



THE ROLES OF GLOBAL SOIL PARTNERSHIPS IN SOIL EVANGELIZATION IN POST COVID-19 ERA

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ABSTRACT

Soil evangelization (SE) is a holistic trans-disciplinary approach to raise awareness about soil security and to address soil and land related challenges to sustainable development. It is a major function of the Global Soil Partnerships (GSP) as a voluntary body formed in 2011 by the FAO in collaboration with European Commission. The GSP facilitates SE through multidimensional activities such as organization of the World Soil Days, celebration of the International Year of Soils 2015, and enacting the world soil charter, to facilitate and support sustainable soil resource management in collaboration with relevant agencies. Their specific and future activities include connecting people with soils and raising awareness on their critical importance in our lives, development of soil educational materials and teaching methods, in view of COVID-19 pandemic, for various grades of students. Others include strengthening initiatives in connection with the Sustainable Development Goals (SDG) process and post-2015 and post COVID-19 agenda.

Keywords: Global soil partnerships, Post covid-19 era, Sustainable development, Soil evangelization, Sustainable Soil resource management.

INTRODUCTION

The Global Soil Partnership (GSP) is an initiative of the FAO and the European Commission that aims to support and facilitate joint efforts towards sustainable management of soil resources for food security and climate change adaptation and mitigation. The GSP is also charged with update of the 1982 World Soil Charter (Food and Agriculture Organization [FAO], 2011) and to implement the International Year of Soils 2015 in collaboration with Governments and the secretariat of the United Nations Convention to Combat Desertification. According to Montanarella (2015) the dramatic rise in food prices during the 2008 global food-commodities crisis led to the creation of the FAO's Global Soil Partnership (GSP) in 2011. The GSP is a voluntary body tasked with enacting the world soil charter's principles. It aims towards providing a platform for active engagement in sustainable soil management and soil protection at all scales: local, national, regional and global. It was launched to raise awareness of decision makers on the vital role of soil resources for achieving food security, adaptation and mitigation of climate change and guarantee provision of environmental services.

Therefore, it created Regional Soil Partnerships (RSPs) to provide guidance on goals and priorities within specific regions and develop relevant activities within each region. The GSP's ultimate goal is to achieve food security and restoration of ecosystem services through conserving, enhancing, and restoring soil resources through productive and sustainable use (GSP Technical Working Group, 2011). According to the GSP Technical Working Group (2011), the renewed recognition of the central role of soil resources as a basis for food security



and their provision of key ecosystem services, including climate change adaptation and mitigation, has triggered numerous regional and international projects, initiatives and actions. However, the need for an increased effort of coordination and partnership in order to avoid unnecessary duplication of efforts and waste of resources, especially in times of substantial budget restrictions necessitated the development of GSP. The GSP is still very relevant under the prevalent COVID-19 pandemic, ravaging the global community and concomitantly, the basic resource (soil) on which the world depends for the supply of food, the chemical wheels of life.

The GSP is open to all interested stakeholders: governments (FAO member States), universities, research organizations, civil society organizations, industries and private companies. Towers *et al.* (2010) highlighted the activities of the Working Group on Soil Awareness and Education established in 2008 under the banner of the European Soil Bureau Network, sponsored by the Joint Research Centre of the European Commission. They insisted that the onus lies on soil scientists to connect with wider society in portraying their science (soil) as relevant. Probably, in response to this challenge, the World Soil Day celebration which started in 2014 and the International Year of Soils 2015 were launched at global scale. It should be noted that to address soil challenges globally, the 68th United Nations General Assembly, on 20 December, 2013, recognized December 5th, 2014 as World Soil Day (WSD) and 2015 as the International Year of Soils (IYS) (FAO, 2015a). The official recognition of these events globally, emphasized the importance of soils beyond the soil science community. The Food and Agriculture Organization of the United Nations was nominated to implement the IYS 2015, within the framework of the Global Soil Partnership and in collaboration with Governments and the secretariat of the United Nations Convention to Combat Desertification. However, the ultimate success of all the global soil initiatives will depend on their effectively trickling down to regional, national and rural levels (Chukwu *et al.*, 2017a). This, necessitated the formation of soil evangelization group at Michael Okpara University of Agriculture, Umudike, Umuahia, Abia State, Nigeria, in 2015, to champion grassroots soil awareness campaign (Chukwu *et al.*, 2017b).

The GSP Technical Working Group (2011) summarized the vision and mission statements, as well as strategic objectives of the GSP. **Vision:** The vision of the Global Soil Partnership is to improve global governance of the limited soil resources of the planet in order to guarantee healthy and productive soils for a food secure world, as well as sustain other essential ecosystem services on which our livelihoods and societies depend including water regulation and supply of clean water, climate regulation, biodiversity conservation and cultural services. **Mission:** The mission of the GSP is to develop capacities, build on best available science, and facilitate/contribute to the exchange of knowledge and technologies among stakeholders, existing multilateral environmental agreements, and technical and scientific bodies of a similar nature, for sustainable management of soil resources at all levels with a view to enhancing food security, protecting ecosystem services, and in this way contributing to poverty alleviation in an era of global demographic growth and unsustainable consumption patterns.

The vision of the GSP is to improve governance of soil resources to guarantee healthy and productive soils for a food-secure world and support other essential ecosystem services. The mission of the GSP is capacity building, facilitate and contribute to soil science and technologies for sustainable management of soil resources at all levels. (GSP Technical Working Group, 2011; Montanarella and Vargas, 2012)



Strategic Objectives

Through enhanced and applied knowledge of soil resources as well as improved global governance and standardization, the Partnership will:

- i. Create and promote awareness among all type of stakeholders (scientists, decision/policy makers, land managers, civil society, etc.) that healthy soils and sustainable soil management are the precondition for human well-being and economic welfare and therefore play the key role for sustainable development;
- ii. Address critical soil issues that are globally and regionally relevant for sustaining the provisioning services through soils, in particular towards increasing food security, enhancing climate change adaptation and mitigation, preventing groundwater pollution and through sustaining their regulating and supporting ecosystem services in a context of global demographic growth;
- iii. Guide soil knowledge and targeted research in accordance with national conditions and needs to address concrete challenges on the ground through a common communication platform, including an Intergovernmental Technical Panel on Soils (ITPS) to provide an authoritative voice on technical and scientific issues;
- iv. Establish an active and effective network for addressing soil cross-cutting issues, including national and international soil health (soil biodiversity) best practices, and ensuring synergies among relevant agricultural, forestry, environmental and human development processes;
- v. Develop sustainable management strategies for different soils considering their potentials and limitations for different types of uses and taking into account the wider socio-economic context as well as national needs and policies;
- vi. Promote access to soil information and advocate the need for new soil surveys and data collection especially in those countries where soil information is obsolete and coarse and does not respond to user demands;
- vii. Promote investment and technical cooperation in all related soil issues to address fundamental issues in different regions aimed at sustainable management of soil resources;
- viii. Promote institutional strengthening and capacity development of soil institutions at local, national, regional and interregional levels; and.
- ix. Promote necessary public and governmental awareness on the World Soil Day (December 5th) as established by the International Union of Soil Sciences (IUSS), with a view to its adoption as the World Soil Day by the United Nations General Assembly.

Rethinking the role of the school after COVID-19 (Calao *et al.*, 2020) stated that the crisis has offered opportunity to re-assess what type of school the international community want for the future. Similarly, the past President of International Union of Soil Sciences (Lal, 2020) advised that the global tragedy of COVID-19 necessitates a paradigm shift in the thinking of the scientific community towards addressing future research and education priorities, as it relates global soil resource and its management is crucial. He emphasized that the daunting challenge of the sustainable management of finite and fragile natural resources must be based on strong international cooperation. Our opinion is that GSP is well positioned to champion this international cooperation. The objectives of this paper were to:

- i. highlight soil evangelization;
- ii. present and discuss the roles Global Soil Partnership (GSP) play in soil evangelization now and will play in the post COVID-19, and
- iii. bring to limelight the weaknesses of the GSP and suggest how to strengthen the organization.



Soil Evangelization

Soil Evangelization (SE) is a neologism credited to Dr. Godwin O. Chukwu of the Michael Okpara University of Agriculture, Umudike, Umuahia, Abia State, Nigeria. He coined the SE slogan: “Soil Evangelization: for Ecosystem Conservation and Food Security”. SE is defined as a holistic trans-disciplinary approach to raise awareness about soil security (importance of soil resources) and to address soil and land related challenges to sustainable development courses (Chukwu *et al.*, 2017c). So, it is a new vision and a soils’ re-birth initiative to increase passion for sustainable soils management, primarily in Nigeria and secondly at global level. In Nigerian context, it is an agricultural transformation project to impact on Nigerians a positive attitudinal change to soil resource uses and management, to enhance ecosystem conservation and food security.

Soil Evangelization is likely to be the panacea to numerous challenges to sustainable soil resources management and declining soil fertility (Chukwu, 2015). A soil evangelist is one who exhibits an ardent zeal and advocacy in implementation of actions to enhance sustainable soil management to achieve ecosystem conservation and food security. He or she does not assume that people know what to do or the right thing to do, in terms of sustainable soil resources management. Rather, the soil evangelist is emphatic, humane and knows where he or she wants the people to be, in areas of soil taxonomy, soil conservation, tillage, bush burning, soil recapitalization to replenish lost nutrients, and in dissemination of proven soil management technologies to stakeholders. Soil evangelists harp on peoples’ roles as stewards and their responsibilities for the care of the soil, as a common and an intergenerational equity. They argue that anthropogenic-induced soil degradation, and climate change, which arise from our inordinate ambition to exploit land resources could trigger off avoidable tragedy of the commons. This will impact negatively and hardest on the poor. Consequently, the soil evangelists emphasize the dire need for collaboration between governmental and non-governmental organizations in SE to stop soil degradation, through the adoption of sustainable land husbandry practices that conserve the soil and promote its recapitalization.

SE is a response to the call for action by the World Soil Charter (FAO, 2015b) to individuals, private sectors, groups and science community to disseminate information and knowledge on sustainable management of soils, to safeguard it for future generations. It is also justified by educating all stakeholders in soil resources use and management. According to Field *et al.* (2011) soil science education must be broadened because it has a broad holistic role in the society and has to be involved with scientists from other disciplines, policy experts and users of the soil itself. Smiles *et al.* (2000) identified the need for soil science education as problem solving, being able to interact with political influence and policy settings, while maintaining its discipline development and innovation. The authors also noted that the future challenge for soil science education is to stimulate curiosity and innovation as well as a good grounding in existing knowledge.

Objectives of Soil Evangelization

- i. To raise awareness about the importance of soils in response to International Year of Soils (IYS), 2015 calls for action by the International Union of Soil Science and the Soil Science Society of Nigeria;
- ii. To enhance and sustain the soil awareness campaign in Nigeria beyond IYS 2015;
- iii. To present soil evangelization as soils’ re-birth to enhance passion for soils;
- iv. To arouse a positive attitudinal change in perception, use and management of soil resources by all stakeholders;



- v. To empower stakeholders (farmers, students and others) and disseminate to them proven soil management technologies, and
- vi. To attract more youths to study soil science in higher institutions in Nigeria.

Soil Evangelization Group

Soil evangelization group (SEG) was formally launched by Professor Hilary Odo Edoga, the Vice Chancellor, Michael Okpara University of Agriculture, Umudike, Abia State, during the celebration of International Year of Soil (IYS) in the university on 25 June, 2015. This social crusade is made up of lecturers and students who volunteered to champion this innovative soil awareness campaign. These are people who believe in the new vision of having passion for soils, as a common property and a resource in trust. According to the Institute for Advanced Sustainable Studies (IASS) (2013), Europe's Global Land Demand for the 27 European Union countries in 2004 imported 370 million ha of virtual land (land on which agricultural products were produced), while exporting only 37 million ha. That net import of over 330 million ha means that 60 % of the land area needed to cover Europe's demand for food is located outside of Europe. The scenario suggests that planetary boundaries (the safe operating space for humanity) (Steffen *et al.*, 2015) are under serious threat. Steffen *et al.* (2015) predicted increasing tendency for the planetary boundaries to be exceeded with disastrous consequences for humanity. The SEG adopts the concept of intergenerational equity and soil stewardship to prevent tragedy of the commons in Nigeria (Chukwu and Agugo, 2006) as was the case in European countries (Steffen *et al.*, 2015). The SEG, therefore, urges people to utilize soils to satisfy their present needs but caution them to conserve it, to avoid jeopardising the prospects of future generations and disastrous consequences to the society. Typical activities of SEG includes: formal (short courses) and informal career guidance for farmers, rural development workers and students on environmental management activities such as fertilizer use, erosion control, tree planting, water resources management, remediation of polluted soils, dissemination of proven soil management technologies such as sloping agricultural land technology and integrated plant nutrition (Chukwu, 2015).

Global Soil Partnership

The Global Soil Partnership emphasised communication, outreach, promotion, monitoring and evaluation as the major mechanisms for the adoption of sustainable soil management practices (FAO, 2016). In 1982, the Food and Agriculture Organization of the United Nations (FAO, 2016) adopted a World Soil Charter with 13 recommendations for sustainable soil management. According to Montanarella (2015), it enshrined that the use of soil resources should not cause their degradation or destruction because man's existence depends on their continued productivity. That charter was endorsed by all members of FAO, yet it remains largely ignored (Montanarella, 2015). The author stated that the dramatic rise in food prices during the 2008 global food-commodities crisis led to the creation of the FAO's Global Soil Partnership (GSP) in 2011. This is an initiative of the FAO and the European Commission that aims to "Support and facilitate joint efforts towards sustainable management of soil resources for food security and climate change adaptation and mitigation" (GSP Technical Working Group, 2011). The GSP is a voluntary body tasked with finally enacting the soil charter's principles. It was launched to raise awareness of decision makers on the vital role of soil resources for achieving food security, adaptation and mitigation of climate change and guarantee provision of environmental services. Governing the soil requires international and national collaboration between governments, local authorities, industries and citizens to ensure implementation of coherent policies that encourage practices and methodologies that

regulate usage of the resources to avoid conflict between users to promote sustainable land management (Imeson *et al.*, 2011).

Composition, Governance and Organizational Structure of the GSP

Governance assures wise management and equitable access to resources. Thus, without governance, we are heading towards increased poverty, hunger, conflict, land grabs and mass migration of displaced populations. The Global Soil Partnership is an interactive, responsive and voluntary partnership, available to governmental and non - governmental institutions, and other stakeholders at various levels. They collaborate to manage available soil resources in a sustainable way by adopting the principles of the World Soil Charter. The different kinds of partners needed include, financial/funding partners, technical/scientific partners, advisory partners, and general partners. These partners could come from regional and national institutions/organizations working on soils. They include governmental organizations, universities, civil institutions, research centres, soil science societies, United Nation agencies, non-governmental organizations (NGOs) such as SEG, private companies, farmer's associations, donors, etc). Partners by default to the GSP are the FAO member countries. The Intergovernmental Panel of Soils (ITPS) provides scientific and technical guidance to policy makers. The ITPS is composed of 27 high-level technical and scientific experts on soil related issues from across the seven FAO regions. Thus, the ITPS panel provides institutional and thematic advice to the GSP Secretariat and Partners.

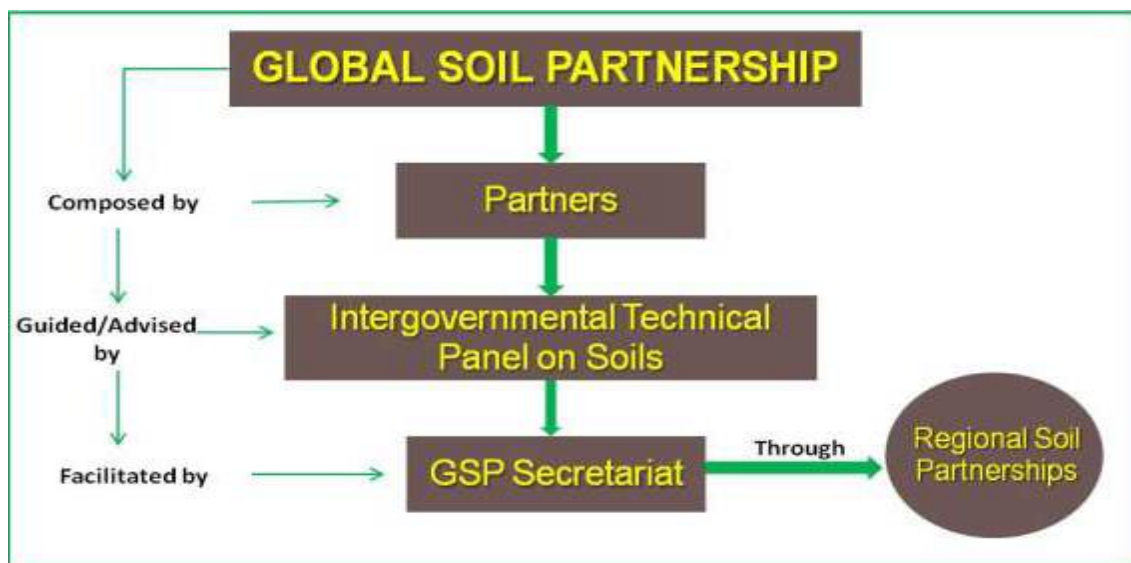


Figure 1: Governance of the Global Soil Partnership

The Global Soil Partnership Secretariat coordinates and facilitates the implementation of the GSP actions, through its regional partnerships and networks. Seeking the technical and scientific advice of the ITPS, the GSP Secretariat will be responsible for supporting the implementation of GSP activities according to its pillars and strategic objectives. The Secretariat also works on governance, finance, communications, planning, and operational management of GSP programmes and administration. Direct links are established with Regional Soil Partnerships (RSP) in each of these regions: Africa, Asia, Europe and the Caucasus, Latin America and the Caribbean, Near and Middle East, North America and Southwest Pacific classified by FAO. They facilitate implementation of the GSP plan of action in their regions, through close interaction and consultation with national members and soils



networks. The Secretariat also promotes networking and communication activities in the regions where well-established soil networks and collaborative processes are lacking.

Regional Soil Partnerships are formed among interested and active stakeholders. These RSPs coordinate activities of GSP at national and local level. Leading soil-related institutions (soil survey institutions, soil management institutions, scientific soil societies, etc) in the FAO regions are involved in implementing activities on the ground that will form the core of the implementation of the GSP. They also provide guidance on regional goals/ priorities and the required implementation mechanisms. Consequently, they are expected to regularly review progress in reaching common objectives and targets. Other functions include facilitation of linkages with national and local soil management programs and activities with a view to strengthening work on soils and to develop synergies with other relevant initiatives and activities. Some of the activities of the RSP could be:

- a) analysis of soil research and international soil-related cooperation in the region (support GSP project/intervention data base);
- b) compilation of existing, available data sets (support GSP meta data catalogue);
- c) associate experts from member countries/ organizations of the regional network (support expert list);
- d) participation and mediation for harmonization and data base building (e.g., towards a new global soil data set);
- e) organization of capacity building activities in the frame of international/technical cooperation programmes;
- f) advise on regional positions and prepare regional statements to the GSP (identification of issues and hot spots etc.);
- g) strategic networking and fund raising in the regions. (GSP Technical Working Group, 2011).

The Roles of Global Soil Partnerships in Soil Awareness Campaign (Evangelization)

The GSP plays vital roles in the adoption of sustainable development goals for soils. These include the mainstreaming of soils — and land use issues and solutions into the wider regional and international processes and interventions that address the integrated planning and management of land resources and the achievement of the Millennium Development Goals (Montanarella and Vargas, 2012). The GSP also contributes to environmental wellbeing, through preventing soil erosion and soil degradation, reducing greenhouse gas emissions and promoting carbon sequestration. Others are promoting sustainable use of agricultural inputs for soil health and ecosystems management. The body also contributes to human wellbeing and social equity through improved use and governance of soil resources, finding alternatives to soil degrading practices through participatory experiential processes, and being sensitive to issues of gender and rights of indigenous peoples. In order to achieve these objectives, it will carry out the following five main pillars of action:

1. Promote sustainable management of soil resources for soil protection, conservation and sustainable productivity.
2. Encourage investment, technical cooperation, policy, education awareness and extension in soil.
3. Promote targeted soil research and development focusing on identified gaps and priorities and synergies with related productive, environmental and social development actions.
4. Enhance the quantity and quality of soil data and information: data collection (generation), analysis, validation, reporting, monitoring and integration with other disciplines.



5. Harmonization of methods, measurements and indicators for sustainable management and protection of soil resources.

Sustainable Soil Management Protection and Conservation

In collaboration with partners, the GSP enhances the realization of the following soil functions: as the basis for food, feed, fuel, and fiber production, provision of clean water, nutrient cycling, as a sink for organic carbon, it provides one quarter of global biodiversity, provides construction material, and serves as a platform for construction. Soil is therefore at the heart of concerns about food security, biodiversity, climate change, land degradation, desertification, the provision of ecosystem services, and it provides the foundation of agricultural development and ecological sustainability (Imeson *et al.*, 2011). Although, inappropriate soil management practices, increasing population demand, and inadequate governance have resulted in the degradation and loss of available soil resources in various parts of the world. Thus, reducing its capacity to perform its' essential ecosystem functions. The protection and conservation of soil is therefore critical to the maintenance of a wide range of ecosystem functions, and compels land users to ensure its long-term sustainability as a natural resource.

According to FAO (2015b), sustainable management of global soil resources is critical to meeting increased societal demands in a responsible manner. Soil management is sustainable if the supporting, provisioning, regulating, and cultural services provided by soil are maintained or enhanced without significantly impairing the soil functions that enable those services. The GSP brings together partners and existing initiatives to improve global and regional solutions towards improving and increasing sustainable soil management for soil protection, conservation and sustainable productivity. Also, the GSP identifies appropriate sustainable soil management practices and systems for all land uses at regional and national levels using existing knowledge, adapted according to site characteristics and land user needs, considering cost-benefits analyses and social impacts. Furthermore, it should also coordinate the promotion, implementation, adoption, and monitor the progress of these practices and systems at global and regional levels as this will help to restore and maintain soil functions and ecosystem services.

Encourage Investment and Technical Cooperation in Soils

Investment and technical cooperation in soils over the last two decades have been lacking, but now greater attention on these invaluable resources is recognized through the roles of GSP. Soil knowledge and soil implications on water, climate, biodiversity, energy, food and poverty issues are not properly addressed in the general education system. So, GSP collaborates with various national soil science societies, like American Soil Science Society, Soil Science Society of Nigeria, etc., to produce educational materials in soil science, to create public awareness on the importance of sustaining soils and their functions. These become promotional and communication tools to raise awareness and educate stakeholders in the consultative processes. This function is most appropriate now that soils expertise is diminishing in international and national institutions. The younger generation and the employment market, scarcely see the of importance soil in addressing the challenges of today's world. Nevertheless, today's global challenges of food security, poverty and climate change are significantly affected by how we protect and manage the earth's soils resources. Soils deserve much greater investment in all fields, including raising awareness and technical cooperation to train a new cadre of soil scientists, with an interdisciplinary perspective, capable of bringing the



crosscutting issue of soils back into the centre of agricultural and environmental development processes.

Promote Targeted Soil Research and Development

There are a large number of research activities and projects related to soils around the world. Many projects would benefit from an increased coordination with other on-going research activities. Communication among the research communities dealing with the various aspects of soils are often limited or inexistent and interdisciplinary research is still very limited. Bridging between the various research communities could bring large benefits to the global scientific knowledge base and lead to more coherent soil related activities. Breaking the still existing walls between geology, soil science, agronomy, forestry, pasture/rangeland management, agro-climatology, soil biology and ecosystems research could improve the quality and applicability of research and provide new avenues for future integrated research and development programs. The GSP is promoting interdisciplinary soil resources management research.

The GSP implementation mechanisms should be able to identify and support soil research and development priorities to address key soil issues that are relevant to the main programmatic areas but currently undertaken, or only in an uncoordinated way, by diverse organizations and institutions dealing with sustainable soil resources management, food security, climate change adaptation and mitigation, as well as water supply and quality. The aim will be to help focus and bring together wide-ranging soils research and knowledge to address the specific development challenges and concerns of today (GSP Technical Working Group, 2011).

Enhance the Quantity and Quality Soil Data and Information

Some of the existing global soil data are rather obsolete and at coarse resolution. Current global databases are still essentially using a mixture of information collected more than 50 years ago at the time of the compilation of the first global soil map by FAO/UNESCO and subsequently the more recent collection of new soil data under SOTER (Soil and Terrain Database) and other regional or national programs. The most recent Harmonized World Soil Database is essentially a compilation of these existing soil data into a common raster at 1 km resolution. There is an urgent need for updated high-resolution data and information on global, regional and local soil resources, both for food security and for climate change related issues. Detailed and updated information on soil health and fertility as well as on soil organic carbon content is missing in many countries.

Several new projects have been initiated aiming towards the rapid compilation of new digital soil maps of the world. The GlobalSoilMap.net consortium, partially funded by the Bill and Melinda Gates foundation, as well as the EU funded eSOTER project within the Global Soil Data task of the GEO/GEOSS work program are the most relevant on-going initiatives. In addition, a number of regional and national soil data collection programs are on-going, like the Africa Soil Information Service (AFSIS), the European Soil Information System (EUSIS) and others. A main task of the GSP will be to build a partnership among the various soil data collection programs in order to develop synergies and cost savings by avoiding duplication of efforts. Ultimately the GSP should provide a common soil data and information platform responding to the various user needs at global, regional, national and local scales. Providing the soil data and information needed by the end users should be a guiding principle of the GSP, avoiding past experiences of large-scale data collection programs that fail to deliver specific data relevant to actual user needs and capitalizing on the various ongoing processes. An



extensive survey of the actual end user needs and requirements should be part of the work program of the GSP from its early stage (GSP Technical Working Group, 2011).

Harmonization of Methods and Indicators for Sustainable Management and Protection of Soil Resources

There is need to emphasize that information about soils must first be gathered in a harmonized way; otherwise, experiences cannot be shared and combined. This is of utmost importance, for example, to utilize soil information for policy development and the building of observation systems. Harmonization and establishing guidelines and standards should not be a goal per se of the GSP. Standardization always implies a cost for the various stakeholders and therefore a clear cost/benefit analysis needs to be provided to justify any standardization activity. Many standards for soil measurements, observations, data collection and data management exist. The GSP will act to federate and facilitate a partnership among various actors to develop synergies and cost savings for all partners.

Ongoing efforts as well as standards developed by the International Union of Soil Sciences (IUSS) and by other regional and national standardization committees and institutions, need to be brought within a common framework to reduce duplication of efforts and the proliferation of standards and methods (both laboratory and field) that are often not compatible. A well-documented example of lack of coordination and political will is soil classification, with still two (or more) main systems used in many parts of the world that are difficult to compare (correlate) and harmonize (like the US Soil Taxonomy of USDA and the World Reference Base (WRB) of the International Union of Soil Sciences (IUSS) endorsed by FAO). The recent initiative towards development of a common Universal Soil Classification (USC) should be facilitated by the GSP to provide a common platform for such a future system (GSP Technical Working Group, 2011).

Weakness of GSP in Soil Awareness Campaign

Most soils are indeed privately held, making legally binding international agreements unrealistic. Instead, governance must be based on voluntary efforts by national governments, local land owners and administrations. Consequently, although, the GSP has an advocacy role in promoting the importance of sustainable soil management policies at national level it does not have the mandate to enforce national policies. It should address the effective communication of scientific facts and recommendations to appropriate policy platforms. The GSP's clearest call is for the development of a Global Soil Information System. Unfortunately, the GSP failed to establish a comprehensive partnership with everyone involved, and as a result several parallel independent projects have emerged, such as the GlobalSoilMap.net consortium and the Global Soil Information Facilities.

CONCLUSION AND RECOMMENDATIONS

Inappropriate soil management practices, increasing population demand, and inadequate governance have resulted in the degradation and loss of available soil resources in various parts of the world, thus reducing soils capacity to perform its' essential ecosystem functions. This necessitated the GSP, a voluntary body tasked with the responsibility of finally enacting the world soil charter's principles to call on all individuals, corporate organizations, local and national governments etc who have the passion for a sustainable soil resource and continued productivity to join hands with them to achieve the ultimate goal of a sustainable environment. However, this was in an effort to improve governance of soil resources to guarantee healthy and productive soils for a food-secure world and support other essential



ecosystem services; and also, for capacity building, to facilitate and contribute to soil science and technologies for sustainable management of soil resources at all levels.

The GSP should develop guidelines and recommendations for investment and technical cooperation on soils and how to mobilize these investments. The following area are recommended for action:

1. Investment by farmers, other land users and civil societies;
2. Investment by countries through national programs and processes; and,
3. Investment by development banks, Global Environment Facility, and other donors.
4. The GSP should also assess the available soils expertise, capacities and interests and respective gaps of both the private and public sectors in supporting:
5. Technical cooperation by countries' research, education, extension and development agencies;
6. Technical cooperation and support by the UN system and international bodies; and,
7. Technical cooperation with land users and environmentalists and inclusion of their local knowledge. (GSP Technical Working Group, 2015).
8. Development of educational materials and teaching methods to enhance soil science education in post Covid 19 era.

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