Food and Agriculture Organization of the United Nations

22-24 November 2022

The International Network on Soil Pollution (INSOP)

Sergejus Ustinov

INSOP coordinator

6th Meeting of the Global Soil Laboratory Network (GLOSOLAN)

GLOSOLAN

GLOBAL SOIL LABORATORY NETWORK

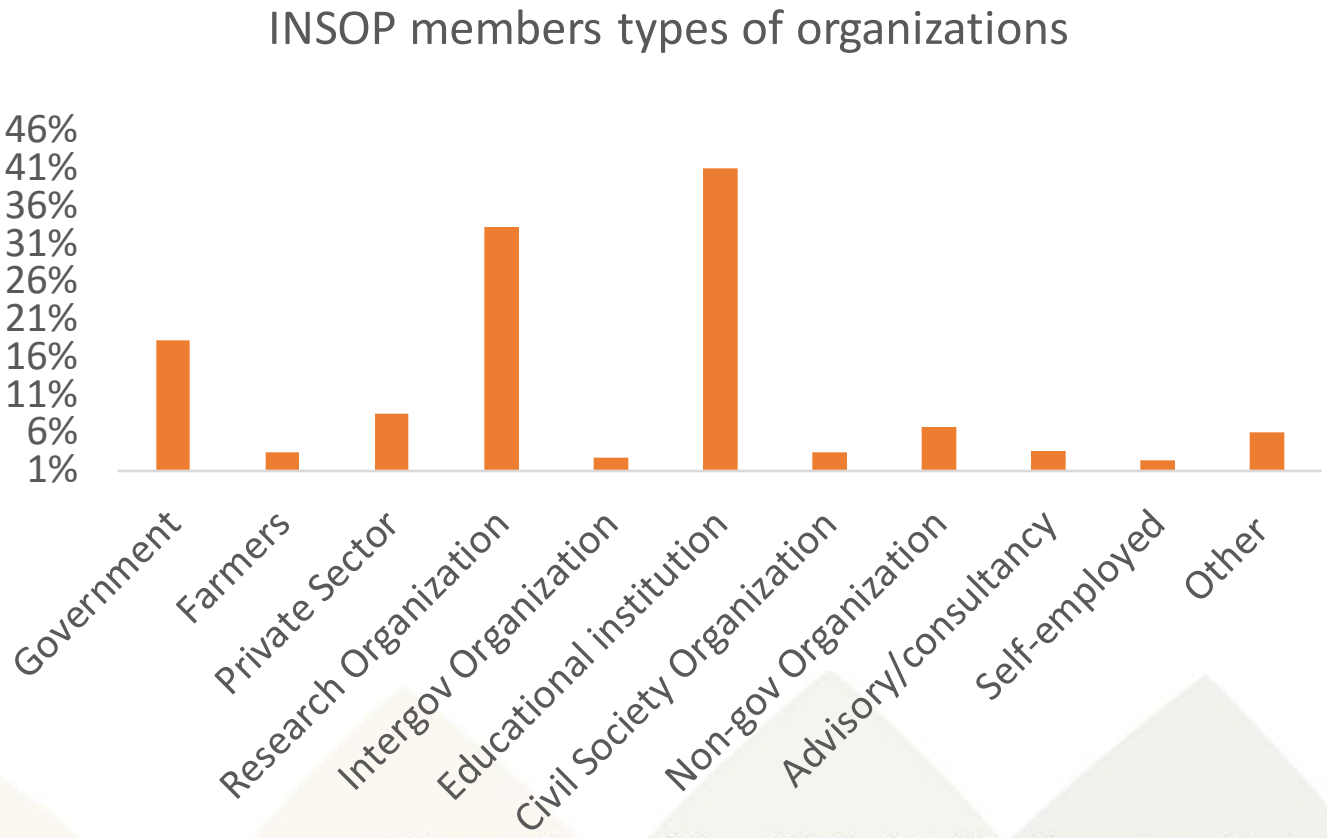
GLOBAL SOIL PARTNERSHIP

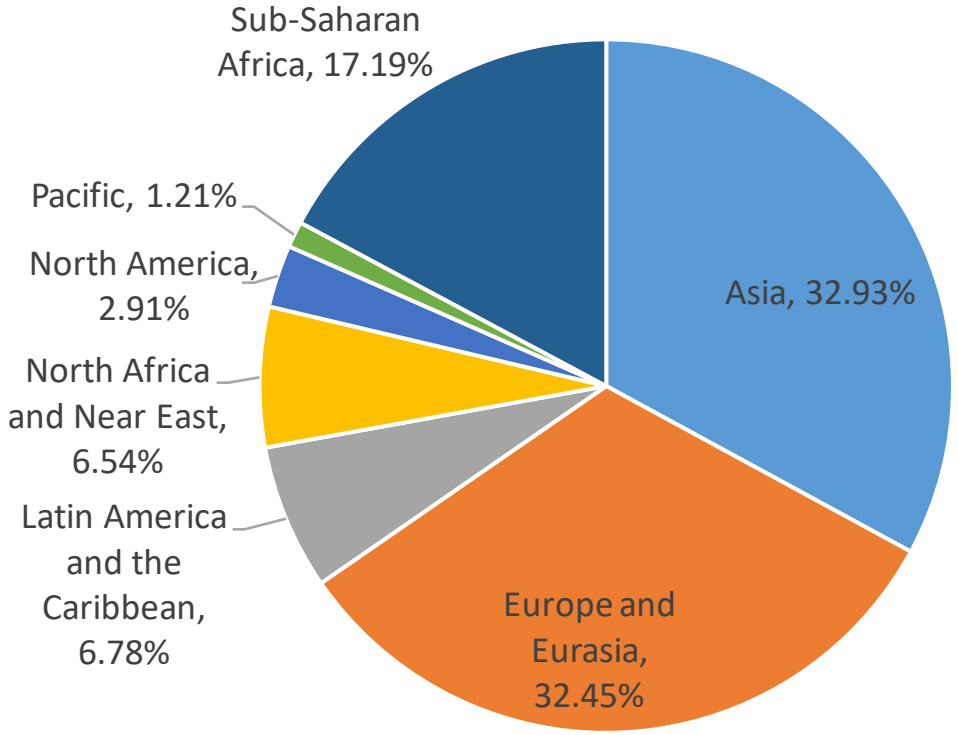
International Network on Soil Pollution

- Launched on April 22nd 2022, the International Network on Soil Pollution focuses on minimizing soil pollution and achieving the global **goal of Zero Pollution**
- It aims to tackle **point-source** and **diffuse** pollution from multiple **sources** and affecting different **land uses**
- The 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.

INSOP members

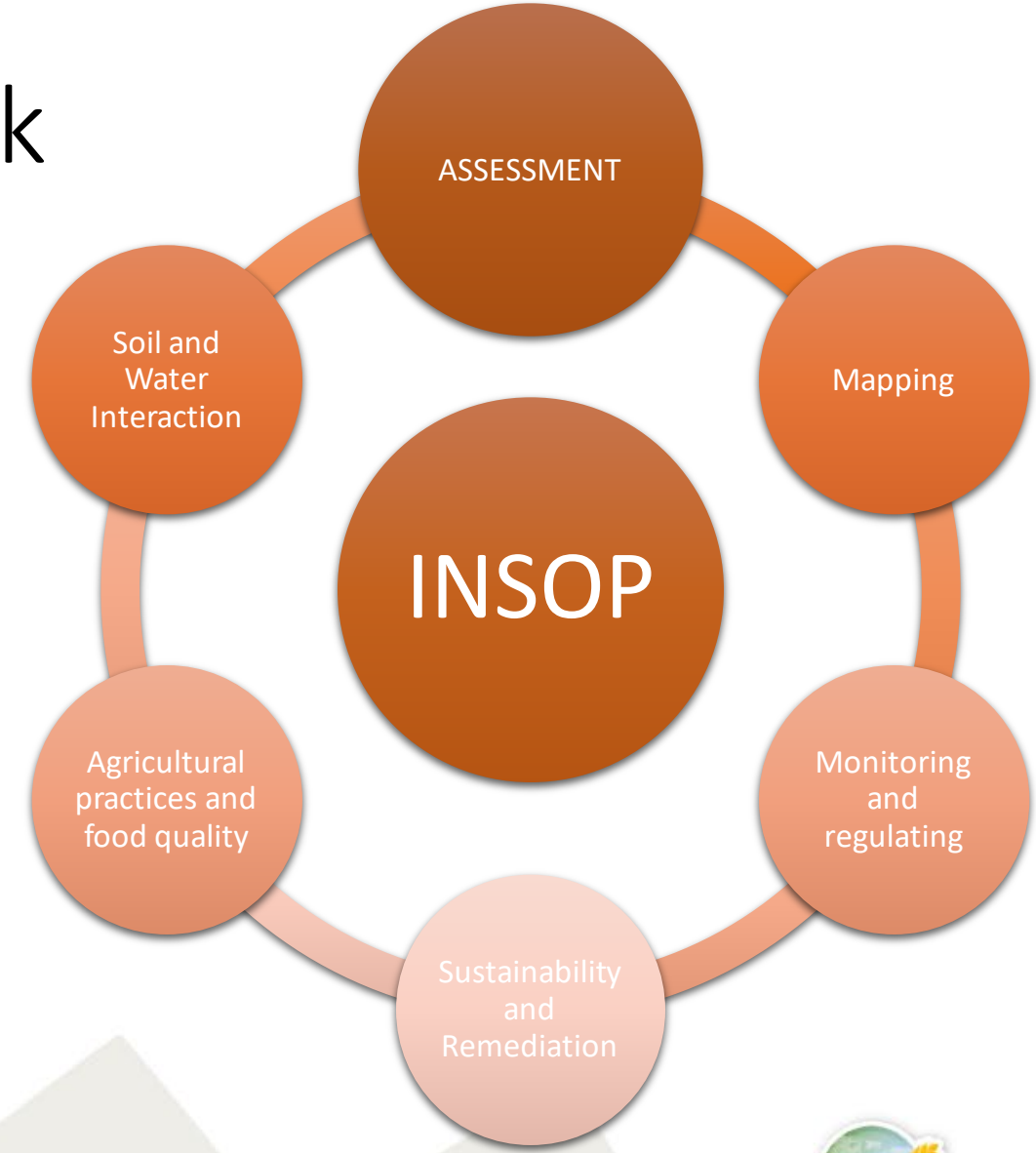
- 650 members from 90 countries





INSOP areas of work

- INSOP focuses on six main areas of work under each of which various tasks will be carried out to achieve the overall goal
- 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



Assessment WG- preliminary tasks

1. List of contaminants of priority- list to created before GLOSOLAN meeting (Nov 21st)
2. Harmonizing laboratory methods (*Standard Operating Procedures*–SOPs) for the measurement of soil contaminants
3. Develop SOP for sampling soils
4. Build laboratory capacity and awareness raising on policy briefs for soil pollutants and reagent; separate nutrients from pollution
5. Compiling all existing threshold values for different contaminants and different land uses
6. Generation of standard threshold values for guidance at national level
7. Identification and development of soil pollution indicators

GLOSOLAN-INSOP SOP harmonization work plan

Group of contaminants	Contaminants	Available GLOSOLAN SOP methods	Proposed INSOP-GLOSOLAN SOP methods
Toxic metals	Cadmium - Cd	DTPA, Aqua regia	AAS, ICP/AES, ICP-MS other?
	Lead- Pb	DTPA, Aqua regia	AAS ICP-MS, others?
	Copper- Cu	DTPA	AAS ICP-MS, others?
Toxic metalloids	Arsenic- As	Not available	ICP-MS, others?
Pesticides	TBD later 2023	Not available	TBD

Waste disposal guidelines development

- Lab guideline on soil and reagent disposal

To know more on the good practices in order to properly dispose soil after the analysis

- **Health & Safety** manual guideline developed by **GLOSOLAN** working group: to identify the main reagents used in the laboratory, and describe the risk for human health
- **Environmental risk** guideline developed by **INSOP** working group: to identify environmental risks for each reagent and how to dispose the reagents and the treated soil samples

Waste disposal guidelines development

- To provide a scientific opinion on environmental risks of reagents disposed after the lab analyses

Reagents	Formula	Application for SOP	How to handle	How to dispose	Incompatible materials	Danger	Environmental associated risk (pollution) (INSOP members)
Distilled water (cleaned)		• soil pH	Gloves	In the sink	-	Do not drink!	
		• electrical conductivity	Safety Glasses				
		• EC by saturated soil paste extract					
		• soil available micronutrients and heavy metals by DTPA extraction method					
		• soil available phosphorus by Olsen					
		• soil available phosphorus by Mehlich I					
		• soil available phosphorus by Bray I and Bray II					
		• soil calcium carbonate equivalent by Titrimetric method					
		• soil organic carbon by Tyurin					
		• soil organic carbon by Walkley-Black					
		• CEC and exch. bases					
Distilled water (used to wash equipment)		All SOPs	Gloves Safety Glasses	Depends on what has been washed	-	Do not drink!	
Potassium Chloride	KCl	• Electrical conductivity	Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor.	Dispose in a safe manner in accordance with local/national regulations. Avoid release to the environment.	silver nitrate. Strong oxidizers. Strong acids.	Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.	
		• soil organic carbon by Tyurin	Gloves				
		• soil pH	Safety Glasses				
			Protective Clothing				

Other potential projects

- Joint webinar organizations on soil pollution lab analysis
- Guidelines development on soil sampling
- Existing gaps and awareness raising on laboratory analysis of soil contaminants
- Other proposals are welcome!!!

INSOP workplan 2022-2025

JOIN INSOP NOW!

Many other relevant activities to come:

- Building global capacities on the full cycle of soil pollution
- Awareness on soil pollution
- Harmonization of SOPs for contaminants of major concern
- Soil health index
- Global soil pollution map(s)
- Sustainable remediation of polluted soils
- Creating a global database of soil contaminants threshold values

https://www.fao.org/global-soil-partnership/insop/en/

Food and Agriculture Organization of the United Nations

GLOSOLAN

GLOBAL SOIL LABORATORY NETWORK

Thank you!

INSOP

Coordinator: Sergejus.Ustinov@fao.org
Assessment WG leader: bugmahda@gmail.com
Chair: Ravi.Naidu@crccare.com
Vice-chair: houdeyi@tsinghua.edu.cn
GSP Secretariat: Natalia.rodriguezeugenio@fao.org

GLOBAL SOIL PARTNERSHIP