Organización de las Naciones Unidas para la Alimentación y la Agricultura

Herramientas técnicas y financieras para valorizar el potencial productivo y ambiental de los suelos en Latinoamérica y el Caribe

Webinar

4-8-9 de Junio 2021

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Organización de las Naciones Unidas para la Alimentación y la Agricultura

Introduction to the Global Soil Doctors Programme

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Herramientas técnicas y financieras para valorizar el potencial productivo y ambiental de los suelos en Latinoamérica y el Caribe
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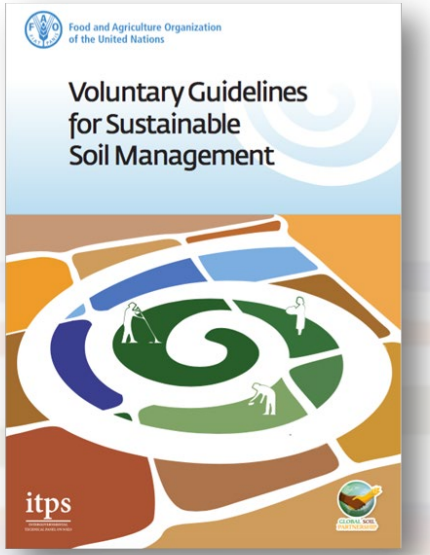
The Global Soil Doctors programme

- Farmer-to-farmer training programme aimed at:
  - Building the capacity of farmers on soils and sustainable soil management;
  - Supporting governmental agencies and organizations working on agricultural extension in the field;
  - Providing a platform to share soil extension tools

What is it?


Food and Agriculture Organization of the United Nations
Voluntary Guidelines for Sustainable Soil Management
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Food and Agriculture Organization of the United Nations
1
WHAT IS
the Soil Doctors global programme
FARMERS
A FARMER-TO-FARMER TRAINING PROGRAMME TO PROMOTE THE PRACTICE OF SUSTAINABLE SOIL MANAGEMENT, AND TO COVER THE LACK OF EXTENSION SERVICES
SOIL DOCTORS
Training and assistance
Selection of the Soil Doctors. Feedback on the programme
Can provide:
• Training
• Educational material
• Soil testing kit
• Uniforms
• Agricultural inputs
• Other
Feedback on the programme and provision of soil data
Feedback on the programme
GLOBAL SOIL PARTNERSHIP
Support the local implementation of the programme (implementation manual, soil testing methods manual and educational material)
PROMOTER AT THE COUNTRY LEVEL

The Global Soil Doctors programme

Potential 2: to support a **self-sufficient system** that will promote sustainable soil management and optimize available national resources

How does it work?

1. FAO identifies the national promoters (Institutions)

2. The GSP provides promoter's training — GSP certificate

3. Soil Doctor trainers train the farmers

4. Champion farmers are identified (Soil Doctors) — Soil Doctor Certificate

5. Soil Doctors train farmers in their community

1. FAO identifies the national promoters (Institutions)

Electronic questionnaire

- English: 168
- Spanish: 52
- French: 22

Funding sources for extension work

- Majority: government funded or needs external funding
- Rolling out the Soil Doctors will probably require funding support

Does extension include soil?

- Many instances where soil is included in extension work
- Often more focus on fertilization

2. The GSP provides promoter's training

GSP certificate

Training of trainers: Farmer Field Schools model

Domain of learning
Technical
Practical
Empowerment/emancipation

- 4 Weeks' training – 1 topic per week
  - Short theory lessons (about 20 minutes)
  - Longer practical exercises (about 1 hour each)

Toolkit: Training and soil testing kit

Herramientas técnicas y **financieras** para **valorizar** el **potencial productivo** y **ambiental** de los **suelos** en **Latinoamérica** y el **Caribe**

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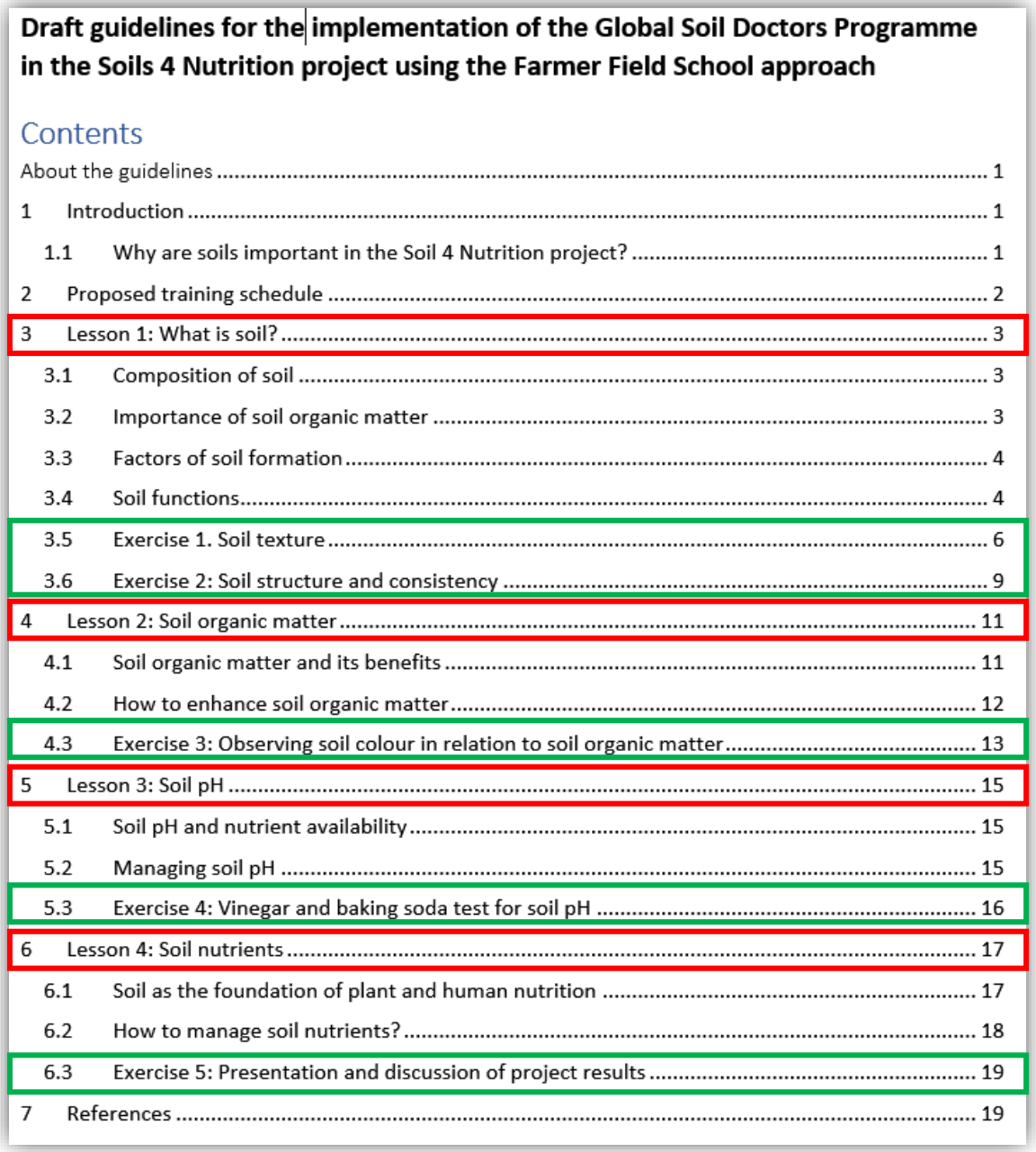
What is the interest of the soil testing kits?

- Consider criteria for soil testing kits depending on their purpose
- Countries to select kits based on local needs, context, availability

Soil Doctors Programme training material

- Training guidelines developed
- Sample module consisting of 4 lessons



Draft guidelines for the implementation of the Global Soil Doctors Programme in the Soils 4 Nutrition project using the Farmer Field School approach

Contents

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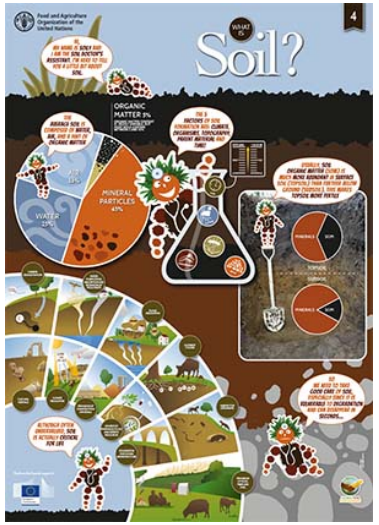
Soil Doctors Programme training material

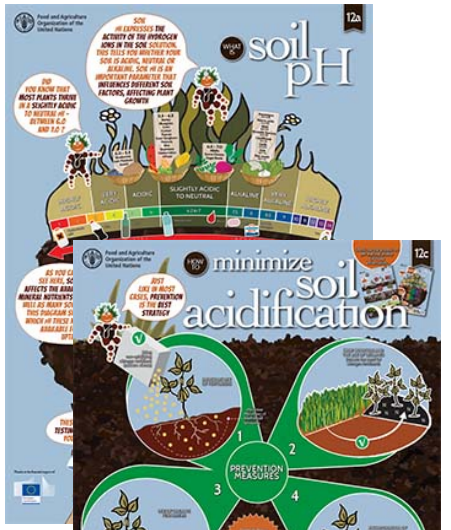
- Guidelines are based on the Soil Doctors training materials:
  - Posters

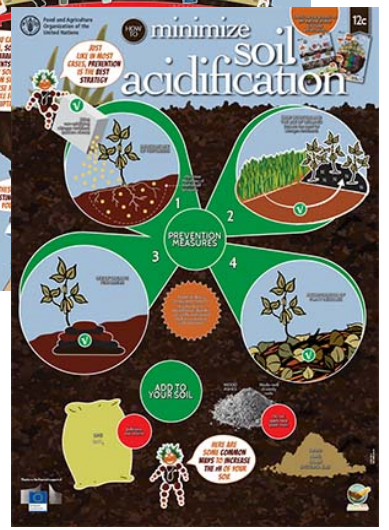
Lesson 1: What is soil?



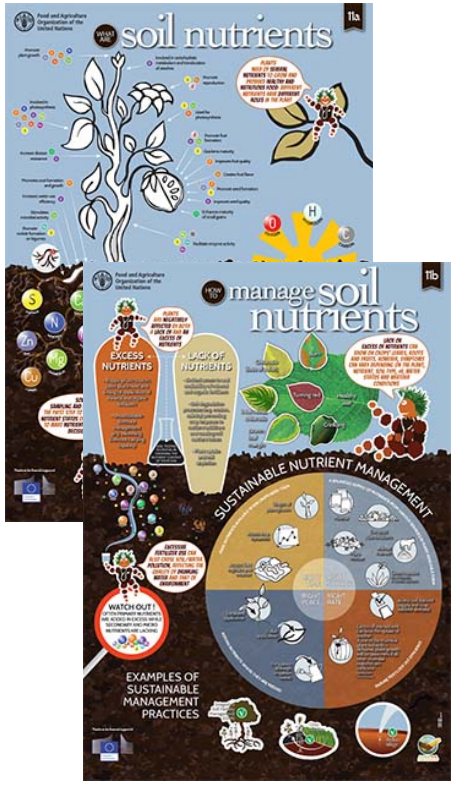
Lesson 2: Soil organic matter

Lesson 3: Soil pH





Lesson 4: Soil nutrients



Guidelines provide the script/text for the posters –
can be translated into local languages

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Soil Doctors Programme training material

- Guidelines are based on the Soil Doctors training materials:
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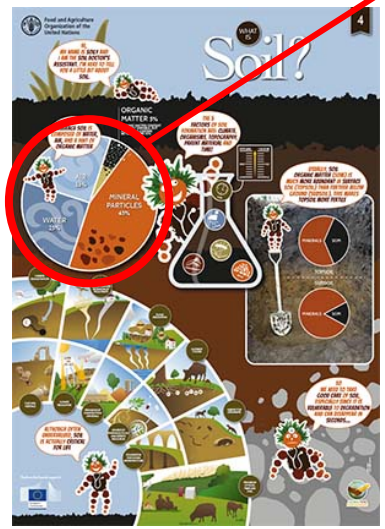
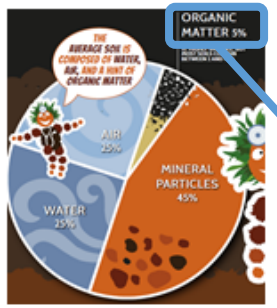


3.1 Composition of soil



Soil is a complex mixture of:

MINERAL PARTICLES (45%) mainly defined by the proportion of sand, silt, and clay. The combination of sand, silt and clay in a soil is referred to as soil texture.	ORGANIC MATTER (5%) which includes the soils' biological communities and the plant and animal residues at different levels of decomposition (from fresh active residues to the more degraded and stable organic matter).	WATER (25%) which is an essential element for plant growth and in many cases a limiting factor for agriculture and crop production. Water is the vehicle for nutrients in the soil.	AIR (25%) which affects the availability of many nutrients. Soil air is needed by roots and by many macro and microorganisms that release plant nutrients to the soil.

Guidelines provide the script/text for the posters –
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Soil Doctors Programme training material

- Guidelines are based on the Soil Doctors training materials:
  - Posters

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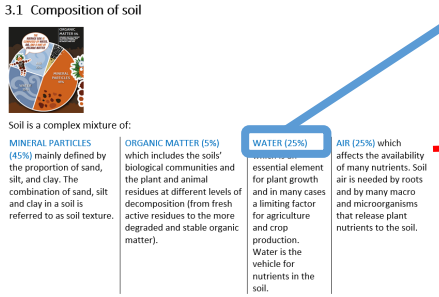

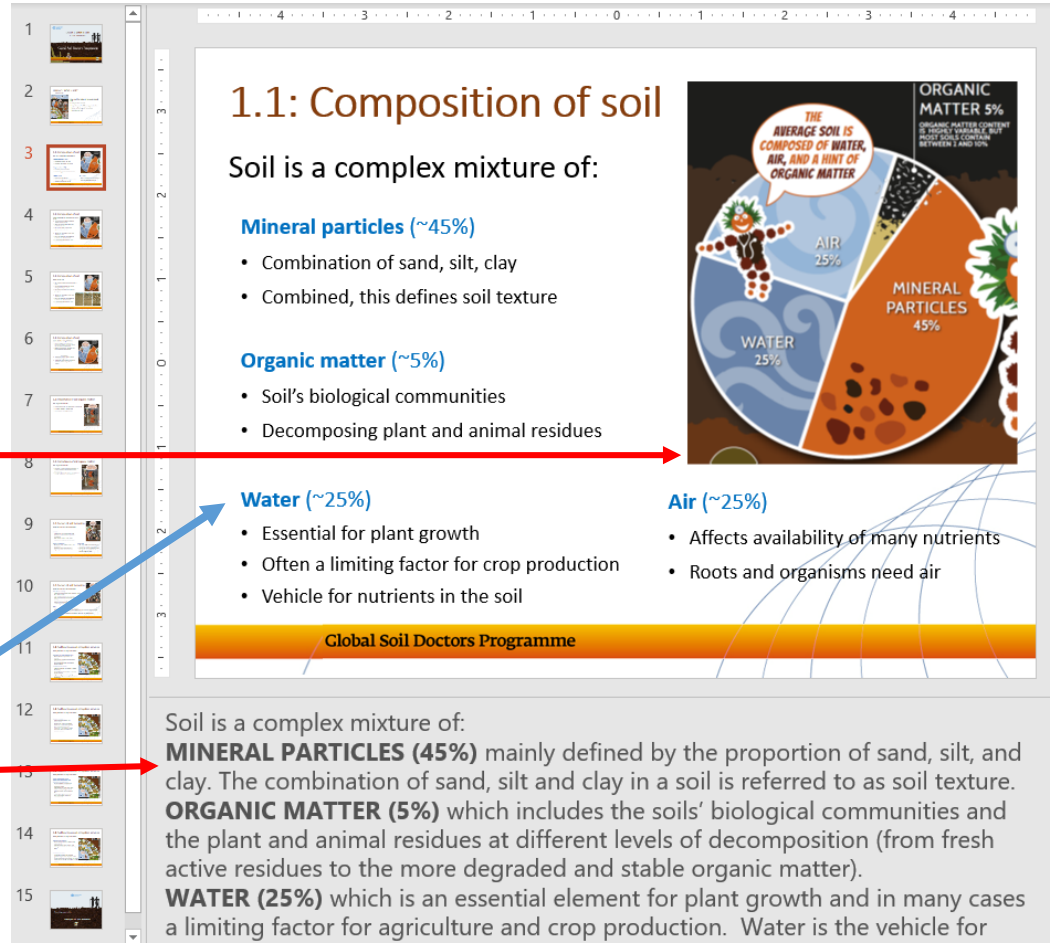

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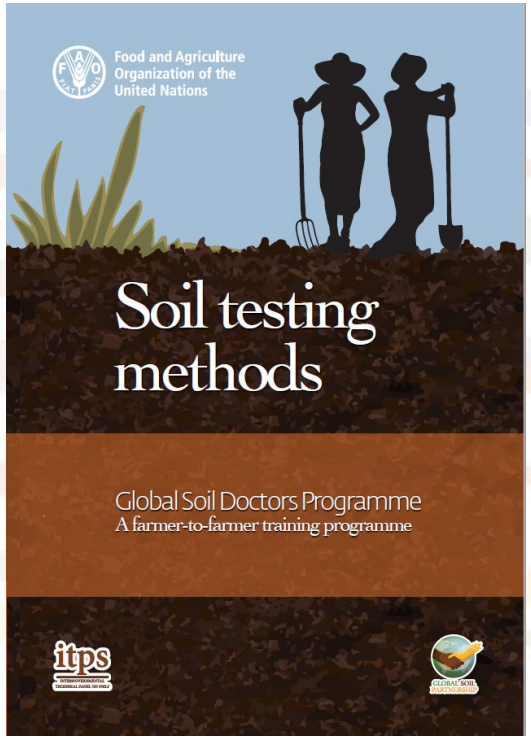
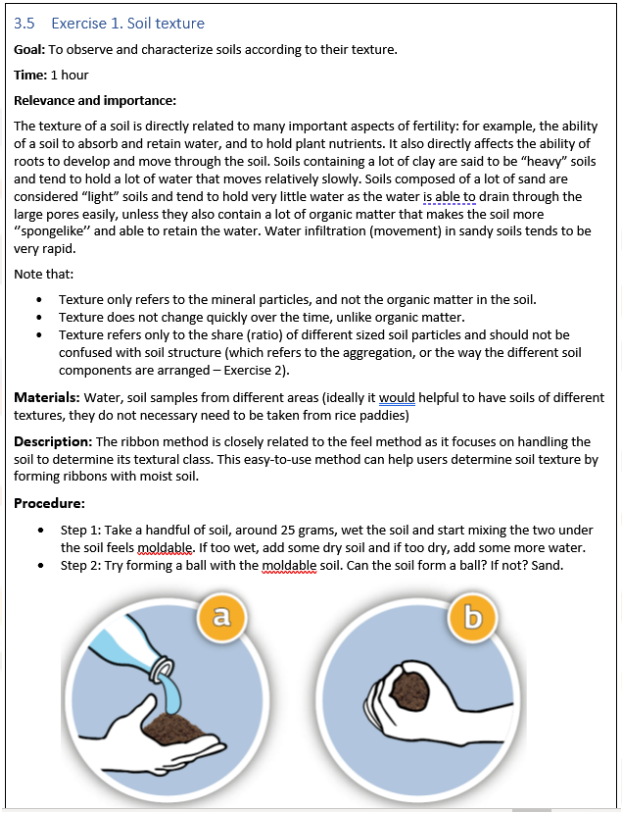
Soil Doctors Programme training material

- Guidelines are based on the Soil Doctors training materials:
  - Exercises from the soil testing methods





3.5 Exercise 1. Soil texture

Goal: To observe and characterize soils according to their texture.

Time: 1 hour

Relevance and importance:

The texture of a soil is directly related to many important aspects of fertility: for example, the ability of a soil to absorb and retain water, and to hold plant nutrients. It also directly affects the ability of roots to develop and move through the soil. Soils containing a lot of clay are said to be "heavy" soils and tend to hold a lot of water that moves relatively slowly. Soils composed of a lot of sand are considered "light" soils and tend to hold very little water as the water is able to drain through the large pores easily, unless they also contain a lot of organic matter that makes the soil more "spongelike" and able to retain the water. Water infiltration (movement) in sandy soils tends to be very rapid.

Note that:

- Texture only refers to the mineral particles, and not the organic matter in the soil.
- Texture does not change quickly over the time, unlike organic matter.
- Texture refers only to the share (ratio) of different sized soil particles and should not be confused with soil structure (which refers to the aggregation, or the way the different soil components are arranged – Exercise 2).

Materials: Water, soil samples from different areas (ideally it would helpful to have soils of different textures, they do not necessary need to be taken from rice paddies)

Description: The ribbon method is closely related to the feel method as it focuses on handling the soil to determine its textural class. This easy-to-use method can help users determine soil texture by forming ribbons with moist soil.

Procedure:

- Step 1: Take a handful of soil, around 25 grams, wet the soil and start mixing the two under the soil feels moldable. If too wet, add some dry soil and if too dry, add some more water.
- Step 2: Try forming a ball with the moldable soil. Can the soil form a ball? If not? Sand.

Questions to facilitate discussion:

- How does soil texture affect crop growth?
- What is the texture of the good and bad local soil?
- What are the advantages and disadvantages of growing crops on clay soils?
- What are the advantages and disadvantages of growing crops on sandy soils?

Proposed training schedule:

- 4 Weeks training – 1 topic per week

Week	Activities
Week 1	Theory Lesson 1: What is soil?
	2 Exercises: Soil texture, Soil structure and consistency
Week 2	Theory Lesson 2: Soil organic matter
	1 Exercise: Observing soil colour related to soil organic matter
Week 3	Theory Lesson 3: Soil pH
	1 Exercise: Vinegar and baking soda test for soil pH
Week 4	Theory Lesson 4: Soil nutrients
	1 Exercise: **Present and discuss project results**

Potential 1: to provide **continuity** and **dissemination of sustainable soil management** after the end of projects.

2. The GSP provides promoter's training

GSP certificate

Training of trainers: Farmer Field Schools model

Domain of learning
Technical
Practical
Empowerment/emancipation

- 4 Weeks' training – 1 topic per week
  - Short theory lessons (about 20 minutes)
  - Longer practical exercises (about 1 hour each)
- Trainers develop materials for additional modules based on the available examples

3. Soil Doctor trainers train the farmers

4. Champion farmers are identified (Soil Doctors) — Soil Doctor Certificate

5. Soil Doctors train farmers in their community

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Way forward

- Living program: feedback will allow for the improvement of the existing material, and all different themes and soil threats will be explored in depth;
- Translation into local languages;
- Pilot implementation → upscaling of the programme.

The Global Soil Doctors programme

For more information on the programme, you can visit the dedicated page on the Global Soil Partnership website

http://www.fao.org/global-soil-partnership/pillars-action/2-awareness-raising/soil-doctor/en/

Please contact the GSP at:

Soil-doctor@fao.org

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