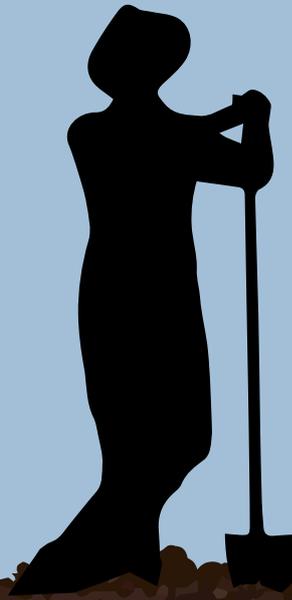




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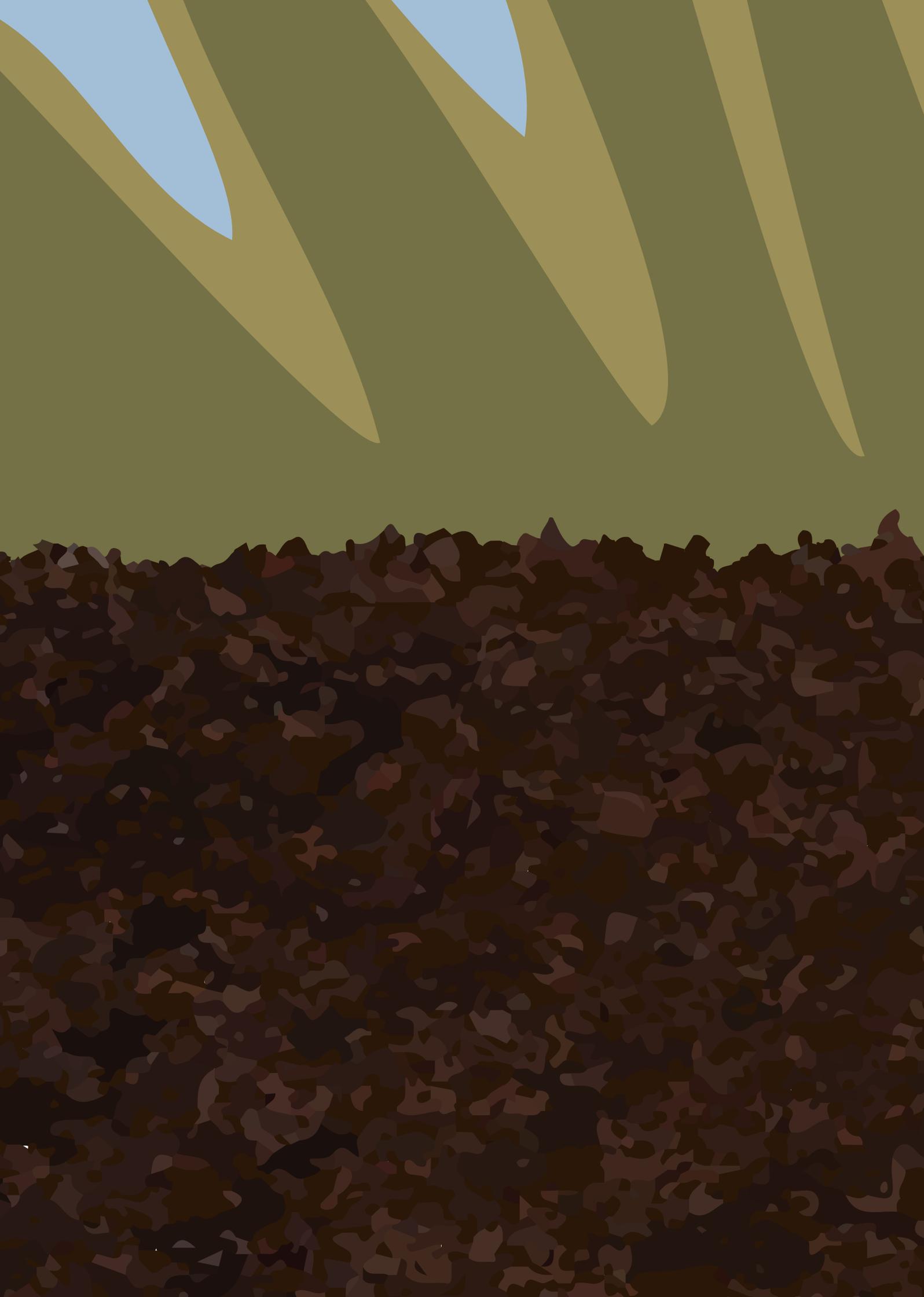
Manual for the implementation of the Soil Doctors Global Programme at the country level

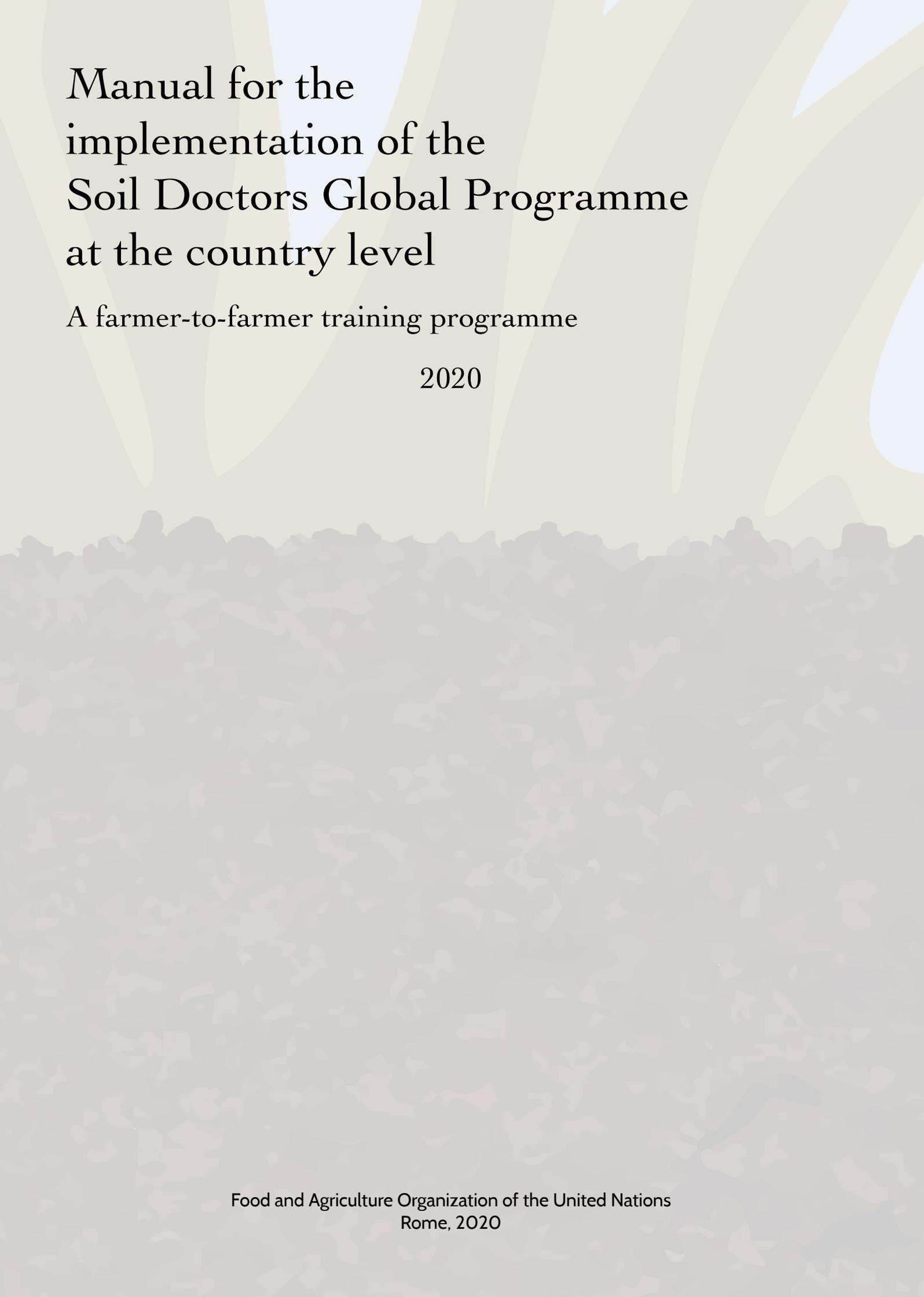
A farmer-to-farmer
training programme

2020

MANUAL







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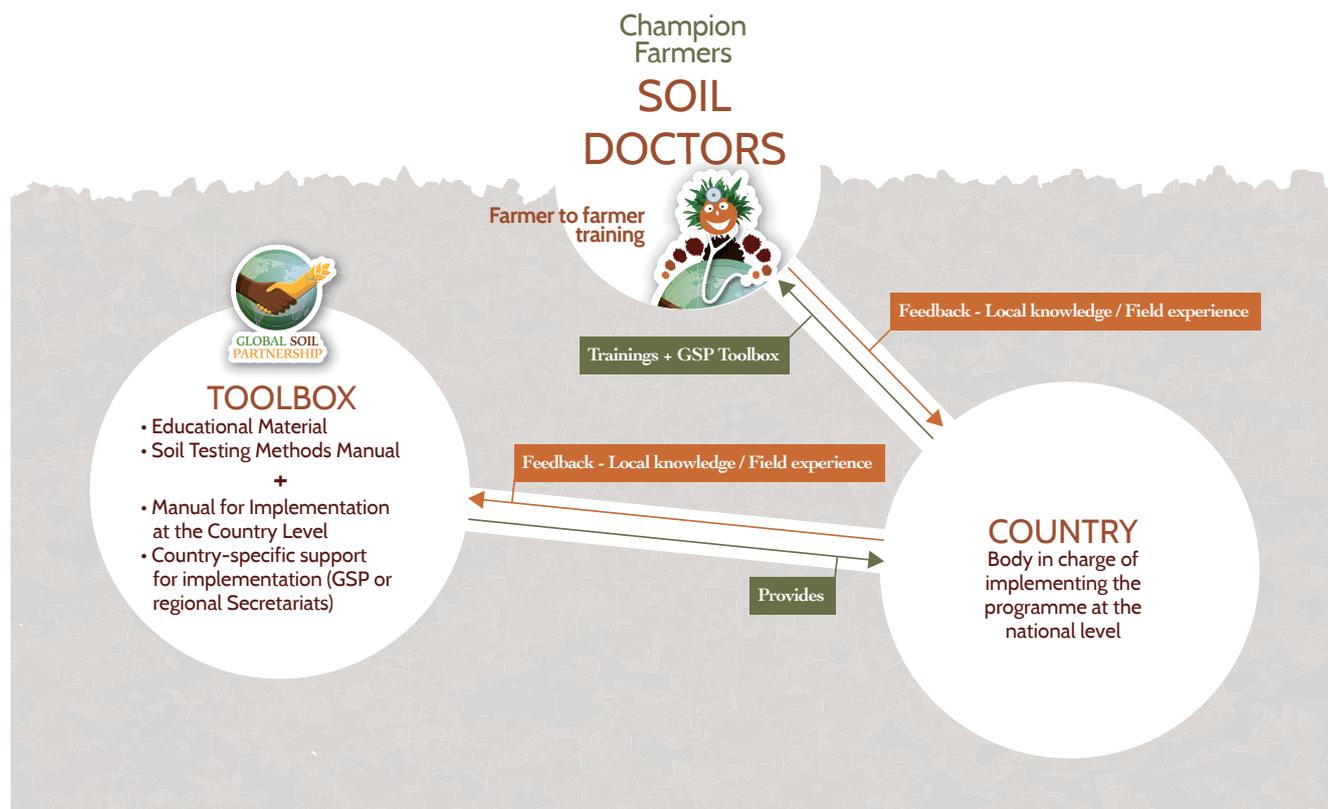
Background and rationale

The Global Soil Partnership (GSP) was established in 2012 as a mechanism to develop a strong interactive partnership, and, enhanced collaboration and synergy of efforts between all stakeholders involved with soils. One of the key objectives of the GSP is to improve soil governance and to promote sustainable soil management. The GSP has been advancing in accomplishing its mandate of improving soil governance as a way to safeguard agricultural productivity and food security through sustainable soil management and the resulting ecosystem services. This is done through the use of five different pillars of action.

The Global Soil Doctors programme was developed under the umbrella of the GSP as part of the Implementation Plan for Pillar 2 on encouraging investment, technical cooperation, policy, education, awareness, and extension in support of soil resources. By promoting the establishment of a farmer-to-farmer training system, the Global Soil Doctors Programme aims to build the capacity of smallholder farmers on the practice of sustainable soil management and, by doing so, support governmental agencies and organizations working on agricultural extension at the field level (promoting broader impact and cost reduction). Trainings will also rely on the establishment of demonstration areas and experimental fields by the Soil Doctors, which might attract the interest of research institutes and universities involved in the programme. This would ultimately support research activities and strengthen the link between academia/science and farmer practices. This programme

ultimately also aims to educate farmers on soil science principles for practices of sustainable soil management and aims to achieve this by providing them with a set of tools including educational material, a soil testing methods manual (STMM) and a soil testing kit (STK) for preliminary soil analyses. The STMM is a collection of easy to use, soil analysis procedures provided as a way to superficially test soils in the absence of a soil laboratory. The programme was developed by the GSP with the support of several countries as a response to an expression of interest (by member countries) on appropriate and sustainable soil management practices. However, it is open to updates on the methods for assessing soil parameters in the STMM, and to contributions for the development of new educational material based on regional or local needs. The programme is developed as a two-way learning and exchange process in which the GSP provides countries with an initial set of tools for distribution to farmers, followed by the countries providing the GSP with feedback on the programme building on practical experiences and local knowledge (Figure 1). In this way, countries that only recently joined the programme and were not involved in its development, can still provide the GSP with their input and contribute to the programme's further development. Additionally, the programme will be enriched with real life field experiences, and will evolve to potentially support smallholder farmers in all climatic and agro-ecological zones and productive systems. Regular updates will also allow for the inclusion of new technologies and methods in the programme.

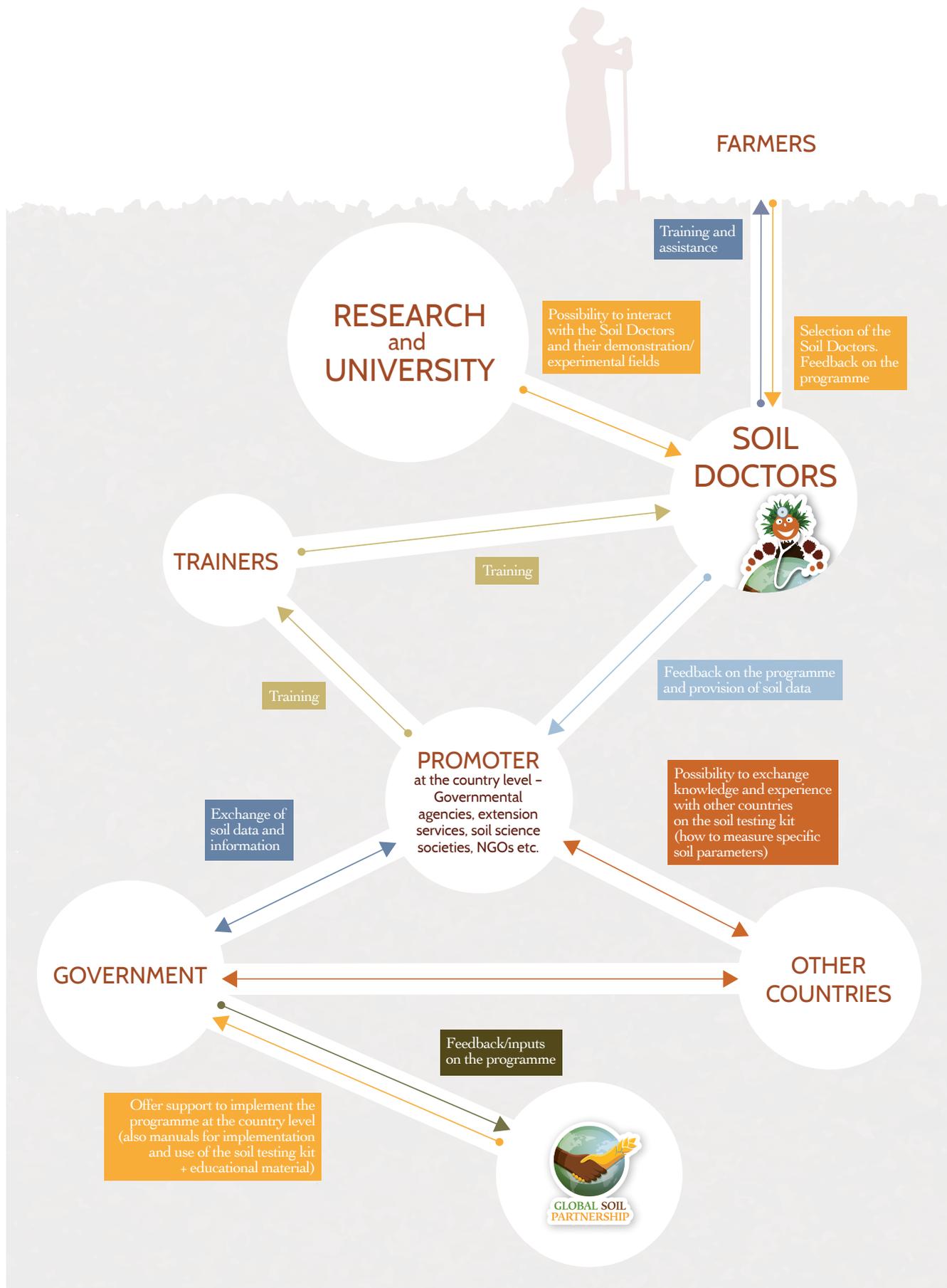
Figure 1 Two-way learning and exchange process



The success of the programme strongly relies on the collaboration of different partners including governmental agencies, extension services, soil science societies and non-governmental agencies (NGOs) with the GSP because of the need to distribute the educational materials and the eventual material needed to assess soil conditions, and to train smallholder farmers on the use of these tools. These bodies will however represent their

country in the programme, sending feedback on how to improve it in relation to national needs, and sharing information on the development of new educational material for global distribution. This exchange of information will also promote cross-regional, technical and scientific cooperation. The relationships between the main stakeholders involved in the programme are illustrated in Figure 2.

Figure 2. Interrelation between the main stakeholders involved in the programme.



The programme is on a volunteer basis and could be adopted partially based on the needs. Each country can choose items or activities based on their needs and ask the

GSP Secretariat or its regional Secretariats for implementation support at the country level. This is also to facilitate the integration of the programme into similar initiatives already under

implementation at the country level. In this context, the programme is to support national activities on sustainable soil management. This document aims to provide information on the programme and general guidelines for assisting countries in its implementation. Furthermore, the GSP Secretariat or its regional Secretariats will offer support to participating countries for the implementation of the programme and its integration into any existing ongoing related activities.

Scope of the programme

The execution of the programme builds on the identification of champion farmers (referred to as Soil Doctors) to educate other farmers in their community on soil science principles and to train them on the practice of sustainable soil management. This programme is based on the Soil Doctors initiative of Thailand, which successfully reached and trained thousands of farmers. This concept would create a self-sufficient system that would promote the practice of sustainable soil management in the absence and independently from the availability of national subsidies and/or financial resources.

The objectives of the programme are:

- To establish a farmer-to-farmer training system by building the capacity of smallholder farmers on the practice of sustainable soil management;
- To support the efforts of governmental agencies and organizations working on agricultural extension at the field level;
- To support field research based on interactions between the Soil Doctors and universities and research institutes, including access to demonstration and experimental fields; and
- To promote the concept of soil testing prior to recommendations on soil management (see the Soil Testing Methods Manual).

Reasons for joining the programme

The programme is aimed to support national governments and stakeholders working with farmer communities in building the capacity of smallholder farmers for sustainable soil management.

By providing the Soil Doctors with a set of tools for training other farmers in their community, the programme will significantly assist governmental agencies, extension service organizations and others. Additionally, the programme will allow farmers to make immediate and responsible decisions on soil management.

The promoter of the programme at the country level will also have the possibility to initiate technical and scientific collaborations with partners joining the programme within and outside national borders. The process will be facilitated and assisted by the GSP or its regional Secretariats. The promoters can include governmental agencies, extension services, soil science societies, NGOs or the private sector.

A detailed list of benefits for the main stakeholders involved in the programme is provided below.

Benefit(s) for the promoter(s) joining the programme

- They will reduce the costs for assisting smallholder farmers and rural communities in their daily work;
- They will be provided with high quality educational material to use for training on the practice of sustainable soil management;
- They will strengthen their relations with smallholder farmers and rural communities;
- They will strengthen their relations with the GSP and its regional Secretariats; and
- They will have the opportunity to collaborate with other partners in the partnership within and outside country and regional borders (cross-regional technical and scientific collaboration).

Benefit(s) for the Soil Doctors joining the programme:

- They will become reference sources on soil management within their local communities;
- They will benefit from the incentives provided to them by the promoter(s) (see section on incentives);
- They will receive special trainings aimed to increase their knowledge on soil and the practice of sustainable soil management by the promoter(s) of the programme;
- They will be able to make immediate decisions in the field by putting into practice the methods in the STMM manual (to be put at the service of their community); and
- They will strengthen their relations with the promoter, increasing their ability to request and report the needs of their community.

Benefit(s) for the farmers relying on the Soil Doctors

- They can rely on the assistance of a trusted member of their community, the Soil Doctor, for improving their farming system and the quality/productivity of their soils. This will ultimately lead to increasing their food security (quantity and quality of the harvest);
- They will receive trainings aimed to increase their knowledge on soil and the practice of sustainable soil management by their Soil Doctor; and
- Through their Soil Doctor, they will have a preferential channel to communicate with the promoter(s), particularly with regard to their needs.

Benefit(s) for the GSP in developing and promoting the programme

- The programme will contribute to achieving the five strategic objectives of the FAO;
- The programme will contribute to executing activities on education, awareness raising and technical and scientific cooperation under Pillar 2 and Pillar 3 of the GSP;
- The programme will contribute to strengthening the relations between the

GSP and its partners, including national governments; and

- The programme will contribute to increasing the awareness of smallholder farmers and rural communities on the work of the GSP and potentially commit them to join other GSP-promoted activities.

The Global Soil Doctors Programme

Many governments, extension services, soil science societies and NGOs worldwide have been promoting programmes and initiatives with the objective to support farmers in their daily work by, for instance, providing them with trainings on a wide range of agriculture-related topics and assistance including soil analysis. The support offered by these agencies varies greatly from country to country, depending on the availability of financial resources and personnel. In this context, the Global Soil Partnership (GSP) of the FAO wished to develop a global programme to support countries in addressing the needs of their rural communities while preserving the soil from degradation and restoring soils that are already degraded.

By taking inspiration from the Volunteer Soil Doctors programme developed by Thailand, the GSP worked in developing the herewith presented programme. The programme relies on the identification of champion farmers called Soil Doctors, for training other farmers in their community on the practice of sustainable soil management for achieving food security and adapting to and mitigating climate change. It is the responsibility of the promoter of the programme at the country level to identify and train the Soil Doctors.

Role of the promoter(s) of the programme at the country level (governmental agencies, extension services, soil science societies, NGOs, etc.)

Promoter(s) of the programme at the country level are asked to:

- Identify potential Soil Doctors (champion farmers);
- Provide Soil Doctors with the equipment needed to assess soil conditions as per the chosen soil testing method for distribution to the local Soil Doctors, and the educational material needed for the implementation of the programme.
- Train the Soil Doctors on the use of the STMM and the educational materials developed by the GSP;
- Integrate the knowledge in the STMM and the educational material developed by the GSP with that related resources already present at the country level;
- Facilitate the exchange of information between the GSP and the Soil Doctors, e.g. inform the GSP Secretariat about field experiences and local knowledge;
- Provide Soil Doctors with incentives for complying with their role (see section on Incentives); and
- Provide trainings to the Soil Doctors as needed.

Role of the Soil Doctors within their communities

The Soil Doctors are asked to:

- Attend the trainings provided by the promoters;
- Carry out public relation activities such as making announcements, delivering messages to farmers, inviting farmers to participate in study tours, workshops and other events on behalf of the promoter(s);
- Support farmers to practice sustainable soil management and to restore degraded soils: e.g. give basic recommendations and answers to possible questions they may receive from farmers;
- Assist farmers in analyzing their soils using the methods provided in the STMM;
- Practice sustainable soil management on their land and be service centers for information and technology transfer especially through demonstrational plots for farmers in their administrative area of competence;
- Provide data and information on soil quality to the promoters in order to facilitate soil

- quality monitoring activities;
- Share their local knowledge and experience with the promoters who will then share them with the GSP to improve the programme; and
- Assist each other in complying with their role.

Role of the Global Soil Partnership (GSP)

The GSP Secretariat is asked to:

- Develop the educational materials for the trainings;
- Update the STMM as relevant;
- Assist countries in implementing the programme at the national level;
- Maintain communication with the national government and the promoters of the programme at the country level; and
- Review the guidelines for implementing the programme at the country level and revise based on the feedback received by participating countries.

Selection of the Soil Doctors

Farmers joining the Soil Doctors Global programme should be identified as a group of excellence by their community. Based on that, only farmers that meet certain criteria can become Soil Doctors. Candidates to the position of Soil Doctors should:

- Be in good health;
- Have access to land;
- Be willing to coordinate or host demonstration plots under their direct control or that of cooperating farmers;
- Be at least 20 years old;
- Be willing to work;
- Be interested in land development activities;
- Reside in areas of interest for the programme and promoters;
- Be willing to share the inputs provided by the promoter(s) with other farmers; and
- Be willing to join the trainings provided by the promoter(s).

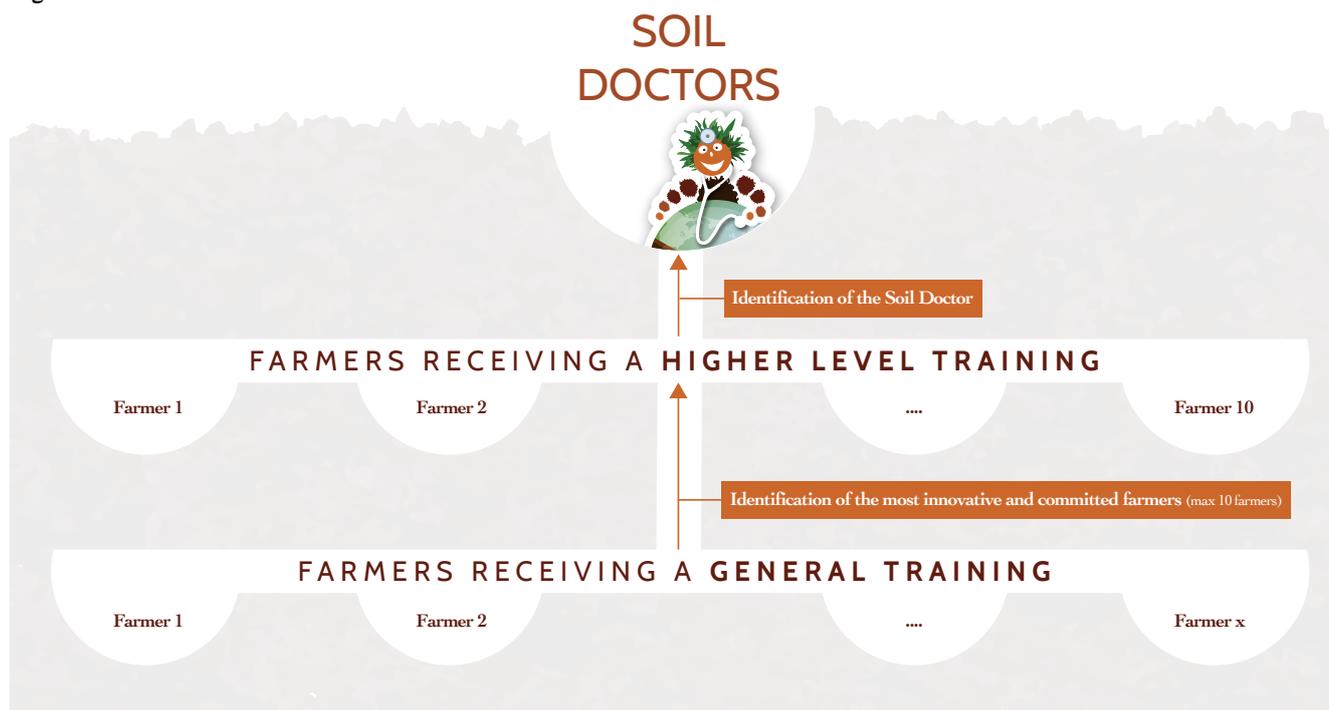
Being lettered and in possession of a degree in soil science or agricultural related fields is an advantage, as well as having access to technology (laptops, smartphones, access to

Internet, etc.), having strong networking skills, being proactive in helping others, having a good level of knowledge on soil management and a good ability to pass that knowledge onto others.

Once the eligible farmers are selected, they will receive a **general training** on the importance of soil and land resources management, conservation and basic sustainable soil management practices. A **higher level training** course will then be provided to those farmers

(maximum 10) that excelled during the general training. Ultimately, only one farmer will be appointed to serve as Soil Doctor in his/her community (see Figure 3). The appointment will take place either by selection (farmers deciding themselves who becomes the Soil Doctors) or by trainer's judging based on farmers' performances.

Figure 3. Process for the selection of Soil Doctors



Once the selection of the Soil Doctors is completed, the promoter is in charge of providing Soil Doctors with the training most appropriate to their skills and needs. The Soil Doctors will keep their position as long as any of the conditions for the replacement of a Soil Doctor apply (see section on the “Replacement of a Soil Doctor”).

Incentives

In order to motivate and commit farmers to the programme, promoters are encouraged to provide them with a series of incentives such as:

- Provision of the equipment needed to assess soil conditions as per the method chosen in the STMM;
- Provision of trainings;
- Invitation to public events and in schools to talk about their work and on how to preserve soils from degradation.

Each Soil Doctor should receive a certificate of competence and a uniform with the logo of the programme, which will allow them to be recognized within their community.

Trainings

The programme is composed of three main types of trainings for the Soil Doctors:

1. **General training:** training provided to farmers eligible to become Soil Doctors. This training will provide candidates with:
 - a. Information about the programme (how it works, benefits, incentives, roles within the community, etc.);
 - b. Information on the importance of practicing sustainable soil management (concrete benefits, main practices and their characteristics, etc.).
2. **Higher-level training:** training provided to a maximum of 10 farmers selected among those participating to the general training as potential Soil Doctors. This training aims to:
 - a. Teach the basics of teaching to the potential Soil Doctors in order to increase their efficiency in transferring the acquired knowledge to others;
 - b. Teach farmers how to deal with specific issues affecting their soils (general issues as well as region-specific issues); and
 - c. Teach farmers how to communicate with the promoter(s) of the programme.
3. **Technical trainings:** trainings provided to the Soil Doctors by the promoters on the practice of sustainable soil management. Characteristics:
 - a. The topic of the trainings is chosen by the promoter(s) depending on national priorities and the needs of the local communities. In this context, the communication between the promoter(s) and the Soil Doctors to identify priorities is critical;
 - b. All Soil Doctors receive the same training consisting of technical and practical classes that could include site visits; and
 - c. Technical classes are then given to the Soil Doctors making use of booklets, brochures, posters and presentations (See section on educational material). Theory oriented classes will then be followed by more practical activities. After being trained by the promoter, the Soil Doctors share the acquired knowledge with the farmers within their communities using a “learning by doing” approach and making use of the participatory mechanisms already available in their community

(village meetings and discussions, local events, etc.). For this, they rely on the educational material provided by the programme and the promoter, and some additional material (posters and presentations) that they can make themselves. The visit of experimental or demonstrational plots which are installed on the property of the Soil Doctors or cooperating farmers, is highly encouraged for the success of the class.

Toolbox

The programme will provide the promoter(s) with a minimal Soil Testing Kit that can be used to assess the soil properties present in the STMM, as well as a toolbox composed of the implementation manual and some educational material to be used as tools to train and support Soil Doctors with the execution of their tasks.

Soil Testing Methods Manual (STMM)

This programme provides countries with a list of methods and equipment that can be used for assessing the parameters that are critical to soil quality: soil texture, soil bulk density, soil pH, soil salinity, soil moisture and soil biological properties, as well as a Visual Soil Assessments. These methods and equipment are broadly described in the “Soil Testing Methods Manual”.

In order to provide the users with a complete and up to date list of methods and equipment, the Soil Testing Methods Manual (STMM) will be regularly reviewed. The manual also aims to promote the establishment of technical and scientific cooperation agreements between the countries and institutions that are willing to share information on the methods and equipment they are currently using.

Educational material

In order to support the promoter in training the Soil Doctors and the Soil Doctors in training other farmers, the programme is providing the following educational material:

1. Posters: the programme provides both theoretical and practical posters.
 - a. Theoretical posters, also called “WHAT IS” posters, aim to explain the theory behind the practice of Sustainable Soil Management.

- b. Practical posters, also called “HOW TO” posters, aim to show how to practice Sustainable Soil Management.

An initial set of posters describing basic principles of soil science and sustainable soil management, and basic sustainable soil management practices is made available by the programme. More posters will be developed after learning from local experiences and countries’ needs.

2. Videos are to be developed after the successful launch of the programme as a way to learn “how to teach” the concepts of Sustainable Soil Management and how to use the educational material.

The ultimate objective of the programme is to make complete packages of theoretical and practical information shaped on specific pedo-climatic characteristics and crops available in the countries participating in the programme. This would enable countries to have access to the information and sustainable soil management practices that better meet their requirements. To this end, the exchange of information and the sharing of knowledge and experiences between countries and the GSP is pivotal to the production of new educational material.

These educational tools would potentially be translated to the local language(s) in order to facilitate knowledge sharing and understanding of the materials.

Implementation of the programme at the country level

The flexible structure of the Global Soil Doctors programme allows for its implementation in a country that either does or does not have similar programmes and/or initiatives currently in place. However, its successful implementation depends on the analysis of the following variables:

- **Identification of farmer communities** taking into consideration the distance between villages and farms, which can hamper communication, networking and the efficiency of action of the Soil Doctors.
- **Support of the promoter(s) to the programme and availability of incentives to the Soil Doctors:** the success of the programme is directly linked to the willingness of the promoter(s) to invest in it and the availability of subsidies and/or incentives available to the Soil Doctors. Greater support from the promoter(s) will enhance the ability of the Soil Doctors to train other farmers, install experimental and demonstration plots, use the methods in the STMM and promote the practice of sustainable soil management.
- **Social structure (hierarchy) and culture:** can represent a constraint to the selection of the most appropriate farmer to be appointed as Soil Doctors and to the replacement of those who do not perform and efficiently serve their network.
- **Training dates:** training dates should not overlap with the harvesting period and/or the time of major field operations. It is indeed necessary to minimize the economic losses of farmers joining the training. To this end, it might be appropriate to propose different training dates to farmers belonging to the same rank in the programme that are growing different crops.

Guidelines for implementing the programme in both countries that have and do not have programmes and/or initiatives similar to it, are herewith provided.

Countries that DO NOT HAVE programmes similar to the Soil Doctors in place

In the case of countries that do not have programmes similar to the Soil Doctors and are interested in implementing it, the following steps are recommended:

1. **Identification of the promoter(s) of the activity in the country** based on:
 - a. Their access to farmers' contacts;
 - b. Their relationship with the farming community (the promoter(s) should be entrusted by farmers);
 - c. Their area of competence. Ideally, promoter(s) should have an influence on the whole national surface area;
 - d. Their access to financial resources to sponsor the programme;
2. **Identification of farmers' communities.**
3. **Field surveys:** to check whether farmers are interested in the programme or not. The survey should be accompanied by a campaign to raise awareness of the objectives, commitments and impacts of the programme.
4. **Compilation of a list of farmers interested in the programme,** which would receive the general training.
5. **Training of trainers and preparation of the training material:** the promoter(s) should train the trainers for the programme making use of the educational material provided. To this end, the GSP Secretariat is available to collaborate with the promoters to translate the material in the local language. The promoter (alone or with the support of the GSP Secretariat) can also prepare additional educational material in order to address country-specific needs.
6. **Identification of the methods to use to assess soil conditions by looking at the STMM** and by looking at what is already available at the country level.
7. **General training to the farmers as previously identified.**
8. **Higher level training to potential Soil Doctors.**
9. **Identification of the Soil Doctors and training on the STMM.**
10. **Soil Doctors in action:** set up demonstration farms and experimental fields, production of agricultural products to practice sustainable

soil management, training and assistance of farmers, discussion on sustainable soil management at farmers/community meetings, etc.

11. **Supporting and monitoring of the work of the Soil Doctors:** the promoter(s) should assist the Soil Doctors to fully understand and comply with the objectives of the programme.
12. **Communication:** establishment of a communication system between the Soil Doctors and the promoter(s) to ensure the exchange of information and reporting of problems during the execution of the programme. The promoter(s) should then be efficient in addressing the reported problems and in staying in touch with the GSP Secretariat for improving the programme.

Countries that ALREADY HAVE programmes similar to the Soil Doctors in place

In the case of countries that already have programmes similar to the Soil Doctors in place, they might want to use the herewith proposed programme to improve what is already in use. To this end, the following steps are recommended to integrate the Soil Doctors Global programme to others:

1. **Identify and analyze the programme/initiative similar to the Soil Doctors:**
 - a. Who is the promoter?
 - b. Is the programme/initiative addressing the needs of farmers in the whole country?
 - c. What are the strengths and weaknesses of the programme/initiative? / Identify the gaps in the already existing programme and evaluate how the Soil Doctors programme can complement the identified gaps.
 - d. Where do the financial resources for the existing programme/initiative come from?
 - e. Are there enough funds to integrate the Soil Doctors Global programme within the existing one(s)?

If the analysis concludes that the Soil Doctors Global programme can benefit/improve the already existing programme(s) and an integration of those can take place, then move to point 2.

If the analysis concludes that the Soil Doctors Global programme is of use at the national level but it cannot be integrated into already existing programmes, then follow the steps reported in the section on “Countries that do not have programmes similar to the Soil Doctors in place”. These programmes or activities should acknowledge the Soil Doctors and the GSP if they decide to use any of the promotional or educational material such as posters or presentations.

If the analysis concludes that the Soil Doctors Global programme cannot benefit/improve the already existing programme(s) because these are already efficient in meeting the needs of national smallholder farmers, then no action towards the implementation of the programme needs to be taken. We thank you for your time and invite you to follow the other activities promoted by the Global Soil Partnership.

1. **Identify the aspects of the Soil Doctors Global programme that would be integrated into existing programmes and initiatives**, for example:
 - a. Improvement of the methods used by farmers to assess soil conditions: please consult the Soil Testing Methods Manual.
 - b. Appointment of the Soil Doctors: please refer to the procedures for the appointment of the Soil Doctors as described in this document.
 - c. Training of the Soil Doctors: please refer to the education material produced under the programme.
 - d. Establishment of a monitoring system to collect soil data and strengthen national soil information systems: this relates to the selection and provision of a soil testing method to farmers and on the establishment of communication channels between the promoter(s) of the programme and the Soil Doctors.

The GSP Secretariat is available to support countries in implementing the programme by integrating it into existing programmes.



The Global Soil Partnership (GSP) is a globally recognized mechanism established in 2012. Our mission is to position soils in the Global Agenda through collective action. Our key objectives are to promote Sustainable Soil Management (SSM) and improve soil governance to guarantee healthy and productive soils, and support the provision of essential ecosystem services towards food security and improved nutrition, climate change adaptation and mitigation, and sustainable development.