

7th Meeting of the **Asian Soil Laboratory Network** (SEALNET)

19-20 September 2023



GLOSOLAN *global PT 2024*

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SEALNET Steering Committee*



SEALNET
ASIAN SOIL LABORATORY NETWORK

Global warming



Soils

key to unlocking the potential of mitigating and adapting to a changing climate

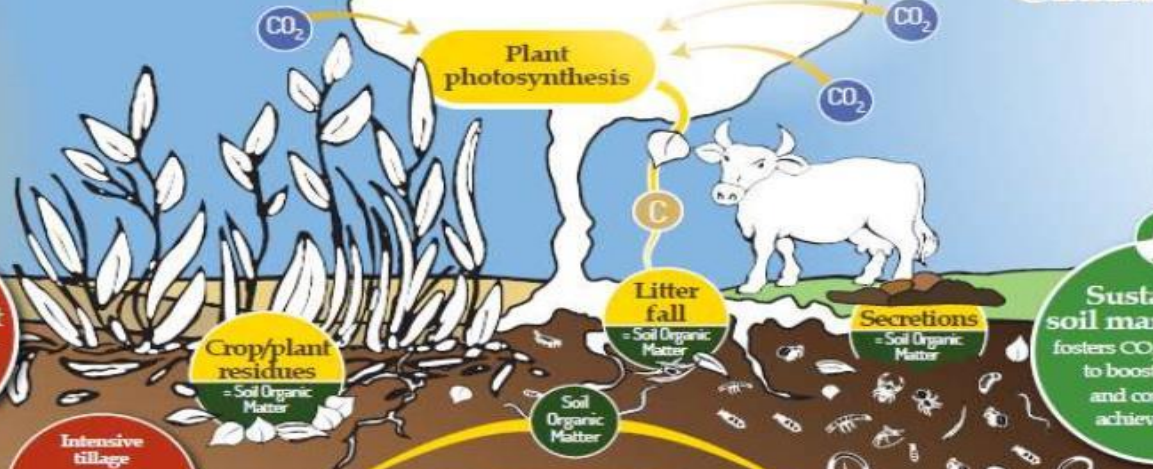


SUSTAINABLE DEVELOPMENT GOALS

Emissions

Unsustainable soil management leads to soil degradation and CO₂ emission into the atmosphere

Sustainable soil management fosters CO₂ sequestration to boost soil health and contribute to achieving SDGs



Intensive tillage

Overuse of agro-chemicals

Wetland / peatland drainage

Urbanization / soil sealing

Reduction of organic matter inputs

Loss of soil structure

Monocropping

Soil compaction

Soil erosion / disturbance

Removal of vegetation cover

Conserving / increasing soil biodiversity

Increasing soil organic matter inputs

Crop rotation / diversification

Better soil surface coverage

Implementation of the VGSSM*

Reduced tillage

Preserving wetlands / peatlands

Monitoring soil organic carbon stocks

Reduce soil contamination

750 Pg C* in the ATMOSPHERE

500 Pg C* in VEGETATION

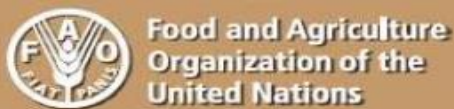
1417 Pg C* in the 1st meter of SOIL

2500 Pg C* at 2 meters SOIL depth



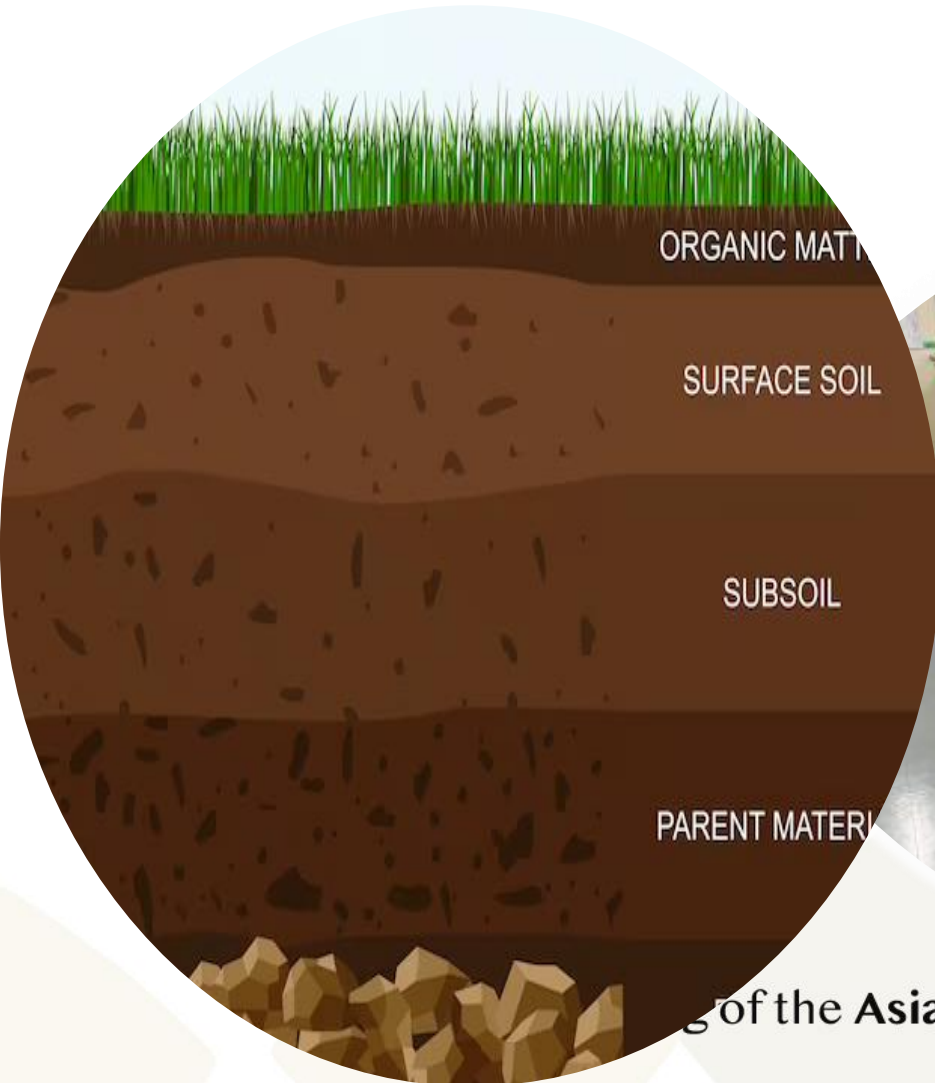
There is more Organic Carbon in our Soil than in vegetation and the atmosphere combined

* Pg C = Petagram of Carbon - 1 Pg = 10¹⁵ g = 1 Giga-ton



...the soil is a black box !

...our knowledge come from lab analyses



of the Asian Soil Laboratory

19-20 September 2022





GSP supports Sustainable Development Goal (SDG) number 17, target 18: “Enhance Availability of Reliable Data”.



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the same observation was made by:



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Global Soil Laboratory Network (GLOSOLAN): Why does soil analysis matter?



GLOSOLAN aims to harmonize soil analysis methods so that soil data is comparable and interpretable across soil laboratories in a country, between countries and regions, and globally.



What is the expectation of each stakeholder



a
Good accuracy
Good precision



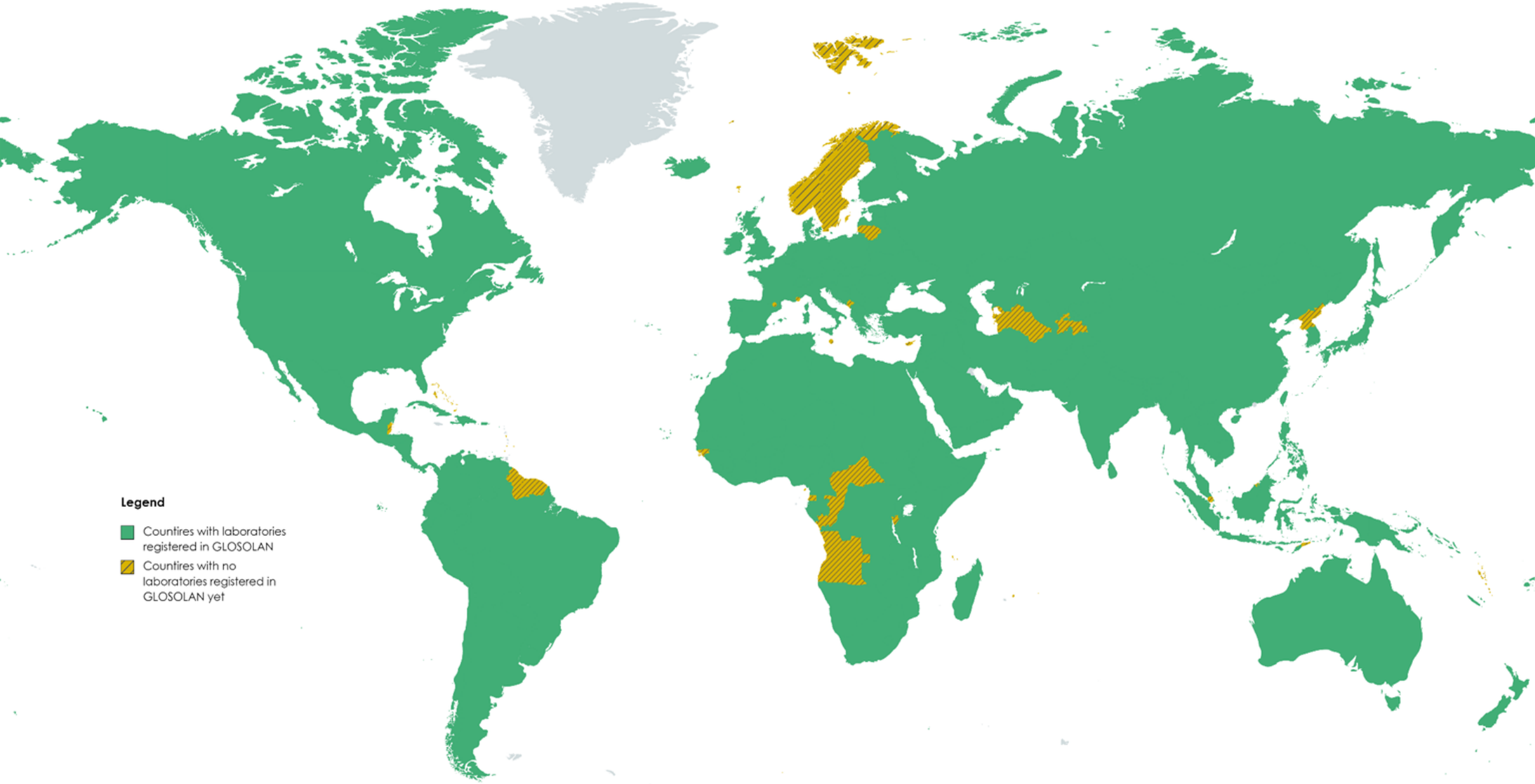
b
Poor accuracy
Good precision



c
Poor accuracy
Poor precision

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As of August 2023, the network had 980 laboratories registered

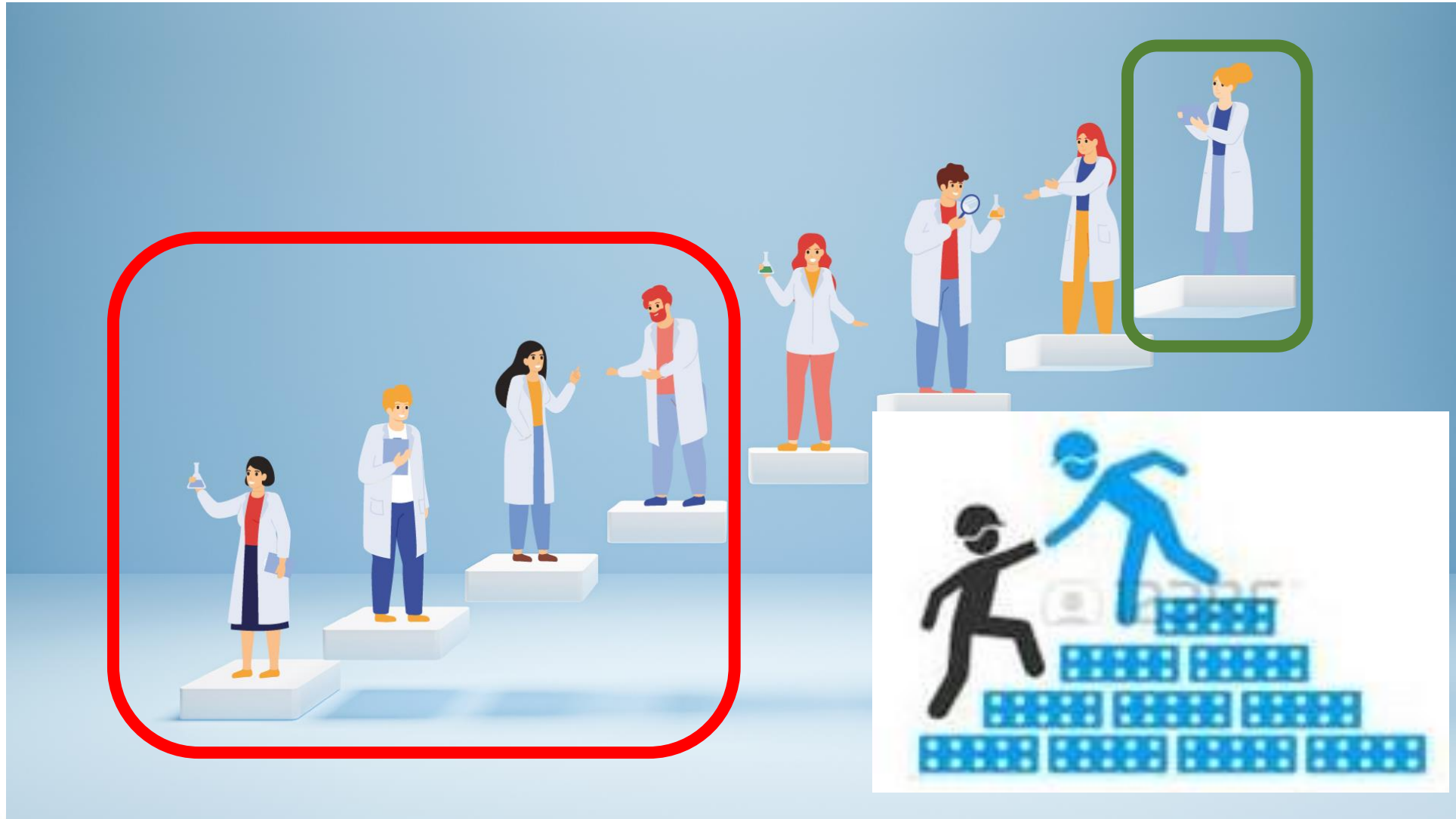


Legend

- Countries with laboratories registered in GLOSOLAN
- Countries with no laboratories registered in GLOSOLAN yet



Improve the analytical capacity of global soil laboratories



Year	level of PT	no of PT samples distribute	number of participating labs	country involved	member by region	Parameters to measure:	support funding	PT scheme
2018	SEALNET PT	14	16	16		pH water organic carbon available P exchangeable K	FAO, IRD, LDD	monitoring the lab performance
	LATSOLAN PT	3	20	20		pH water EC organic carbon & inorganic carbon nitrogen available P exchangeable K Ca, Mg	FAO, AMS Maxico	monitoring the lab performance
2019	GLOSOLAN PT	3	96+20	66	AFRILAB & NENA 21 labs LATSOLAN & North America 32 Labs SEALNET + ASPAC 23 labs EUROSOLAN 24 labs	organic carbon available P exchangeable K, total N	FAO, Maxico	validation of testing method and laboratory performance monitoring

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Year	level of PT	no of PT samples distribute	number of participating labs	country involved	member by region	Parameters to measure:	support funding	PT scheme
2022	GLOSOLAN PT	10	196	110	EUROSOLAN 48 labs SEALNET & ASPAC 48 labs AFILAB & NENA labs: 66 labs LATSOLAN & North America 52 labs	organic carbon available P exchangeable K, total N	FAO, IRD, BGS	monitoring the lab performance, focus more on carbon
	SEALNET PT	7	125			pH water EC organic carbon available P exchangeable K, TEXTURE	FAO, BSWM	monitoring the lab performance
2023	EURASIA	3	40			Loss-on-ignition method (LOI), Dry combustion on the analyzer (DC), Walkley-Black's method (WB), Tyurin's method (T)	PHOSAGO, IBFRC, Russia	monitoring the lab performance, focus on carbon, transfer function of method
	AFRILAB+NENA		90			organic carbon available P exchangeable K, total N	FAO, IRD, BGS	

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Sharing of the participating laboratories compare to the members registration to GLOSOLAN PT 2022

- ❖ Africa: 38% of labs registered participated
- ❖ Asia: 40% of labs registered participated
- ❖ Europe and Eurasia: 32% of labs registered participated
- ❖ Latin America: 25% of labs registered participated
- ❖ North America: 30% of labs registered participated
- ❖ NENA: 33% of labs registered participated
- ❖ Pacific: 3% of labs registered participated

Problem facing from the PT activities

- Replication and repeat
- Some lab managers do not have enough skill to check the quality of the results produced
- Transportation of the PT soil samples across the country boarder
- The low performance labs do not know how to proceed further to get the advice to improve their lab performance
- The lab managers do not know the benefit of the participation of the GLOSOLAN PT

What is the difference between replication and repetition?

Both are repeated runs of your combination of factors and levels.

- ❖ Repetition does the duplicate runs consecutively
- ❖ replication does multiple runs but during identical but different experimental runs



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Are you interested to be a PT provider?

1. Yes, I am interested but need capacity building for
 - the preparation of the PT soil samples
 - statistical analysis
 - Writing the report
 - Other topics
2. Yes, my lab is ready to be the PT provider for the global PT 2024 but need financial support for
 - Sample collection
 - Sample preparation
 - Sample transportation
 - We have our own budget to support for GOSOLAN activity
 - Other expenses

Are you interested to be a PT provider?

3. Yes, my lab is ready to be the PT provider but only in regional level and need financial support for

- Sample collection
- Sample preparation
- Sample transportation
- We have our own budget to support for Regional activity
- others

Set of soil testing parameters you are interested in

- Carbon
- pH
- EC
- Phosphorous
- Nitrogen
- Heavy metals
- Particle size distribution



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Thanks for your kind
participating the discussion

