



Joint Research Centre (JRC)

# Soil mapping in a global perspective

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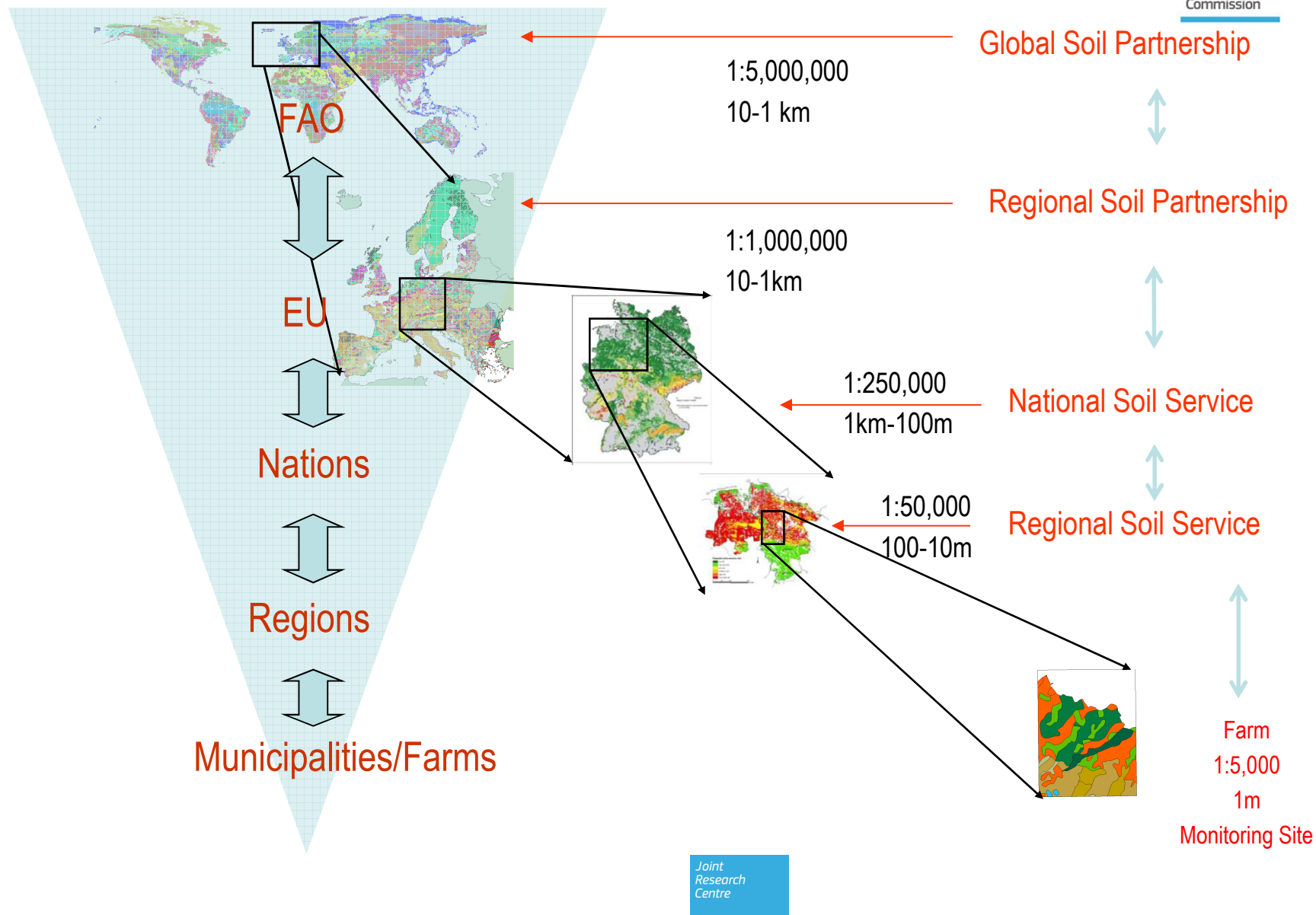
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# Soil data and information: Who needs it?

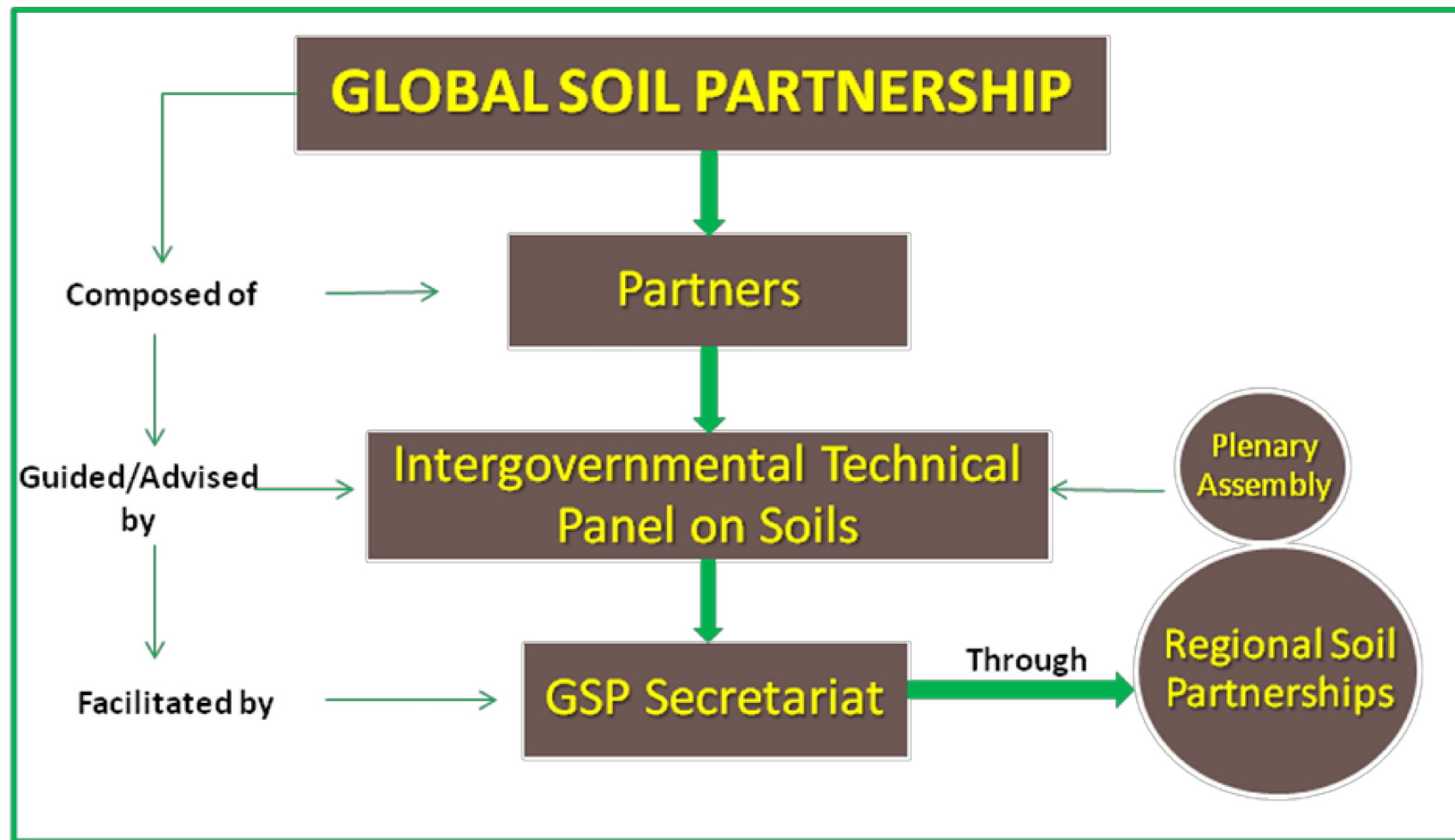
- Who needs **Global** soil data and information?
  - Parties and stakeholders of Multilateral Environmental Agreements (MEA): UNFCCC, CBD, UNCCD
  - UN Agencies and Programmes (FAO, UNEP, IAEA, etc...)
  - Scientific community supporting global policy implementation (IPCC, IPBES, ITPS, etc...)
- Who needs **Regional** soil data and information?
  - Regional Organizations (EU, AU, etc...)
- Who needs **National** soil data and information?
  - National authorities
- Who needs **Local** soil data and information?
  - Farmers
  - Spatial planners
  - Local administrations

# Integrating data at different spatial scales: From the Local to the Global Scale

## *A coherent system of soil data and information at different scales*



# The Global Soil Partnership



# Membership of the Intergovernmental Technical Panel of Soils (ITPS): 27 Members nominated by governments from 7 regions



## **AFRICA**

- ☐ Dr. Isaurinda Dos Santos Baptista Costa -Cape Verde
- ☐ Dr. Martin Yemefack - Cameroon
- ☐ Prof. Dr. Victor Chude - Nigeria
- ☐ Dr. Mohamed Badraoui - Morocco
- ☐ Prof. Dr. Tekalign Mamo - Ethiopia

## **ASIA**

- ☐ Prof. Dr. Gan Lin Zhang – China
- ☐ Prof. Dr. Milkha Singh Aulakh – India
- ☐ Dr. Kazuyuki Yagi – Japan
- ☐ Dr. Suk Young Hong – Republic of Korea
- ☐ Dr. Pisoot Vijarnsorn – Thailand

## **EUROPE**

- ☐ Dr. Helaina Black - United Kingdom
- ☐ Dr. Sobocká Jaroslava - Slovak Republic
- ☐ Dr. Dominique Arrouays - France
- ☐ Dr. Luca Montanarella - Italy
- ☐ Dr. Pavel Krasilnikov - Russia

## **LATIN AMERICA AND THE CARIBBEAN**

- ☐ Dr. Maria de Lourdes Mendonca Santos -Brazil
- ☐ Dr. Miguel Taboada - Argentina
- ☐ Dr. Carlos Roberto Henríquez - Costa Rica
- ☐ Dr. David Espinosa Victoria - Mexico
- ☐ Dr. Julio Alegre - Peru

## **NEAR EAST**

- ☐ Prof. Dr. Seyed Kazem Alavi Panah – Iran
- ☐ Prof. Dr. Elsiddig Ahmed ElMustafa ElSheikh – Sudan
- ☐ Dr. Abdullah AlShankiti – Saudi Arabia

## **NORTH AMERICA**

- ☐ Dr. Cheryl Palm – United States
- ☐ Prof. Dr. John Daniel Pennock – Canada

## **SOUTH WEST PACIFIC**

- ☐ Dr. Marta Camps Arbestain - New Zealand
- ☐ Dr. Neil McKenzie - Australia

# Five GSP Pillars of Action



1] to promote **sustainable management of soil resources** for soil protection, conservation and sustainable productivity;

2] to encourage **investment, technical cooperation, policy, education awareness and extension in soils**;

3] to promote targeted **soil research** and development focusing on identified gaps and priorities and synergies with related productive, environmental and social development actions;

4] to 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 the sustainable management and protection of soil resources.

# Developing Pillar 4



## TOWARDS GLOBAL SOIL INFORMATION: ACTIVITIES WITHIN THE GEO TASK GLOBAL SOIL DATA

### Workshop Report



20 - 23 March 2012  
FAO Headquarters, Rome, Italy



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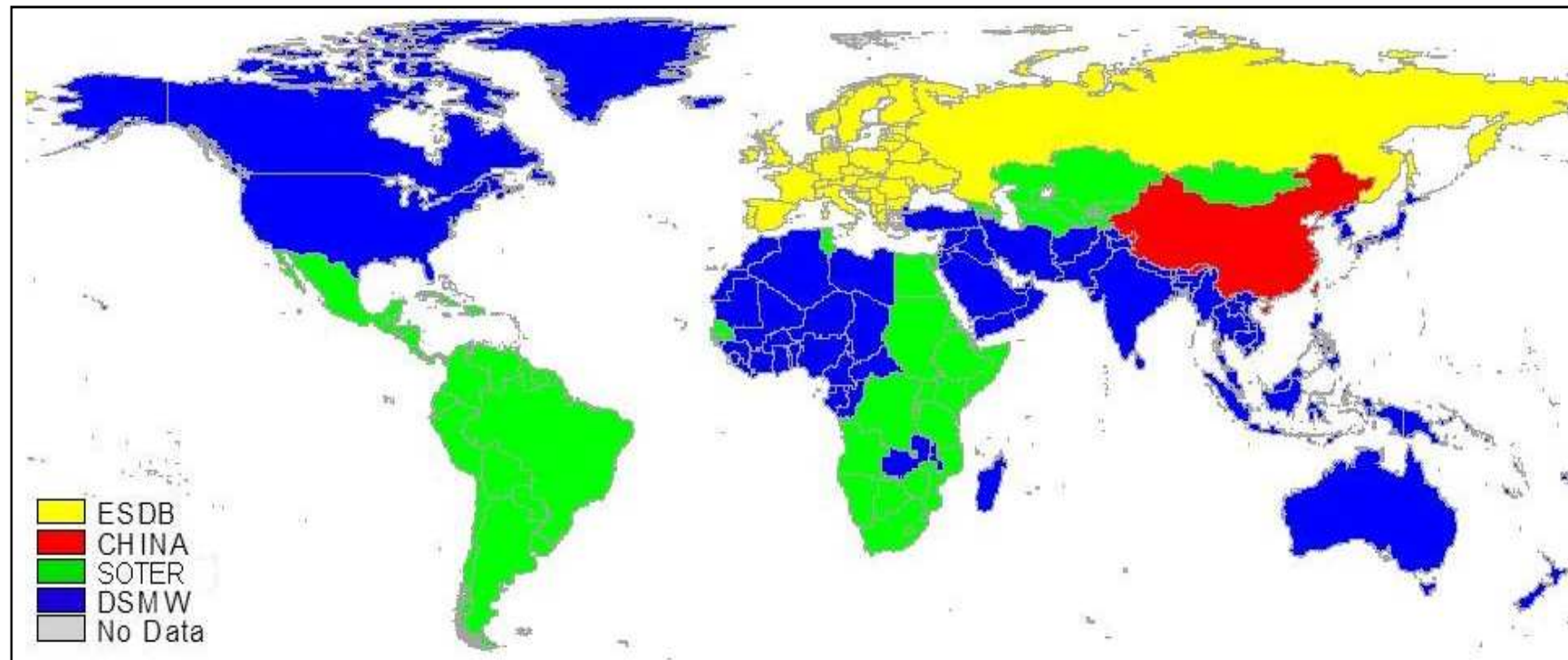




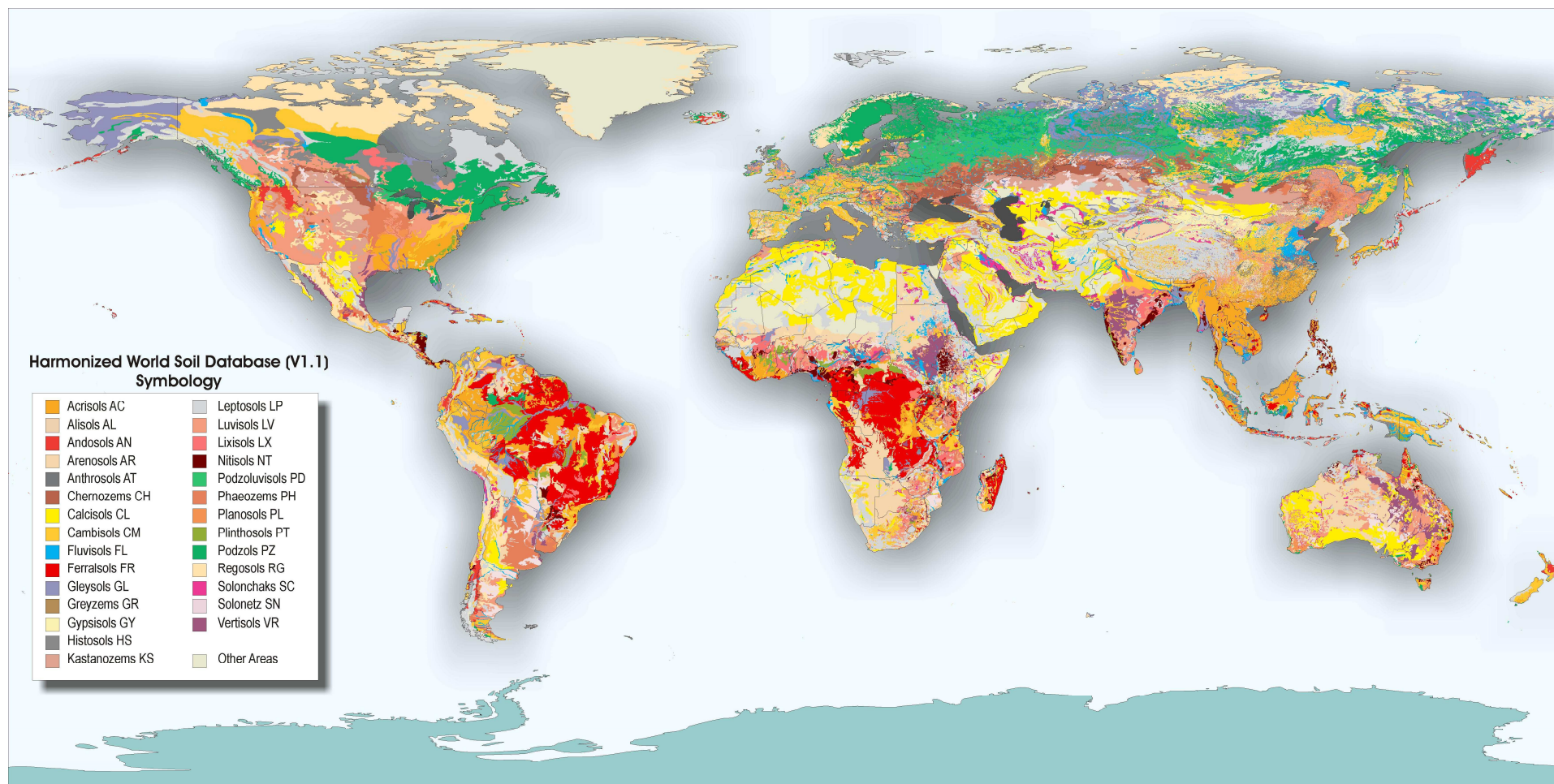
# Update the HWSD



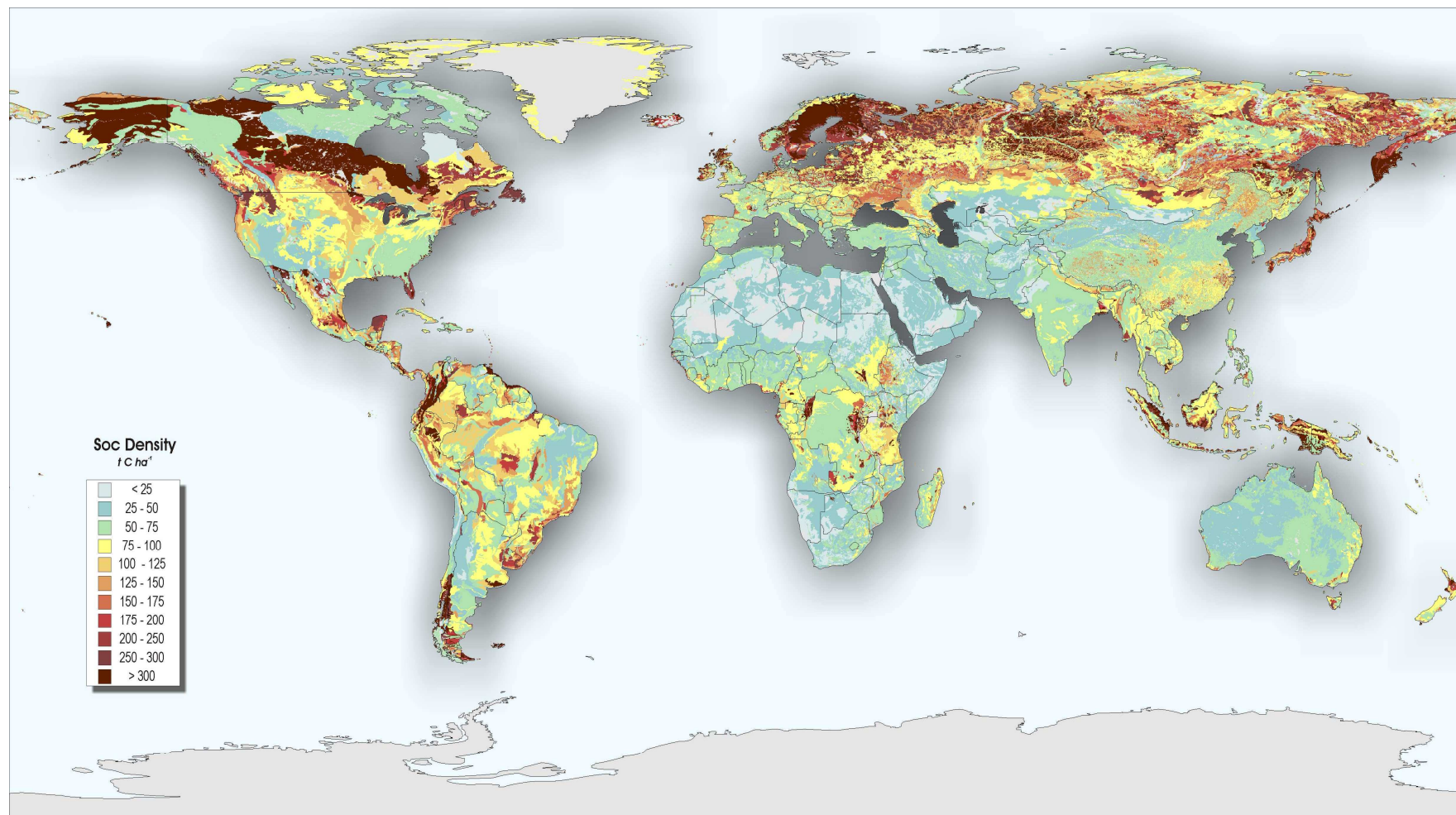
## Harmonized World Soil Database HWSD ver. 1.2.1



# Harmonized World Soil Database HWSD



# Global Soil Organic Carbon



# Complete the global SOil and TERrain DB (SOTER)



- 1 mountains
- 2 hills
- 3 upper plain
- 4 middle plain
- 5 lower plain

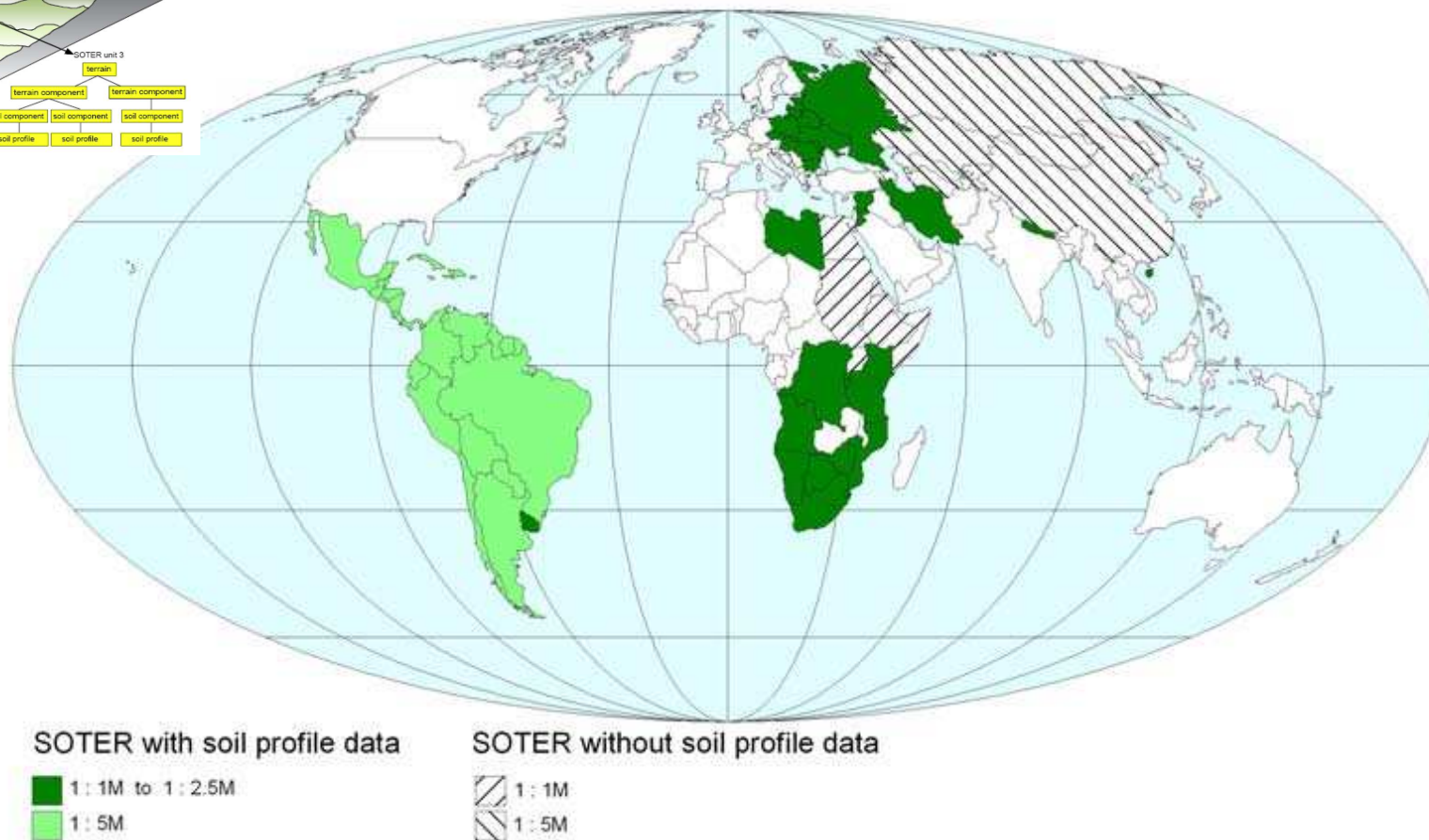
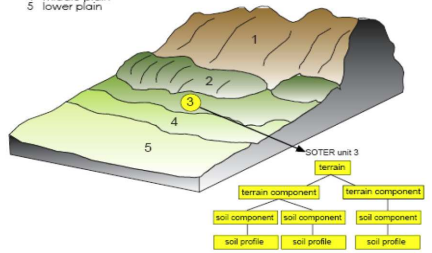


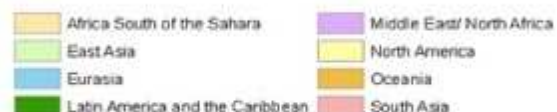
Figure 1: Status of World SOTER databases, 2007

Consortium Agreement signed 7/9/2010  
 Agreement expires on 6/9/2015  
 The agreement should be reviewed not later than  
 December 2013



**Develop a new global high resolution (100m) soil DB:**

**GlobalSoilMap.net**



(Middle East/North Africa and South Asia nodes pending)  
 Source for land area data: <http://sedac.ciesin.columbia.edu/place/datasets.jsp>

Region	Land Area (sq. km)
East Asia	13,634,162
Eurasia	23,762,066
Latin America/Caribbean	18,393,410
Middle East/North Africa	15,359,662
North America	20,613,157
Oceania	10,663,346
South Asia	4,372,529
Sub-Saharan Africa	23,911,997



World Soil Information



AfricaSoils.net



The University of Sydney





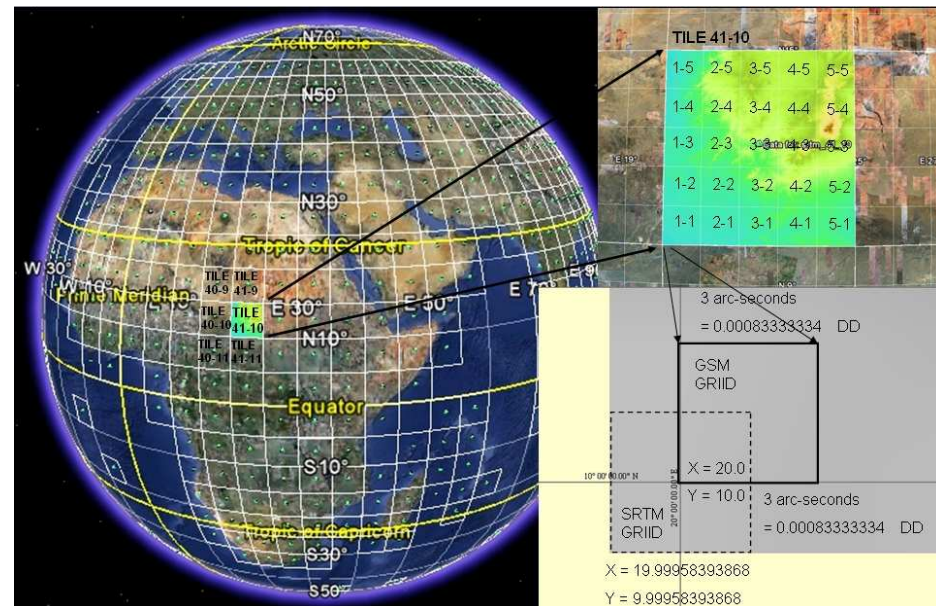
0 – 5 cm  
 5 – 15 cm  
 15 – 30 cm  
 30 – 60 cm  
 60 – 100 cm  
 100 – 200 cm  
 Depth to bedrock



# Specifications

## Version 1 *GlobalSoilMap.net* products

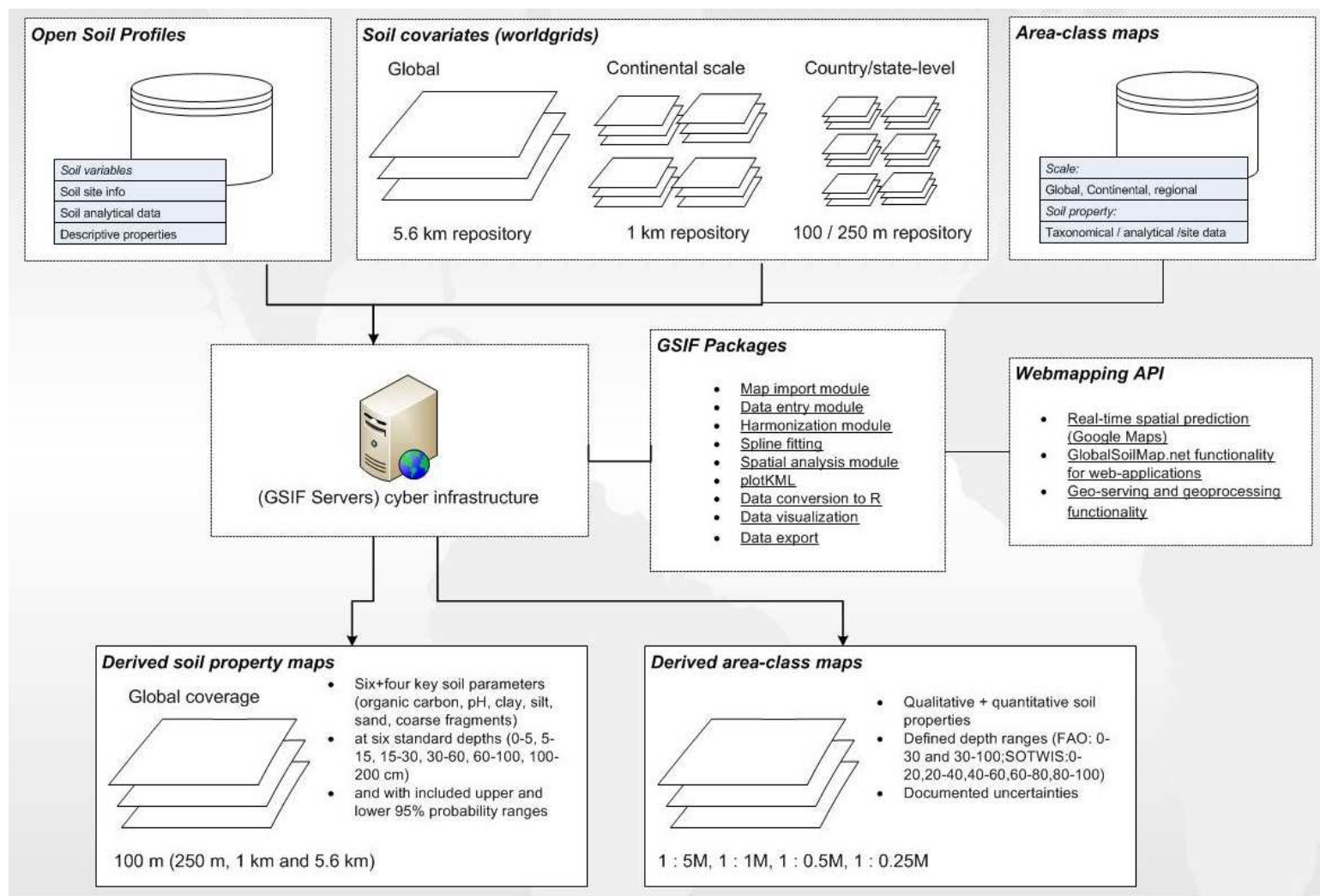
Release 2.1



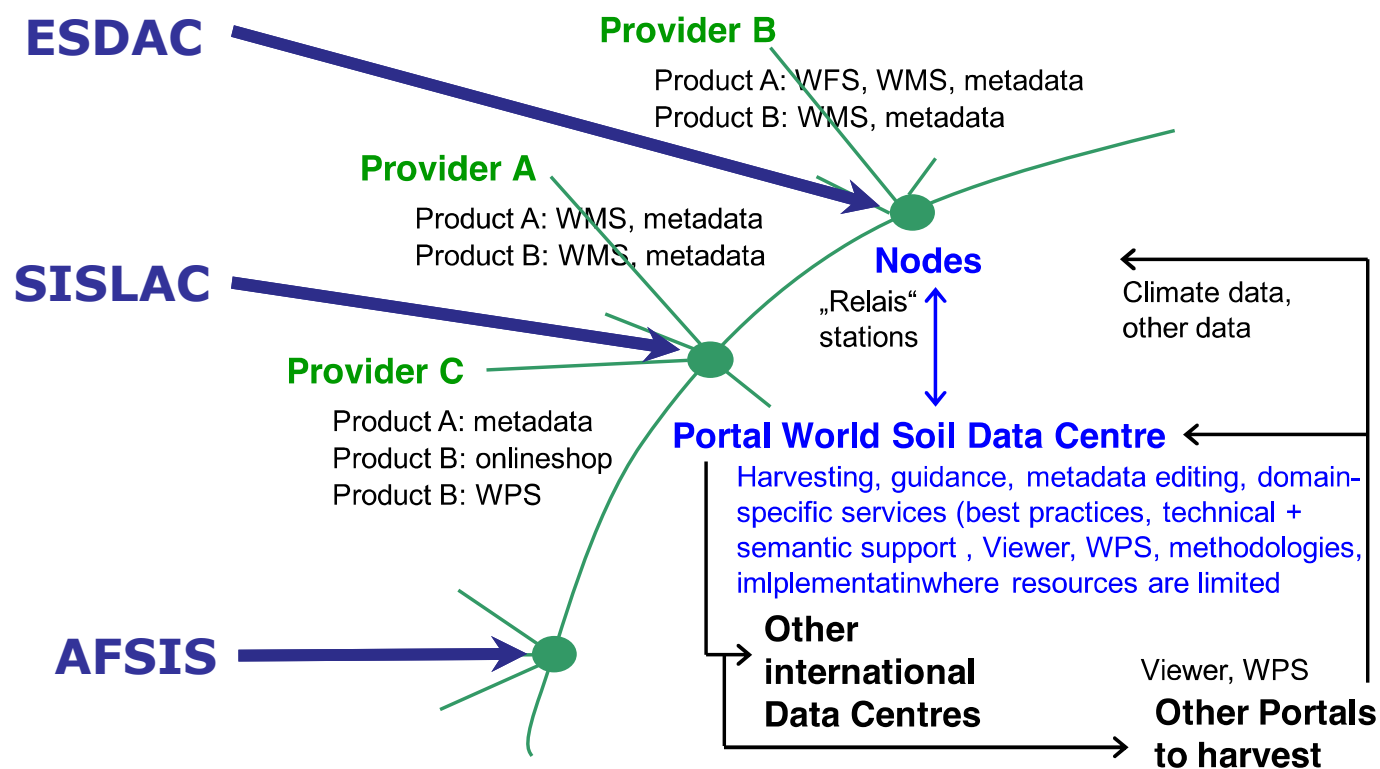
# Global Soil Information Facilities (GSIF)



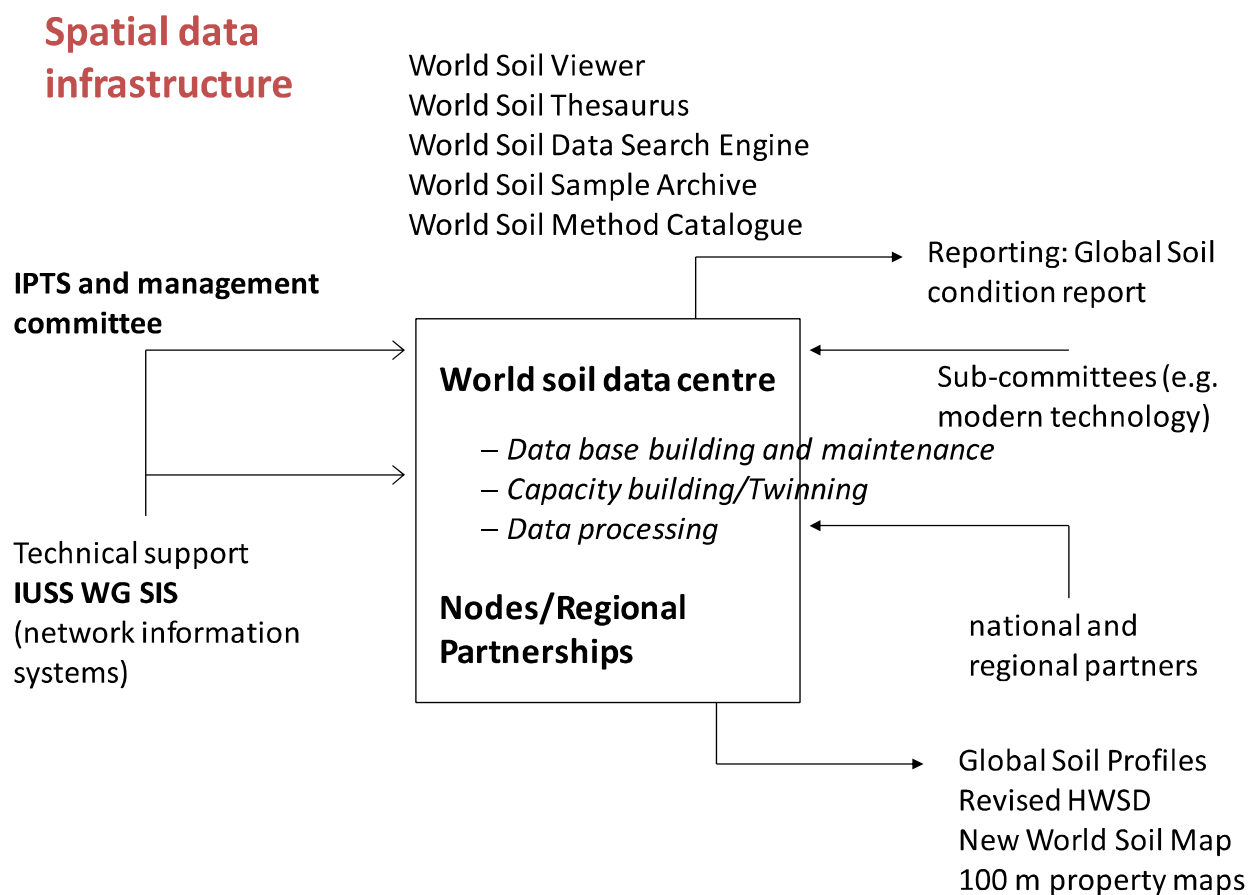
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# A distributed system of data services



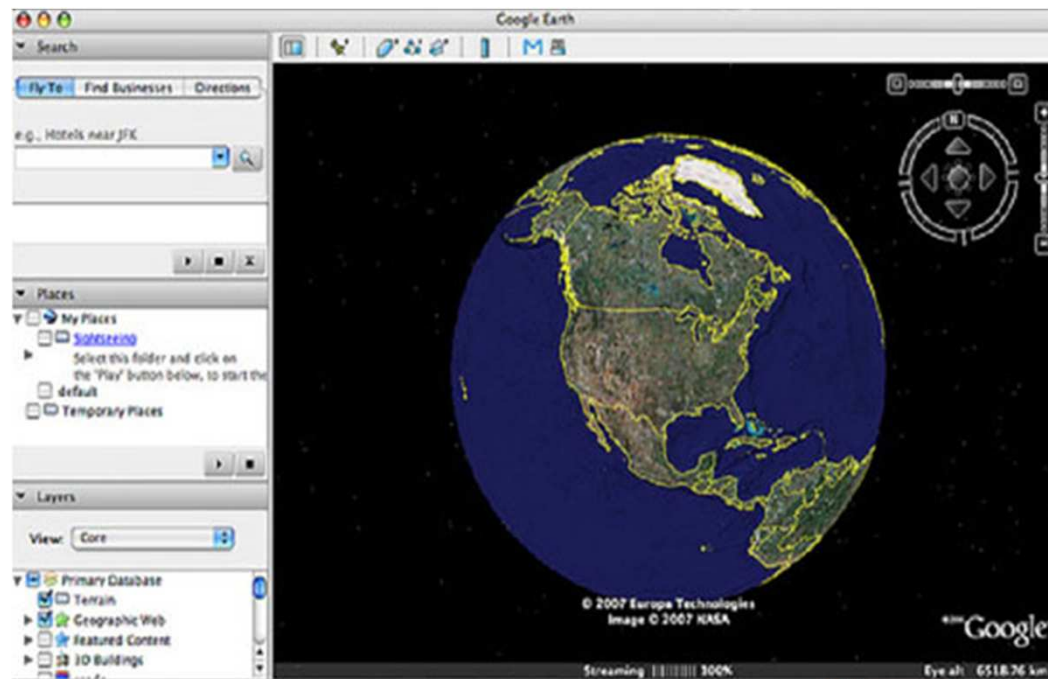
# Global Soil Data Infrastructure



# Future Outlook: Towards a Digital Earth by 2020



**The Digital Earth: Understanding our planet in the 21st Century** *by US Vice President Al Gore* Given at the California Science Center, Los Angeles, California, on January 31, 1998.



# Digital Earth: Empowering citizens for data collection



European Commission

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European Environment Agency

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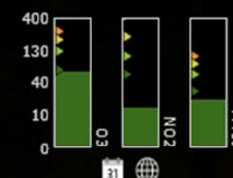
[my location](#) [about](#) [help](#)

lock

COPENHAGEN, DENMARK

[Change Location](#)

OUR RATING  
1 VERY GOOD



OUR RATING  
1 GOOD

nearest station  
Street, 1559 Copenhagen,  
Denmark

YOUR RATING  
GOOD

Irritating Non-clear Dirty Clear  
Clean Odourless Non-irritating  
Smelly

115 Ratings

YOUR RATING  
GOOD

Polluted Dirty Clean Unsafe Safe  
Crowded Equipped Scenic

8 Ratings

AIR WATCH

WATER WATCH

EEA HEADLINES

**Biodiversity in Europe: policy scope must be widened for effective conservation**

Europe is still far from meeting its 2010 target and we risk...

**Protecting Europe's cultural landscapes and biodiversity heritage**

European landscapes reflect not only the continent's diverse...

**Air pollutant emissions to exceed limits**

In 2010, around half of the European Union's Member States e... data NASA

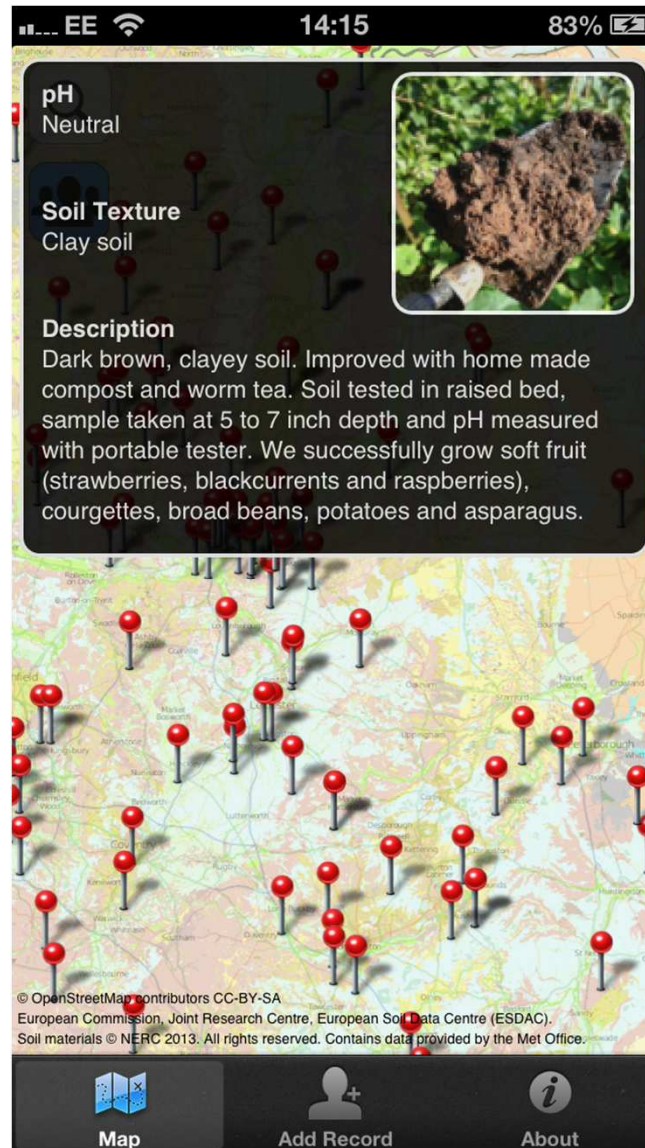
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STATIONS [more info...](#)

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# The Future: Crowd-sourced soil data



# Conclusions

- The Global Soil Partnership provides a **new global framework** for the on-going and future soil mapping activities.
- **Existing Regional and National soil mapping activities** need to be integrated into this new global framework for developing synergies and avoiding unnecessary duplication of efforts.
- The Global Soil Partnership has the mechanisms for mobilizing the necessary **financial resources** for a renewed soil mapping effort at National, Regional and Global scale.
- **Emerging new technologies**, like digital soil mapping, crowdsourcing, remote sensing and others, will greatly enhance the capacity to collect in an accurate and timely manner updated soil information at all scales.

# Thank you for your interest!



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