSP Secretary, informed the panel that the next GSP PA would be held from 3 to 5 May 2022.

Dr Poch noted that the Brazilian delegation expressly requested that the ITPS prepare an assessment of the economic benefits of sustainable soil management (SSM) for farmers and other land users. Discussions around this point focused on deciding whether the study should be based on the use of indicators specific to each type of crop and ecosystem, such as those agreed in the Protocol for the assessment of SSM, or instead, whether a manual should be prepared with guidelines for the elaboration of such studies with site and/or country-specific information.

It had been decided that **Dr David Lobb** would take the lead in the preparation of the draft table of contents and a concept note by mid-December, focusing on indicators and actual measurements, with **Dr Lucia Anjos** completing the draft in early January 2022. **Dr Rafla Attia** also volunteered to contribute, in particular regarding the economic costs of land degradation. The draft would then be circulated to all ITPS members for comments, so that the table of contents and concept note could be presented at the tenth session of the PA.

**Mr Vargas** asked the ITPS to also prepare the terms of reference in case the capacities of the GSP Secretariat were to be reinforced in this sense to support the ITPS with the preparation of such an assessment.

Finally, Mr Vargas explained that, in accordance with the decision of the GSP PA, an Open-Ended Working Group (OEWG) would be created in order to review and finalize the GSP Framework for Action 2022–2030. The ITPS Chair would be a member of the OEWG and have the role of communicating and agreeing the ITPS position and ensuring that it was reflected in the final document.

4. Report of the work performed since the fourteenth working session (*for information and decision*)

a. *Report of the SOC working group*

**Ms Carolina Olivera** (GSP Secretariat) presented a summary table that the GSP Secretariat was in the process of preparing, based on the information gathered in the SOC manual. The table would help in building a digital database so that additional data could be uploaded, along with a search bar so that the

---

<sup>2</sup> <https://www.fao.org/3/cb7375en/cb7375en.pdf>

manual could be explored in a more interactive way. Some ITPS members wondered whether it would be possible to extract statistics by biome or land use. Ms Olivera explained that so far, that would not be possible with the available information.

**Ms Carolina Cardoso** (GSP Secretariat) presented the the latest developments of the ‘RECSOIL: Recarbonization of global agricultural soils initiative’. She described the different stakeholders that would be included in the process and some key aspects needing to be considered when implementing the project. She reiterated that the GSP Secretariat was working on the harmonization of the RECSOIL ‘toolkit’ with the implementation plan for the RECSOIL Green Path.

*b. Report of the soil pollution working group*

**Ms Magdeline Vlasimsky** (GSP Secretariat) presented the soil pollution working group report. She described the status of the different chapters of the Technical manual for assessing, mapping, monitoring and reporting soil pollution, as well as the pilot projects the GSP would be establishing in the different regions to manage and remediate agricultural soils contaminated with trace elements.

In answer to a question about which threshold levels would be used to determine the intervention actions in the pilot sites, the GSP Secretariat clarified that in many cases, the values were country-specific and would be considered on a site-by-site basis. ITPS members also indicated their willingness to contribute to the project and requested that the Secretariat keep communication active to allow their involvement. The members also queried what the review process would be for the Technical manual, and, after the GSP Secretariat's clarification that a peer review process would be followed, expressed their willingness to participate in the process.

*c. Report of the soil biodiversity working group*

**Ms Rosa Cuevas** (GSP Secretariat) presented the concept note for the upcoming establishment of the International Network on Soil Biodiversity (NETSOB). She announced that the network would be launched on 3 December 2021, in the framework of the World Soil Day celebrations. NETSOB aimed to bring soil biodiversity experts and existing initiatives together to become the critical mass contributing to the implementation of the Global Soil Biodiversity Observatory (GLOSOB).

Ms Cuevas explained that four working groups (WG) would be formed within NETSOB, to work on developing each theme’s recommendations, with an open call to all interested parties:

WG1. Monitoring, measurement, and assessment of soil biodiversity.

WG2. Sustainable use/management and conservation of soil biodiversity.

WG3. Economics of soil biodiversity.

WG4. Policies and legal instruments of soil biodiversity.

She then explained that GLOSOB would aim to monitor and forecast the condition of soil biodiversity and soil health, serving as a framework for developing policies, promoting good practices, and developing national capacities on the state-of-the-art tools and methods in soil biodiversity, soil health assessment and maintenance. She also explained that GLOSOB would be crucial in strengthening the knowledge of all the groups that made up soil biodiversity (microbes, micro, meso, macro and megafauna) across taxonomy, novel technologies, standard operating procedures (SOPs), mapping, soil health indicators, bioremediation and restoration.

**Dr Peter de Ruiter**, coordinator of the ITPS soil biodiversity working group, gave the final remarks, calling for a synergy between all the existing international initiatives and networks, such as the GSBI, among others.

*d. Report of the salt-affected soils working group*

**Dr Jamal Kahn**, the co-leader of the ITPS soil salinity working group, presented key figures from the Global Symposium on Salt-affected Soils (GSAS21). He also summarised the progress of the International Network of Salt-affected Soils (INSAS). He outlined the activities planned for World Soil Day (WSD) scheduled for 5 December 2021 under the theme of salinization. ITPS members were invited to join the WSD official celebration (3 December 2021 in a virtual setting) and, more importantly, use and share the wealth of material available on the WSD website. He passed on information about the different meetings of the INSAS specific working groups - SAS&Assessment, SAS&SSM, SAS&Crops and SAS&Water, as well as discussing the progress achieved in the implementation of their work plans for 2021–2022.

**Ms Maria Konyushkova**, the coordinator of INSAS at the GSP Secretariat, thanked the ITPS salinity working group, going on to clarify that the forthcoming report on the Global Assessment of SAS (Salt-Affected Soils) would be based on contributions from the participating countries and that it would be necessary to wait for the maps before the chapters could be prepared. It was also important for the working group as well as invited authors to contribute to the development of regional overviews for the report. She then reiterated that the timeframe for implementing the tasks would be over the next two years, although she agreed that it might not be possible to achieve everything in the timeframe suggested.

*e. Report of the soil fertility working group*

**Ms Vinisa Saynes** (GSP Secretariat) presented the soil fertility working group report, prepared thanks to the contributions from the GSP Secretariat fertility group (Carolina Olivera, Yuxin Tong, Sebastian Brahene, Carolina Cardoso and Vinisa Saynes) and with contributions from **Dr Gary Pierzynski** and **Dr Rafla Attia**, co-leads of the ITPS working group.

She discussed the Global Soils for Nutrition Symposium (GSOIL4N symposium), together with the activities for the implementation of the International Code of Conduct for the Sustainable Use and

Management of Fertilizers (Fertilizer Code), and the latest activities in the International Network on Fertilizer Analysis (INFA).

The GSOIL4N symposium would be held in 2022 and the scope, objectives, proposed themes and key questions to be addressed were presented. The concept note would be circulated in the near future for ITPS inputs. Because GSOIL4N was planned to be framed under the FAO 4 Betters, **Dr Gary Pierzynski** proposed to address the soil fertility issue through an ITPS letter, considering the format of the GSOIL4N.

**Dr Siosiua Halavatau** suggested that the topic of nutrient use efficiency could be included in GSOIL4N, it being a key problem that was in urgent need of being addressed globally. Ms Saynes offered to collect the comments and be in communication with ITPS members in order to promote active participation in the organization of GSOIL4N.

Ms Saynes also summarised the progress with the implementation of the Fertilizer Code. She mentioned that a survey, (the National Survey on the Use and Management of Fertilizers) as well as a video introducing the Fertilizer Code had been prepared and distributed in six FAO languages. **Dr Lucia Anjos** highlighted that as an initiative from Brazil, The Fertilizer Code had been translated into Portuguese, and kindly requested that the National Survey on the Use and Management of Fertilizers could also be translated into Portuguese. It was agreed that Ms Saynes would translate the Survey with the support of the Fertility group.

Ms Saynes concluded by giving a brief account of the progress made by INFA, which included the establishment of the network governance, the design and formation of the working groups, which were in progress and would be finished by the end of the year.

*a. Report of the black soils working group*

**Dr Lucia Anjos**, coordinator of the ITPS black soils working group, presented the progress of the Report of the Global Status of Black Soils and the Global Black Soil Distribution Map (GBSmap) as well as the upcoming workshop of the International Network on Black Soils. She informed the ITPS that most of the black soil member countries had already submitted their contributions to the report, while the other member countries had committed to sending their content soon. She also mentioned that nine black soil countries had submitted their national black soil maps to INBS (International Network on Black Soils) and expected to receive other countries' maps to finalize the GBSmap next year.

She concluded by calling for ITPS members to join the report's editorial board and provide support by supervising the experts completing their country's manuscripts. **Dr Rosa Poch** volunteered to be a member of the editorial board of the black soil report.

*b. Report of the mapping working group*

**Mr Yusuf Yigini** (GSP Secretariat), on behalf of ITPS mapping group, presented the progress in GloSIS (Global Soil Information System) global data products and GloSIS spatial data infrastructure and governance. He summarised the status of the Global Soil Organic Carbon Map (GSOCmap), Global Soil Organic Carbon Sequestration Potential map (GSOCseq), Global Salt-Affected Soils map (GSASmap), Global Black Soil Distribution Map (GBSmap) and the Global Soil Erosion map (GSERmap). He informed the ITPS members that an updated version of the GSOCmap (v1.6) would be finished and launched by the end of 2021 and steps would be taken to update the GSOCmap to version 2.0.

**Mr Yusuf Yigini** explained that work would be starting on the GSERmap at the beginning of 2022, and the ITPS and INSII (International Network on Soil Information Institutions) would be consulted regularly concerning the technical elements of the GSERmap development process. **Dr Peter de Ruiter** raised concerns regarding the cooperation with the other initiatives, institutions and projects working on soil data and soil information, and requested that the GSP Secretariat enhanced the cooperation with them.

A brainstorming session for the preparation of a map or set of maps on soil nutrient budget was then carried out. Some ITPS members expressed their concerns, due to the high complexity of such a task. **Dr Lucia Anjos** and **Dr Fernando Garcia-Prechac** explained that the traditional considerations of soil fertility based on nitrogen, phosphorous and potassium (NPK) content of soils were not relevant for food productivity, as observed in tropical soils from Latin America, which still supported intensive food systems.

**Dr Gary Pierzynski** suggested concentrating on soil micronutrients and their relationship with human nutrition and yield gaps. Some other members wondered about considering specific crops' needs and whether to map the total nutrient content of bioavailable nutrients, while considering the relevant different soil depths.

5. ITPS soil letters (for information and decision)

**Dr Rosa Poch** explained that four letters had been published so far; Towards a definition of soil health, in September 2020, Soil Organic Carbon and Nitrogen, in March 2021, Salt-affected soils are a global issue, in May 2021 and Spectroscopy: towards eco and human friendly soil analysis, in September 2021. A letter on soil sealing and urbanization was in final production and would be released before the end of the year.

She mentioned that some letters were still in draft form; those of Soil governance, Biochar, potentials and constraints, and Soils for nutrition.

Other letters were proposed, and some potential authors listed. **Dr Rafla Attia** and **Dr Lucia Anjos** proposed that they work together on a soil letter about climate change. **Dr Fernando Garcia-Prechac** suggested that a letter on soil erosion could be prepared, although there were no volunteers to lead it.

Dr Poch also discussed the abstracts to be submitted to the World Soil Science Congress of the International Union of Soil Sciences (IUSS), to be held in Glasgow in August 2022. All members agreed to submit papers on behalf of the ITPS and welcomed the initiative of Dr Poch in this regard. Four abstracts were ready to be submitted:

- 1) Connecting soils with people: initiatives of the Global Soil Partnership,
- 2) The global maps of the Global Soil Partnership: from bottom to top,
- 3) Strengthen global and national capacities on soil information and soil mapping to support Sustainable Soil Management (SSM) decision planning, and;
- 4) Recarbonizing global soils: a technical manual of recommended management practices

Another two abstracts on black soils and salt-affected soils were proposed to be prepared and submitted on behalf of the ITPS.

#### 6. Protocol for Sustainable Soil Management (*for information*)

**Ms Carolina Olivera** presented the status of the training manual and annexes of the Protocol for the assessment of sustainable soil management (SSM Protocol). The SSM Protocol would include a screening survey to determine the compliance of implemented management practices with the Voluntary Guidelines for Sustainable Soil Management (VGSSM).

She presented the progress in developing the instruction for the measurement of the different indicators and baseline information, as well as the period to be considered between assessments.

#### 7. Discussion on the second edition of the SWSR Report (*for information and decision*)

**Dr Dan Pennock**, the managing editor of the second edition of the Status of the World's Soil Resources (SWSR), presented the progress done by the current editorial board, composed by the ITPS chair, **Dr Rosa Poch** and two other ITPS members, **Dr David Lobb** and **Dr Megan Balks**. The current editorial board had met on a weekly basis to define the soil threats to be considered for the second edition as well as deciding on potential changes from the first edition. Dr Pennock explained to the panel that some of the threats included in the 2015 version could now be merged, while some others could be re-named.

**Dr Pennock** also discussed the regionalization of the report. He mentioned that in the first edition there were some complaints about grouping countries according to the FAO regions, as they might not have had a significance in terms of soil condition and threats. Dr Pennock proposed using the new United Nations Statistics Division (UNSD), as a basis, in order to have a manageable number of regions. In this way it would be possible for the regional editorial boards (still to be established) to decide how to organise and present the regional trends and status (e.g., by sub-regions, edaphoclimatic conditions or biomes, etc).

In response to the presentation, comments were put forward and discussed. The following suggestions and points for reflection were made:

- If permafrost melting can be presented as a separate category, then organic soils should be presented in the same way. Indeed, permafrost melting creates the same risks to infrastructure as the subsidence of organic soils does.
- Soil threats should be linked to soil health and the possibility of solving global challenges like climate change. Thus, there is a need to stress the effect of climate change on each soil threat as well as to stress the potential of soils to solve global issues. Also, it should address soil adaptive capacity, soil resilience and soil climate risk.
- There is a need to stress the importance of keeping soil data updated and establish national soil information systems. Special attention should be paid to fertility maps in tropical Africa.
- Salinity and waterlogging should go side by side. The discussion on wetlands and drainage systems should be stressed.
- A section on black soils should be included in the report.
- Threats should be defined differently when they relate to the mismanagement of nutrients. A distinction between naturally acidic soils and acid soils resulting from nutrient mismanagement should also be made.
- Alkalinization and calcareousness are other characteristics hindering the availability of nutrients, particularly in arid regions of the world.
- Talking about soil physical degradation should include compaction and waterlogging.
- Local knowledge about soil management should be reported.
- Regional divisions applied to the first report should be kept, as they were already accepted worldwide.

Overall, some members raised concerns about the proposed structure changes, as it would make it difficult to use the previous edition as a baseline. The reports would then not be comparable and would not be able to be considered in a trend analysis.

Given the limited time available for discussion, it was agreed that the editorial board would take note of the suggestions and discuss them at the next weekly meeting. The ITPS would be informed of the decisions taken at a later juncture.

It was noted that no IPTS member from Africa had volunteered to serve on the editorial board. At the end of the meeting, **Dr Lydia Chabala** volunteered. She would now be the African representative on the editorial board.

## 8. Any other business

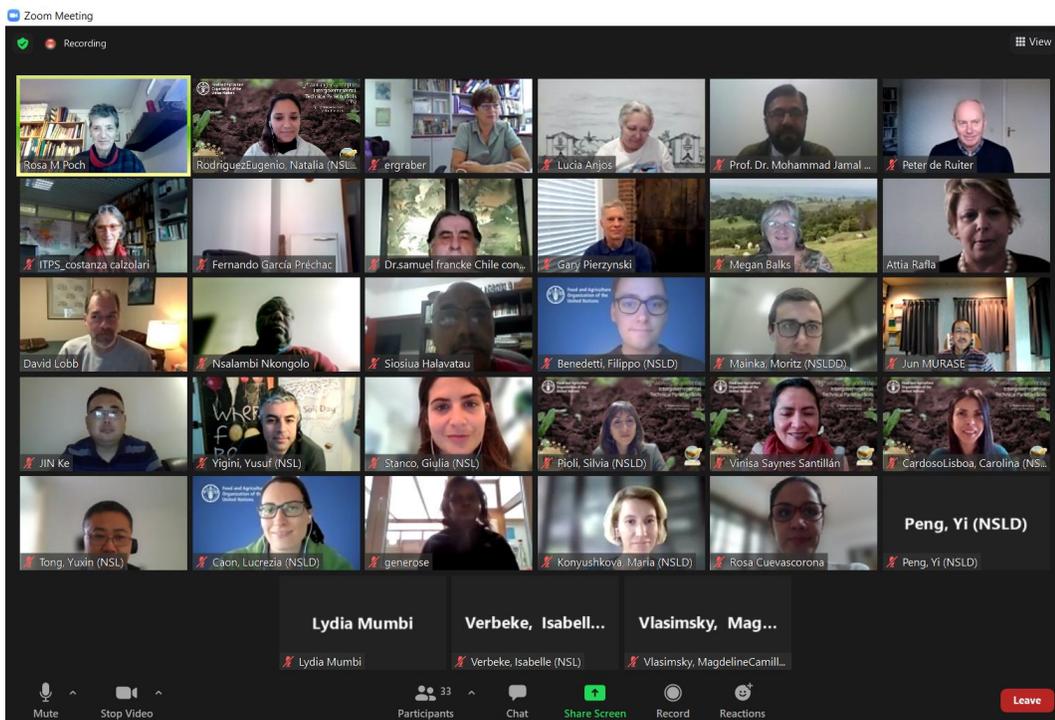
No other business was discussed.

## 9. Date and venue of the next meeting

The next meeting was to be scheduled before the tenth GPS Plenary Assembly, to be held 3-5 May 2022.

## 10. Closure of the meeting

**Ms Rosa Poch** finished the meeting by thanking all IPTS members and GSP Secretariat staff for participating and for being active in the discussions.



## Annex I - List of Participants

---

<b>ITPS members</b>	<b>Region</b>
Dr Lydia Mumbi Chabala (Zambia)	Africa
Dr Nsalambi Nkongolo (Democratic Republic of Congo)	Africa
Dr Généroise Nziguheba (Burundi)	Africa
Dr Rafla Sahli Epse Attia (Tunisia)	Near East and North Africa
Dr Kutaiba M. Hassan (Iraq)	Near East and North Africa
Dr Saéb Khresat (Jordan)	Near East and North Africa
Dr Fernando Garcia Prechac (Uruguay)	Latin America and Caribbean
Dr Lucia Anjos (Brazil)	Latin America and Caribbean
Dr Samuel Francke Campana (Chile)	Latin America and Caribbean
Dr David Allen Lobb (Canada)	North America
Dr Gary Pierzynski (USA)	North America
Dr Jun Murase (Japan)	Asia
Dr Jin Ke (China)	Asia
Dr Mohammad Jamal Khan (Pakistan)	Asia
Dr Costanza Calzolari (Italy)	Europe
Dr Ellen R. Graber (Israel)	Europe
Dr Peter de Ruyter (The Netherlands)	Europe
Dr Alexey Sorokin (Russian Federation)	Europe
Dr Rosa Poch (Spain)	Europe
Dr Siosua Halavatau (Tonga)	Pacific
Dr Megan Balks (New Zealand)	Pacific

---

---

---

<b>Other participants</b>	<b>Affiliation</b>
Mr Ronald Vargas	GSP Secretariat
Mr Filippo Benedetti	GSP Secretariat
Ms Lucrezia Caon	GSP Secretariat
Ms Magdeline Vlasimsky	GSP Secretariat
Ms Maria Konyushkova	GSP Secretariat
Ms Rosa Cuevas Corona	GSP Secretariat
Ms Natalia Rodriguez Eugenio	GSP Secretariat
Ms Carolina Olivera Sánchez	GSP Secretariat
Ms Carolina Cardoso Lisboa	GSP Secretariat
Ms Vinisa Saynes Santillan	GSP Secretariat
Ms Silvia Pioli	GSP Secretariat
Mr Yuxin Tong	GSP Secretariat
Mr Sebastian Brahene	GSP Secretariat
Ms Isabel Luotto	GSP Secretariat
Mr Yusuf Yigini	GSP Secretariat
Mr Yi Peng	GSP Secretariat
Mr Christian Omuto	GSP Secretariat
Ms Isabelle Verbeke	GSP Secretariat
Ms Julia Mousquer	GSP Secretariat
Mr Dan Pennock	GSP Secretariat
Ms Giulia Stanco	GSP Secretariat
Mr Matteo Sala	GSP Secretariat