

Report of the first meeting of the Assessment Working Group of the International Network of Soil Pollution (INSOP)

8 November 2022, Online meeting





Food and Agriculture
Organization of the
United Nations



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FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Rome, 2022

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1. Opening of the workshop

The first meeting of the Assessment Working Group (WG) of the International Network of Soil Pollution (INSOP) was held virtually on November 8th, 2022. It was attended by 87 participants. The INSOP is the youngest technical network of the Global Soil Partnership (GSP) as it was established in April 2022.

The purpose of the meeting was to:

- Formulate the WG tasks for short and medium-terms
- Establish the partnership with the Global Soil Laboratory Network (GLOSOLAN)
- Elect the WG representative leader
- Share ideas for resource mobilization

The meeting was moderated by the INSOP coordinator, Mr. Sergejus Ustinov.

The INSOP objectives and governance were introduced to familiarize the participants with the network for those who did not participate at the launch event. The INSOP relies on a Chairperson and a Vice-Chairperson, who coordinate the activities and oversee the execution of the work plan.

2022-2024

President: Prof Ravi Naidu

Vice-Chair: Dr Deyi Hou

INSOP coordinator: Mr. Sergejus Ustinov

GSP Secretariat: Ms. Natalia Eugenio Rodriguez

2. Introduction to the INSOP soil pollution initiatives

The session started by the INSOP coordinator introducing the INSOP vision, mission and goals as well as the GSP soil pollution activities in order to familiarise the participants with the existing structure of the GSP and the INSOP work plan and structure.

The INSOP mission is to support and facilitate joint efforts to reduce the risks of soil pollution and to share experience and knowledge to effectively remediate already polluted areas around the world.

The INSOP goal is to create a network of networks, connecting governments, academia, the private sector, and society to stimulate the development of cleaner and more sustainable productions and consumption options. In addition, the Network provides an international forum for the generation and dissemination of knowledge on soil pollution, promoting and exchanging good practices, practical and scientific knowledge and innovative solutions for managing polluted soils in a sustainable manner.

2.1. INSOP areas of work

The INSOP focuses on six main areas of work under each of which various tasks will be carried out to achieve the overall goal of a Zero pollution worldwide.

It will work on improving knowledge on the full cycle of soil pollution, from assessment to remediation, as well as on the effect on environmental and human health and the provision of soil ecosystem functions and services. These areas of work will lead to the formation of six WGs as shown in figure 1.



Figure 1 INSOP working groups (WGs)

2.2. INSOP partners

INSOP works closely with other GSP networks in order to achieve its global goal in eliminating soil pollution. Examples of existing and future collaborations are:

- [GLOSOLAN](#) (Global Soil Laboratory Network) : Harmonizing standard operating procedures (SOPs) for soil contaminants. Creating the list of priority contaminants. Lab's capacity and equipment assessment

- **INSII** (Internation Network of Soil Information Institutions): Develop the methodology to map soil pollution. Generation of a spatial datasets on the distribution of polluted soils.
- **NETSOB** (International Netwrok on Soil Biodiversity): Sustainable use and management of soil biodiversity for remediation and management of contaminated soils.
- **INFA** (Interantional Network on Fertilizer Analysis): SOPs on fertilizer quality analysis, sustainability and remediation for phosphate fertilizers
- **Soil Doctors Programme**: Training on prevention and mitigation of soil pollution

The INSOP is also looking forward to collaborating with other existing networks such as EUSO (EU Soil Observatory), CL: AIRE, IHPA (International HCH & Pesticides Association), NICOLE, REMTECH, Common Forum and more. The collaboration with other soil networks will help to better tackle the current gaps on soil pollution assessment, monitoring, management and regulation, exchange knowledge and build awareness on soil pollution.

2.3. INSOP work plan

The INSOP work plan was presented and discussed among participants in order to have a better overview on the tasks and objectives the network wishes to achieve in a short, medium, and long-term goal. Figure 2 shows the INSOP work in details.

Timeframe	Task	Outcome	WG
Short-term goals	Finalize technical manual	Technical Manual on assessing, mapping, monitoring and reporting polluted soils	Assessment
	Identify the main soil contaminants and laboratory methodologies to develop Standard Operating Procedures (SOPs) in close cooperation with GLOSOLAN	SOPs for contaminants of major concern	Assessment
	Analyze national soil legislation and identify the most common and minimum requirements addressing soil pollution	Policy brief on soil pollution legislation	Monitoring



	Finalize the Online database on best available techniques for managing and remedying polluted soils, in consultation with NETSOB	Online database on best available techniques for managing and remedying polluted soils	Sustainability and remediation
Short to medium-term goal	Gather existing threshold values of soil contaminants	Global database of soil contaminants threshold values	Assessment
Medium-term goals	Develop SOPs for other soil contaminants, including emerging contaminants in cooperation with GLOSOLAN	SOPs for other soil contaminants	Assessment
	Develop the methodology to map soil pollution/contaminants and identify data gaps in close cooperation with INSII	Global soil pollution map(s)	Mapping
	Develop indicators and guidelines for assessing the risk/toxicity of soil pollution on human health and the environment	Human-health and environmental monitoring guidelines National voluntary indicators developed within the 2030 Agenda and other international commitments	Assessment
	Establish a capacity building program on the full cycle of soil pollution, from assessment to monitoring and the application of SOPs	Soil pollution included in EduSOILS, the Global Soil Doctors programme, and GLOSOLAN capacity-building programme	Assessment/Monitoring
Long-term goals	Develop a global range of threshold values for soil contaminants (soil guideline values)	Global soil guideline values	Monitoring

	under different land uses		
	Help to establish national legislation on soil pollution prevention, control and remediation, including risk assessment approaches	National legislation on soil pollution developed/strengthened	Monitoring/Sustainability and remediation
	Develop national capacities and strengthen technology transfer for the sustainable remediation and management of polluted soils	Sustainable remediation (including NbS) to treat polluted soils and to enhance soil health and biodiversity applied at national level	Sustainability and remediation

Figure 2 INSOP preliminary work plan for a short, medium, and long-term

2.4. INSOP members

As of November 2022, INSOP has 650 members from 92 countries with majority of members are from Asia (32.93 percent), followed by Europe and Eurasia (32.42 percent) (Figure 3). Most of the members are from educational institution and research organizations and the least from farmer's association and consultancy (Figure 4). The INSOP chair, vice-chair and coordinators will be participating in various soil pollution related events to attract governments, academia, the private sector, and society to join the INSOP from under-represented regions and organizations.

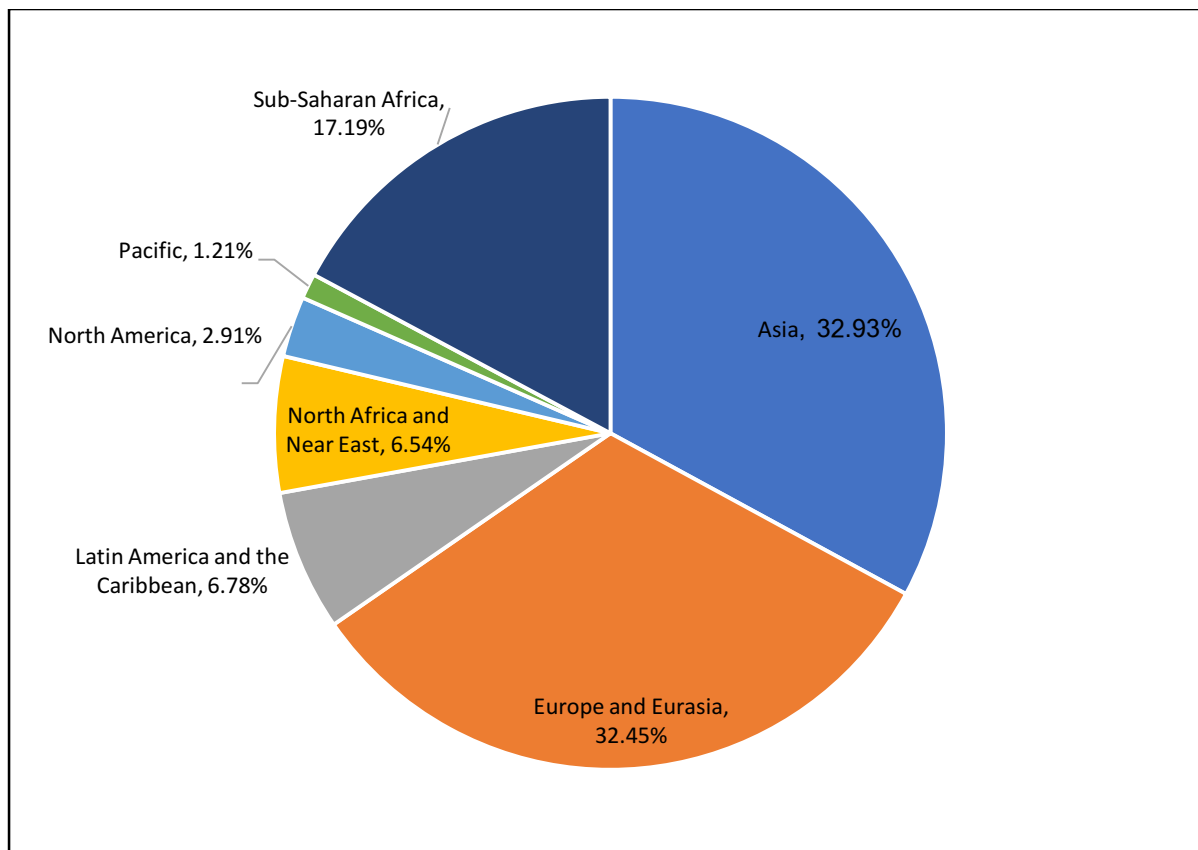


Figure 3 Percentage breakdown of INSOP members from different regions

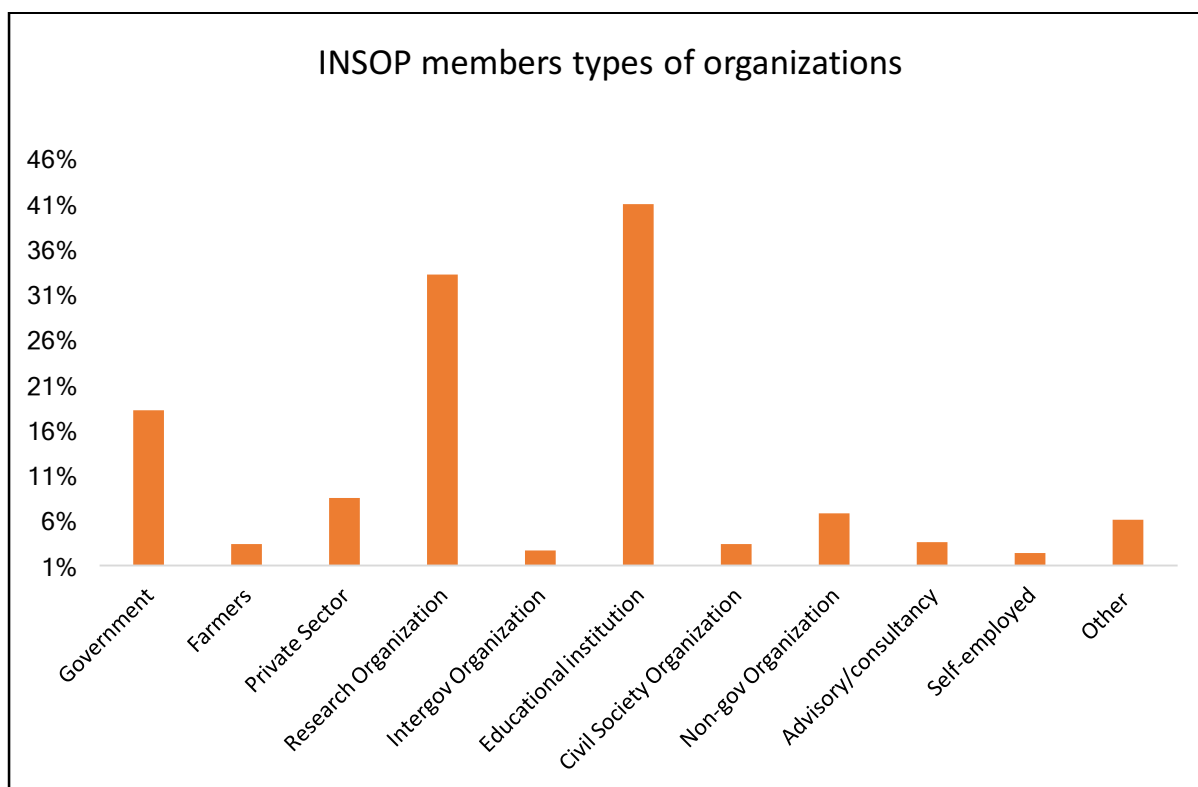


Figure 4 Types of organization INSOP members represent

3. Assessment Working Group: structure, tasks and objectives

The purpose of the assessment WG is to:

- Improve national capacities on soil contaminant analysis
- Development of harmonized methodologies for soil contaminants and soil pollution indicators
- Facilitate the assessment of soil pollution

3.1. Assessment WG tasks

3.1.1. Technical guidelines on soil pollution

In 2019, the GSP has started to develop the Technical guidelines on assessing, mapping, monitoring and reporting polluted soils together with the help of lead authors and co-authors. However, the guidelines were not finished at the time. With the launch of the INSOP, the work has been resumed and expected date of publication is due in February 2023.

The purpose of the Technical guidelines is to navigate technicians, stakeholders and government representatives in the decision-making process to identify and assess the risk and take the best management decision.

The guidelines will consist of 8 chapter with the following topics:

1. Risk assessment
2. Sampling of polluted soils
3. Mapping of polluted soils
4. Monitoring of polluted sites
5. Reporting soil pollution and communicating risks

The following table below shows the progress of each chapter. INSOP members were asked to join the review panel of Technical Guidelines which can be accessed using the following link:

https://docs.google.com/forms/d/e/1FAIpQLScUGqk5YDEU8wqNyIn3nNQbr_HP0STsOIV5_Yg6pSXmHCQv-w/viewform

No.	Chapter	Progress
1.	Introduction	Completed
2.	Defining soil pollution	Under development
3.	Sampling	Completed
4.	Environmental risk assessment	Under development
5.	Mapping polluted soils	Completed
6.	Mixed pollution on site	Completed
7.	Monitoring soil pollution	Under development
8.	Communication and reporting	Under development

Figure 5 Progress of the Technical Guidelines soil pollution development

3.2. GLOSOLAN related tasks

The following INSOP tasks will be performed in collaboration with the GLOSOLAN:

1. List of contaminants of priority
2. Harmonizing laboratory methods, SOPs, for the measurement of soil contaminants
3. Develop SOP for sampling soils
4. Build laboratory capacity on soil contaminant analysis and safe reagents and waste management

In July 2022, a survey has been sent to INSOP members in order to identify the group of contaminants of concern in their region. In total, 71 members responded to the survey with the following were identified as the pollutants of priority.

Pollutants	No. of responses	Countries
Pesticides	44	Africa (15); Europe (9); Asia (12); Americas (8)
Toxic metals (Cd, Pb, Co)	36	Africa (9); Europe (12); Asia (9); Americas (4); Australia (2)
Industrial activity (PAH, PFAS, POPs, other hydrocarbons)	27	Africa (8); Asia (10); Europe (4); Americas (5)
Toxic metalloids (As)	26	Africa (6); Europe (8); Asia (7); Americas (5)
Other metals (Cr, Ni, Hg)	6	Africa (2); Asia (4)
Fertilizers	5	Asia (3); Americas (2)

Figure 6 List of contaminants of priority as per INSOP members' response

INSOP members were encouraged to continue participating in the survey to identify other priority contaminants in their region:

<https://docs.google.com/forms/d/e/1FAIpQLSelpvvtZYrE7kHoMvG5p7Xb0j0bo1je4Wm6i1914AgxTEYaQ/viewform>

At the WG meeting, it was agreed to start developing SOPs for toxic metals (cadmium - Cd, lead - Pb, and cobalt - Co) and toxic metalloids (arsenic - As) followed by the SOPs for pesticides at the later stage.

On November 22-24, the annual [GLOSOLAN meeting](#) will be held where the decision will be taken on which SOPs for the priority contaminants should be developed. The INSOP coordinator will participate and present the list of contaminants as in the figure 6. Participants at the Assessment WG meeting were encouraged to register for the GLOSOLAN annual meeting using the following registration link:

https://fao.zoom.us/meeting/register/tJEld-qsqT4qH9QOOZjdn4Jn4OieRbP_wSt0

Other joint tasks include:

- Compiling all existing threshold values for different contaminants and different land uses
- Generation of standard threshold values for guidance at national level
- Identification and development of soil pollution indicators
- Advice on soil pollution risks related to incorrect disposal of reagents after the laboratory analysis.

4 Assessment Working Group representative

In total, 9 INSOP members have expressed an interest to become the representative of the assessment WG. However, only 3 candidates were shortlisted. Participants agreed that Dr. Ahmad Mahdavi was the most suitable candidate for the position of assessment WG representative.

Name	Country	University
Agboola Oludare Oladipo	Nigeria	Obafemi Awolowo University
Babar Hussain	Pakistan	Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences, Beijing,
Ahmad Mahdavi	Iran	University of Tehran
Helen Karasali	Greece	Polytechnic University of Patras, Greece

Mohammad Jamal Khan	Pakistan	The University of Agriculture, Peshawar
Umar Rahman	Pakistan	University of Peshawar
Jitendra Kumar	India	Banaras Hindu University
Frank Wesonga	Kenya	Nairobi University
Abdulmalik Mohammed Abdulle	Ethiopia	Jimma University

Figure 7 List of the candidates for the assessment WG representative leader

Annex I: Meeting Agenda

Time	Content
13:00-13:10	Main soil pollution initiatives (Mr Sergejus Ustinov, FAO-GSP, INSOP Coordinator) INSOP vision, mission and goals
13:10-13:25	Introduction and vision of the Assessment Working Group (WG) (Mr Sergejus Ustinov) <ul style="list-style-type: none"> - Structure / objectives and deliverables
13:25-13:40	Development of the Technical Guidelines on soil pollution (Mr Sergejus Ustinov) <ul style="list-style-type: none"> - Current gaps to be addressed - Problems to be encountered
13:40-14:00	Cooperation between INSOP and the Global Soil Laboratory Network (GLOSOLAN) (Mr. Filippo Benedetti, FAO-GSP, GLOSOLAN coordinator) <ul style="list-style-type: none"> - Experience from GLOSOLAN and articulation with INSOP - Standard Operating Procedures (SOPs) for soil contaminants - Waste developing guideline - Creating the list of priority contaminants
14:00-14:30	Open discussion on WG objectives and priorities (Mr Sergejus Ustinov, Prof. Ravi Naidu, INSOP chair)
14:30-14:40	Resource mobilization (Mr Sergejus Ustinov, Prof. Ravi Naidu) <ul style="list-style-type: none"> - Potential projects and countries/stakeholders to approach (WITHDRAWN FROM THE AGENDA)
14:40-14:50	Election of the WG representative leader (Mr Sergejus Ustinov)

	Conclusions and closure of the event
14:50-15:00	Final remarks from INSOP chair Prof. Ravi Naidu, INSOP chair

Annex II: List of participants

Name (Original Name)	Guest
Bayan Athamneh	Yes
Magdeline Vlasimsky (FAO)	No
Abdulmalik Mohammed	Yes
Sergejus Ustinov (FAO)	No
Eleni Karasali	Yes
Caleb Ocansey	Yes
Jin	Yes
Ahmed doh	Yes
Lisa Mbwia	Yes
mohamed Hachicha	Yes
VIVEK M S	Yes
Bernd Bussian	Yes
Jason Fitzgerald	Yes
Mike Smith	Yes
Remigio Paradelo	Yes
david.oconnor@rau.ac.uk	Yes
VERONICA MIGO	Yes
Sarka Polakova	Yes
Jose Julio Ortega-Calvo	Yes
Wajira Balasooriya	Yes
Jacob Lisuma	Yes
Wolfgang Friesl-Hanl	Yes
Adrien Mestrot - GIUB - Switzerland (Adrien Mestrot)	Yes
Tjasa Ikema d.o.o.	Yes
Anthony Umeh	Yes
Marcello Di Bonito - Bologna/Nottingham (marcello)	Yes
Karolina Barčauskaitė	Yes
Filippo Benedetti	No
Jordan	Yes
Anabela Cachada	Yes

Osama Abu-Libda	Yes
Bella Anis	Yes
Surajo Usaini Rimi	Yes
Dr.Partha Pratim Chakravorty	Yes
Mark Tibbett	Yes
Agnieszka Klimkowicz-Pawlas	Yes
Martha Wepner-Banko	Yes
Sergio Malinconico	Yes
Carlo Jacomini (ISPRA - IT) (Carlo Jacomini)	Yes
Lidia Nicola	Yes
Dr Emmanuel Njadvra	Yes
NIKOLAOS TOUMASIS	Yes
abhishek adhikari	Yes
Ahmad Mahdavi (Ahmad Mahdavi)	Yes
Ivano Lonigro	Yes
Juan Carlos	Yes
Melioracije AFZ	Yes
Viet Bui	Yes
Cho Mar Htwe	Yes
Dr P Thangavel	Yes
Sonja Trewavas	Yes
Isabel Campos	Yes
Iyenemi Kakulu	Yes
Fethi Bouksila INRGREF_Tunisia (Fethi Bouksila)	Yes
Linsey Cottrell	Yes
Maria Pilar Bernal CSIC	Yes
Taher Ahmadzadeh Kokya	Yes
kris van looy	Yes
Marija Romic UniZg (Melioracije AFZ)	Yes
Gaius Eudoxie	Yes
Maria Izquierdo	Yes
Okore Ikokwu kalu	Yes
Pavlos Tyrologou	Yes
Hussam Hag Husein	Yes
Ravi Naidu	Yes
Fei Jin	Yes
Georges Martial Ndzana	Yes
Serena Caucci	Yes
Babar Hussain	Yes
Dietmar Müller-Grabherr	Yes
ABDELMONIM ELKANIT	Yes

I I Kakulu	Yes
Dalel Melki	Yes
Martin Solís	Yes
Bertha Cecilia Garcia Cienfuegos	Yes
Mohammad Enayet Hossain	Yes
Cristina Karen Ovando Crespo	Yes
Mariné Pienaar Blaauw (User)	Yes
Jegan Sekar	Yes
Tiequan Zhang	Yes
AMANULLAH KHAN	Yes
Diène Diégane Thiaré	Yes
Lydia Chabala	Yes