

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

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7th Meeting of the
**Global Soil
Laboratory
Network**
(GLOSOLAN)



GLOSOLAN
GLOBAL SOIL LABORATORY NETWORK



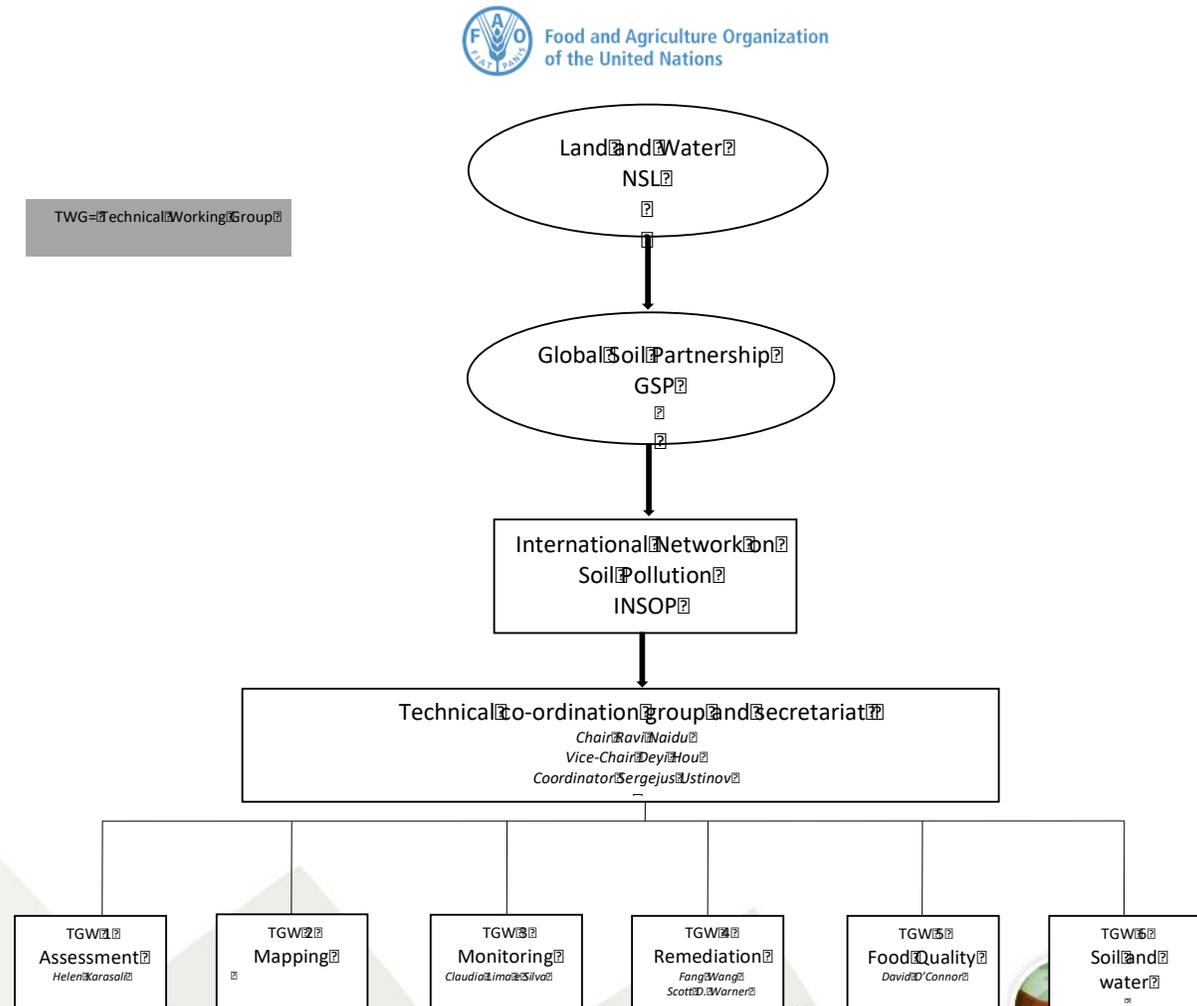
What is the INSOP?

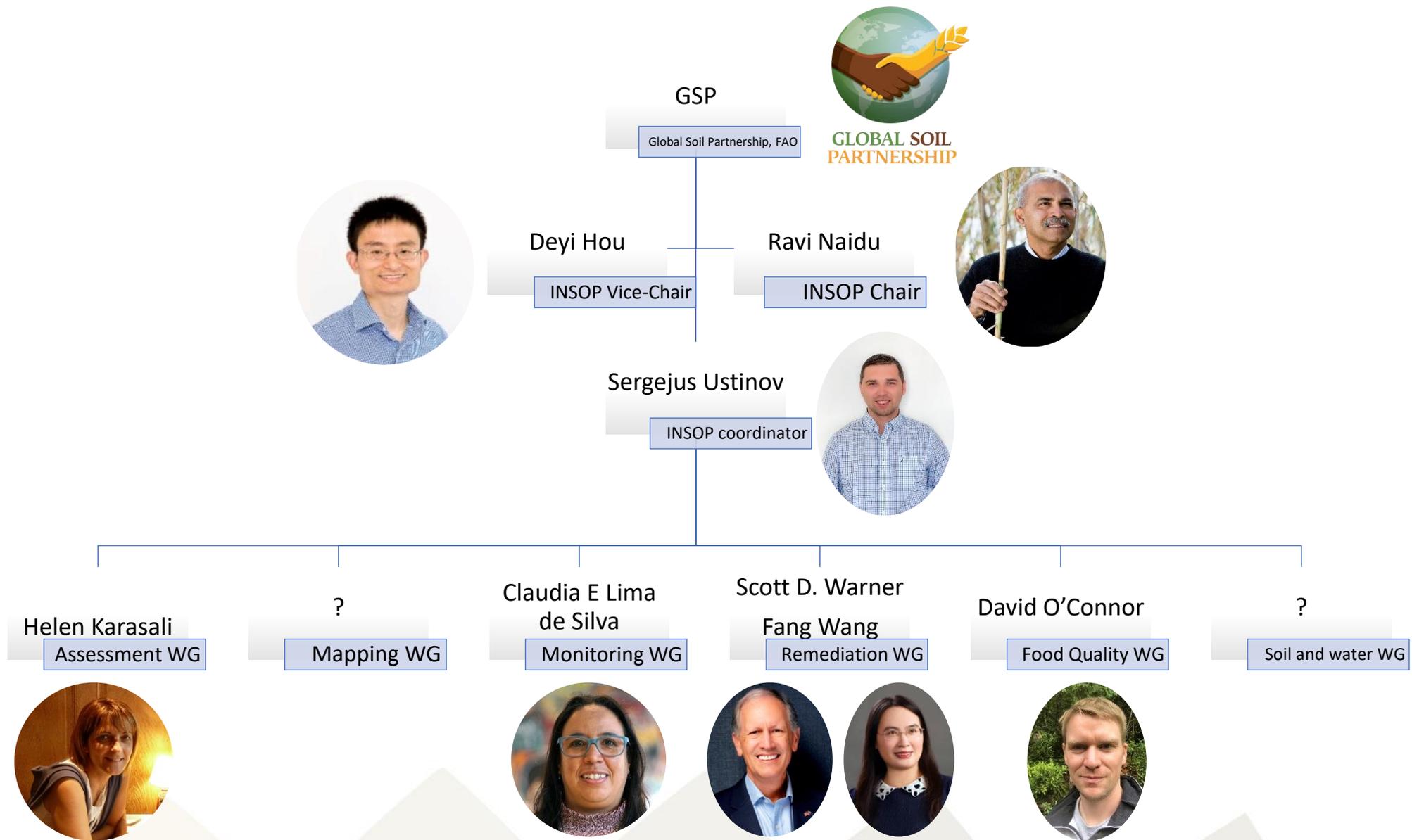
- Launched in 2022, the International Network on Soil Pollution focuses on minimizing soil pollution and achieving the global goal of Zero Pollution
- The mission is to support and facilitate joint efforts to reduce the risks of soil pollution and to share experience and knowledge to effectively remediate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





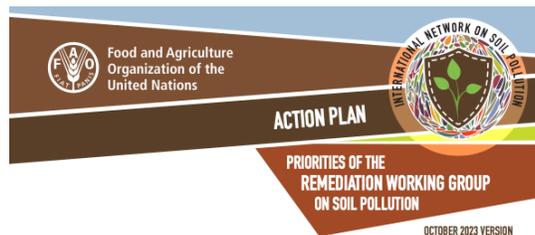
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INSOP priorities 2023-2025

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	<ul style="list-style-type: none"> • 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



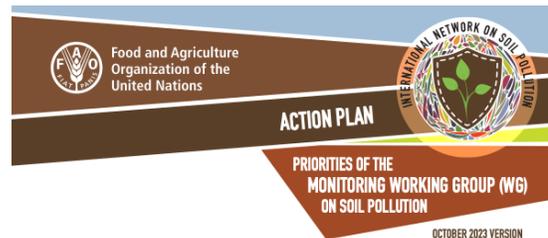
PRIORITY 1	Advocate for the promotion of soil pollution to be included in the One Health approach and the Global Health Observatory	
OUTCOME	Increased dedication and global awareness in including soil pollution indicators in the Global Health Observatory	
KEY PERFORMANCE INDICATORS	LONG TERM	SHORT TO 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	<ul style="list-style-type: none"> • 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

INTERNATIONAL NETWORK ON SOIL POLLUTION

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

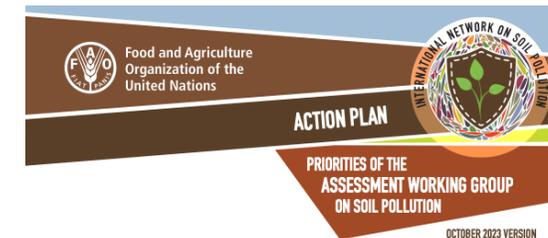
- In support of SoilEX, INSOP members help to analyze national soil legislation and identify minimum principles for addressing soil pollution;
- In support of SoilEX, INSOP members prepare a policy brief on the current legislation and existing gaps in monitoring soil pollution;
- Assist countries willing 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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Assessment of soil pollution

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



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INTERNATIONAL NETWORK ON SOIL POLLUTION

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.




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

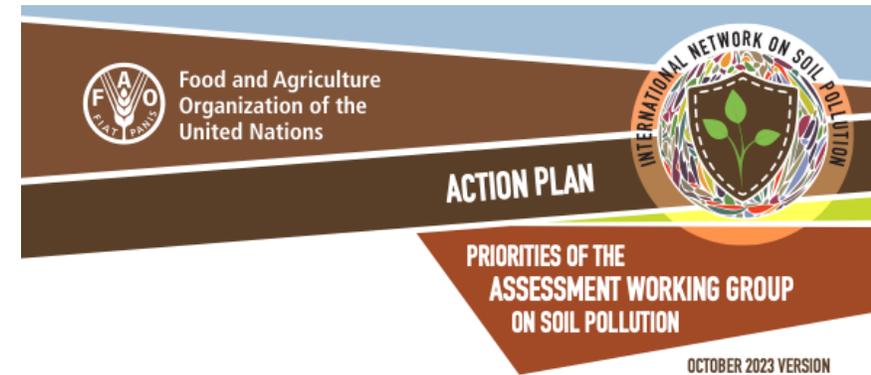
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KEY PERFORMANCE INDICATORS	By 2025, 80% of soil laboratories working with the GSP will be aware of how to use the harmonized SOPs for measuring soil pollutants in the laboratory	At least one soil laboratory working with the GSP from each region is involved in the development of harmonized SOPs
KEY ACTIVITIES	<ul style="list-style-type: none">• Liaise and work in partnership with the GLOSOLAN;• 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.	



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

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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

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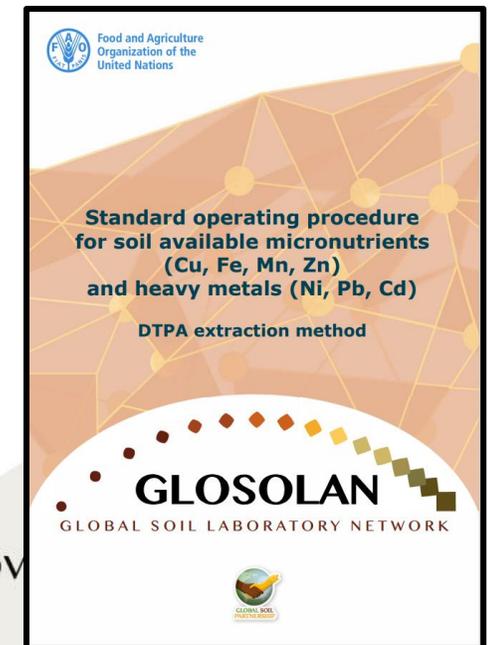
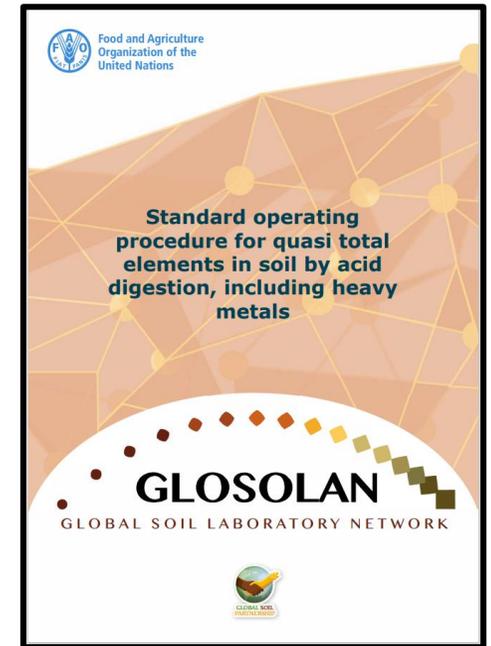


GLOSOLAN-INSOP partnership

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"> Electrical conductivity soil organic carbon by Tyurin soil pH 	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"> soil available micronutrients and heavy metals by DTPA extraction method 	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"> soil available micronutrients and heavy metals by DTPA extraction method 	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"> soil available micronutrients and heavy metals by DTPA extraction method 	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

Contents

1. Introduction to Heavy Metals	2
2. Scope and field of application	2
3. Principle	2
4. Apparatus	3
5. Materials	3
6. Health and Safety	3
7. Sample Preparation (Wesley Feldmann)	4
8. Procedure	4
9. Calculation	8
10. Quality Assurance	8
11. References	8
Appendix 1: Acknowledgements	9
Appendix 2: List of Authors	9
Appendix 3: Contributing Laboratories	9
Appendix 4: AAS Operating Conditions for heavy metals	11

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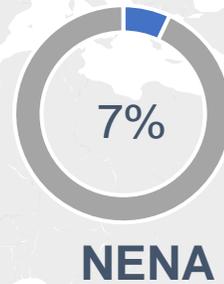
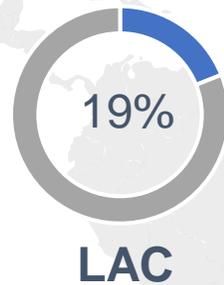
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GLOSOLAN-INSOP: Deliverable 3

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
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

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
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7. Transform the matrix into a text
8. Review
9. Publication of the SOP
10. Translation of the SOP in multiple languages
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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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Thank you

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