

# 6<sup>th</sup> Meeting of the Latin American Soil Laboratory Network (LATSOLAN)

8-9 November 2023

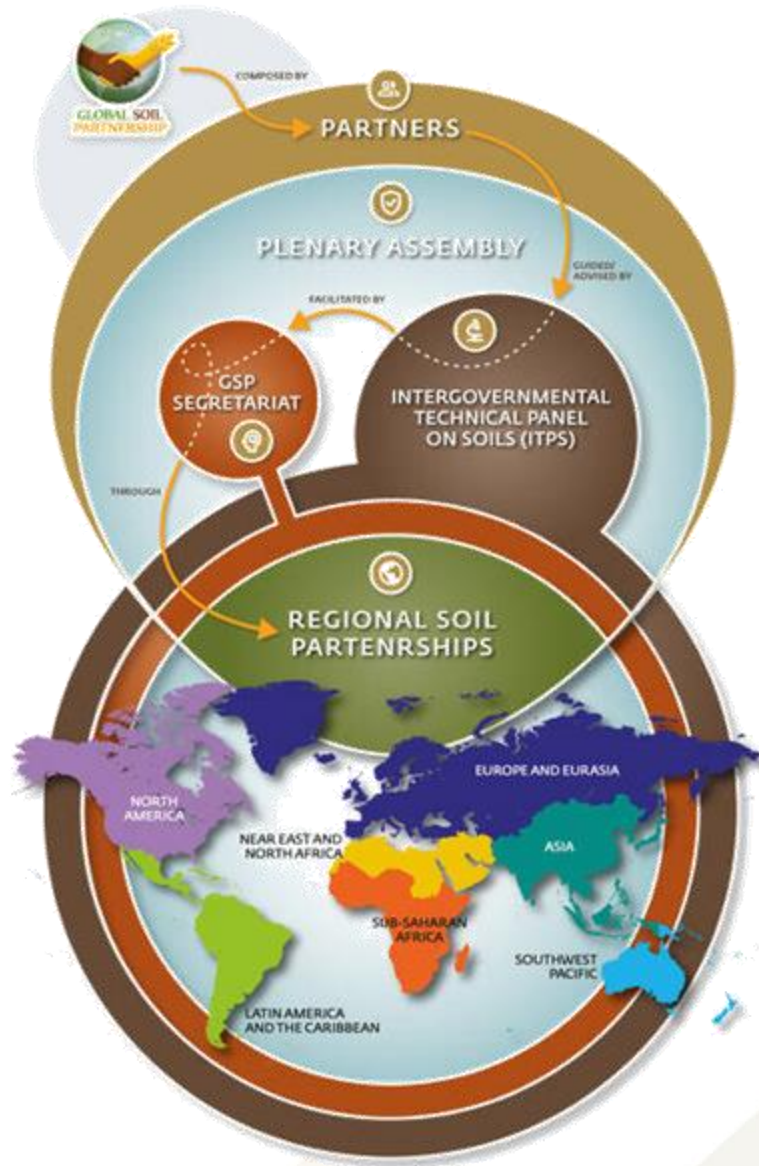


# GLOSOLAN and other Global Soil Partnership activities 2023-2024

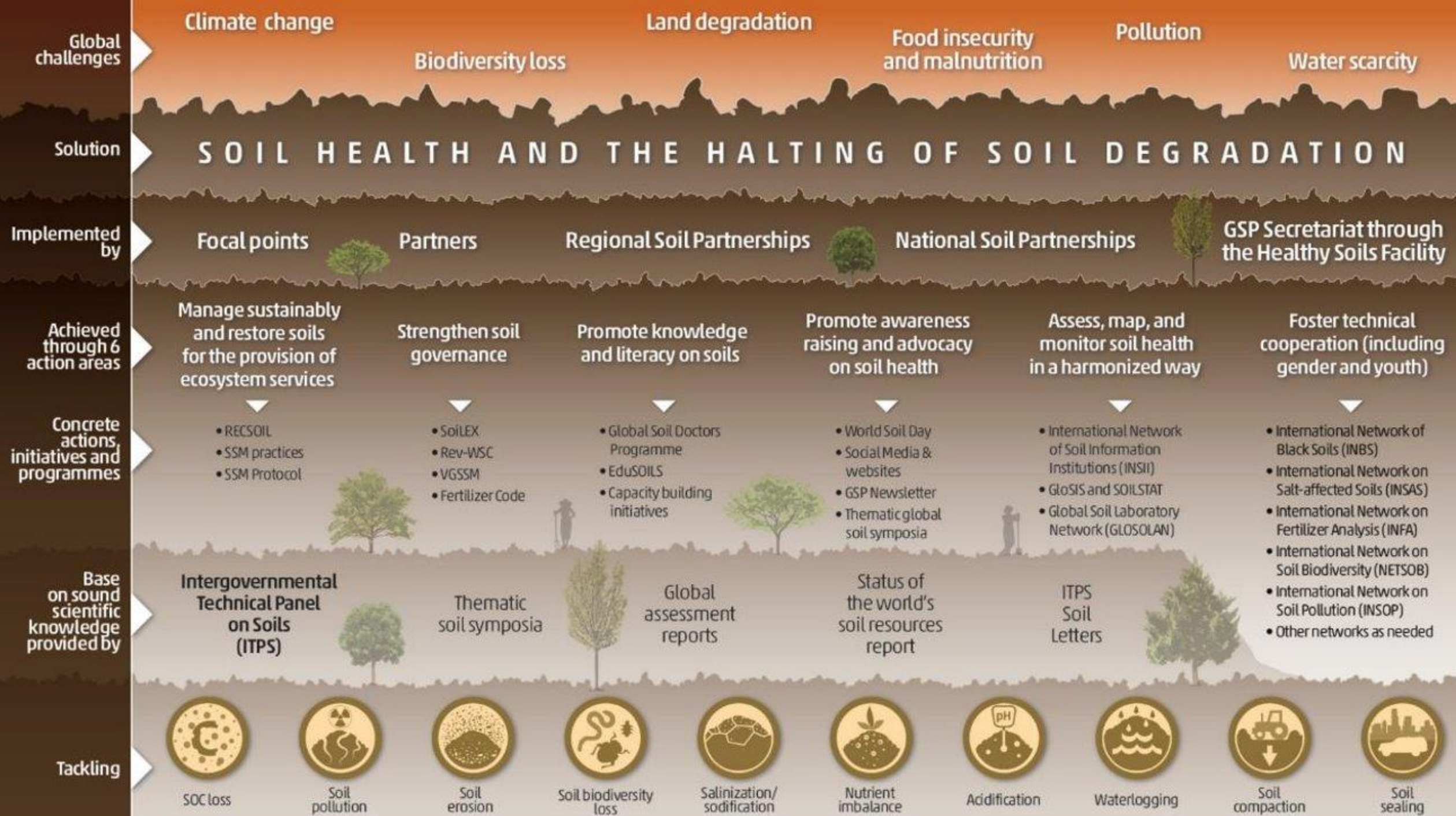
Yuxin Tong  
Filippo Benedetti  
Global Soil Partnership  
FAO

LATSOLAN

LATIN AMERICAN SOIL LABORATORY NETWORK



- 164 focal points appointed directly by FAO Members and over 500 partners worldwide
- 7 regional partnerships
- 4 sub-regional partnerships within Europe: Eurasia, Alpine, Pyrenean, Western Balkans
- 14 national soil partnerships (Brazil, Colombia, Costa Rica, Cuba, Italy, Mongolia, Malawi, Nicaragua, Philippines, Portugal, Slovakia, Slovenia, Thailand, and Ukraine)



1

# Assess, map, and monitor soil health in a harmonized way



- International Network of Soil Information Institutions (INSII)
- GloSIS and SOILSTAT
- Global Soil Laboratory Network (GLOSOLAN)



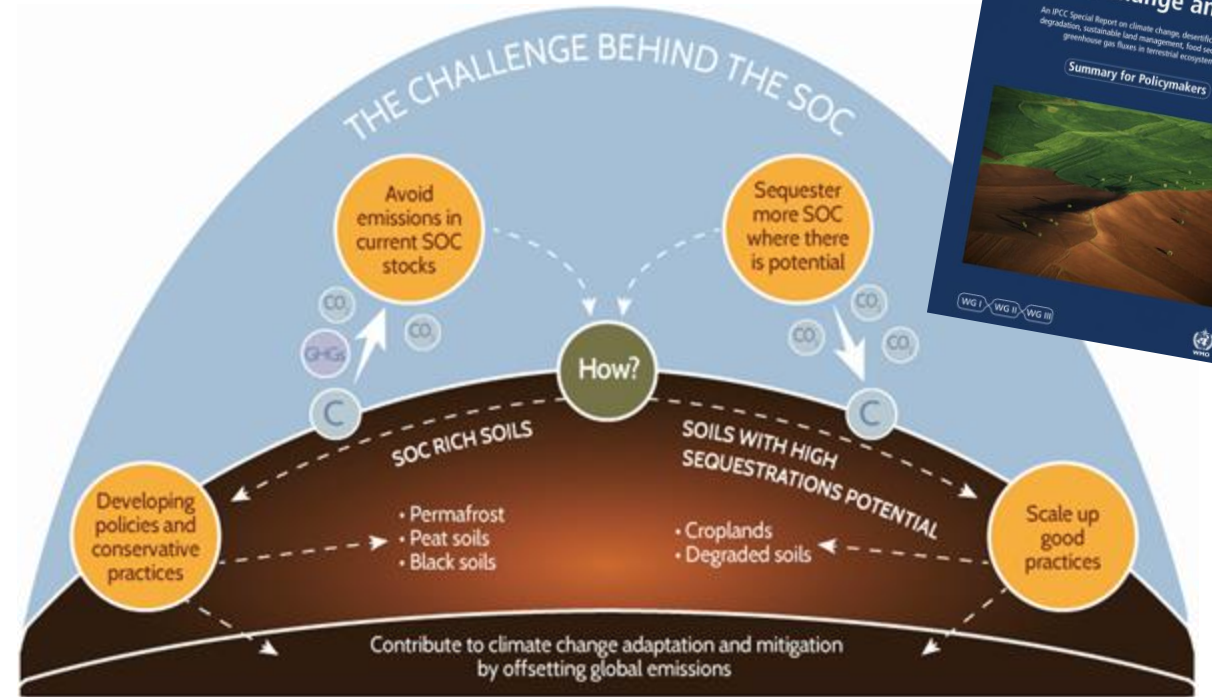
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# 2 Manage sustainably and restore soils for the provision of ecosystem services

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- RECSOIL
- SSM practices
- SSM Protocol



When adopting Sustainable Soil Management Practices, we provide multiple benefits including: reducing GHG emissions, maintaining and enhancing carbon sinks and building resilience.





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# Protocol for the assessment of Sustainable Soil Management







itps

INTERGOVERNMENTAL  
TECHNICAL PANEL ON SOILS



Table 1. Recommended indicators that can be monitored to assess Sustainable Soil Management <sup>1</sup>

Indicator	Parameter/ metric	Measurement methods <sup>2</sup>	Sample characteristics <sup>3</sup>
Soil productivity	Agricultural productivity or biomass in dry matter (t ha <sup>-1</sup> year <sup>-1</sup> )	Dry weight of vegetation quadrats, or yield measurements	Quadrat method or yield measurement
			
Soil organic carbon	Organic carbon (%)	Walkley- Black method <a href="http://www.fao.org/3/ca7478en/CA7478EN.pdf">http://www.fao.org/3/ca7478en/CA7478EN.pdf</a> or Dumas method <a href="http://www.fao.org/3/ca778en/ca778en.pdf">http://www.fao.org/3/ca778en/ca778en.pdf</a>	Representative soil sample
			
Soil physical properties	Bulk density (kg dm <sup>-3</sup> )  In some cases, bulk density can be complemented by available water capacity, or other relevant soil physical properties (See additional indicators)	The Core Method	Undisturbed representative sample with known volume
			
Soil biological activity	Soil respiration rate (gCO <sub>2</sub> m <sup>-2</sup> d <sup>-1</sup> )  Ideally combined with at least one other biological indicator (See soil biological activity p. 4 and 5)	Laboratory based soil respiration measurement (static or dynamic) The most common methods will be presented in the annex.	Representative soil sample to be analyzed within hours or refrigerated
			

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# 3

## Promote knowledge and literacy on soils

- Global Soil Doctors Programme
- EduSOILS
- Capacity building initiatives



4

## Foster technical cooperation (including gender and youth)



- International Network of Black Soils (INBS)
- International Network on Salt-affected Soils (INSAS)
- International Network on Soil Biodiversity (NETSOB)
- International Network on Soil Pollution (INSOP)
- Other networks as needed

**INBS**  
International Network  
of Black Soils



**INSAS**  
International Network  
of Salt-Affected Soils



**INSII**  
International Network  
of Soil Information  
Institutions



**NETSOB**  
International Network  
on Soil Biodiversity



**INSOP**  
International Network  
On Soil Pollution



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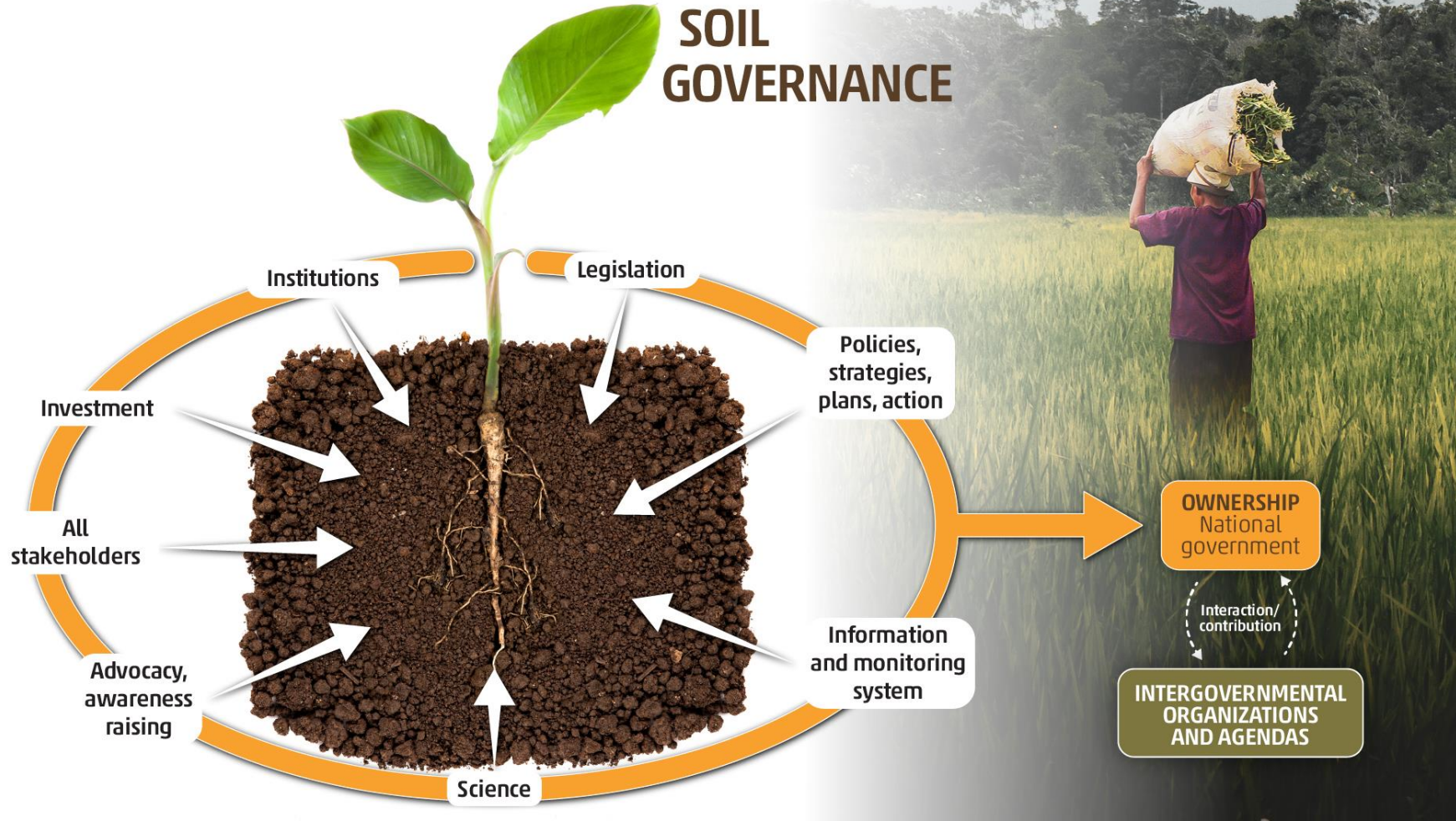


# 5

## Strengthen soil governance

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- SoiLEX
- Rev-WSC
- VGSSM
- Fertilizer Code



6

# Promote awareness raising and advocacy on soil health



- World Soil Day
- Social Media & websites
- GSP Newsletter
- Thematic global soil symposia



+ articles in the main world newspapers

FAO, la mappatura dei nutrienti del suolo in America Centrale e nell'Africa sub-sahariana, per un uso più efficiente dei fertilizzanti



Investing in smallholder farmers

By DANIEL ESSIET — On Jul 27, 2022

ALARABIYA news

THE NATION

MIRAGE

entro il 2050 potrebbe essere a rischio il 90% del suolo fertile della Terra (VIDEO)

Fao e Global Soil Partnership promuoveranno la mappatura dei nutrienti del suolo in America centrale e nell'Africa subsahariana (28 Luglio 2022)

Il 95% del cibo globale viene prodotto nel suolo. I suoli hanno la capacità di immagazzinare, trasformare e riciclare i nutrienti dei quali gli esseri umani hanno bisogno per sopravvivere. Dei 18 nutrienti essenziali per le piante, 15 sono forniti dal suolo, se è sano. Secondo la Fao, è probabile che entro il 2050 sarà a rischio ben il 90% del prezioso terreno. Ogni 5 secondi nel mondo viene eroso suolo fertile per l'equivalente di un campo da calcio. Il problema è che ci vogliono circa mille anni per creare solo pochi centimetri di terreno.

Il **Global Symposium on Soils for Nutrition**, organizzato da Fao e Global Soil Partnership e che termina domani, sta discutendo proprio della fertilità dei suoli globali e dei modi per migliorare la disponibilità di nutrienti del suolo per le colture senza danneggiare l'ambiente. Il meeting è stato



nation relevant to soil analysis.

alKhaleej Today

USE SAUDI ARABIA INTERNATIONAL BIZ SPORTS TECH

90% of Earth's topsoil at risk by 2050, FAO warns

United Nations UN News Global perspective Human stories

FAO warns 90 per cent of Earth's topsoil at risk by 2050



Soils, where food begins

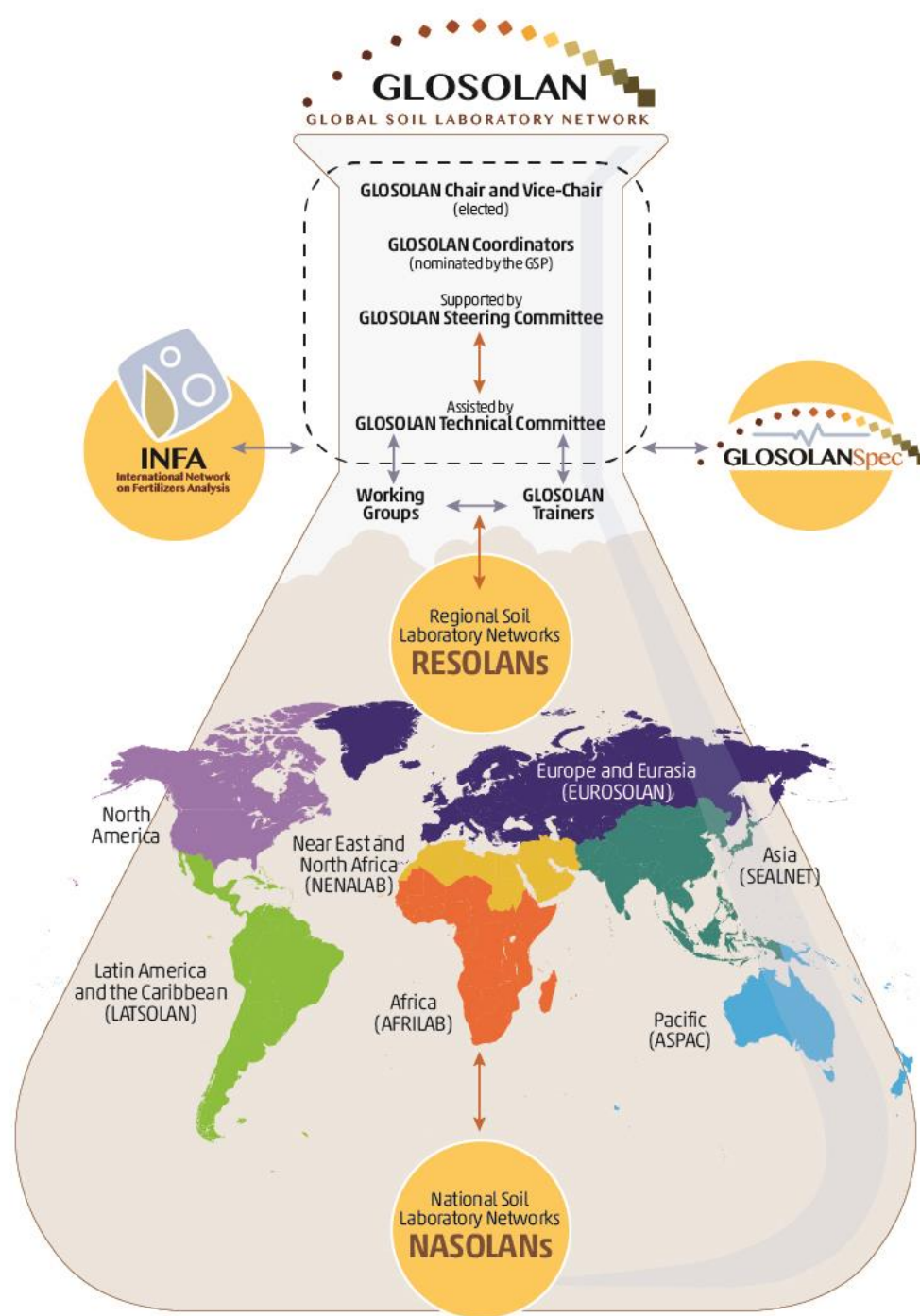
FAO to boost soil nutrient mapping

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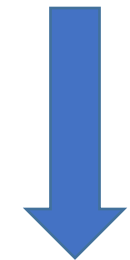
1. Assess, map, and monitor soil health in a harmonized way
2. Foster technical cooperation
3. Manage sustainably and restore soils for the provision of ecosystem service
4. Promote knowledge and literacy on soils
5. Strengthen soil governance
6. Promote awareness raising and advocacy on soil health.



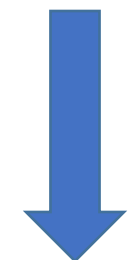


# We operate at all levels...

**GLOBAL**



**REGIONAL**



**NATIONAL**



# What are we working on?

- 1) Harmonization of Standard Operating Procedures (SOPs)
- 2) Provision of trainings and prepare awareness raising material on different topics
- 3) Organization of inter-laboratory proficiency tests (PTs)
- 4) Collaboration with other networks (INFA, NETSOB, INSAS, INSOP, INBS)
- 5) Collection of soil import regulations worldwide ([SIMPLE Database](#))
- 6) Share laboratory capacities and needs with the scientific communities, including details on data quality

# GLOSOLAN and GLOSOLAN-Spec



- Soil spectral hub (GSP/FAO)
- Guides to available soil spectral resources (existing open-source soil spectral libraries and soil spectral estimation services)
- Publishing of Standard Operating Procedures for soil spectroscopy using NIR and MIR
- Expand capacity building- webinars, and technical document in additional languages. Additional guides in the style of the primer
- Continue webinar series with spotlight on state-of-art, research and discussion

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Soil mapping  
for resilient agri-food systems  
in Central America and sub-Saharan Africa

# FINDINGS OF THE INCEPTION MISSION TO HONDURAS, GUATEMALA AND ZAMBIA

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# Strengthening analytical capacity



Launch the Soil Laboratory Network



Organization of training sessions on: QA/QC, Health and safety, and Laboratory management



Procurement of laboratory equipment



Training on SOPs implementation (including soil biological parameters)



Launch of regular PTs at national scale

- **Improve efficiency and automatization, enlarge the range of analyzed parameters:** faster processing time and larger capacity
- **Improve quality:** more reliable soil data
- **Improve lab organization:** safer and better-functioning environment







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# Expectation

Taking stock of last year's achievements and challenges

Identify key activities for next year

Election of a new leadership team to promote the capacity of soil laboratories in the region



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# LATSOLAN

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