Presentation of the Voluntary Guidelines for Soil Sustainable Management

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Environment

Setting the context

- Soil is a **non-renewable** natural resource
- It performs **crucial** ecological, social and economic functions
- Soils are being **increasingly degraded** or **irreversibly lost** across the EU
- Main soil threats in the EU: loss of organic matter, soil erosion, loss of soil biodiversity, soil contamination, soil sealing, soil compaction, salinisation and acidification
- Estimated costs of soil degradation reach up to **€38bn per year** (SEC(2006)620)

Susceptibility to erosion by water - JRC

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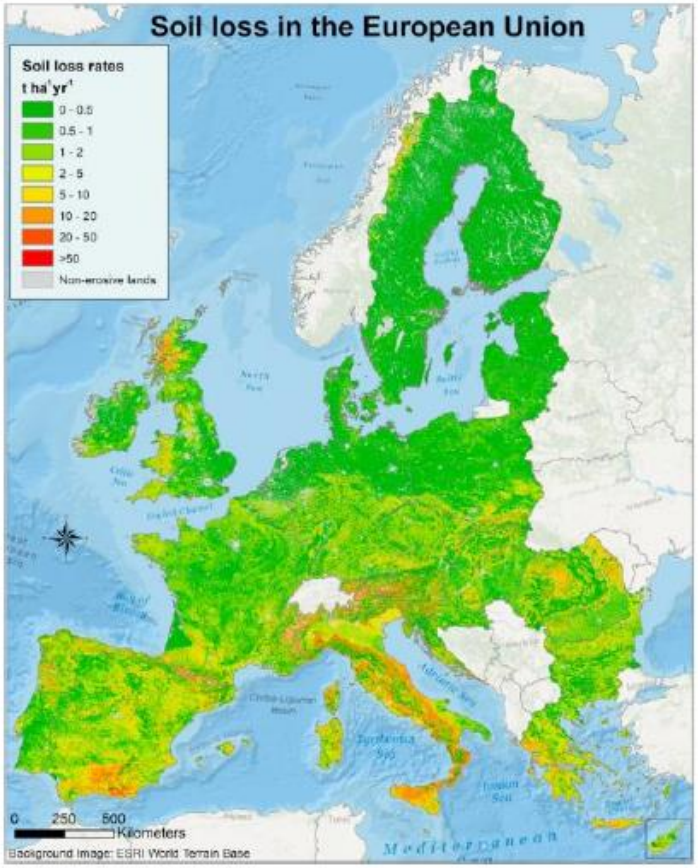
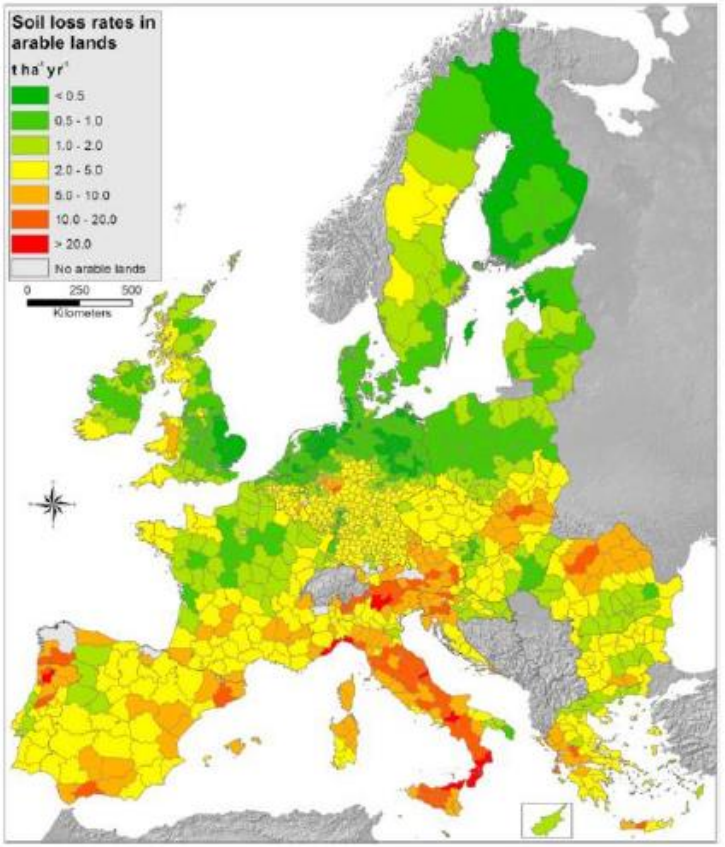
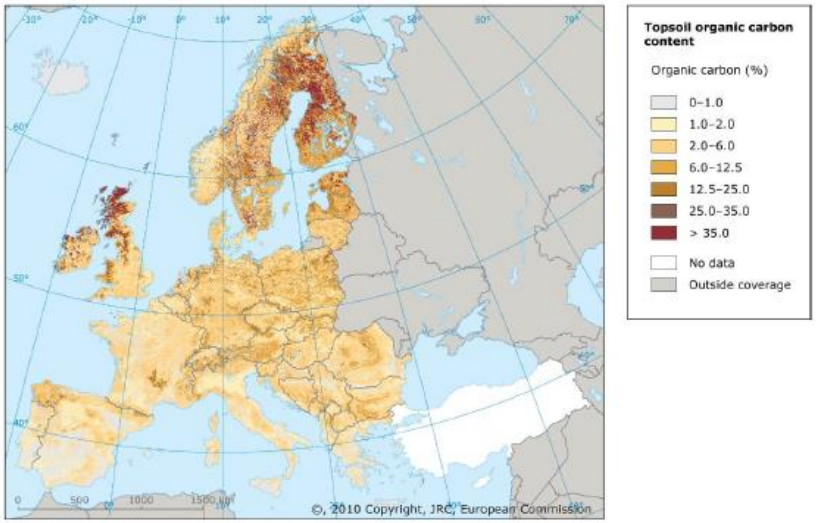


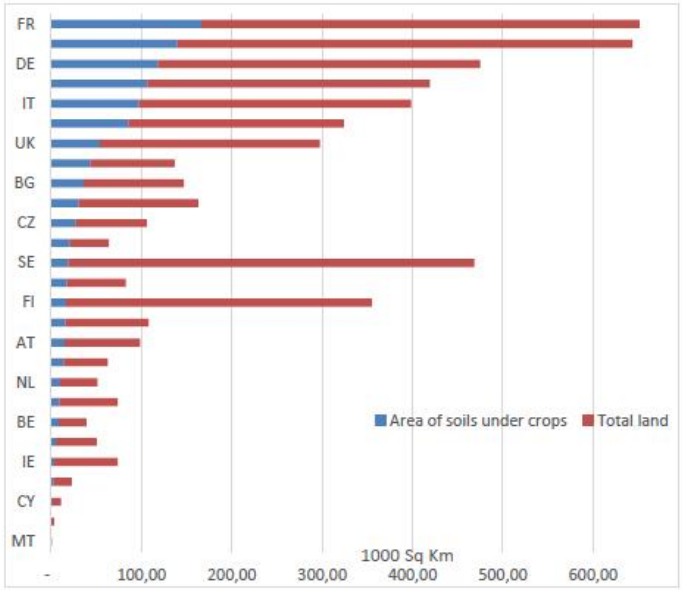


Environmental Science & Policy, 54, December 2015, 438–447: Average soil loss rate per country
Alternatively: loss in arable land

Soil organic matter decline - JRC



Proposal: soil organic matter decline as % arable land of total land



JRC based on ESTAT data

Soil biodiversity

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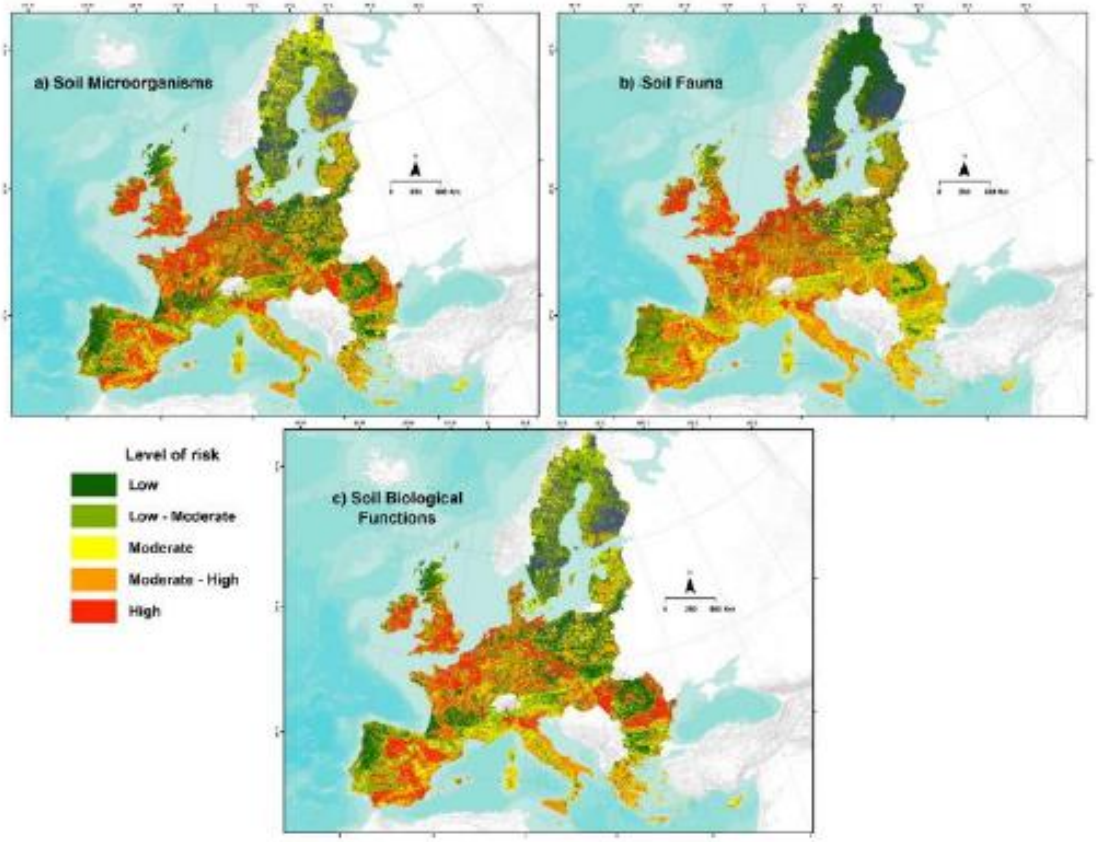
JRC European Atlas of Soil Biodiversity



Orgiazzi et al 2015, Science of The Total Environment: Volumes 545–546, 1 March 2016, 11–20

Global Context

- *Healthy soil essential for heathy food and food security*
- *Many aspects of sustainable development conditional to SSM (Soil Sustainable Management)*
- *Today at Global level 25% of soil considered as extremely/severely degraded – 12 Mio ha lost each year due to land degradation*
- *Land degradation is a growing issue aggravated by climate change and affecting all regions of the world (including EU)*
- *More and more awareness of the link between land degradation and migration/conflicts issues*

Global Context

- *Combined cost of land degradation to agriculture production worldwide estimated at over one trillion euros – almost 2.8 % of global GDP lost*
- *Cost of land degradation is not only loss of harvests, reduced income and food insecurity but also loss of soil ecosystem services provided free of charge*
- *However land degradation not inevitable – SSM policies and land/soil restoration measures can break the cycle of degradation and restore land productivity*

Soil and land in SDGs

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- *Soil and land explicitely mentioned in 3 SDGs but land and soil sustainable management conditional to many other SDGs targets*

- *SDG Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture*
  - **Target 2.4: By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.**

- *SDG Goal 3: Ensure healthy lives and promote well-being for all at all ages*
  - **Target 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.**

- *SDG Goal 15: Sustainably manage forest, combat desertification, halt and reverse land degradation, halt biodiversity loss*
  - **Target 15.3 By 2020 , combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation-neutral world**

VGSSM

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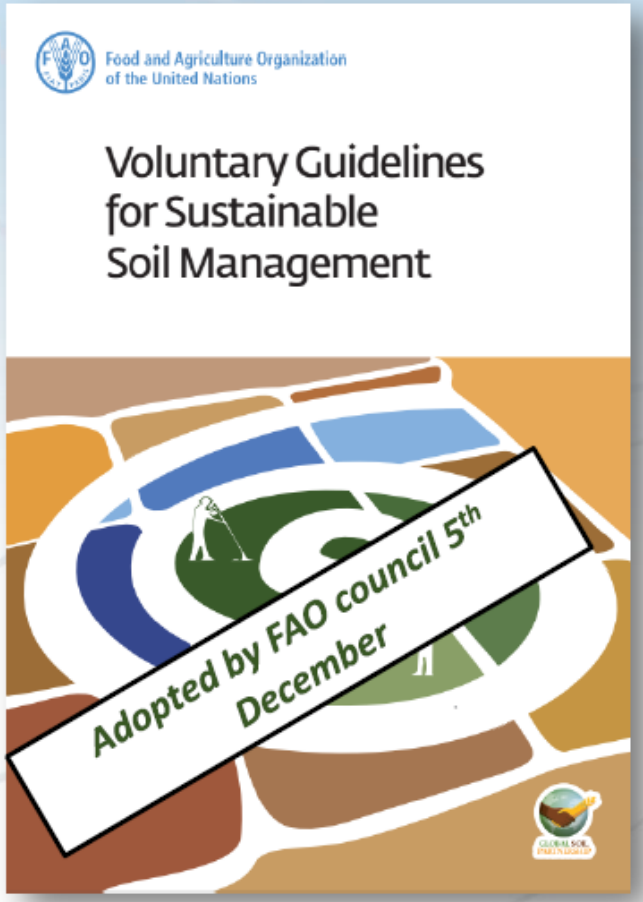
OBJECTIVES

To present *generally accepted, practically proven and scientifically based principles* to promote SSM and to *provide guidance to all stakeholders* on how to translate these principles into practice, be it for farming, pastoralism, forestry or more general natural resources management.



SSM definition

- *SSM is defined according to Principle 3 in the revised World Soil Charter as follows:*

- *"Soil management is sustainable if the **supporting, provisioning, regulating, and cultural services provided by soil** are maintained or enhanced without significantly impairing either the **soil functions** that enable those services or biodiversity. The **balance** between the supporting and provisioning services for **plant production** and the **regulating services** the soil provides for water quality and availability and for atmospheric greenhouse gas composition is a particular concern".*

VGSSM

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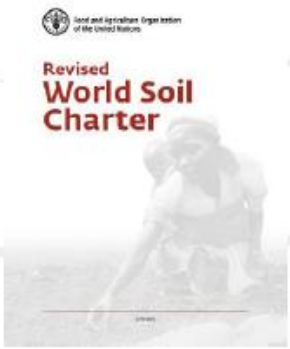
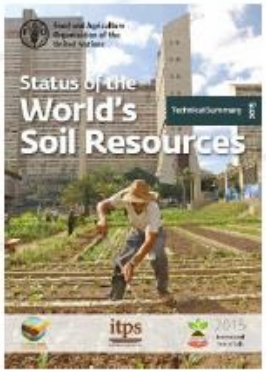
Outline of the VGSSM

- They are of voluntary nature and are not legally binding;
- They elaborate the principles outlined in the revised World Soil Charter;
- They take into account the evidence provided in the SWSR;





Guidelines for Sustainable Soil Management

1. Minimize soil erosion
2. Enhance soil organic matter content
3. Foster soil nutrient balance and cycles
4. Prevent, minimize and mitigate soil salinization
5. Prevent and minimize soil contamination
6. Prevent and minimize soil acidification
7. Preserve and enhance soil biodiversity
8. Minimize soil sealing
9. Prevent and mitigate soil compaction
10. Improve soil water management

Voluntary Guidelines for Sustainable Soil Management

SSM is associated with the following characteristics:

1. Minimal rates of **soil erosion** by water and wind;
2. The **soil structure** is not degraded (e.g. soil compaction) and provides a stable physical context for movement of air, water, and heat, as well as root growth;
3. Sufficient **surface cover** (e.g. from growing plants, plant residues, etc.) is present to protect the soil;
4. The store of **soil organic matter** is stable or increasing and ideally close to the optimal level for the local environment;
5. Availability and flows of **nutrients** are appropriate to maintain or improve soil fertility and productivity, and to reduce their losses to the environment;
6. Soil **salinization**, **sodification** and **alkalinization** are minimal;
7. **Water** (e.g. from precipitation and supplementary water sources such as irrigation) is efficiently infiltrated and stored to meet the requirements of plants and ensure the drainage of any excess;
8. **Contaminants** are below toxic levels, i.e. those which would cause harm to plants, animals, humans and the environment;
9. **Soil biodiversity** provides a full range of biological functions;
10. The **soil management systems** for producing food, feed, fuel, timber, and fibre rely on optimized and safe use of inputs; and
11. **Soil sealing** is minimized through responsible land use planning.

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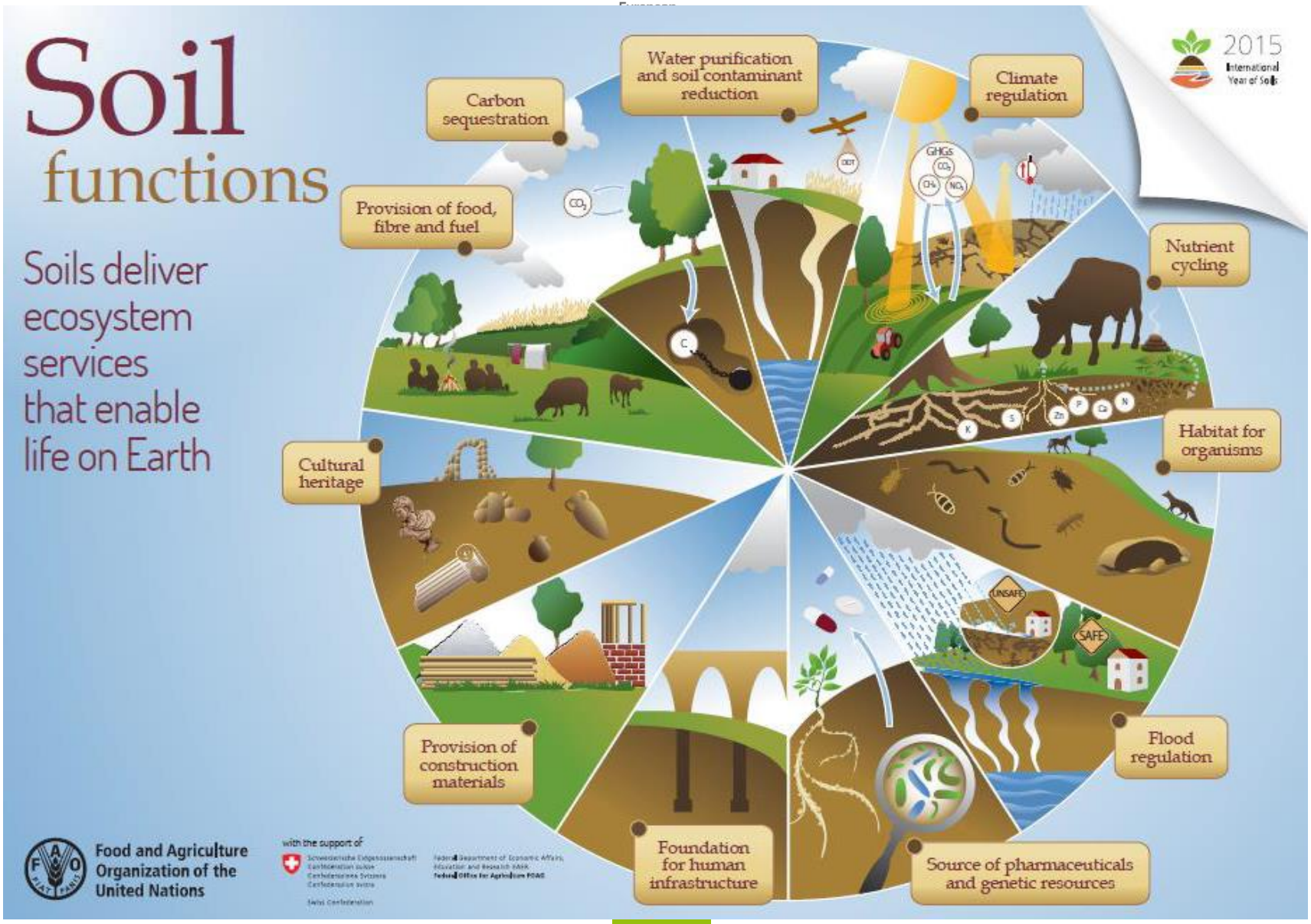
Role of Soil Organic Carbon (SOC)
Critical functions


Soil
functions
Soils deliver ecosystem services that enable life on Earth
2015
International Year of Soils
Water purification and soil contaminant reduction
Climate regulation
Carbon sequestration
Provision of food, fibre and fuel
Nutrient cycling
Cultural heritage
Habitat for organisms
Provision of construction materials
Flood regulation
Foundation for human infrastructure
Source of pharmaceuticals and genetic resources
GHGS
UNSAFE
SAFE
Food and Agriculture Organization of the United Nations
with the support of

How to promote VGSSM?

- *Even if voluntary by nature VGSSM can be used as **reference document** for policy making and for implementing SSM practices*
- *VGSSM do not aim at providing detailed guidance for each kind of soil types and each specific situation on soil degradation*
- *Need to be **adapted at local level** but can help practioners (farmers, farm advisors, NGOs…) to implement **integrated** SSM practices based on universal principles*
- *Reflection on VGSSM adaptation in the context of regional Soil Partnerships – national focal points nominated by governments - more partners needed*

Way forward towards National implementation of the VGSSM

- Initiate an awareness raising campaign at all levels
- Develop the necessary capacities at National level for effective implementation
- Establish training programs at local level on SSM
- Develop an effective data collection and monitoring system for measuring success (or failure)

ENRD feed-back on VGSSM is welcome!

Thank you for your attention!

http://ec.europa.eu/environment/soil/index_en.htm

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