5.11 INTEGRATED APPROACH FOR SUSTAINABLE SOIL MANAGEMENT: THE GLOBAL SOIL PARTNERSHIP

What problem is the solution trying to address?

Low resilience of agri-food systems to global crises and consequent food insecurity

What, in brief, is the solution?

Integrated approach for sustainable soil managemen

What was/ were the source(s) from which this solution emerged?

The World Soil Charter (FAO, 1981) adopted by all FAO members in 1981 and its revised version (FAO, 2015) set out the basic principles of sustainable soil management and the actions to be taken by each soil-related stakeholder. These principles were applied to specific soil threats and translated into concrete actions in the Voluntary Guidelines for Sustainable Soil Management (FAO, 2017). Since then, the GSP has been developing technical and normative tools to adapt principles and practices of sustainable soil management to local needs and stakeholders.

Why is addressing that problem important for achieving the goal of your working group?

The adoption of sustainable soil management (SSM) practices will lead to more resilient agri-food systems and ensure food security for all (including sufficient, safe and nutritious food for all). It will in turn contribute to halting soil degradation, restoring degraded soils and protecting C-rich and biodiversity-rich soils, which contribute most to the provision of ecosystem services.

What is the theory of change?

Barriers to solve the problem of low resilience of agri-food systems and food insecurity:

- Scarce soil data and of poor quality
- Inexistent soil health indicators
- Low awareness on soils importance and processes
- Resistance of local communities to change agricultural practices
- Limited technical knowledge on locally-adapted SSM practices
- non- favourable or inexistent policies

Inputs: There are three concrete actions to improve the resilience of agri-food system:

1. Awareness is raised on the vital role of soils on food production, human health, and climate change resilience at all levels.
2. Knowledge on soils is enhanced through targeted research and harmonized information and data collected at local, national and global levels.
3. Sustainable soil management is adopted supported by the development of an enabling political and financial environment.

Impacts: Degraded soils can be restored, food production capacity increased, soil pollution reduced, nutrient content of food improved, farmers' incomes increased, human health promoted, climate change partially mitigated, and soil biodiversity and water resources preserved.

Outputs: Change will be achieved and sustainable over time because farmers and society will understand the importance of managing soil sustainably, and the negative impacts of unsustainable practices.

Assumptions: sound scientific knowledge that supports the selection of best and locally-adapted SSM practices is a prerequisite. Understanding the status of soil is also needed to identify the SSM practices needed – soil analysis, mapping and monitoring. There must be an enabling financial and political environment that favours the adoption of SSM.

Why does this solution align to the definition and criteria for a 'game changing solution' developed by the Summit?

Sustainable soil management is a feasible paradigm shift in agriculture, but it is also applicable to other land uses. There is sufficient and strong scientific evidence to demonstrate the role of SSM to achieve healthy soils and ecosystems resilience, the production of safe and nutritious food, and in solving the invisible crises that put agri-food systems at risk: the water crisis and soil degradation.

SSM is a theoretical-practical framework that encompasses many concrete practices and initiatives, such as agroecology, conservation agriculture, regenerative agriculture, and aims to protect and conserve the natural resource essential for food production and the resilience of agri-food systems.

SSM practices increase the organic matter content of the soil, which is the fundamental building block for nutrition, water storage, and purification of contaminants. All the carbon that accumulates and is sequestered in soils is removed from the atmosphere, thus contributing to climate change mitigation.

In addition, organic matter also contributes to the supply of other nutrients, reducing dependencies on external inputs. On the one hand, the economic cost for farmers is reduced, and on the other hand, a lower input of fertilisers, especially nitrogen, reduces N_2O emissions into the atmosphere (a potent greenhouse gas), and the eutrophication of surface water and contamination of groundwater.

A soil with adequate organic matter content is also a living and biodiverse soil. The richness of micro-, meso- and macro-organisms gives the soil and the vegetation growing in it the ability to be more resistant to pests and diseases, thus reducing dependence on pesticides. In addition, the symbiotic relationships that occur between soil organisms and crops provide a win-win situation by supplying all the necessary nutrients.

SSM can increase, but above all, maintain crop production over time and guarantee stable earnings for farmers. At the same time, by reducing dependence on agrochemicals and relying more on the recycling of on-farm waste, costs are reduced.

Healthy, sustainably managed soils contribute to at least seven of the SDGs. The clearest link, and where soil is at the heart, is between the SDGs on poverty, food, water and health. Healthy soils ensure food security now and in the future (SDG 2), understood as sufficient, safe and nutritious food. Water and soil pollution are closely linked, and both require judicious use of agrochemicals and proper waste management to be avoided, thus ensuring water quality (SDG 6) and human health (SDG 3). Healthy soils contribute to poverty alleviation (SDG 1) by reducing farmers' dependence on agrochemicals and improving yields and other ecosystem services, but also by supporting healthy people allows for better opportunities. Healthy soils also have a major influence on the quality and health of terrestrial (SDG 15) and aquatic ecosystems (SDG 14), and are a key ally in climate change mitigation and adaptation (SDG 13). Including circularity within the SSM contributes to sustainable production and consumption (SDG 12).

What is the current and/or likely political support for this idea?

The sustainable soil management promoted and adopted through the Global Soil Partnership has strong political, technical and social support, as it is backed by a network of networks made up of the 193 member countries of FAO and the European Union, other UN agencies (such as UNFCCC, UNCCD, UNEP, CBD), international initiatives (such as 4 per 1000, the Soil Health Institute), soil science societies, universities, research centres, NGOs, farmers' associations, civil society organisations and the private sector.

The GSP is organized in regional partnerships and multidisciplinary international technical networks. It is also supported by the Intergovernmental Technical Panel on Soils.

Multiple donors strongly support the promotion and adoption of sustainable soil management worldwide through the GSP, such as the European Union, the Russian Federation, Switzerland, Thailand, China, the Republic of Korea and the Netherlands, as well as private sector members such as PhosAgro or IFA. Other donors also support similar initiatives, such as France through the 4per1000 initiative or Germany through GIZ. Large private funders, such as the Bill & Melinda Gates and Rockefeller Foundations, have also invested in sustainable soil management in past years. Therefore, there is a great interest and support for this game changer solution.

Are there certain contexts for which this solution is particularly well suited, or, conversely, contexts for which it is not well-suited at all?

Given that the resilience of agro-ecosystems and the production of sufficient, safe, and nutritious food is a global priority, sustainable soil management is able to provide solutions adapted to all contexts and therefore well suited to all existing agri-food systems.

SSM consists of simple, low-tech practices adaptable to all agro-ecosystems and is therefore relatively easy to adopt if supported by awareness and knowledge of the state of the soil, to ensure that the practices adopted will have a positive effect in the short, medium and long term. SSM is applicable by small, medium and large producers, as well as in urban agriculture as it involves site-specific practices.

What do you think are the key actions required to address this solution?

The GSP has developed a series of normative and technical tools targeting different stakeholders that allow the adoption of SSM at the three main levels:

- Public policies: Improving soil governance and creating an enabling political and financial environment is a prerequisite for the effective adoption of SSM. The Revised Global Soil Charter, the Voluntary Guidelines for Sustainable Soil Management and the International Code of Conduct for Fertiliser Use and Management provide the basis for the development of integrated soil management policies.
- Corporate: Improving soil information collection and analysis, and enhancing technical capacities on sustainable soil management by working directly with farmers, and by promoting greater recognition of agricultural products produced under SSM within production chains, ensures the effective implementation of SSM practices. The Global Soil Doctors Programme is a tool available to improve farmers' capacities. The Global technical networks of soil laboratories (GLOSOLAN) and soil information systems (INSII) provide additional support to improve soil knowledge and information for targeted practices.
- Civil Society: Increasing soil awareness throughout society is fundamental for the population to demand regulations and incentives from governments for sustainable soil management, but also to change production and consumption patterns. World Soil Day has proven to be a key tool in raising awareness, reaching 850 million people in 2020.