



# SOIL AND SOIL FUNCTIONS

## Suolo e funzioni del suolo

Luca Montanarella  
European Commission



European  
Commission

# Soil, the skin of the earth

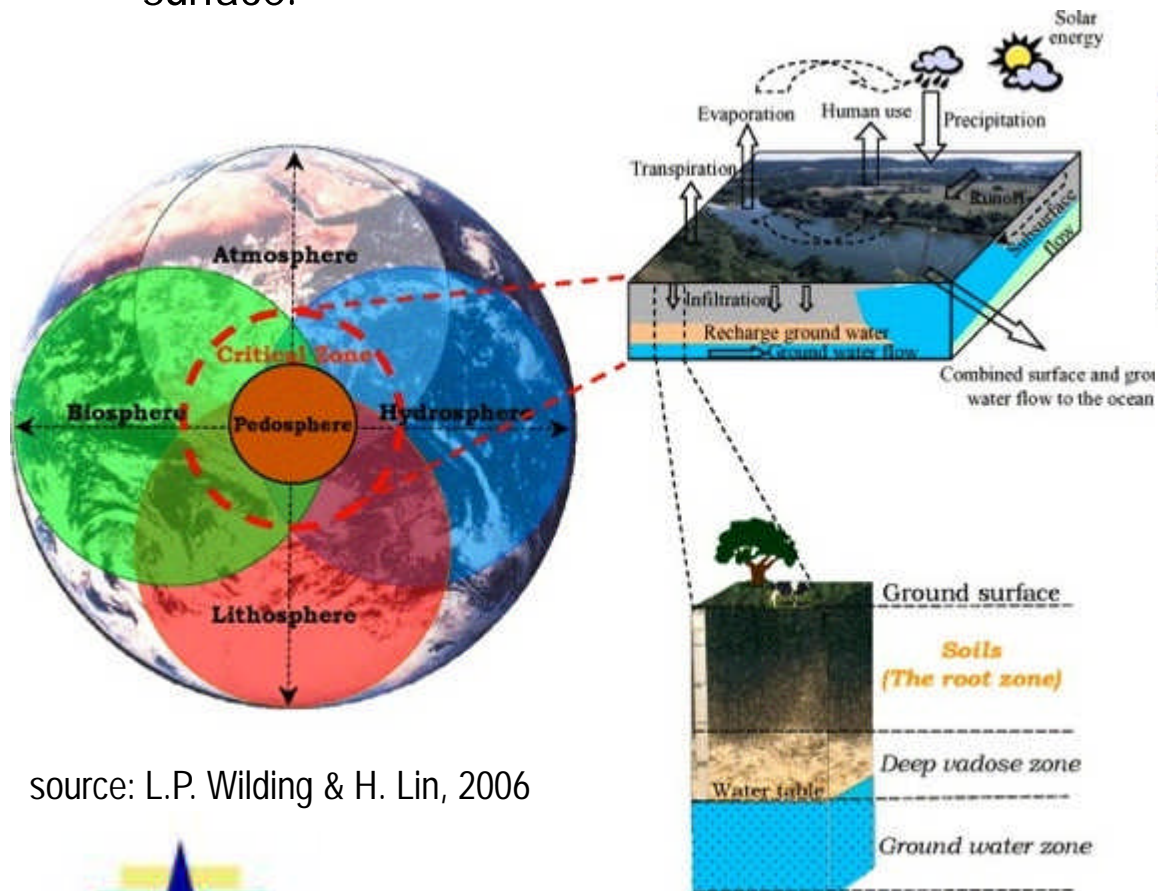


# Soils at the interface between Atmosphere, Hydrosphere, Lithosphere and Biosphere

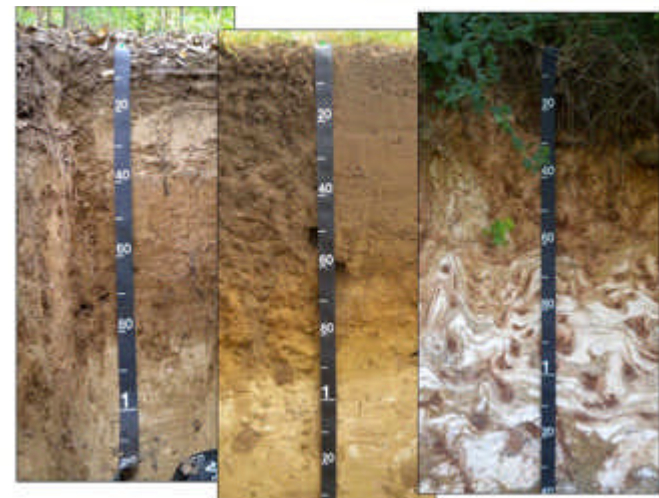
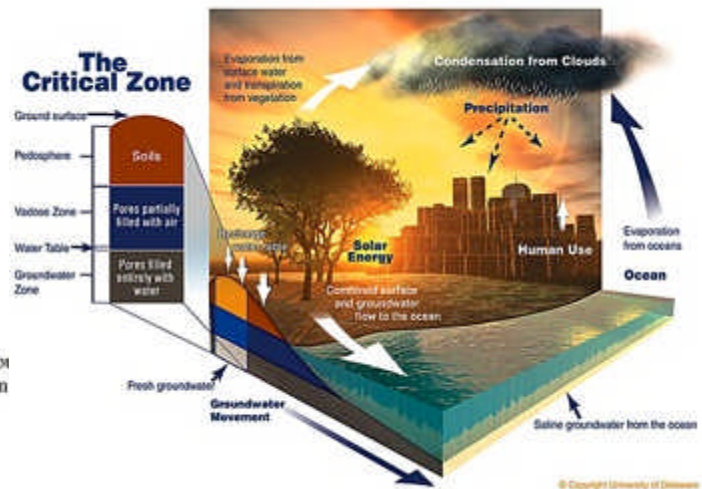


European Commission

Soil defined as the top layer of the earth's crust situated between the bedrock and the surface.



source: L.P. Wilding & H. Lin, 2006



source: E. Micheli





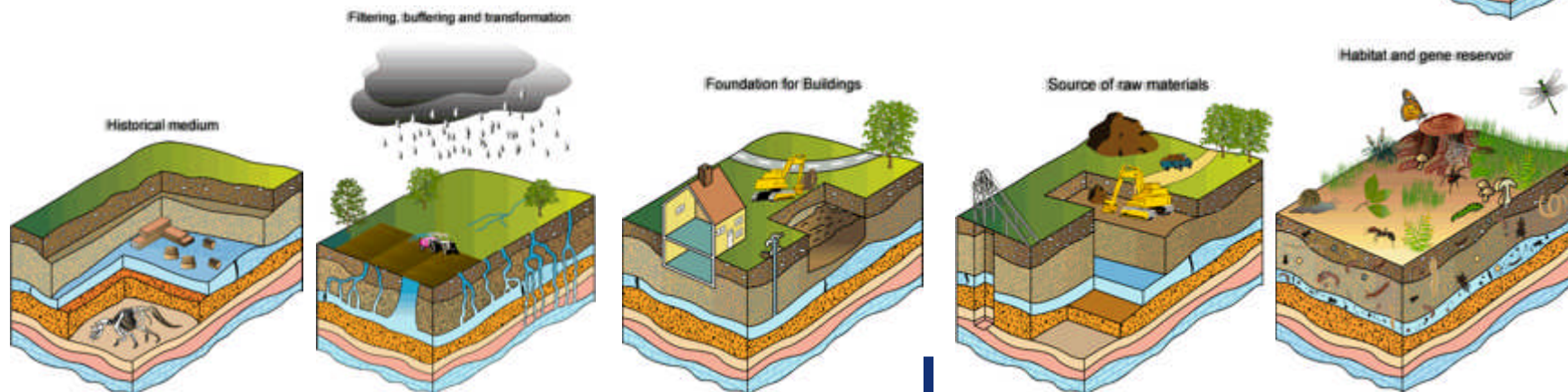
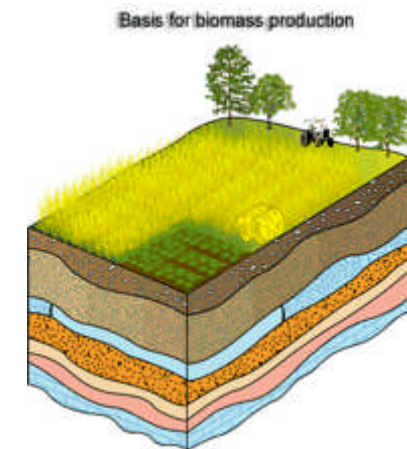
European  
Commission

## Proposed EU Soil Framework Directive: Article 1: Subject-matter and scope

Soil defined as the top layer of the earth's crust situated between the bedrock and the surface, excluding groundwater.

Soil functions to be protected:

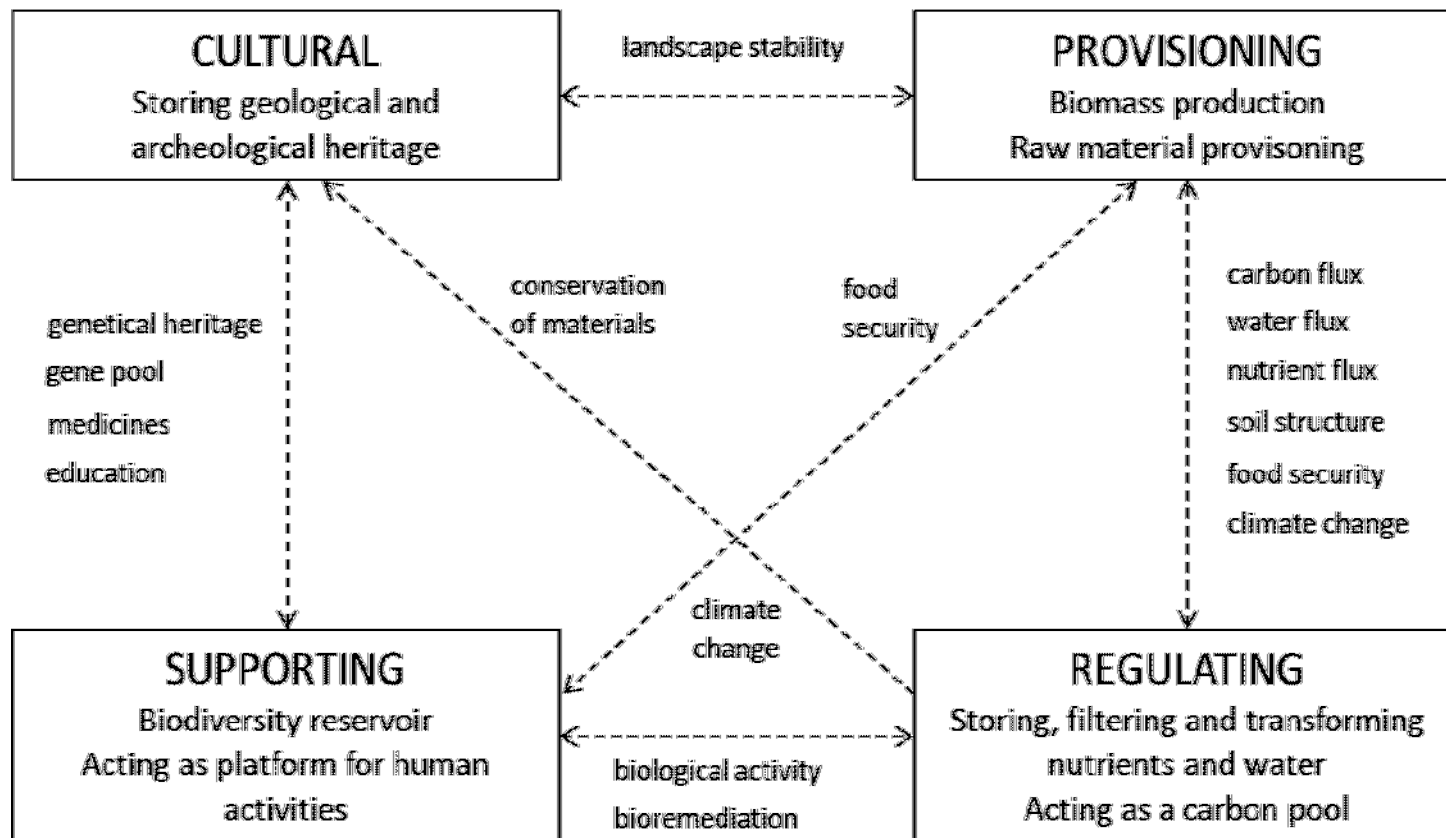
- Biomass production, including in agriculture and forestry;
- Storing, filtering and transforming nutrients, substances and water;
- Biodiversity pool, such as habitats, species and genes;
- Physical and cultural environment for humans and human activities;
- Source of raw materials;
- Acting as carbon pool;
- Archive of geological and archeological heritage.





European  
Commission

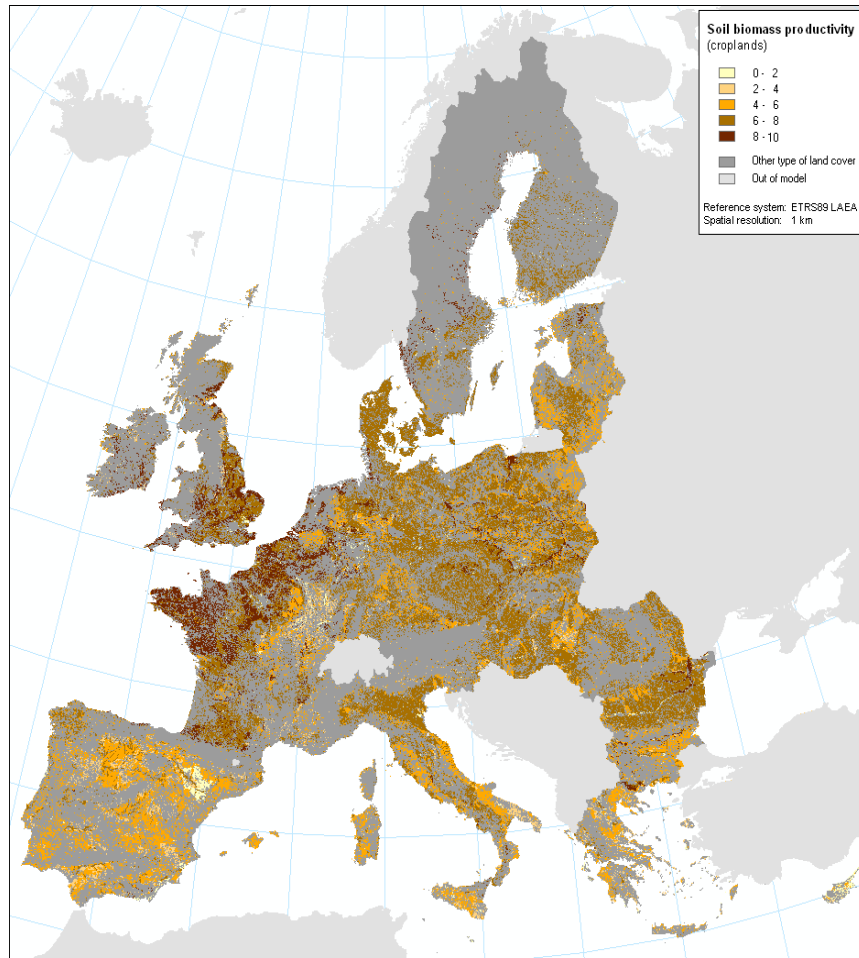
# Soil ecosystem services





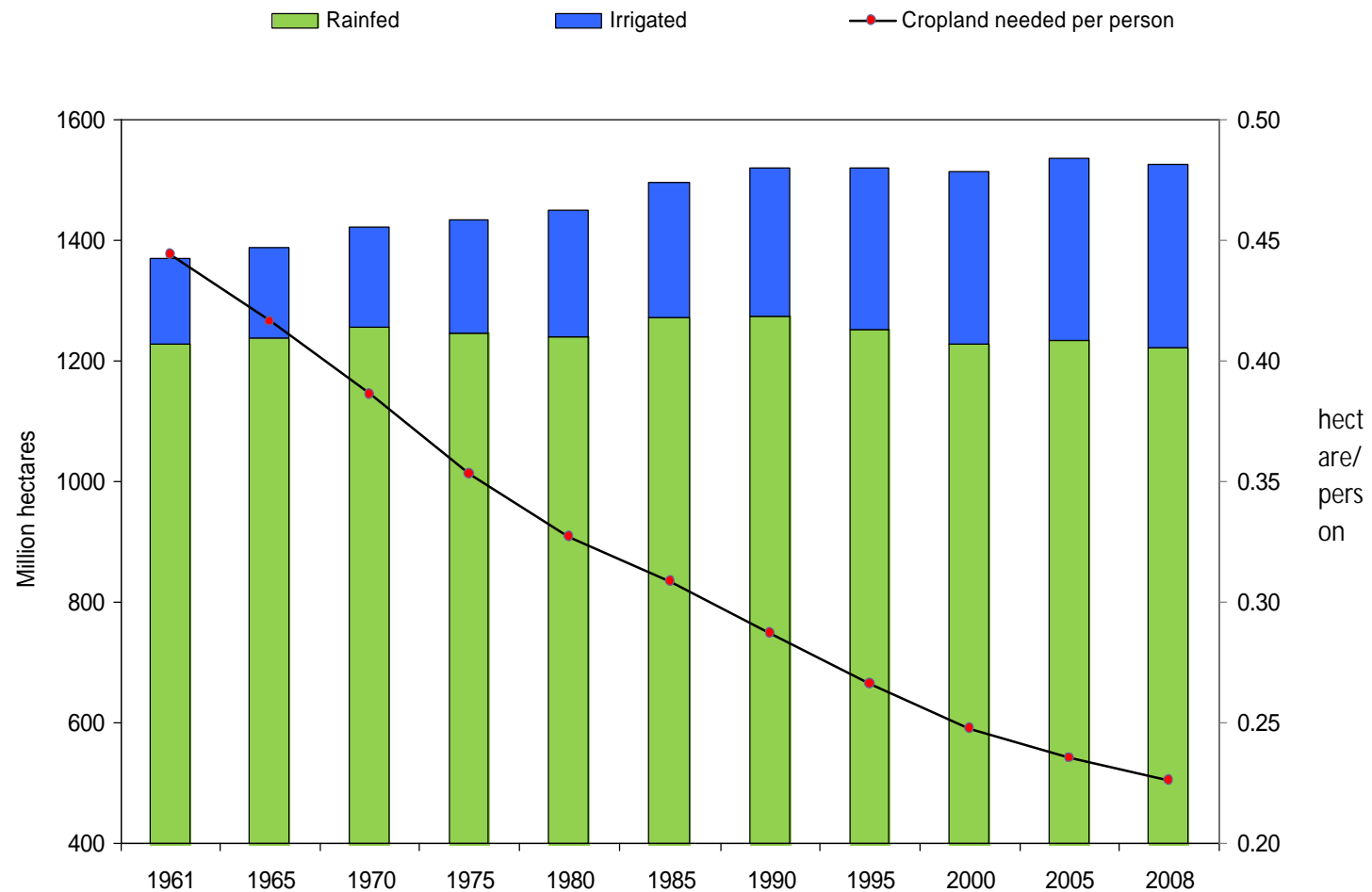
European  
Commission

# Biomass productivity vs. Soil Sealing



# Assuring that there will be enough fertile soils for feeding future generations

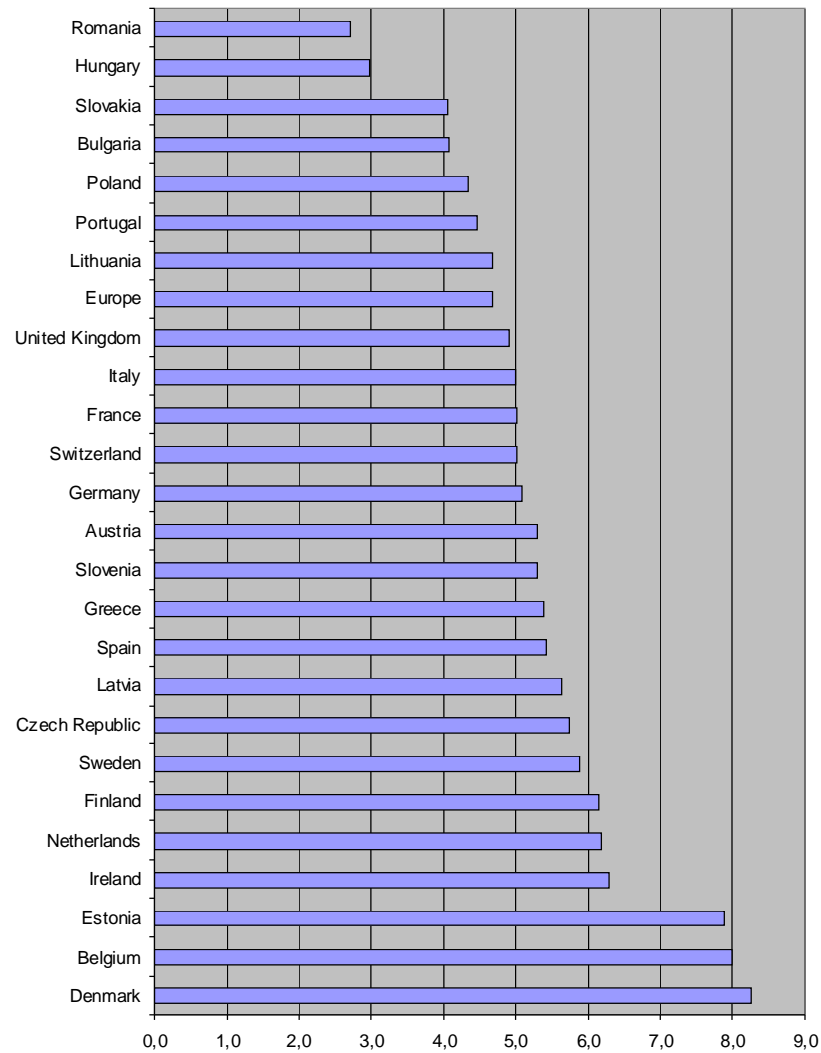
Evolution of land under irrigated and rainfed cropping (1961-2008)





European  
Commission

Ecological Footprint (2007), Hectares per person



## Our Ecological Footprint!

The 'ecological footprint' of some EU Member States consumption (not available for all countries) plus Switzerland – an assumption and data based assessment of the natural resources consumed by a Member State, measured in hectares/capita.

Data from from National Footprint Accounts 2010 edition, WWF and Global Footprint Network., retrievable at [www.footprintnetwork.org](http://www.footprintnetwork.org)



# We have only one Planet!



We need to decide what we want to do with our soils!

# The Way Forward

“TOWARDS A GLOBAL SOIL  
PARTNERSHIP FOR FOOD  
SECURITY AND CLIMATE  
CHANGE ADAPTATION AND  
MITIGATION”

7-9 September 2011



GLOBAL SOIL  
PARTNERSHIP



# Soils as a cross-cutting theme between food security, climate change, desertification and biodiversity

Food Security



IPTS

IPBES

CBD

Biodiversity



GLOBAL  
SOIL BIODIVERSITY  
INITIATIVE

Climate Change



IPCC

UNCCD



Desertification



# TOWARDS THE RIO+20 CONFERENCE

## General Goals:

*A green economy in the context of sustainable development and poverty eradication*

*The institutional framework for sustainable development*

## Soil Related Targets:

*Endorsement of the **Global Soil Partnership (GSP)***

*Agreement of a Sustainable Development Goal (SDG) on Land and Soil: **Zero Net Land Degradation***

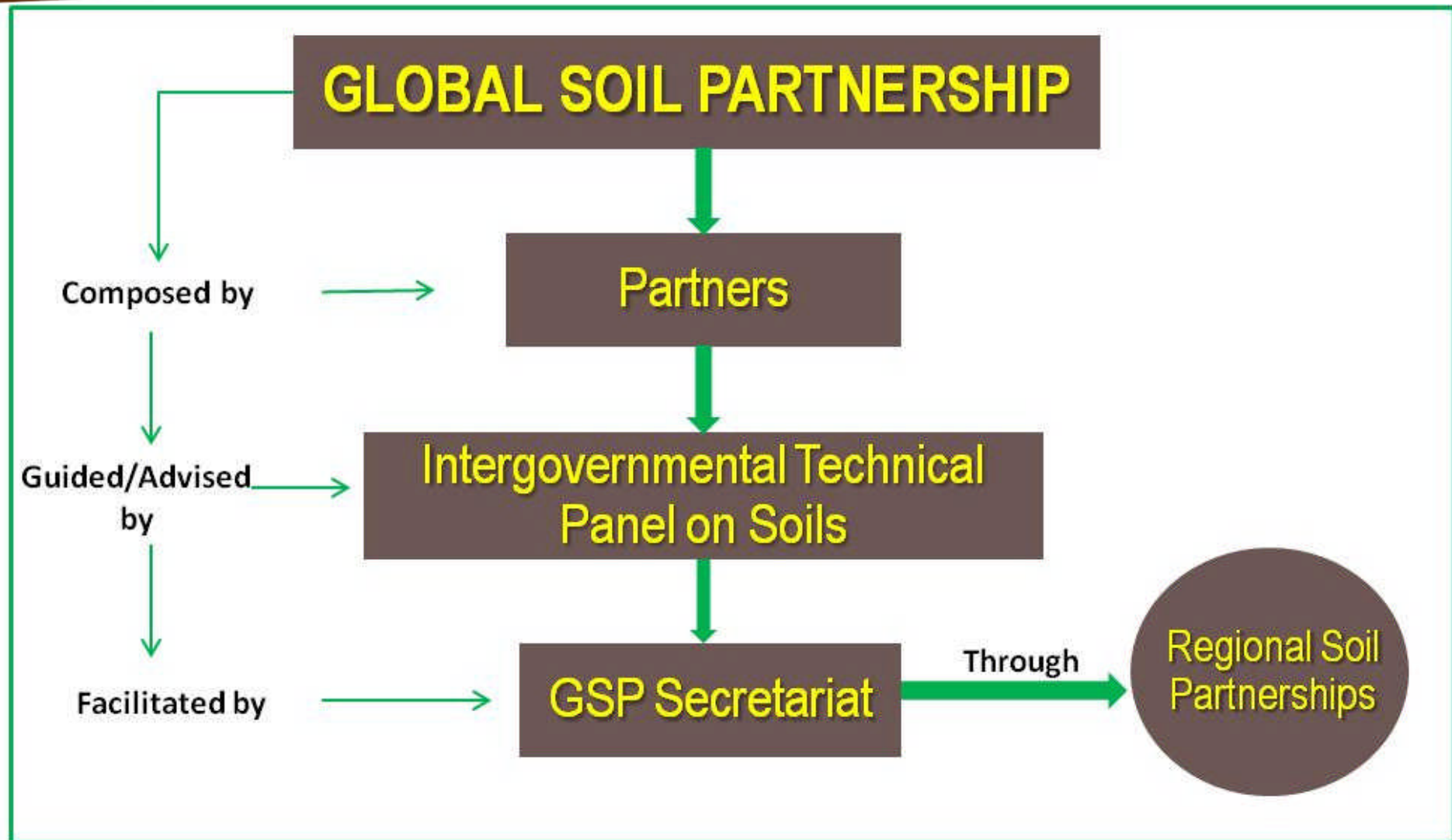


RIO 2012

United Nations  
Conference on  
Sustainable Development

The Future we want!

# The Global Soil Partnership to be presented in the Rio+20 conference





Towards Rio+20: The Future We Want:

A Zero Net Land Degradation World

- Ø What does it mean?
- Ø Who should implement it?
- Ø How can it be measured?
- Ø When should it be achieved?





European  
Commission

Thank you for your interest!



<http://eusoils.jrc.ec.europa.eu/>

