GLOBAL SOIL PARTNERSHIP

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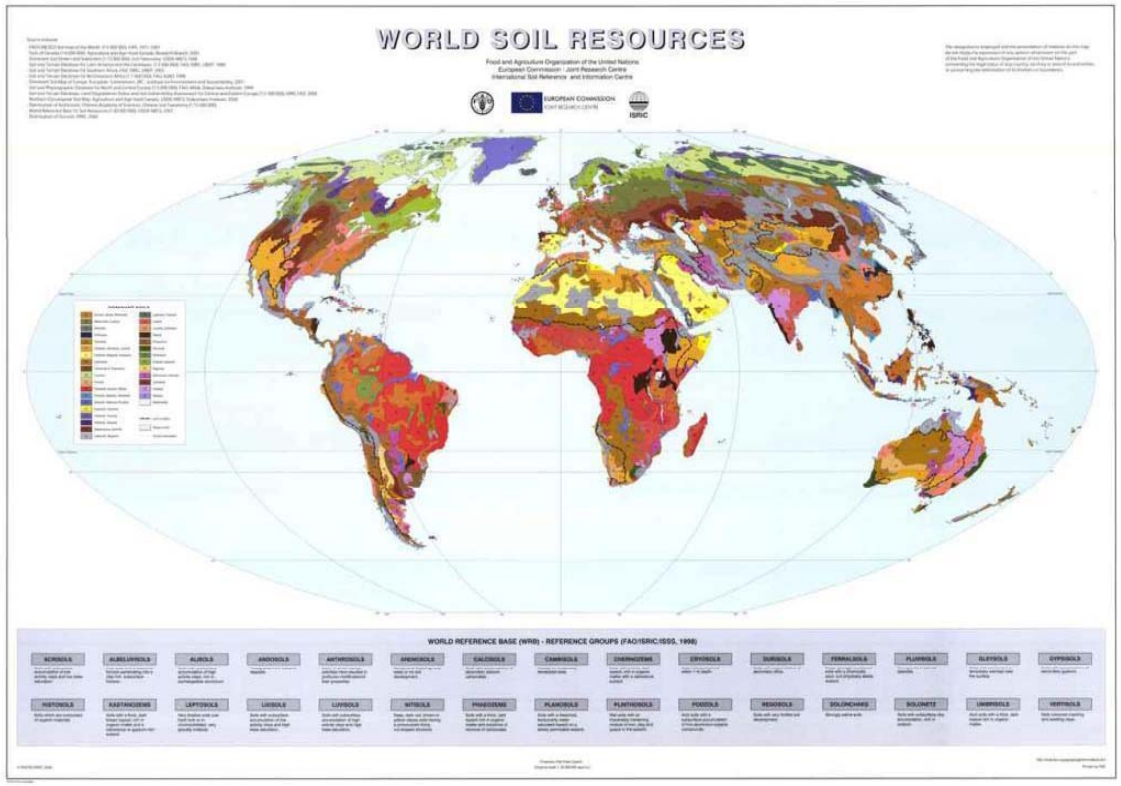
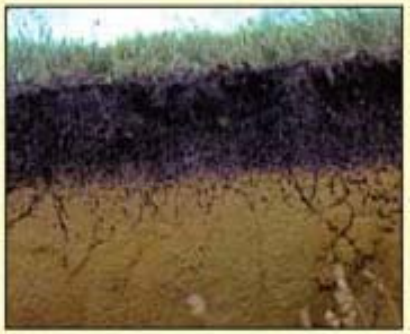
What is soil?

- **Soils are complex, finite and strategic resource**: **many soil classes (mineral and biological complex, ecosystem specific).**



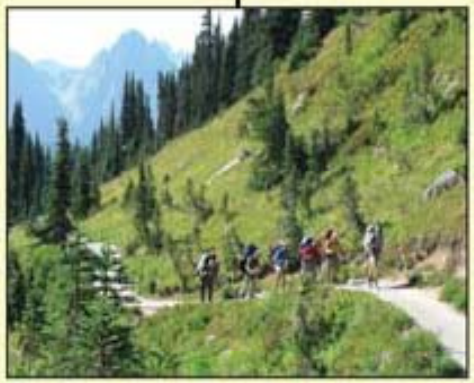
Why soils are important?
Ecosystem Functions of Soils



Supporting services
Nutrient cycling, water release/retention, soil formation, habitat for biodiversity, exchange of gases with the atmosphere, degradation of complex materials

Provisioning services:
food and fibre production, water availability, platform for construction

Regulating services:
carbon sequestration, greenhouse gas emissions, water purification, natural attenuation of pollutants



Cultural services:
protection of archaeological remains, outdoor recreational pursuits, landscapes, supporting habitats

(Source: Black,2011)

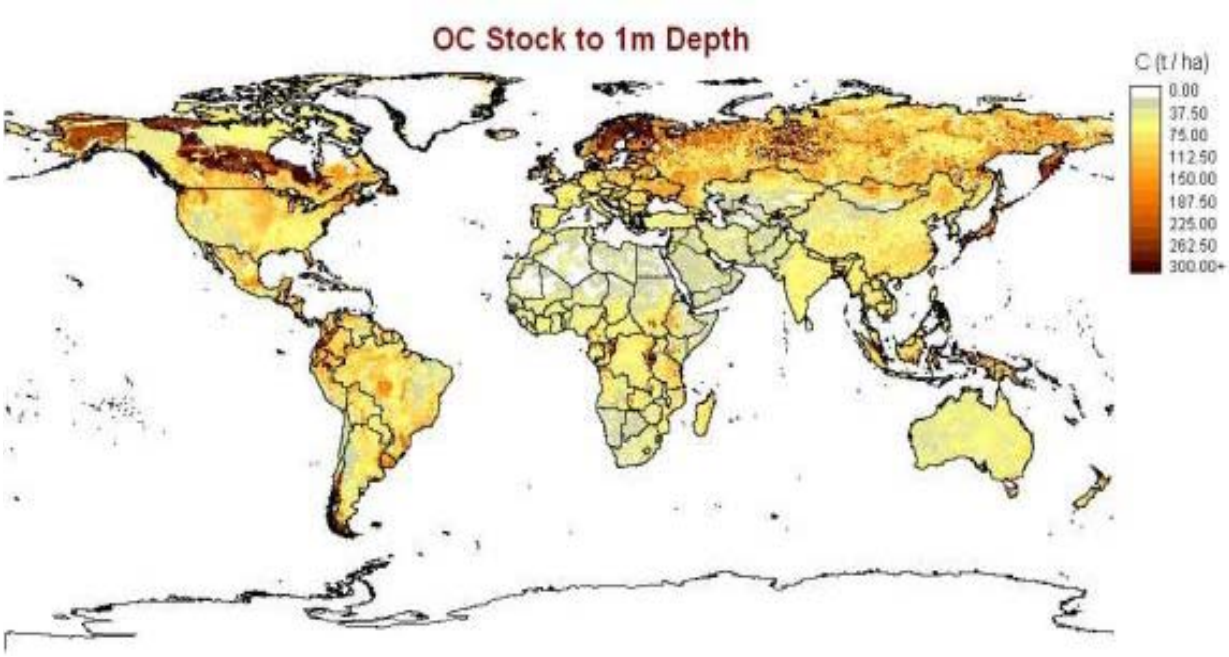
Why Soils are important?

- Soil is a finite natural resource. On a human time-scale it is non-renewable. However, despite the essential role that soil plays in the life of people, there is increasing degradation of soil resources due to inappropriate practices, burgeoning population pressures and inadequate governance over this valuable resource.

- Soils are being degraded and are less productive - urgent need protection and sustainable management. E.g. Worldwide 24 billion tons of fertile soil disappears each year (UNCCD, 2011). Just in Somalia, an average of 100 tons/ha of topsoil per year is lost (SWALIM, 2009).
- At the same time, in order for nature to **form 2-2.5 cm of soils, requires 1000 years**.

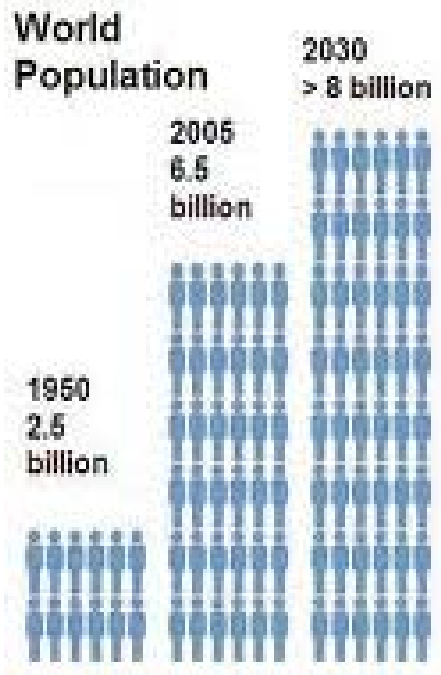
Why Soils are important again?

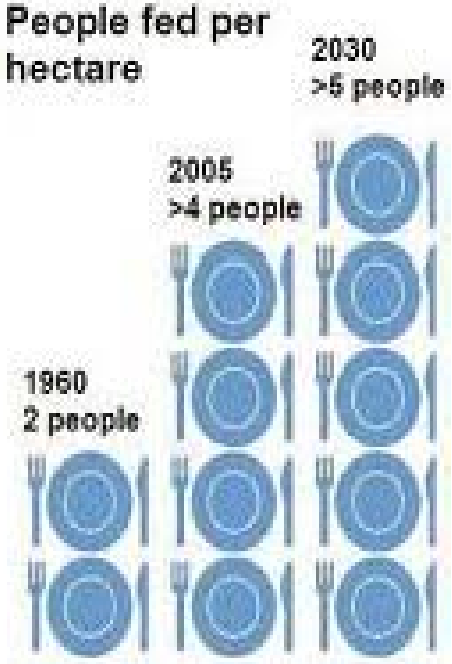
- Carbon sequestration by soils to mitigate and adapt to climate change is one of the main drivers for putting soils in the agenda again.

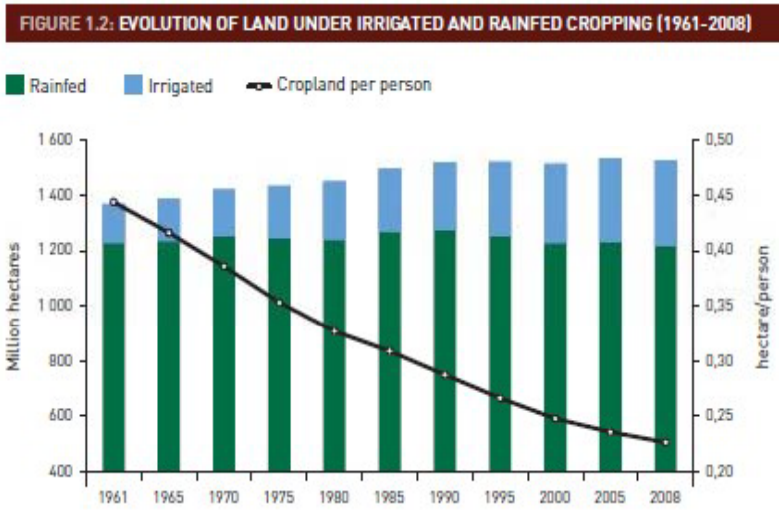


Why Soils are important again?

- Growing population demands more ecosystem services provision, especially healthy soils for ensuring **food security** and mainly to reduce **poverty** and allow **rural development**.



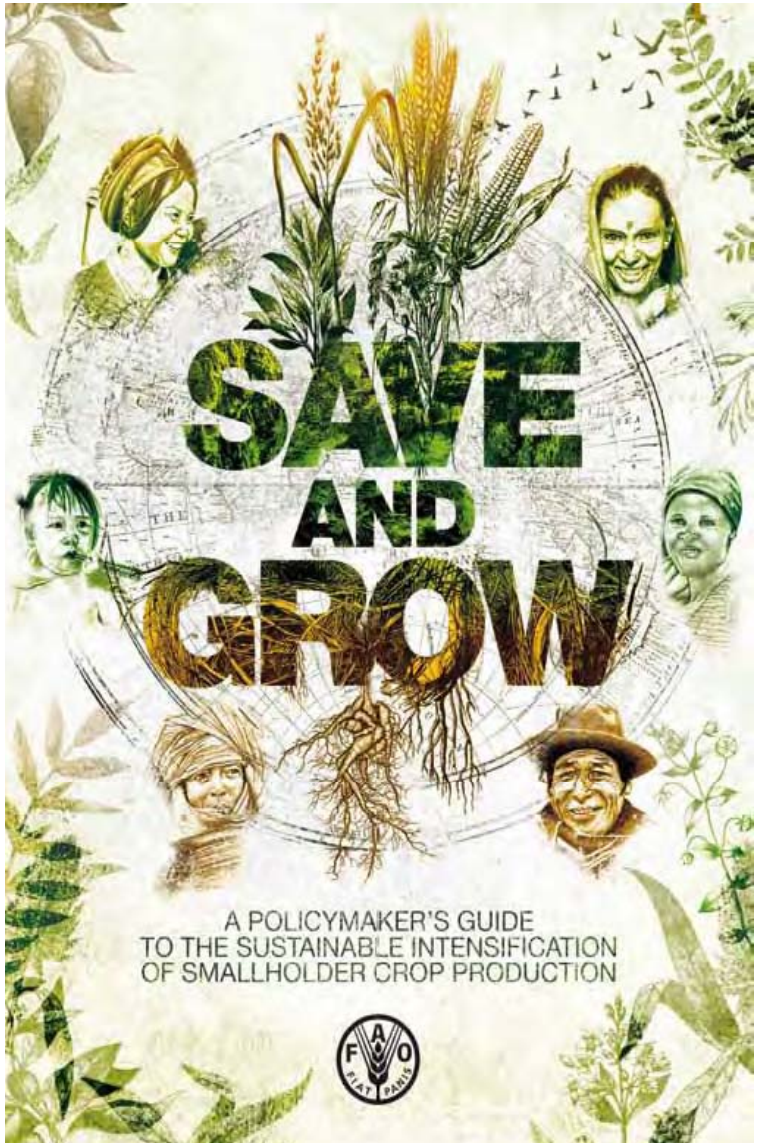




Soils and The Green Revolution

- Over the past half-century, since the advent of the Green Revolution, **world annual production** of **cereals coarse grains, roots and tubers, pulses and oil crops has grown from 1.8 million tonnes to 4.6 billion tones**. It is now recognized that those enormous gains in agricultural production and productivity were often accompanied by **negative effects on agriculture's natural resource base**, so serious that they jeopardize its productive potential in the future. Negative externalities of intensification include **land degradation**, salinization of irrigated areas, over-extraction of groundwater, the builtup of pest resistance and the erosion of biodiversity.
- The **declining quality of land and water resources** available for crop production has major implications for the future.
- **Soil is fundamental to crop production and rural developemnt**. Without soil, no food could be produced on a large scale, nor would livestock be fed. Because it is **finite and fragile**, soil is a precious resources that requires special care from its users. Many of today's soil and crop management systems are unsustainable. At one extreme **overuse of fertilizer has led, in the EU, to Nitrogen (N) deposition that threatens the sustainability of an estimated 70% of nature** (Hettelingh, J.P. et al, 2008). At the other extreme, in **most parts of sub-Saharan Africa, the under-use of fertilizer means that soil nutrients exported with crops are note being replenished**, leading to soil degradation and declining yields

NEW FAO PARADIGM FOR AGRICULTURE



The challenge

To feed a growing world population, we have no option but to intensify crop production. But farmers face unprecedented constraints. In order to grow, agriculture must learn to save.

The Green Revolution led to a quantum leap in food production and bolstered world food security. In many countries, however, intensive crop production has depleted agriculture's natural resource base, jeopardizing future productivity. In order to meet projected demand over the next 40 years, farmers in the developing world must double food production, a challenge made even more daunting by the combined effects of climate change and growing competition for land, water and energy. This book presents a new paradigm: sustainable crop production intensification (SCPI), which produces more from the same area of land while conserving resources, reducing negative impacts on the environment and enhancing natural capital and the flow of ecosystem services. While none of the options presented is etched in stone, all are based on sound scientific principles and have helped farmers around the world to "save and grow".

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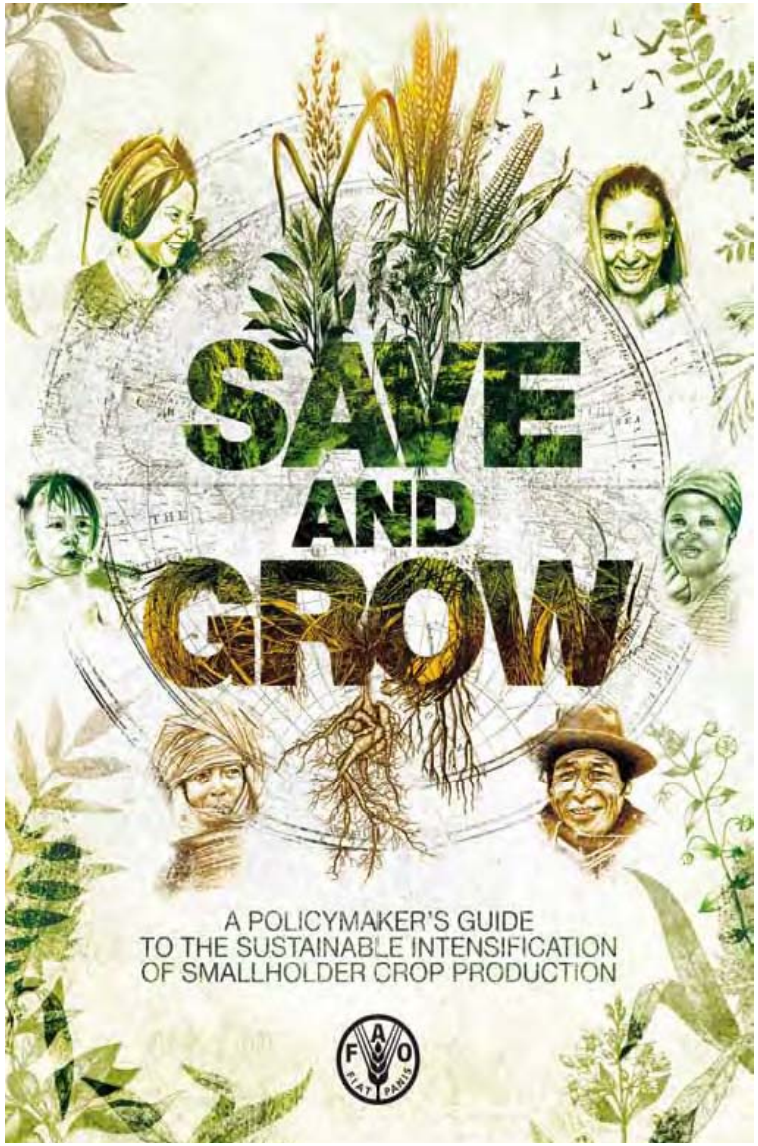
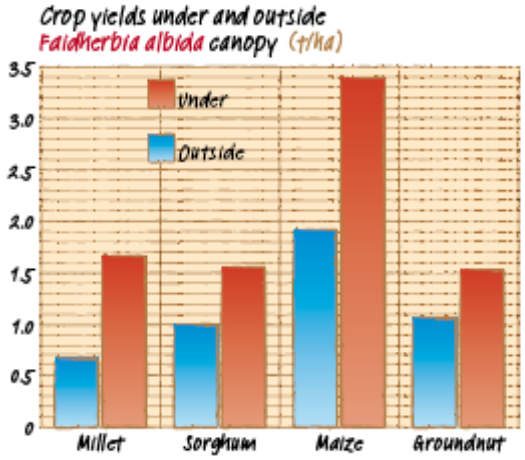


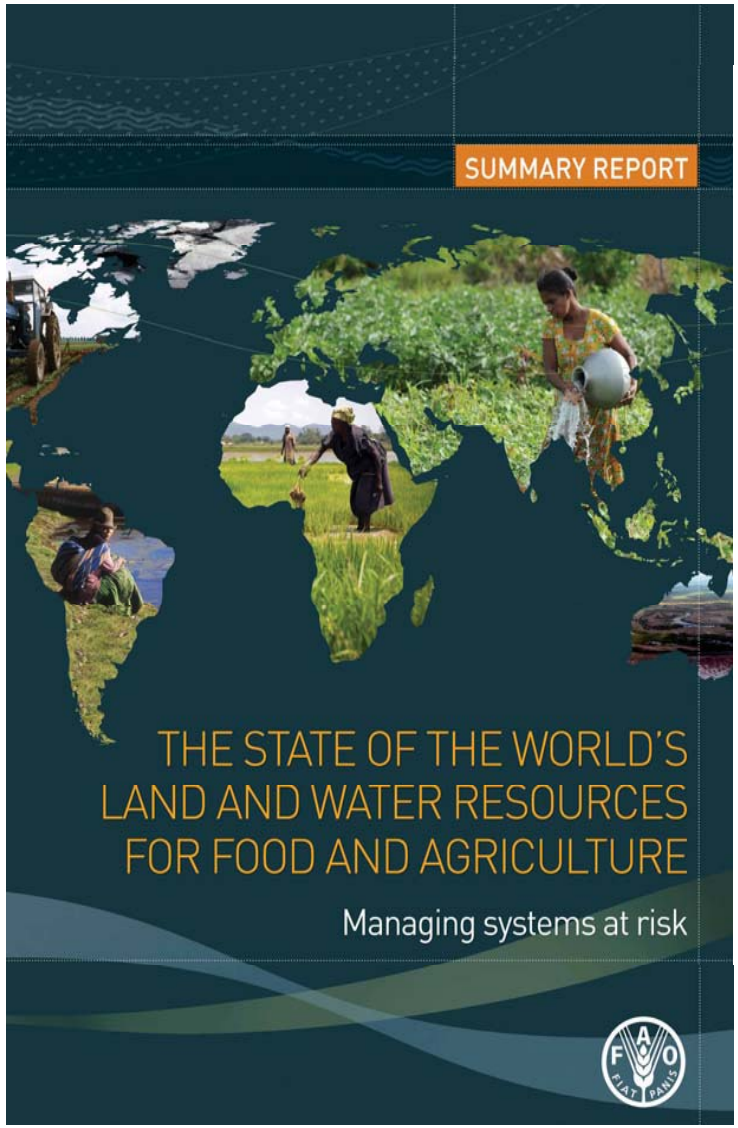
Soil health

Agriculture must, literally, return to its roots by rediscovering the importance of healthy soil, drawing on natural sources of plant nutrition, and using mineral fertilizer wisely.



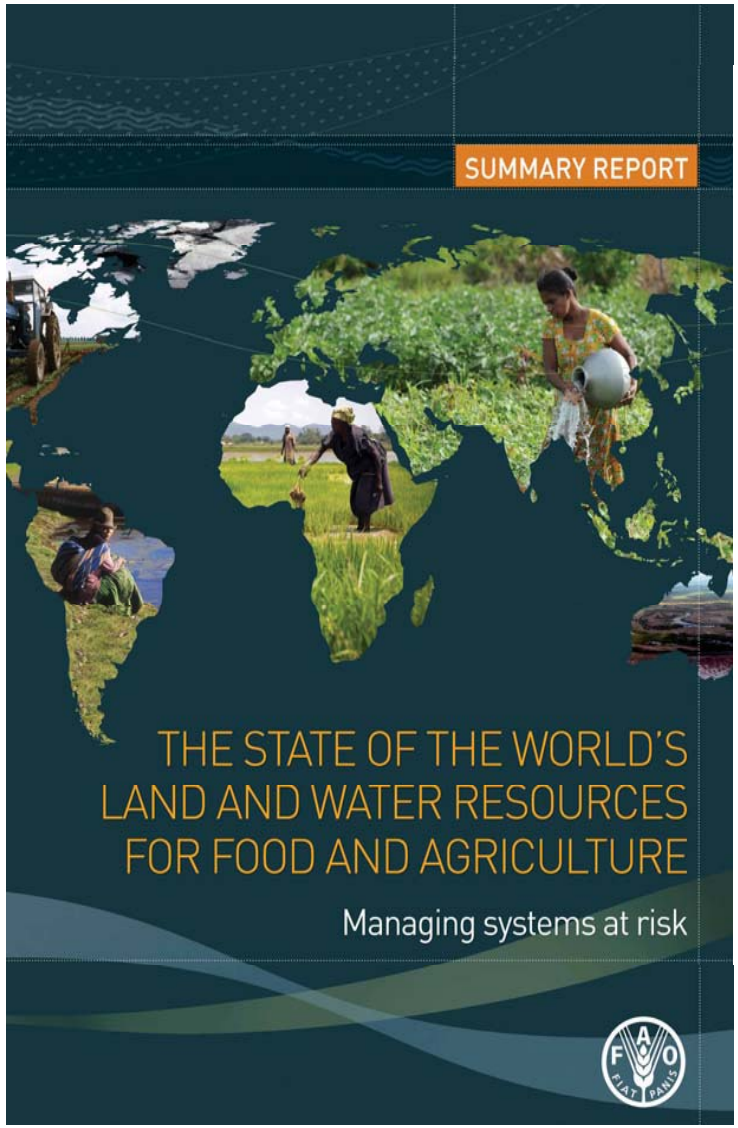
Soils rich in biota and organic matter are the foundation of increased crop productivity. The best yields are achieved when nutrients come from a mix of mineral fertilizers and natural sources, such as manure and nitrogen-fixing crops and trees. Judicious use of mineral fertilizers saves money and ensures that nutrients reach the plant and do not pollute air, soil and waterways. Policies to promote soil health should encourage conservation agriculture and mixed crop-livestock and agro-forestry systems that enhance soil fertility. They should remove incentives that encourage mechanical tillage and the wasteful use of fertilizers, and transfer to farmers precision approaches such as urea deep placement and site-specific nutrient management.

CURRENT AND FUTURE CHALLENGES FOR MANAGING SOILS



- **The world's cultivated area has grown by 12 percent over the last 50 years**.
- **Meanwhile, agricultural production has grown between 2.5 and 3 times, thanks to significant increase in the yield of major crops.**
- However, **global achievements in production in some regions have been associated with degradation of land and water resources**, and the deterioration of related ecosystem goods and services.
- **Toward 2050, rising population and incomes are expected to call for 70 percent more food production globally, and up to 100 percent more in developing countries, relative to 2009 levels**. Yet, the distribution of land and water resources does not favour those countries that need to produce more in the future.
- **The largest contribution to increases in agricultural output will most likely come from intensification of production on existing agricultural land. This will require widespread adoption of sustainable land management practices**

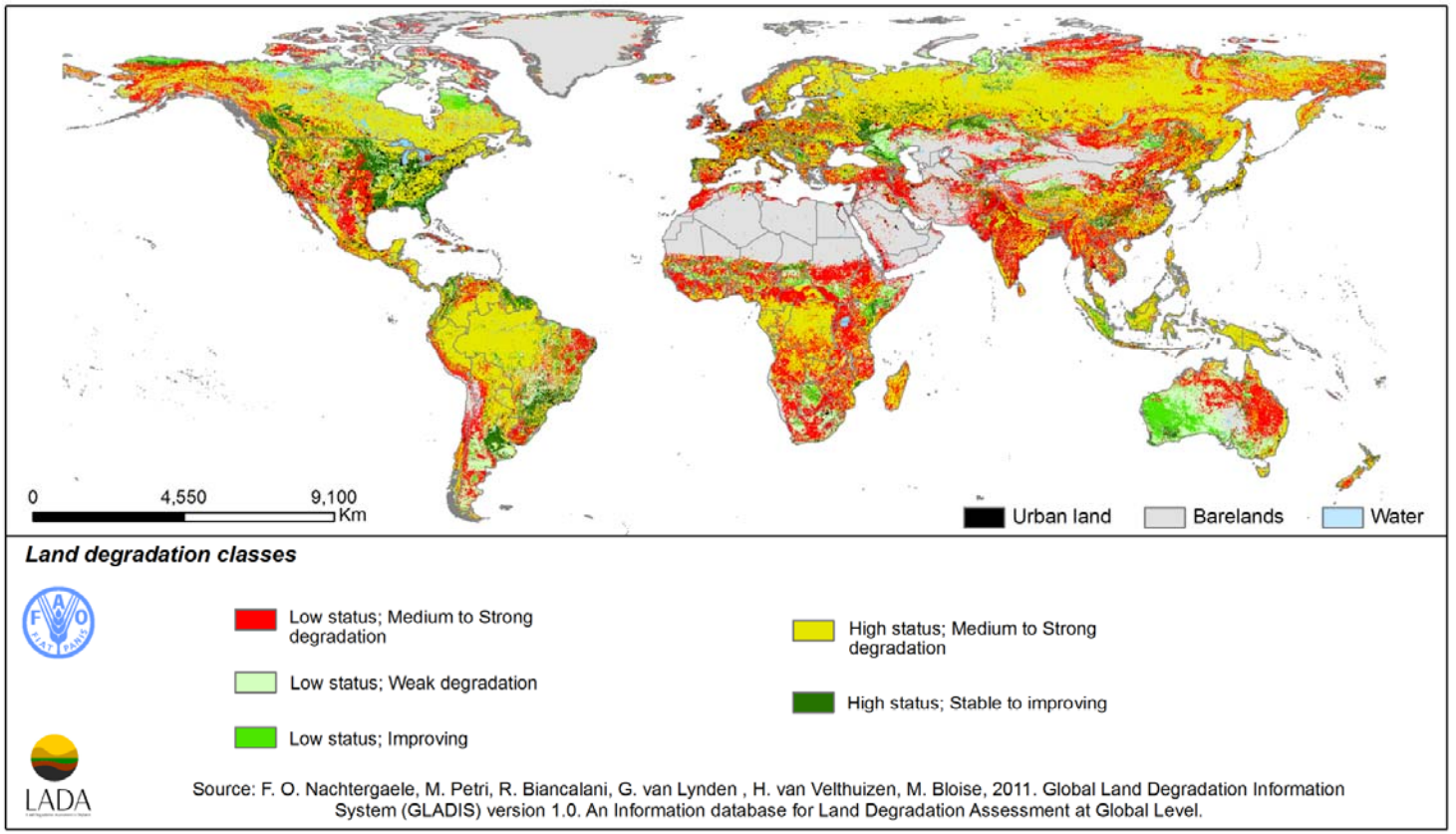
CURRENT AND FUTURE CHALLENGES FOR MANAGING SOILS



- **A series of land and water systems now face the risk of progressive breakdown of their productive capacity under a combination of excessive demographic pressure and unsustainable agricultural practices.**
- **The potential exists to expand production efficiently to address food security and poverty while limiting impacts on other ecosystem values**.
- **Actions include not just technical options to promote sustainable intensification and reduce production risks, they also comprise a set of conditions to remove constraints and build flexibility.** These include (1) the removal of distortions in the incentives framework, (2) improvement of land tenure and access to resources, (3) strengthened and more collaborative land and water institutions, (4) efficient support services including knowledge exchange, adaptive research, and rural finance, and (5) better and more secured access to markets.
- **The negative trend in national budgets and official development assistance allocated to land and water needs to be reversed**.
- Finally, **there is a need for much more effective**

What are the problems with Soils?

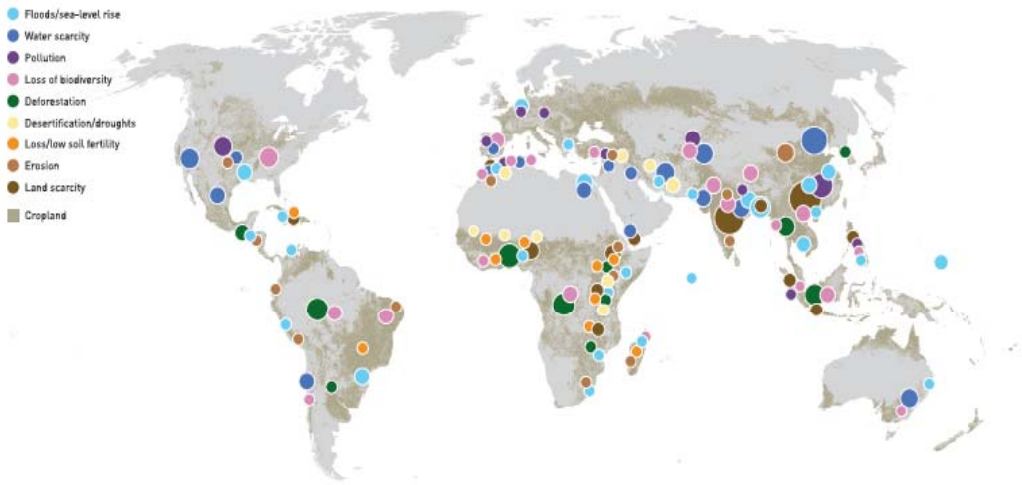
- **Soils are fragile and under a high and increasing degradation:**



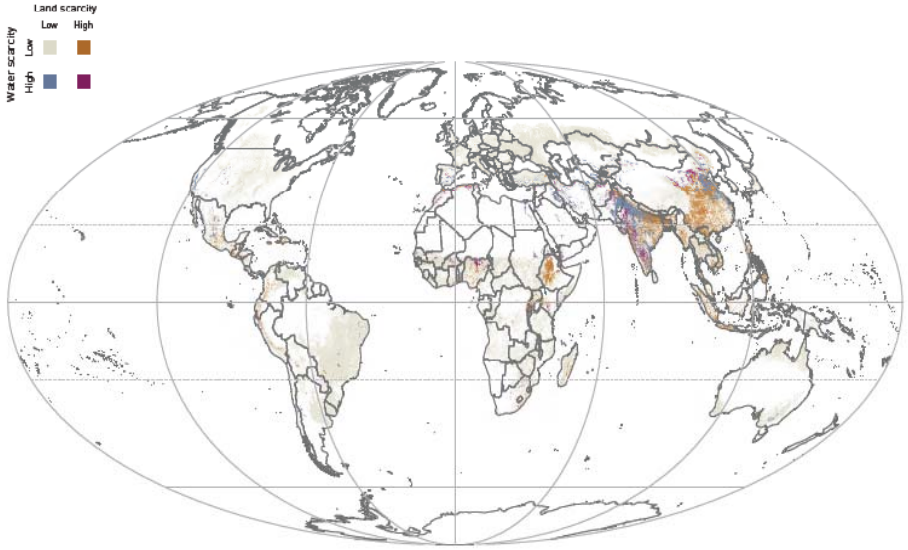
- **Water and wind erosion**
- **Nutrient depletion (OM)**
- **Salinisation**
- **Contamination**
- **Acidification**
- **Compaction**

SYSTEMS AT RISK

SCHEMATIC OVERVIEW OF RISKS ASSOCIATED WITH MAIN AGRICULTURAL PRODUCTION SYSTEMS



AGRICULTURAL SYSTEMS AT RISK: HUMAN PRESSURE ON LAND AND WATER



Soils response today

Worrying issues:

- Soil data/information heterogeneous, fragmented, partly outdated (soil fertility, carbon content) difficult to compare, not easy accessible and not responding to users demands;
- Soil capacities are constantly becoming scarce (loosing soil expertise);
- Soil Knowledge too technical for specialists, and not translated and used for decision making and not tailored to development agendas of today's issues;
- Investments in soil management are far too low compared to the needs;
- Need of compatible soil policies for: UNCCD, UNCBD, UNFCC, Food security, disaster and drought management, land conflicts and grabbing , rural poverty , rural/urban planning.

Why a Global soil Partnership ?

- The renewed recognition of the **central role of soil resources as the basis for food security and the provision of key ecosystem services**, including climate change adaptation and mitigation, has triggered numerous regional and international projects, initiatives and actions.

- Despite these numerous emergent activities, **soil resources are still seen as a second-tier priority and no international governance body exists** that advocates for and coordinates initiatives to ensure that the knowledge and recognition of **soils are appropriately represented in global change dialogues and decision making processes**.

- At the same time, there is **need for coordination and partnership to create one, authoritative voice for soils** and to avoid fragmentation of efforts and wastage of resources.

Why a Global soil Partnership ?

A Global soil Partnership (complementing the Global water partnership) can bring due **recognition and concerted action** with stakeholders at international, national and local levels to protect and sustain soil resources as the basis for sustainable agriculture and food security.

It will provide a **platform and intergovernmental mechanism** for **updating and sharing knowledge** on soils, for **developing capacities** of users and technical institutions and providing information and evidence for **strengthened policies and investment programmes.**

The **conservation** and, where possible, **enhancement and restoration** of the **soil resources** of the world through a **sustainable and productive use** should therefore be the ultimate twinned **goal of the GSP**.

Launch of the GSP Initiative at Rome 2011

With the support of **EC-JRC**, GSP started its establishment.

200 participants from different type of organizations (120) and countries (100):

- Country representatives to FAO;
- International Organizations
- Research Institutions
- National Institutions
- NGOs
- Universities
- Farmers associations
- Soil science networks and associations.

GSP Vision and Mission

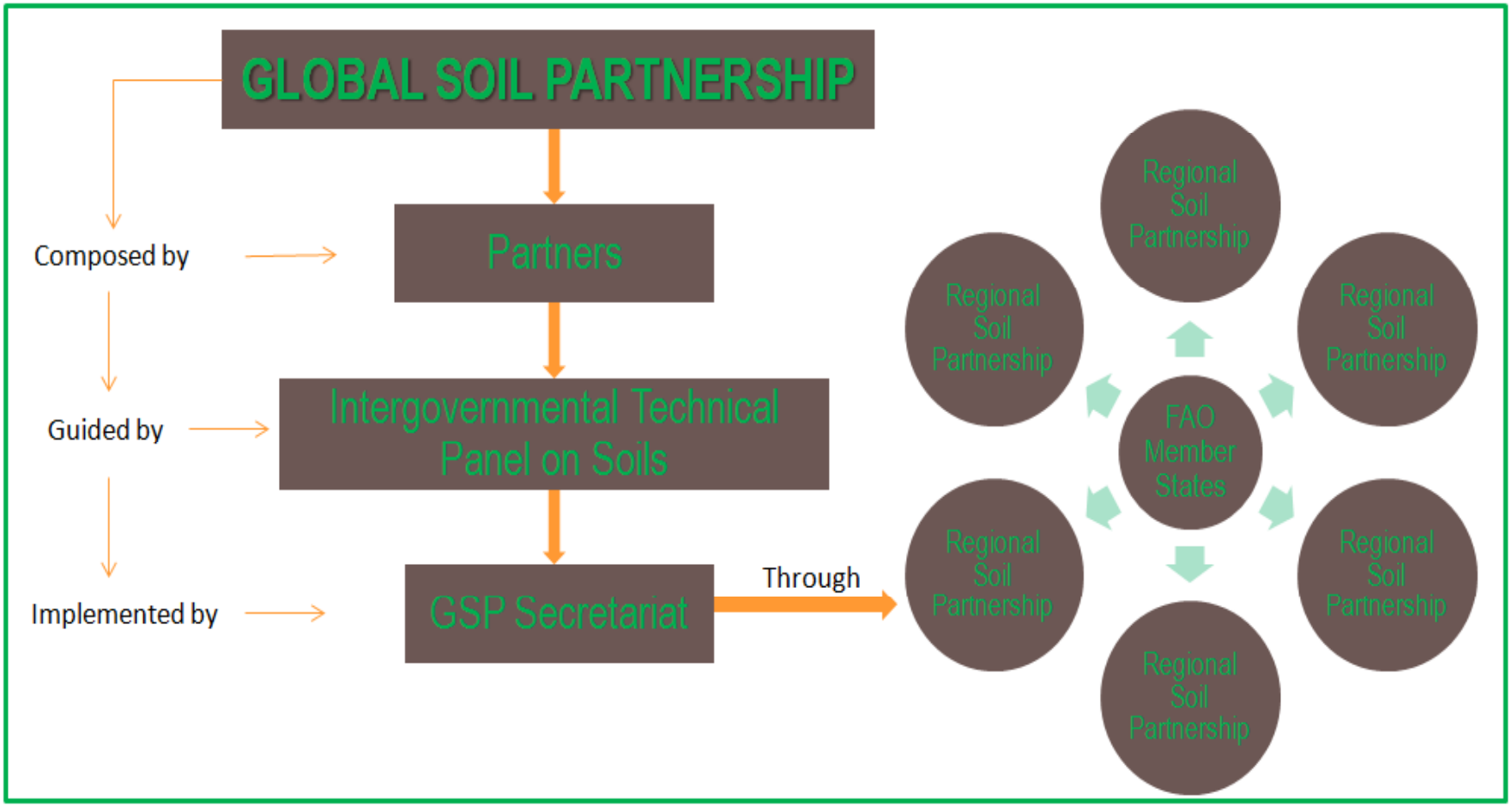
- **The Vision of the GSP** is the improvement of the global governance of the limited soil resources of the planet in order to guarantee healthy and productive soils for a food secure world, as well as sustain other ecosystem services on which our livelihoods and societies depend including water regulation and supply, climate regulation, biodiversity conservation and other cultural services.

- **The Mission of the GSP** is to develop capacities, build on best available science, and facilitate the exchange of knowledge and technologies between stakeholders, for sustainable management of soil resources at all levels with a view to enhancing food security, protecting ecosystem services, and contributing to poverty alleviation in an era of increasing human demands and climate change.

GSP Proposed Pillars of Action

1. Promoting sustainable management of soil resources and improved global governance for soil protection and sustainable productivity;
2. Encouraging investment, technical cooperation, policy, education awareness and extension in soils;
3. Promoting targeted soil research and development focusing on identified gaps and priorities and synergies with related productive, environmental and social development actions;
4. Enhancing the quantity and quality of soil data and information: data collection, analysis, validation, reporting, monitoring and integration of data with other disciplines;
5. Harmonization and establishment of voluntary guidelines of methods, measurements and indicators for the sustainable management and protection of soil resources;

The Global Soil Partnership



Proposal of the main elements of the GSP

- A an interactive, responsive **Partnership** open to governments and stakeholders and organizations at various levels. The different kinds of partners that will be needed include financial/funding partners, technical/scientific partners, advisory partners, and general partners. These partners could come from any kind of regional and national institutions/organizations working on soils (GOs, Universities, Civil institutions, Research centers, soil science societies, UN agencies, NGOs, Private companies, farmer associations, donors, etc);

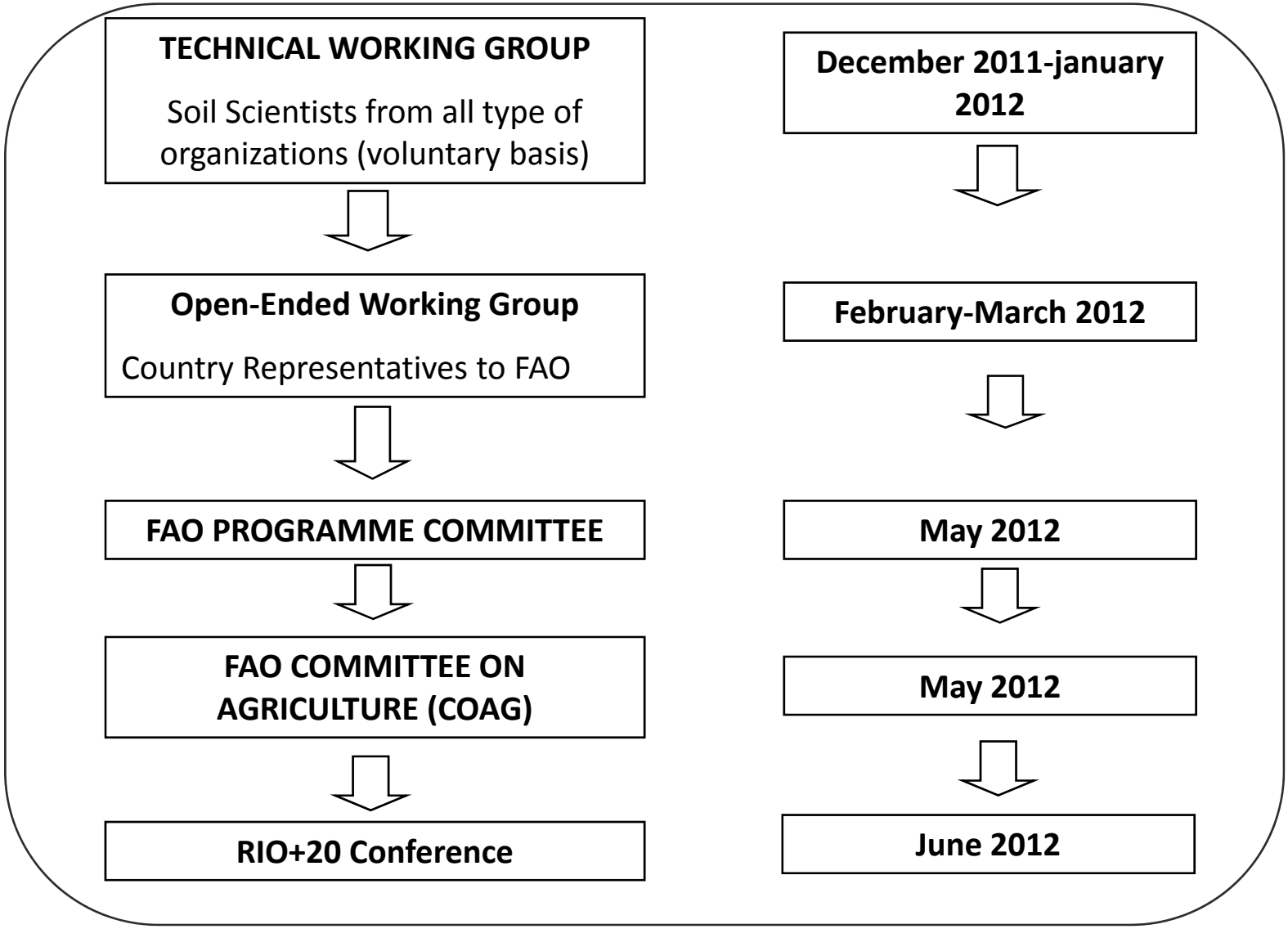
- **An Intergovernmental Technical Panel on Soils** to provide scientific and technical advice to the Global Soil Partnership and FAO as well as to provide an authoritative technical voice on global soil issues, including to other relevant conventions, such as the UNFCCC, CBD and UNCCD.

Proposal of the main elements of the GSP

- The **GSP Secretariat** is the coordination and facilitation body of the GSP that will be in charge of supporting the implementation of the GSP work programme through its regional partnerships and networks;

- The **Regional Soil Partnership** should be formed among interested and active stakeholders. These regional partnerships will work in close coordination with FAO Regional Offices and will establish an interactive consultative process with national soils entities, regional soil science societies and other relevant regional mechanisms under the various related conventions. Preferably, they will build on existing regional networks or collaborative processes (e.g. African Network for Soil Biology and Fertility-AfNET), linking National and local networks, partners, projects and activities to ensure that the partnership process is country-driven.

AGREED WAY FORWARD BY THE GSP MEETING PARTICIPANTS



Status on the Establishment of the GSP

a) Second round of the Zero ToRs by the **GSP-Technical Working Group (GSP-TWG);**

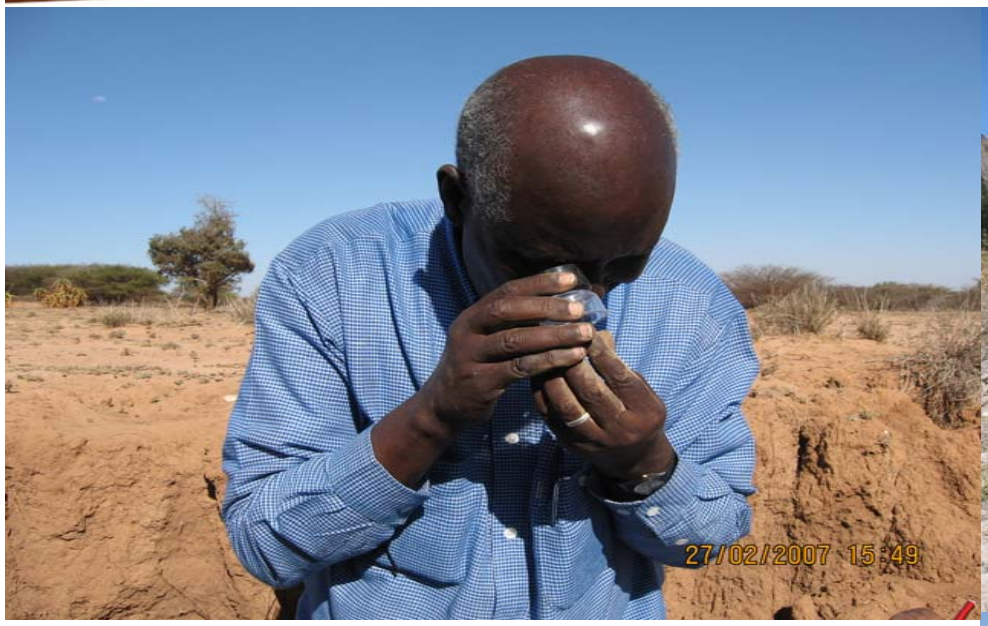
b) Composition of the **Open-Ended Working Group (composed by country representatives o FAO)** who will review the draft ToRs submitted by the TWG. Role and ownership by developing regions (GRULAC, G77);

c) Preparations towards RIO+20 (Unified Soils side event plus political support). GSP is part of the first draft of the Final RIO+20 document.

d) Actions in the field: FAO funding (through Letters of Agreement, making use of available networks and leading institutions) the establishment of Regional Soil Partnerships (networks) and development of Regional Soil Information Systems in **Asia,** Latin America and Middle East;

e) Organization together with JRC and ISRIC of the first technical **workshop "Towards Global Soil Information"** (March 2012);

f) Discussion of **Synergies with other partners and initiatives** (UNCCD, and other such as GSF).



Welcome to join us!
GSP