



Food and Agriculture
Organization of the
United Nations

8 - 10
September
2021

VIRTUAL
MEETING



Ms. Nopmanee Suvannang
GLOSOLAN Chair

GLOBAL SOIL PARTNERSHIP
9th Plenary Assembly





Food and Agriculture
Organization of the
United Nations

Pilots need of good quality data & information to fly safely



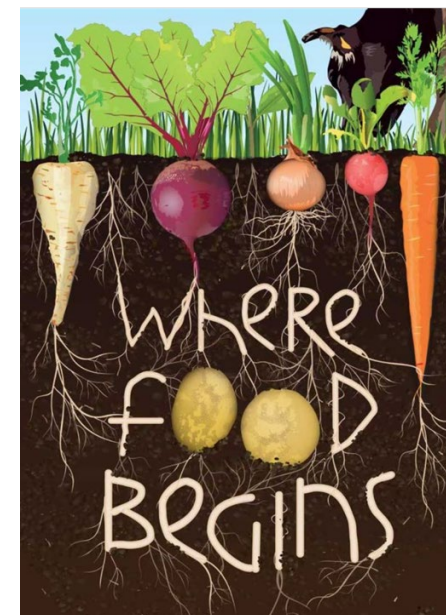
https://www.deplacementspros.com/Le-cockpit-d-un-A380-comme-si-on-y-etait-video_a38748.html



GLOBAL SOIL PARTNERSHIP 9th Plenary Assembly | 8 - 10 September 2021



...you also need good quality data



Stakeholders also needs of good quality data to promote and implement sustainable soil management, fight hunger and mitigate climate change.

...you also need good quality data



**where
data begins...**



is part of GSP's Pillar 5 (Harmonisation). It supports soil laboratories to provide good quality data.

GLOBAL SOIL PARTNERSHIP 9th Plenary Assembly | 8 - 10 September 2021



Food and Agriculture
Organization of the
United Nations

How does GLOSOLAN support laboratories providing good quality data?

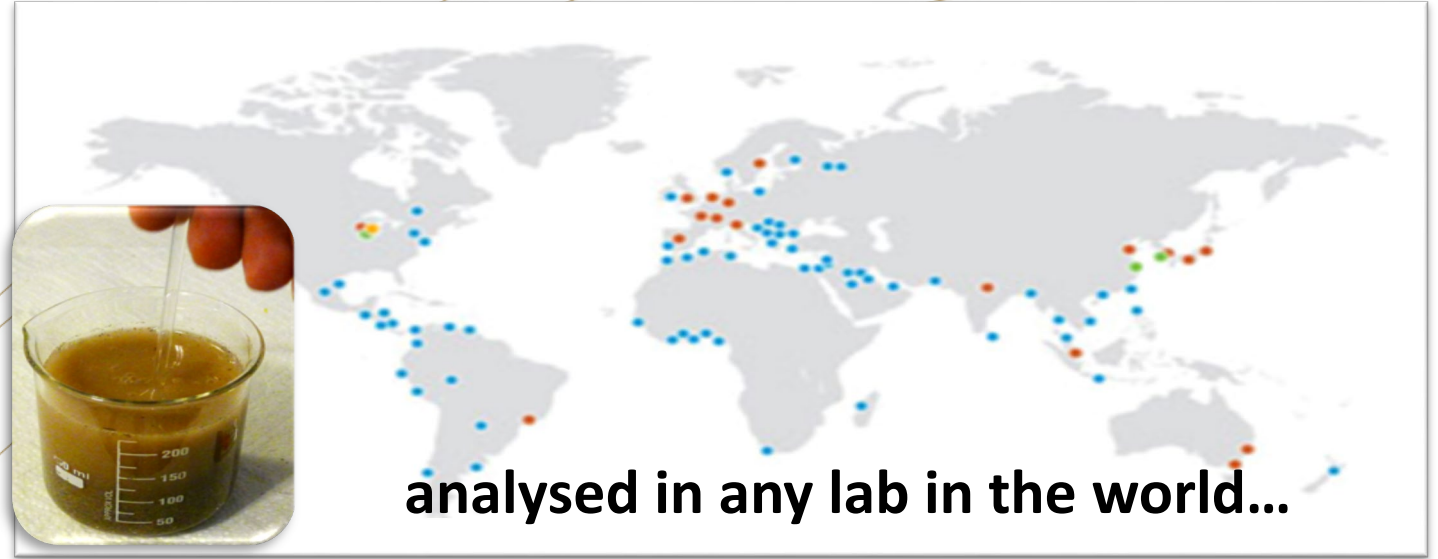
GLOBAL SOIL PARTNERSHIP 9th Plenary Assembly | 8 - 10 September 2021





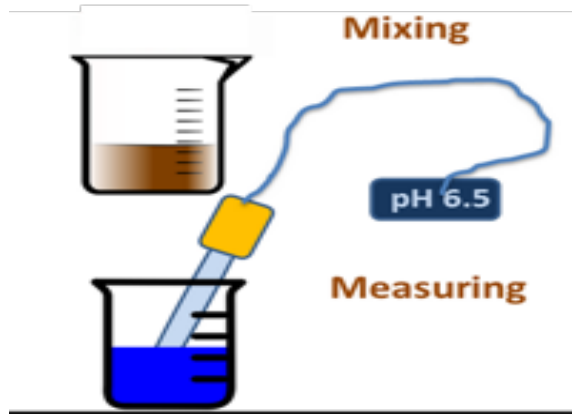
Vision: make soil data reliable and comparable, worldwide.

A soil sample....



analysed in any lab in the world...

you must get similar results (\pm uncertainty)

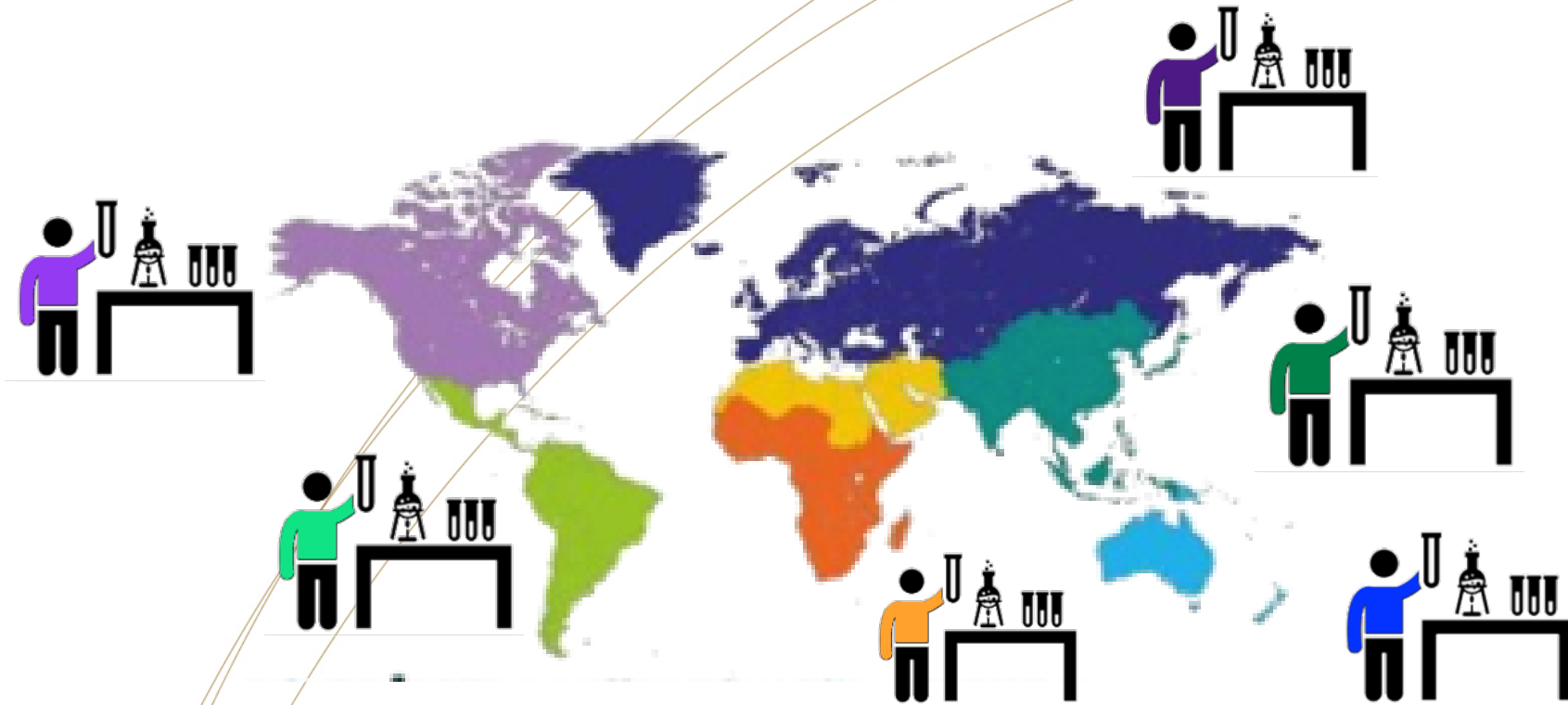


**To reach this objective,
this is what GLOSOLAN has done...**



GLOSOLAN Strategy:

- 1. Harmonized procedures:** to have all laboratories analysing samples in the same way



GLOSOLAN Strategy:

1. Harmonized procedures: to have all laboratories analysing samples in the same way

Standard Operating Procedures (SOPs) were produced on the basis of a consensus of >100 laboratories from all continents.

5 SOPs in 2019
11 SOPs in 2020
13 SOPs in prep. for 2021

Available in multiple languages

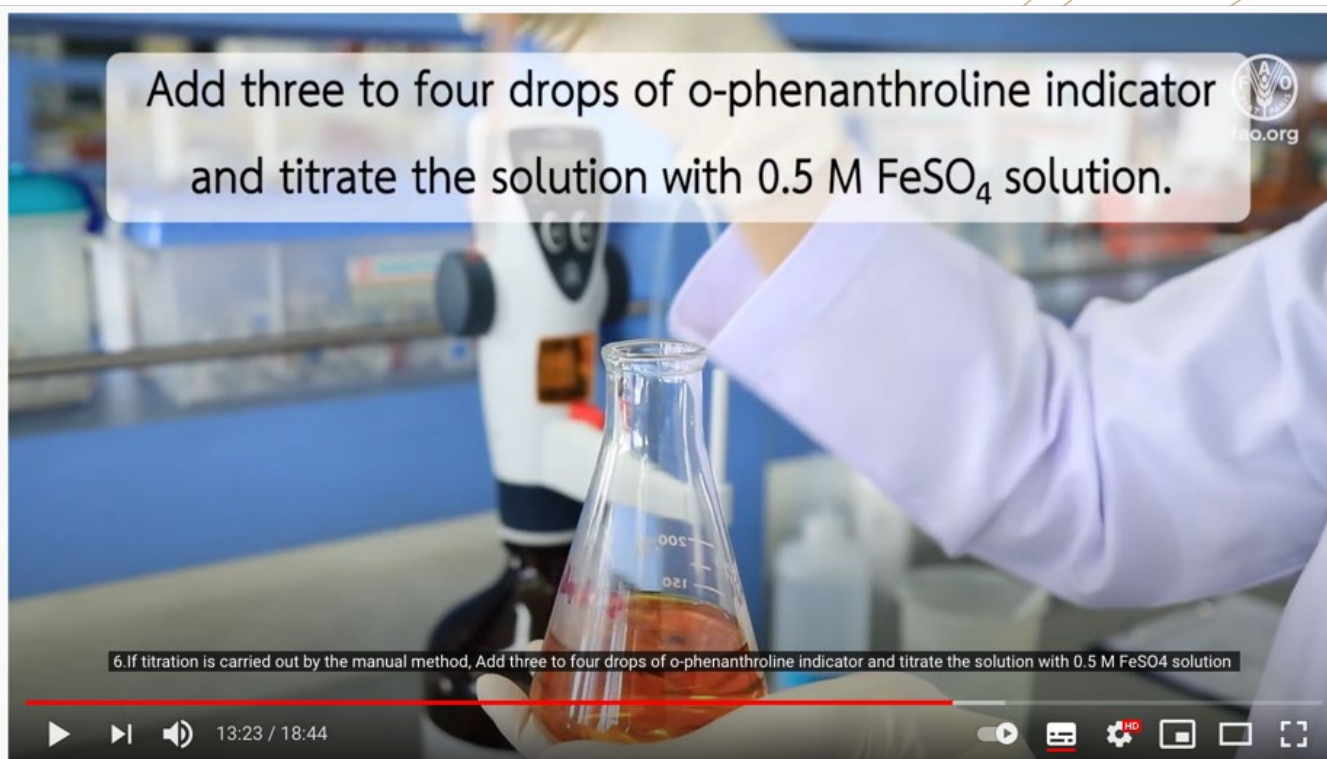
*Worldwide accessibility, increase visibility and
Increase partnership*

GLOBAL SOIL PARTNERSHIP 9th



Training videos are under preparation
(2 videos are already available)

They show how to perform the analysis
according to the GLOSOLAN SOPs



<https://www.youtube.com/watch?v=N8pY5fb8T1U>

<https://www.youtube.com/watch?v=yVZh6o5O4TM>

GLOSOLAN Strategy:

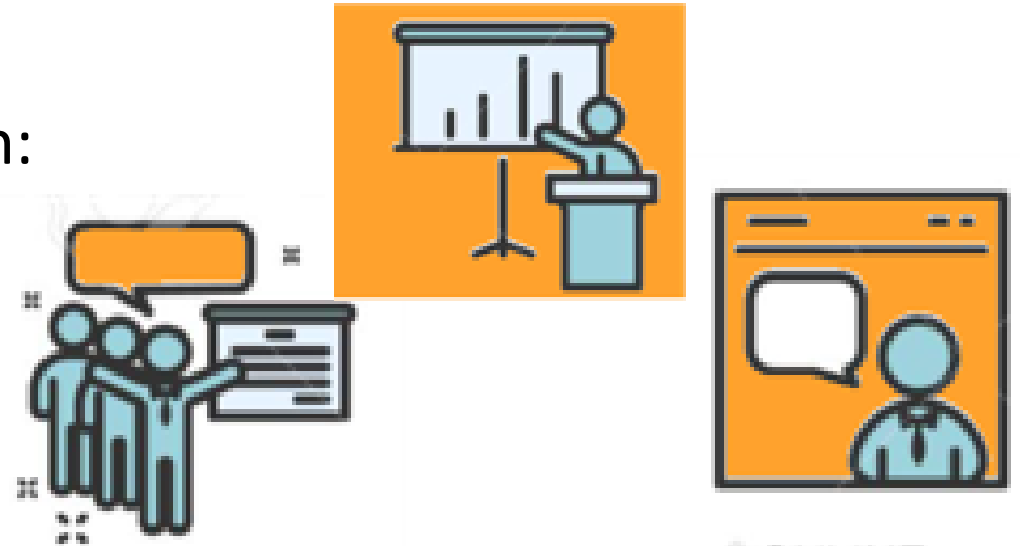
2. Capacity building for lab managers & staff

Training courses (meetings + video conf.)

- 2019: **171** participants from **79** countries attended the trainings
- 2020: **746** participants from **107** countries attended the trainings

• Several free access webinars under preparation:

- Internal Quality control
- Health and Safety
- Laboratory accreditation
- Explanation on the SOPs
- etc



ONLINE



GLOSOLAN Strategy:

3. Provision of laboratory equipment : 17 laboratories supported in 17 countries in 2021

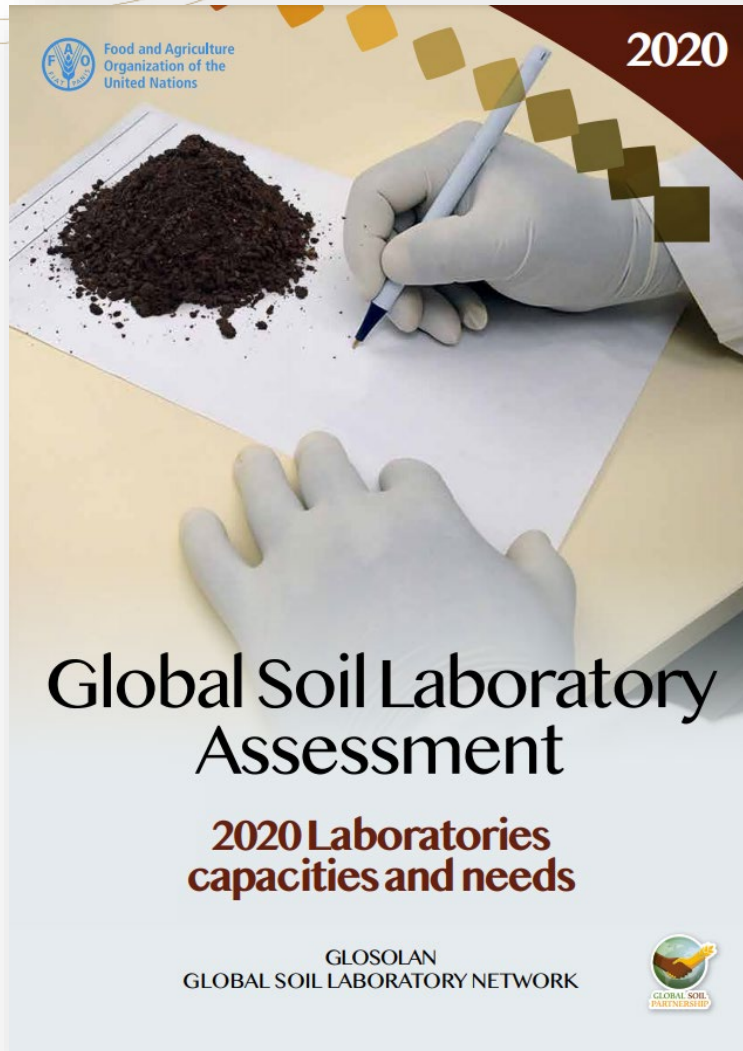
Thanks to the financial support of PhosAgro





GLOSOLAN Strategy:

4. Identification of laboratories' strengths and weaknesses



NERSH

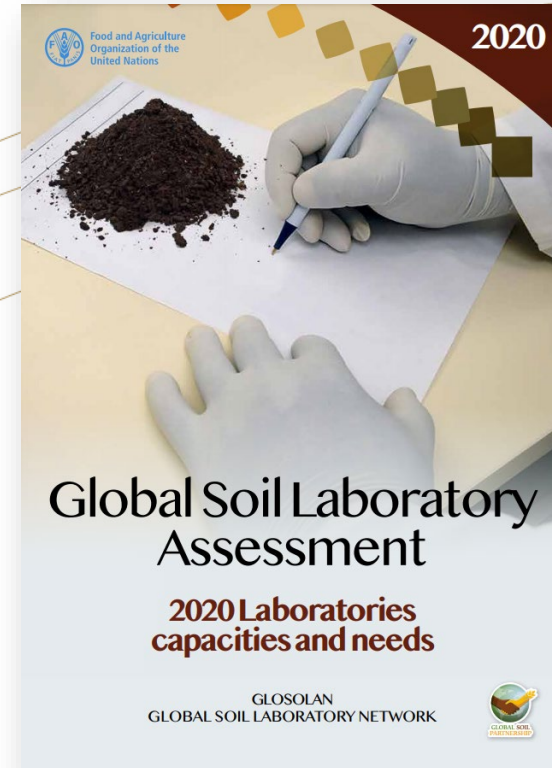
ember 2021



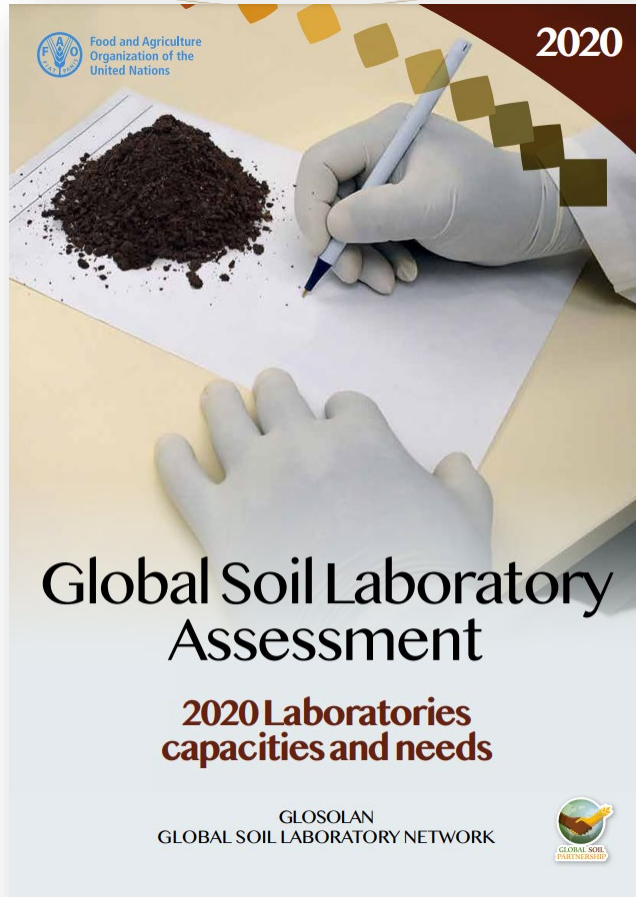


The reports (**available on the GLOSOLAN website**) present a UNIQUE overview of:

- the state of the art of the services provided by soil laboratories
- their available resources,
- the challenges they face and how they could be addressed in order to enhance the generation of reliable soil data for sustainable soil management.



Main findings...



- Survey completed by 241 laboratories in 142 countries
- The specific challenges faced by soil laboratories differ across the regions

AFRICA: need to **train staff**, get quality instruments and consumables, have better technical assistance services for the maintenance of analytical instruments. Labs do not meet international standards and do not implement quality control procedures

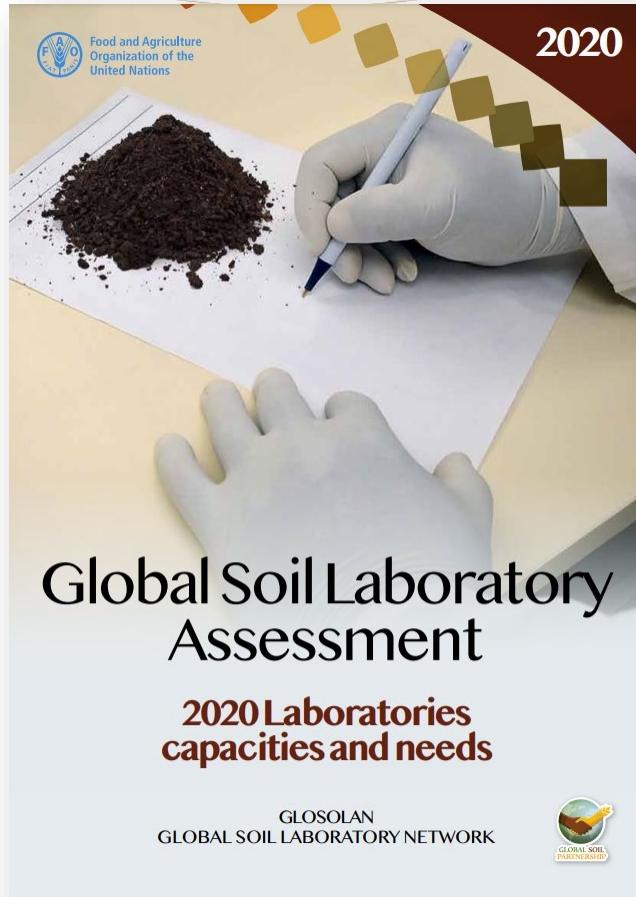
ASIA: need of **periodic training for laboratory staff** on the maintenance of laboratory equipment

EURASIA: need of **periodic training for laboratory staff**, get more after-sale services from manufacturers and distributors. Laboratory infrastructures need to be improved

EUROPE: a few countries reported to struggle meeting the country demand

LATIN AMERICA: need of **periodic training for laboratory staff**, improve laboratories' infrastructure and purchase good quality equipment

Main findings...



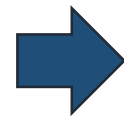
- The specific challenges faced by soil laboratories differ across the regions

NENA: need of better technical assistance by manufacturers and distributors, and improve analytical capacities to meet the country demand

NORTH AMERICA: need for **regular trainings** and harmonization of laboratories' procedures.

Note: only 1 laboratory completed the survey

PACIFIC: distance is an issue!!! Need of **regular trainings for staff**, to receive appropriate assistance by manufacturers and distributors, and to purchase and receive consumables in a timely manner



TRAINING STAFF
is the first need in most regions!!!

GLOSOLAN Strategy:

5. Monitoring the global reliability/comparability of the analytical results

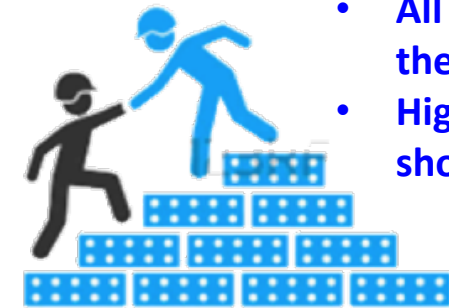
Proficiency testing (GLOSOLAN PT):

- 2018: Asia & Latin America 32 labs in 32 countries
- 2019: all regions 85 labs in 66 countries (4 soils)
- 2020: COVID-19
- 2021: all regions 280 labs in 150 countries (10 soils)

Know your
performance



- **First time that organize at such a large scale (number of labs, of countries and soils types)**
- **It will include research labs focusing on soil organic carbon stocks!**



- All labs should reach the highest steps;
- High performance labs should help the others



GLOSOLAN Strategy:

In 2021, laboratory's results will be submitted through the GLOSOLAN PT app.

The screenshot shows the GLOSOLAN platform interface. At the top, there is a blue header with the FAO logo and text on the left, the GLOSOLAN logo and 'Global Soil Laboratory Network Platform' in the center, and a 'Login' button on the right. The main content area is light blue and contains a welcome message: 'Welcome to the Global Soil Laboratory Network (GLOSOLAN) platform for the online submission of proficiency testing (PT) results'. Below this is a white box titled 'Unique Identification Code' containing a 10-digit PIN input field. Underneath the input field is the instruction: 'Fill in the PIN you received with the soil samples'. A warning message follows: 'Before proceeding, please make sure to have all your PT results at hand and in the right units of measure. Please note that you can submit your results only once. Once you submit the "COMPLETE" button, your results cannot be changed anymore.' At the bottom, there are logos for 'An initiative of' (GLOSOLAN and Global Soil Partnership) and 'Thanks to the financial support of' (PHOSAGRO).

2021



6. Act at all scales

GLOSOLAN Strategy:

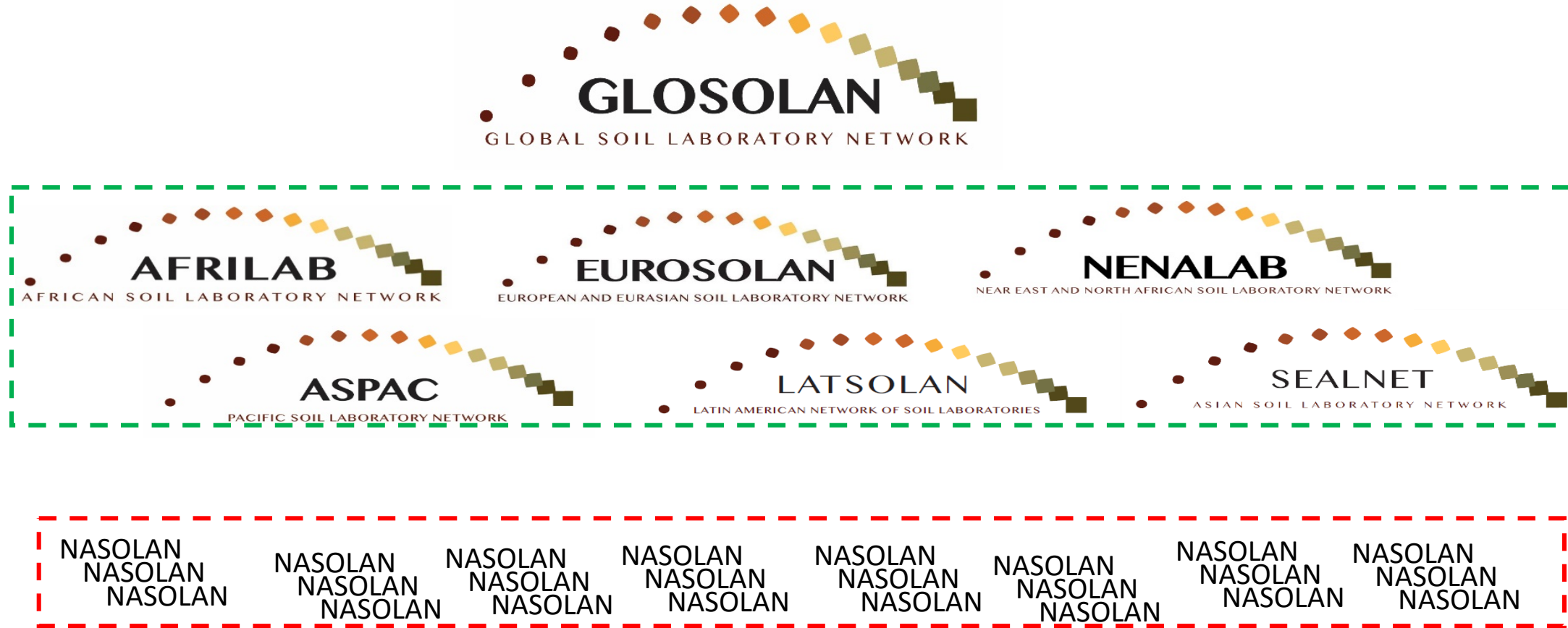
GLOBAL
objectives &
policy



REGIONAL
coordination



NATIONAL
extension

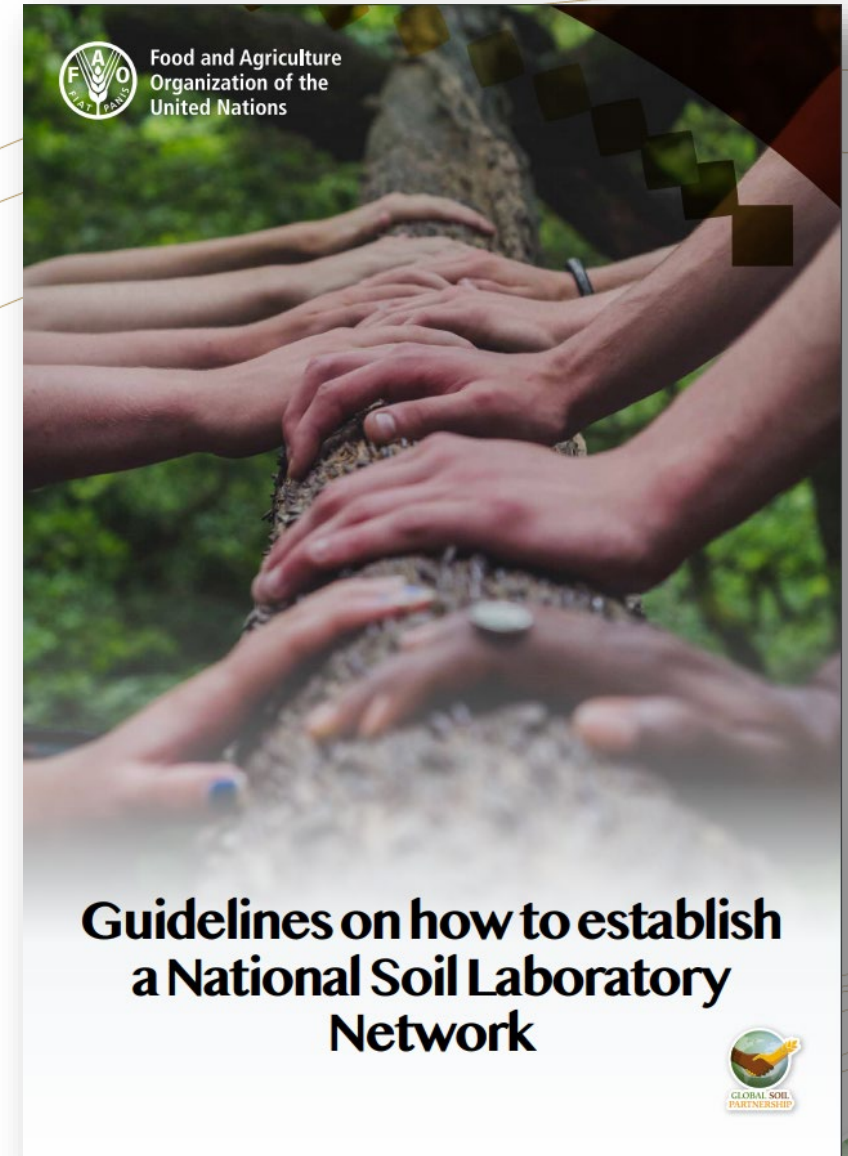


Each national focal point nominated a laboratory to serve as National Reference Laboratory (NRL).
(the NRL is tasked to establish the NASOLAN for its country.)

In 2021, GLOSOLAN paid great attention to the establishment of National Soil Laboratory Networks (NASOLANs).

- **Guidelines on how to establish a National Soil Laboratory Network**
- **NASOLAN's Terms of Reference**
- **NASOLAN's online database.** To learn about NASOLAN's history and activities in each country, NASOLAN's members and NASOLAN's main needs and challenges

<http://www.fao.org/global-soil-partnership/glosolan/national-soil-laboratory-networks/en/>



GLOSOLAN sub-networks:

GLOSOLAN Initiative on soil spectroscopy

Objectives:

1. Development of national capacities

- Trainings on national and regional soil spectral laboratories building
- The development of national and regional soil spectral libraries with its estimation service
- The provision of advisory services on suitable instrumentation

2. Development of a global soil spectral library and estimation service

- Continuously support the development of global soil spectral library and provide a freely available soil property estimation service at FAO/GSP platform
- Harmonize soil spectroscopy methods by developing standards and protocols





GLOSOLAN sub-networks:

GLOSOLAN Initiative on soil spectroscopy

Outcomes 2021:

Training programme:

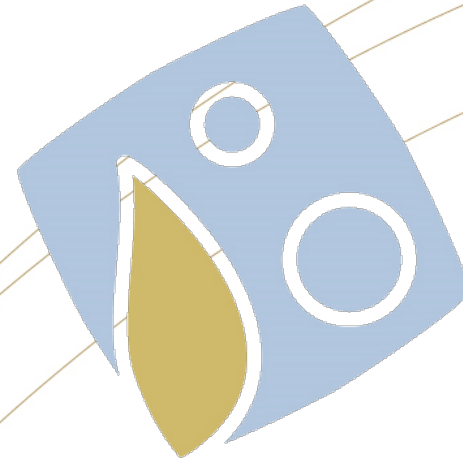
- **Six online webinars** have been organized starting from September 2021. More webinars will be scheduled in 2022
- **A series of spectral modelling video courses** will be available on the GLOSOLAN webpage by the end of 2021. Support partner: University of Sydney
- **Training material for beginner level** will be available on the GLOSOLAN webpage by end of 2021. Support partner: World Bank

Nine laboratories were identified to serve as regional hubs for training and capacity building



Food and Agriculture
Organization of the
United Nations

GLOSOLAN sub-networks



INFA

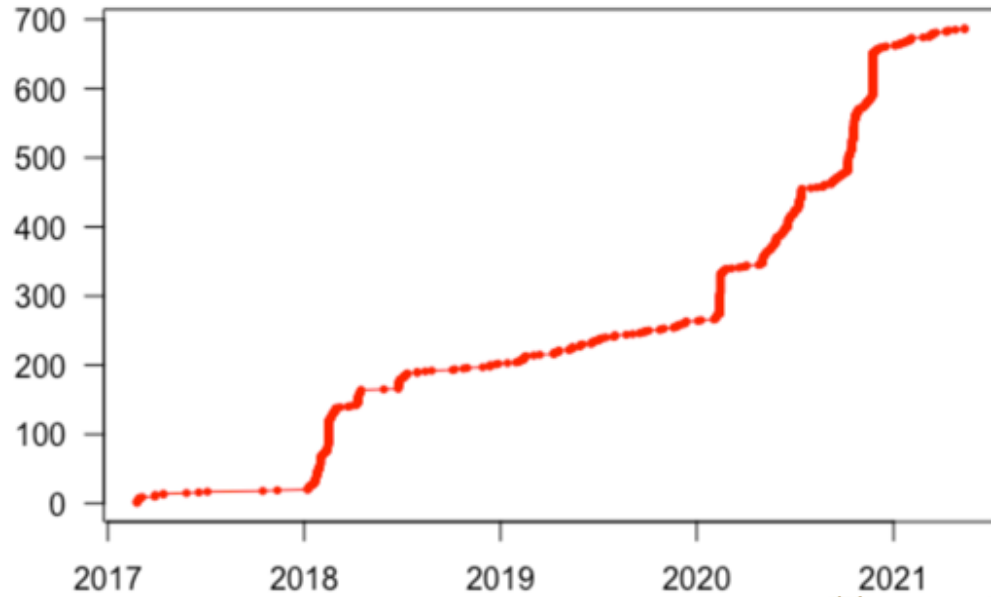
International Network
on Fertilizers Analysis

Launched in December 2020

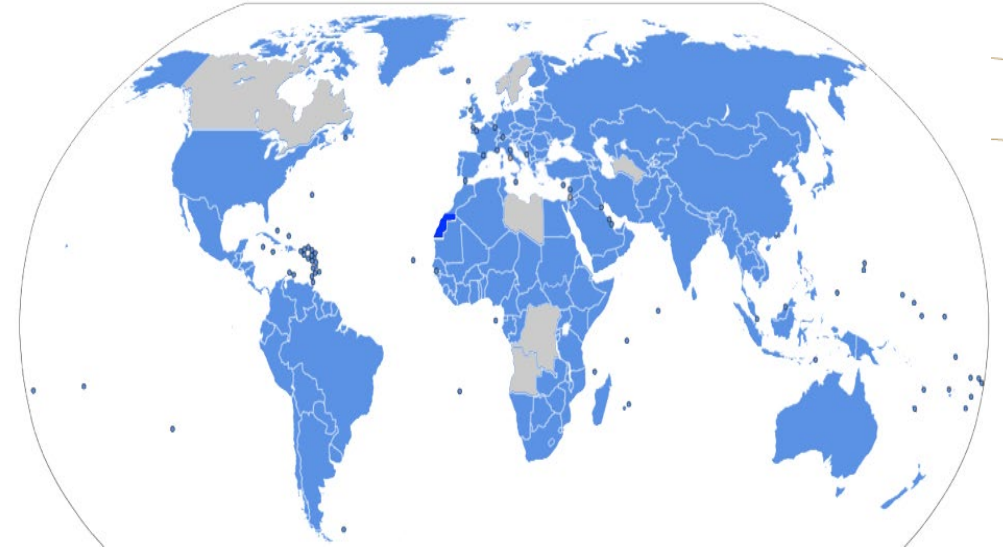
GLOBAL SOIL PARTNERSHIP 9th Plenary Assembly | 8 - 10 September 2021



Registered laboratories at GLOSOLAN



Countries involved in GLOSOLAN



GLOSOLAN connects about 700 labs in 150 countries

***...it helps you, the GSP members,
to make informed decisions for the
sustainable management of soil resources
worldwide***

GLOBAL SOIL PARTNERSHIP 9th Plenary A



For the kind attention of the 9th GSP Plenary Assembly

- **Be aware** on the important role of soil laboratories in producing reliable and comparable soil data
- **Support** the establishment of National Soil Laboratory Networks
- **Promote** the implementation of (open access) **GLOSOLAN SOPs** at your national level:
 - *Provide support for the translation of the SOPs into national/local languages*
 - *Provide support for producing video training*
- **Provide as much support as possible** to your soil laboratories:
 - *Check on the **quality of your national soil and support them if necessary** (equipment, consumables, facilities and staff number and training)*
 - *Make your country becoming a GLOSOLAN's soil sample provider*
 - *Help implementing the "Resolution on the international exchange of soil samples for research purposes under GLOSOLAN"*

For the kind attention of the 9th GSP Plenary Assembly

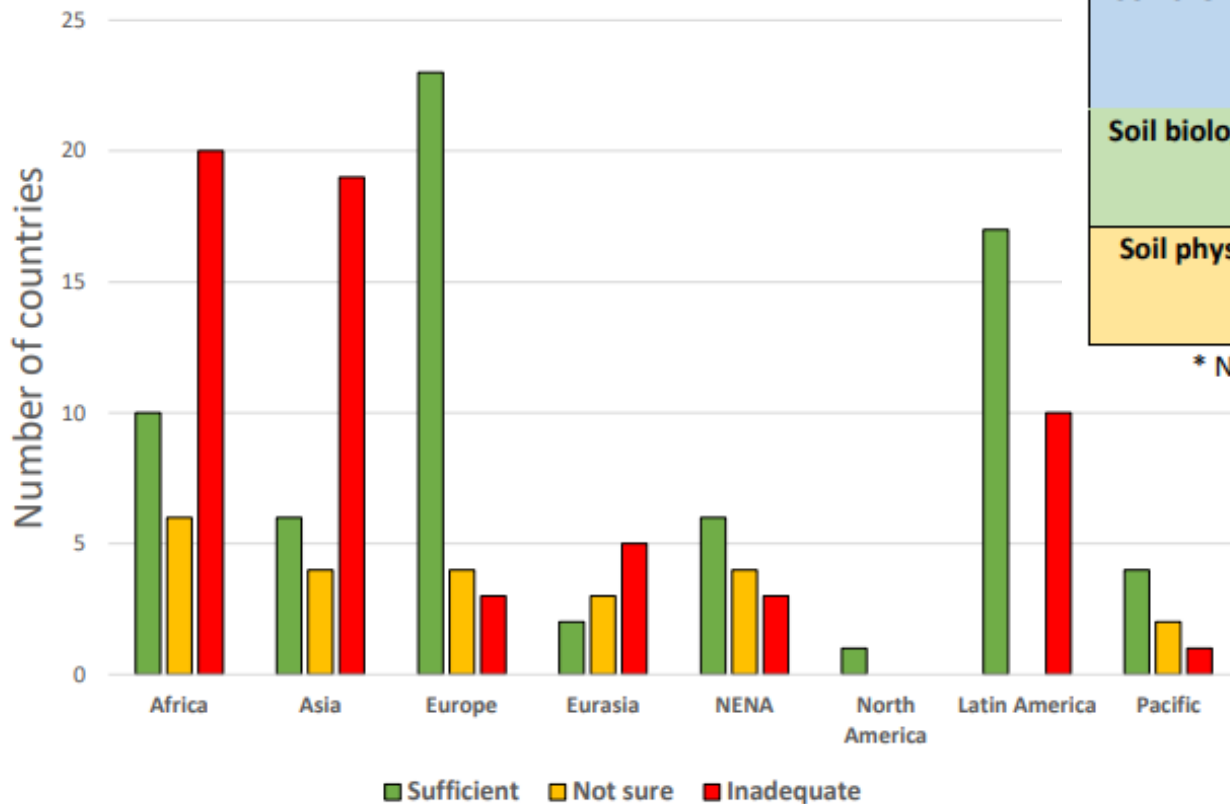
- Financially support GLOSOLAN as a mean to increase national and regional analytical capacities

Table 3. Type soil analysis performed by laboratories at regional level (numbers indicate the number of laboratories)

	Africa	Asia	Eurasia	Europe	Latin America	NENA	North America	Pacific
Total number of countries completing the survey	35	19	10	30	27	13	1	7
Soil chemical analysis	35	19	10	30	26*	13	1	7
Soil biological analysis	12	9	5	16	6	9	1	5
Soil physical analysis	29	13	9	24	20	12	1	7

* Note: the Bahamas did not reply this question

Analytical Capacity vs Country Demand



SHIP 9th Plenary Assembly | 8 - 10 September 2021





Food and Agriculture
Organization of the
United Nations

GLOBAL SOIL PARTNERSHIP 9th Plenary Assembly

THANKS FOR YOUR ATTENTION

8 - 10
September
2021

VIRTUAL
MEETING



GLOBAL SOIL
PARTNERSHIP



Main findings...



- **Laboratories expect support on starting soil spectral measurements and on improvement of their current soil spectral measurements from GLOSOLAN and the RESOLANs, and they want to join the initiative.**
- **Laboratories measure VNIR and MIR ranges for diffuse reflectance soil spectroscopy; efforts should therefore focus on both.**
- There is a **clear demand for:**
 - improvement of the quality of measurements and spectral modelling;
 - a standardized soil spectral calibration library;
 - harmonization of methods;
 - training and tools;
 - soil spectral data sharing; and
 - a community effort on all of this, led by GLOSOLAN.
- **Sharing and using shared soil spectroscopy data is welcomed by most, although the ability to do so is not always present.**