

# Collaboration opportunities with the International Network on Soil Pollution (INSOP)

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7<sup>th</sup> Meeting of the  
**Global Soil  
Laboratory  
Network**  
(GLOSOLAN)



**GLOSOLAN**  
GLOBAL SOIL LABORATORY NETWORK



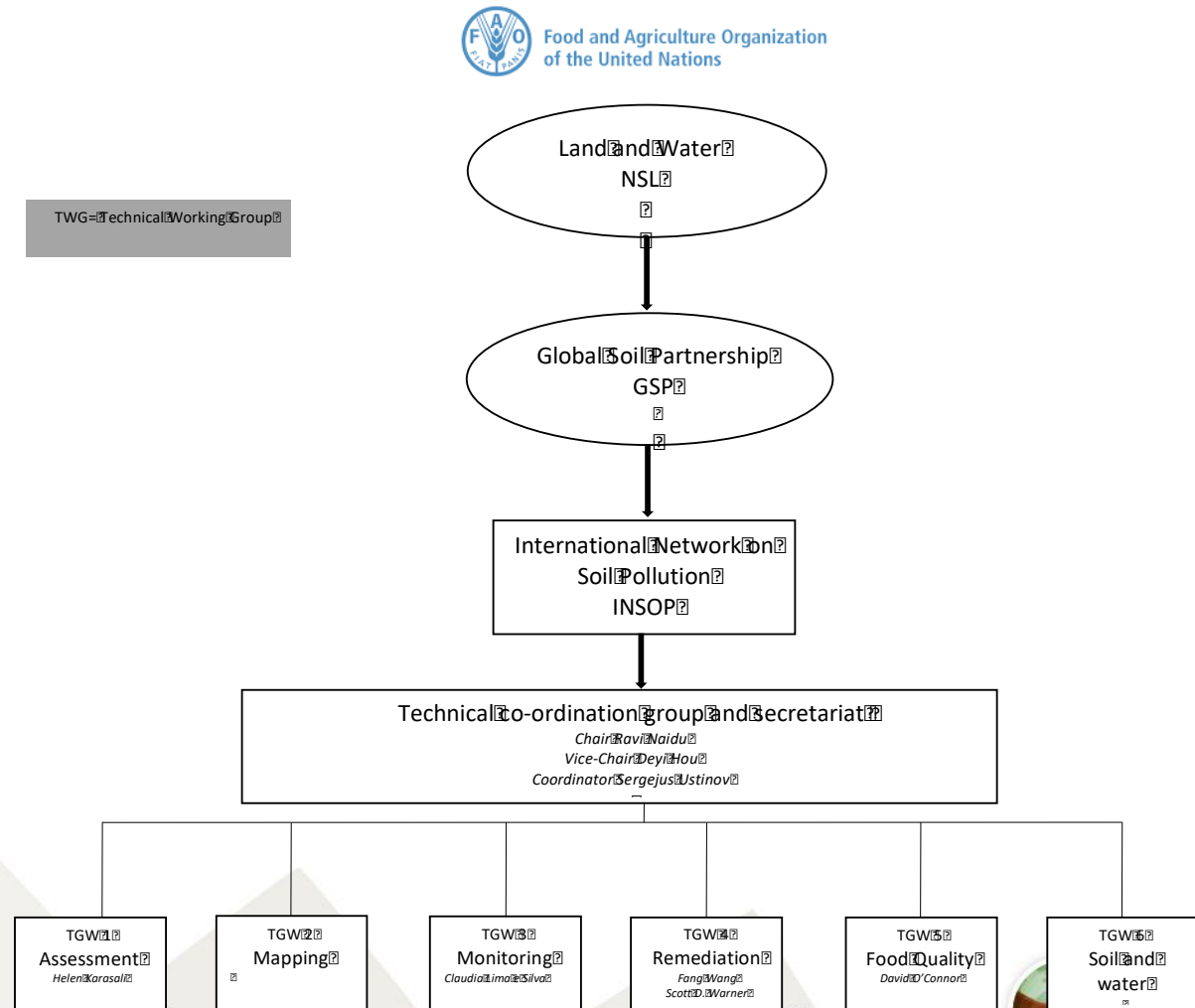
# What is the INSOP?

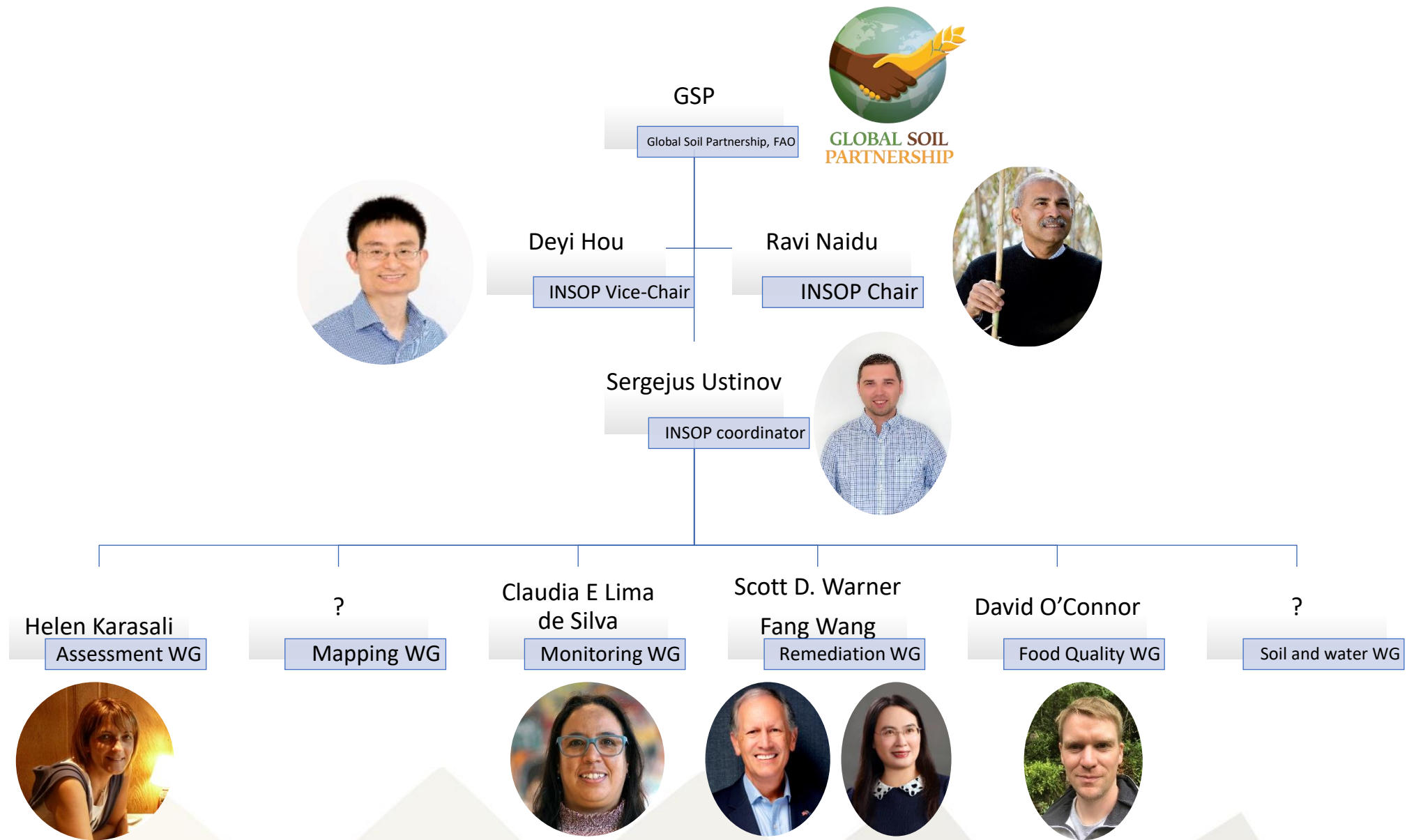
- Launched in 2022, the International Network on Soil Pollution focuses on minimizing soil pollution and achieving the global goal of Zero Pollution
- The mission is to support and facilitate joint efforts to reduce the risks of soil pollution and to share experience and knowledge to effectively remediate already polluted areas around the world.



# INSOP 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 works 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





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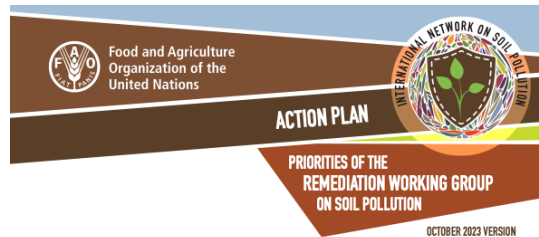




# INSOP priorities 2023-2025

## Remediation of soil pollution

- Advocate for the development of national capacities and strengthen technology transfer for remediation and sustainable management of polluted soils



**PRIORITY 1** Advocate for the development of national capacities and strengthen technology transfer for remediation and sustainable management of polluted soils

**OUTCOME** (1) INSOP remediation database is widely recognized; and (2) Sustainable practices are disseminated among countries for remediating polluted soil, maximizing environmental, social, and economic benefits

KEY PERFORMANCE INDICATORS	LONG TERM	SHORT TO MEDIUM TERM
	An international database of sustainable soil pollution remediation practices is available for global use	At least 60% of countries are represented through case studies in the global database

**KEY ACTIVITIES**

- Agree on the definition of what is sustainable remediation and develop criteria to assess remediation technologies;
- Develop the remediation action plan checklist;
- Launch a survey among INSOP members and CSP focal points to identify successful case studies and barriers in using sustainable remediation technologies; and
- INSOP members contribute to the development of a global database for the sustainable remediation of polluted soils to assess remediation technologies.

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## Food quality and soil pollution

- Advocate for the promotion of soil pollution to be included in the One Health approach and the Global Health Observatory



**PRIORITY 1** Advocate for the promotion of soil pollution to be included in the One Health approach and the Global Health Observatory

**OUTCOME** Increased dedication and global awareness in including soil pollution indicators in the Global Health Observatory

KEY PERFORMANCE INDICATORS	LONG TERM	SHORT TO MEDIUM TERM
	By 2027, new soil pollution indicators will be proposed to the Global Health Observatory	At least 60% of INSOP members are involved in the analysis of soil indicators

**KEY ACTIVITIES**

- Develop indicators and guidelines for assessing the risks of soil pollution to food safety and human health;
- Initiate contact between FAO and WHO to better understand health data on soil and food contamination via knowledge exchange dialogue;
- INSOP members help to collect and analyze health data related to soil and food contamination, promoting the One Health approach;
- Advocate for social media campaigns emphasizing the relationship between soil pollution and the One Health approach; and
- Advocate for the inclusion of soil pollution indicators in the Global Health Observatory under the Environment and Health theme based on analyzed health data.



# INSOP priorities 2023-2025

## Monitoring of soil pollution

- Advocate for a better understanding of national legal instruments on the prevention, monitoring and/or remediation of soil pollution



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

**ACTION PLAN**

**PRIORITIES OF THE MONITORING WORKING GROUP (WG) ON SOIL POLLUTION**

OCTOBER 2023 VERSION

**PRIORITY 1**

Advocate for a better understanding of national legal instruments on the prevention, monitoring and/or remediation of soil pollution

**OUTCOME**

A global INSOP database is developed and utilized by the countries to learn about the existing legal instruments of soil pollution prevention, monitoring and/or remediation

**KEY PERFORMANCE INDICATORS**

LONG TERM	SHORT TO MEDIUM TERM
Proposal of an international instrument that positions soil pollution as a major global challenge and monitors its impacts	Number of countries are advocating for the development of soil pollution legal instrument

**KEY ACTIVITIES**

- In support of SoilEX, INSOP members help to analyze national soil legislation and identify minimum principles for addressing soil pollution;
- In support of SoilEX, INSOP members prepare a policy brief on the current legislation and existing gaps in monitoring soil pollution;
- Assist countries willing to develop soil pollution policies;
- In partnership with INSOLFER, spread awareness and identify countries willing to monitor the concentration of heavy metals on fertilizer labels; and
- In support of SoilEX, launch a series of webinars aiming to explain soil pollution and its impacts to decision makers.

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**GLOBAL SOIL PARTNERSHIP**

## Assessment of soil pollution

- Advocate for the development of global harmonized methods, including SOPs to identify and measure soil pollutants



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

**ACTION PLAN**

**PRIORITIES OF THE ASSESSMENT WORKING GROUP ON SOIL POLLUTION**

OCTOBER 2023 VERSION

**PRIORITY 1**

Advocate for the development of global harmonized methods, including standard operating procedures (SOPs) to identify and measure soil pollutants

**OUTCOME**

Soil laboratories are well-informed about the harmonized SOPs for soil pollutants and their usage

**KEY PERFORMANCE INDICATORS**

LONG TERM	SHORT TO MEDIUM TERM
By 2025, 80% of soil laboratories working with the CSP will be aware of how to use the harmonized SOPs for measuring soil pollutants in the laboratory	At least one soil laboratory working with the CSP from each region is involved in the development of harmonized SOPs

**KEY ACTIVITIES**

- Liaise and work in partnership with the CLOSOLAN;
- Analyze the available protocols for soil pollutants;
- Develop SOPs for pollutants of concern, such as bioavailable heavy metals, obsolete pesticides and Highly Hazardous Pesticides (HHP); and
- Facilitate cooperation among soil laboratories in the use and implementation of soil pollutants SOPs through webinars and workshops on in-person training.

**GLOBAL SOIL PARTNERSHIP**



# Assessment WG

## SOPs

- Advocate for the development of global harmonized methods, including standard operating procedures (SOPs) to identify and measure soil pollutants

1. Total heavy metals
2. Bioavailable heavy metals
3. Pesticides
  - HHP
  - Obsolete pesticides

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**PRIORITY 1**

**Advocate for the development of global harmonized methods, including standard operating procedures (SOPs) to identify and measure soil pollutants**

**OUTCOME** Soil laboratories are well-informed about the harmonized SOPs for soil pollutants and their usage

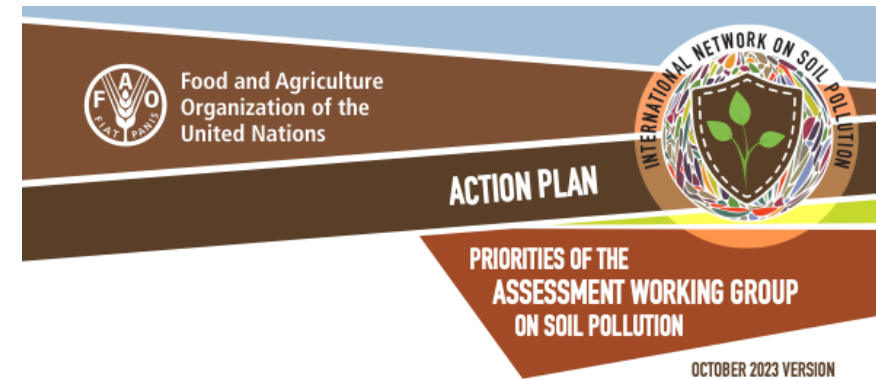
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<b>KEY PERFORMANCE INDICATORS</b>	By 2025, 80% of soil laboratories working with the GSP will be aware of how to use the harmonized SOPs for measuring soil pollutants in the laboratory	At least one soil laboratory working with the GSP from each region is involved in the development of harmonized SOPs
<b>KEY ACTIVITIES</b>	<ul style="list-style-type: none"><li>• Liaise and work in partnership with the GLOSOLAN;</li><li>• Analyze the available protocols for soil pollutants;</li><li>• Develop SOPs for pollutants of concern, such as bioavailable heavy metals, obsolete pesticides and Highly Hazardous Pesticides (HHP); and</li><li>• Facilitate cooperation among soil laboratories in the use and implementation of soil pollutants SOPs through webinars and workshops on in-person training.</li></ul>	



# Assessment WG

## KPI

- At least one soil laboratory working with the GSP from each region is involved in the development of harmonized SOPs
- By 2025, 80% of soil laboratories working with the GSP will be aware of how to use the harmonized SOPs for measuring soil pollutants in the laboratory



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**LONG TERM**

By 2025, 80% of soil laboratories working with the GSP will be aware of how to use the harmonized SOPs for measuring soil pollutants in the laboratory

**SHORT TO MEDIUM TERM**

At least one soil laboratory working with the GSP from each region is involved in the development of harmonized SOPs

**KEY ACTIVITIES**

- Liaise and work in partnership with the GLOSOLAN;
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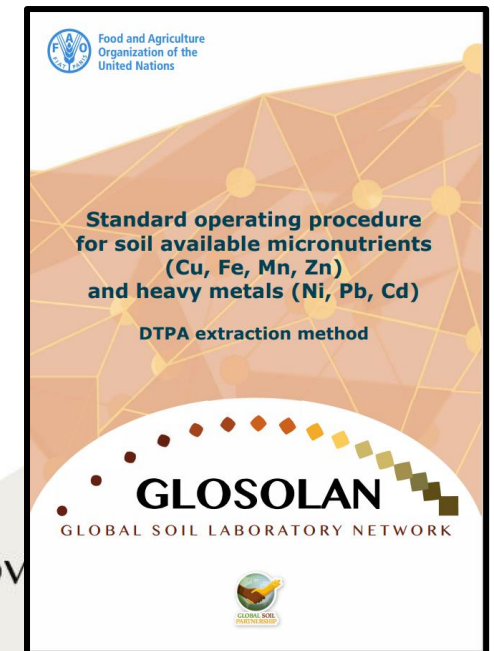
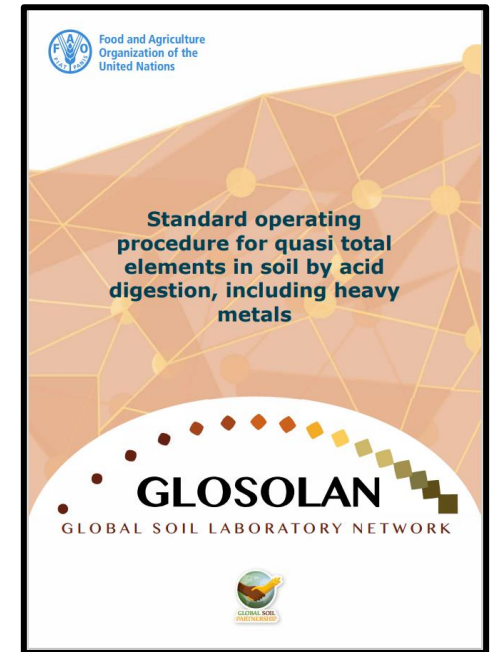


# GLOSOLAN-INSOP partnership

Deliverable	Objective	Timeline
1	INSOP members are engaged in the review process of already developed SOPs for heavy metals	Q1 2023
2	INSOP members are involved in the development of guidelines for the disposal of reagents	Q3 2023
3	INSOP and GLOSOLAN members jointly develop the SOP for measuring heavy metals in phosphate fertilizers	Q4 2023
4	INSOP and GLOSOLAN members jointly develop the SOP for measuring the residue of HHP in the soil	2024 (TBC)
5.	Training of laboratory technicians on soil contaminant analysis: Ukraine-GLOSOLAN	2024 (TBC)
6.		

# GLOSOLAN-INSOP: Deliverable 1 SOP on heavy metal



- Quasi total elements in soil by acid digestion, including heavy metals
- Soil available micronutrients and heavy metals by DTPA extraction method



# GLOSOLAN-INSOP: Deliverable 2

## Reagent guidelines

### ➤ Development of guidelines on reagents disposal

Reagents	Application for	How to handle	How to	Danger	Environmental associated risk
Distilled water (used to wash equipment)	All SOPs	Gloves Safety Glasses	Depends on what has	Do not drink!	
Potassium Chloride	<ul style="list-style-type: none"> <li>Electrical conductivity</li> <li>soil organic carbon by Tyurin</li> <li>soil pH</li> </ul>	Wash hands and other Gloves Safety Glasses Protective Clothing likely to form flammable	Dispose in a	Not a hazardous substance or	levels of potassium cause damage to germinating seedlings,
Diethylenetriaminepentaacetic acid (DTPA, C14H23N3O10)	<ul style="list-style-type: none"> <li>soil available micronutrients and heavy metals by DTPA extraction method</li> </ul>	Fume hood	Do not let DTPA enter drains		The substance is not readily biodegradable. Should not be released into the environment. When released to water, the DTPA will tend to remain in the water compartment.
		Do not inhale (use P3 filters) Gloves Safety Glasses Protective Clothing	Collect in a		
Triethanolamine (TEA, C6H15NO3)	<ul style="list-style-type: none"> <li>soil available micronutrients and heavy metals by DTPA extraction method</li> </ul>	Gloves	No specific rules		Do not discharge into drains/surface waters/groundwater. The substance will not adsorb significantly to suspended solids and sediments in water and would be highly mobile in soil. Incinerate in suitable incineration plant, observing local authority regulations.
		Safety Glasses Protective Clothing	neutralize		
Calcium chloride dihydrate (CaCl2·2H2O)	<ul style="list-style-type: none"> <li>soil available micronutrients and heavy metals by DTPA extraction method</li> </ul>	Nitrile Gloves	dispose of it depending on local regulations		calcium chloride released into the environment is distributed into the water compartment in the form of calcium and chloride ions. The chemical is currently of low priority for further work.

# GLOSOLAN-INSOP: Deliverable 3 SOP for phosphate fertilizers in soil

1. Decide which SOP to harmonize (parameter + method)
2. Establishment of the working group (experts from all regions)
3. Developing of the matrix
4. Share the matrix with soil labs worldwide
5. Harmonization of the information collected on regional basis
6. Harmonization of the regional matrix into a global matrix
7. Transform the matrix into a text
8. Review
9. Publication of the SOP
10. Translation of the SOP in multiple languages
11. Publication of the information on the sustainability of method

## **Heavy Metals determination in phosphate fertilizer materials**

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## **Heavy Metals determination in phosphate fertilizer materials**

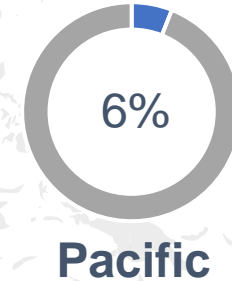
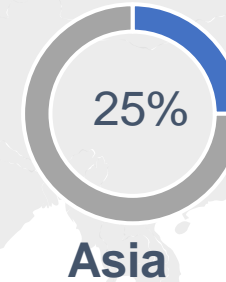
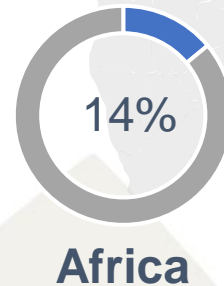
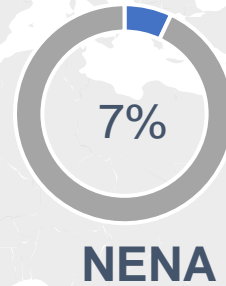
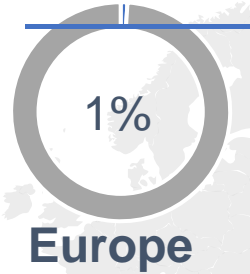
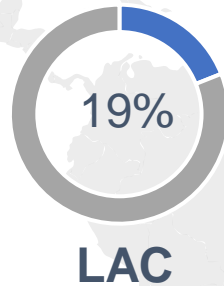
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# GLOSOLAN-INSOP: Deliverable 3

69 laboratories from  
49 countries  
completed the  
template



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# GLOSOLAN-INSOP: Deliverable 4 SOP for HHP residues in the soil (2024)

1. Decide which SOP to harmonize (parameter + method)
2. Establishment of the working group (experts from all regions)
3. Matrix development
4. Share the matrix with soil labs worldwide
5. Harmonization of the information collected on regional basis
6. Harmonization of the regional matrix into a global matrix
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9. Publication of the SOP
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# Joining INSOP

## Assessment

**NOVEMBER 16**

- Pesticides SOPs
- Soil pollutant threshold values

## Remediation

**DECEMBER 13**

- Remediation action plan checklist
- Building sustainable management database

## Monitoring

**NOVEMBER 29**

- Identifying gaps on soil legal tools

## Food and pollution

**DECEMBER 15**

- Training to farmers on preventing soil pollution
- Soil indicators for the WHO Global Health Observatory



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Food and Agriculture  
Organization of the  
United Nations

A decorative graphic consisting of a series of colored squares and dots in shades of orange, yellow, and grey, arranged in a curved, descending pattern from top-left to bottom-right.

# GLOSOLAN

GLOBAL SOIL LABORATORY NETWORK



Thank you

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