GSP Pillar 5 Draft Plan of Action

GLOBAL SOIL PARTNERSHIP

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

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on behalf of the writing team

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Objectives

Providing mechanisms for the collation, analysis and exchange of consistent and comparable global soil data and information

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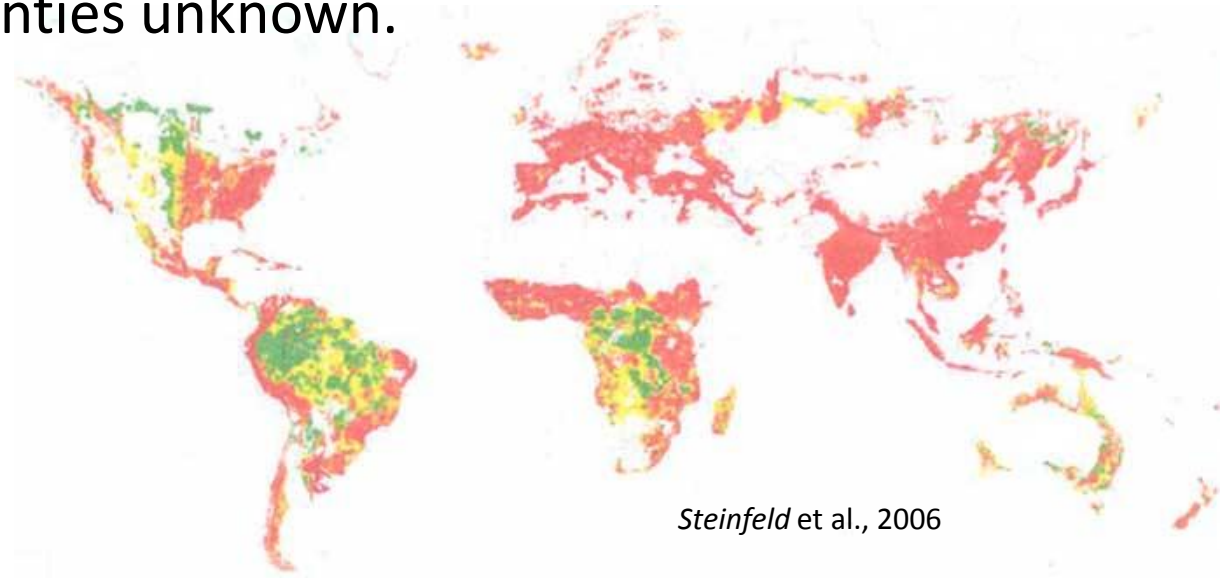
Several reviewers

Motivation

Without available and harmonized (comparable) soil information, the **degree of hazard to soils remains unknown** for vast areas - projections for the world are coarse and inaccurate; uncertainties unknown.

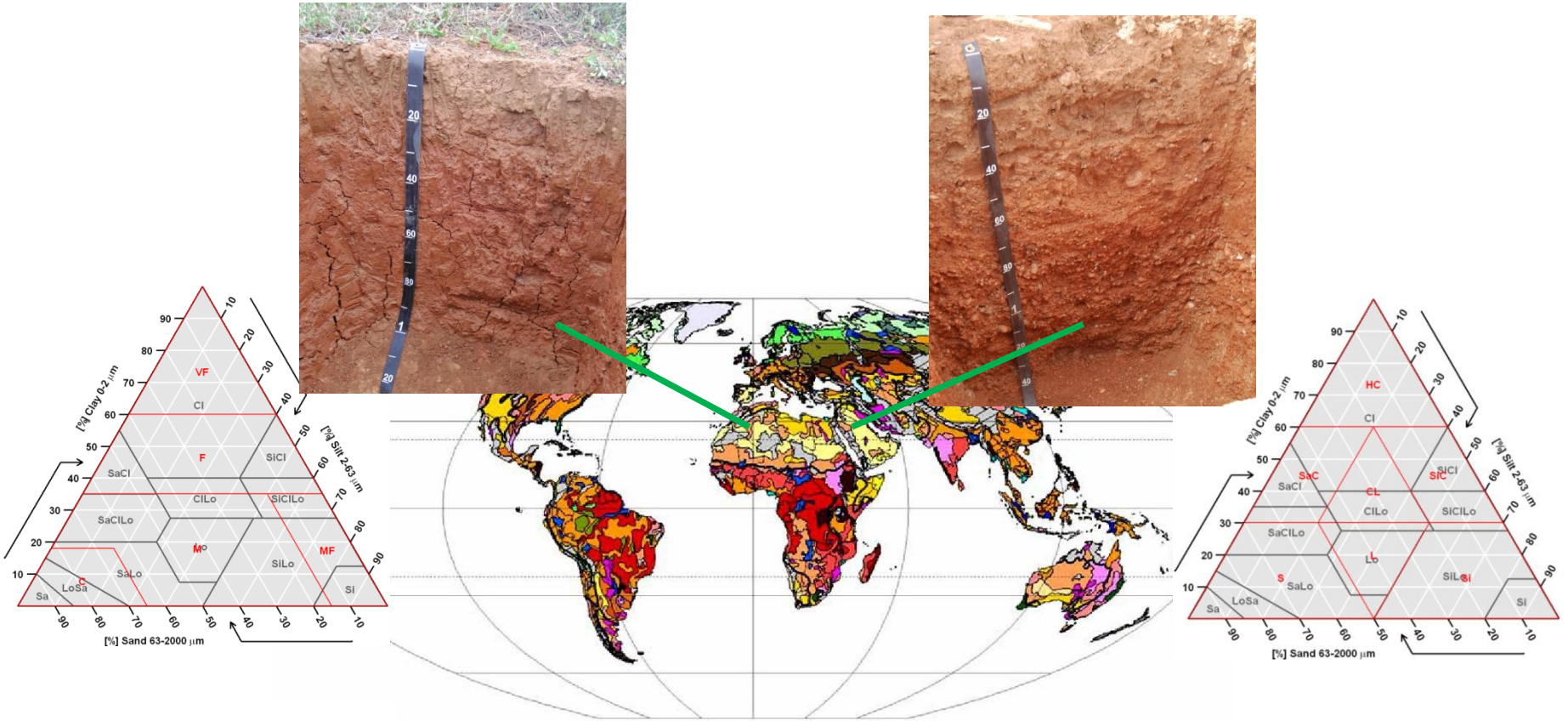


Steinfeld et al., 2006

There is a tremendous wealth of information in national data repositories, archives (e.g. international cooperation and research programmes), and expertise – which – if utilizable – would boost knowledge about sustainable land use incl. soils.

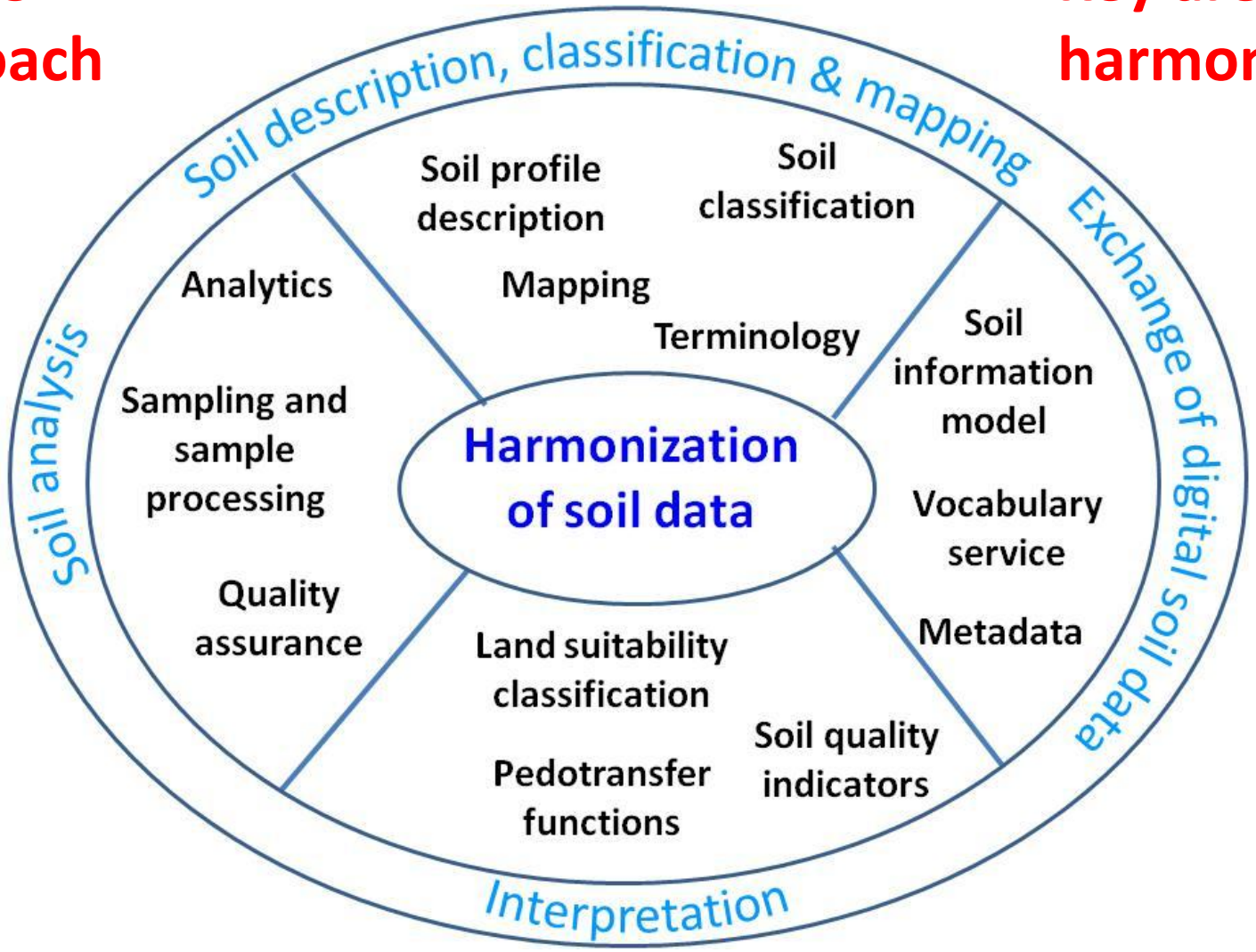
Context

Properties and management recommendations for a well-studied soil cannot be used for another similar soil if described and defined differently.



Pillar 5 approach

Key areas of harmonization



Definition, key areas, principles (Recommendations 1 and 2)

Principles for harmonization

Recommendation 1:

(…) adapt the scope of harmonization (*incl. its definition*) which includes **legacy data as well as newly collected data**, (…) focuses on **soil description, classification and mapping, soil sampling and analysis, exchange of digital soil data, and interpretation**.

Recommendation 2:

The harmonization processes will follow the established **principles** for technical cooperation (commonality, inclusiveness, efficiency, multi-linguality) and operations (interoperability, extensibility, scalability)

Consequences

Does that mean from now on we all collect data in a different way and change our national/regional systems?

No!!

KA4	Identification	% CaCO3
c0	No reaction	0
c1	Very weak reaction, not visible but audible	< 0,5
c2	Weak reaction, slightly visible	0,5 - 2
c3	Not persistent effervescence	2 - 10
c3.2	not persistent but weak visible effervescence	2 - 4
c3.3	not persistent but clearly visible effervescence	4 - 7
c3.4	not persistent but strong visible effervesc	
c4	Strong, persistent effervescence depending on added amount of	
c5	Strong, persistent effervescence depending on added amount of	
c6	Strong, persistent effervescence depending on added amount of	

FAO	Identification
N	No detectable visible or audible effervescence
SL	Audible effervescence but not visible
MO	Visible effervescence

DONES OL	Identification
0	No reaction (no bubbles)
1	Slight reaction (some bubbles visible)
2	Moderate reaction (continues generation of bubbles, single layer)
3	Strong reaction (thick layer of foam)
4	Extremely strong reaction

N,V,F	5%
C	15%
M	40%
A	80%
D	100%

existing approaches (complex)

correlation/conversion (common denominator)

Reference system (simpilified)

Build on existing and ongoing experiences!!

Recommendation 3:

The implementation of Pillar 5 will engage and be consistent with **current standardization and harmonization activities** (…).

Harmonized soil description

Recommendation 4:

Develop an **over-arching soil description system** designed to describe and explain soil features in a common and consistent manner (…).

Recommendation 5:

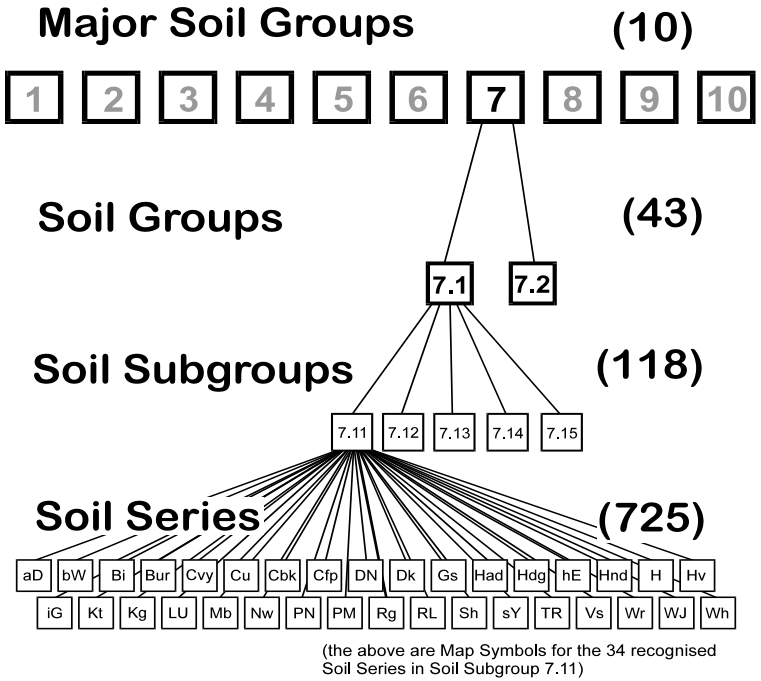
If no other national guideline for soil description is available, the **FAO (2006) Guidelines** for Soil Description shall be used. The guideline (…) reviewed (…) new generic field book. Agreement on basics definitions and codes (…).

Chile (2008)

Harmonized soil classification

Recommendation 6:

The systems (…) can be **either** the World Reference Base for Soil Resources (WRB) **or** USDA Soil Taxonomy until a new standard system is released. (…) GSP supports the development of the new **Universal Soil Classification System**.

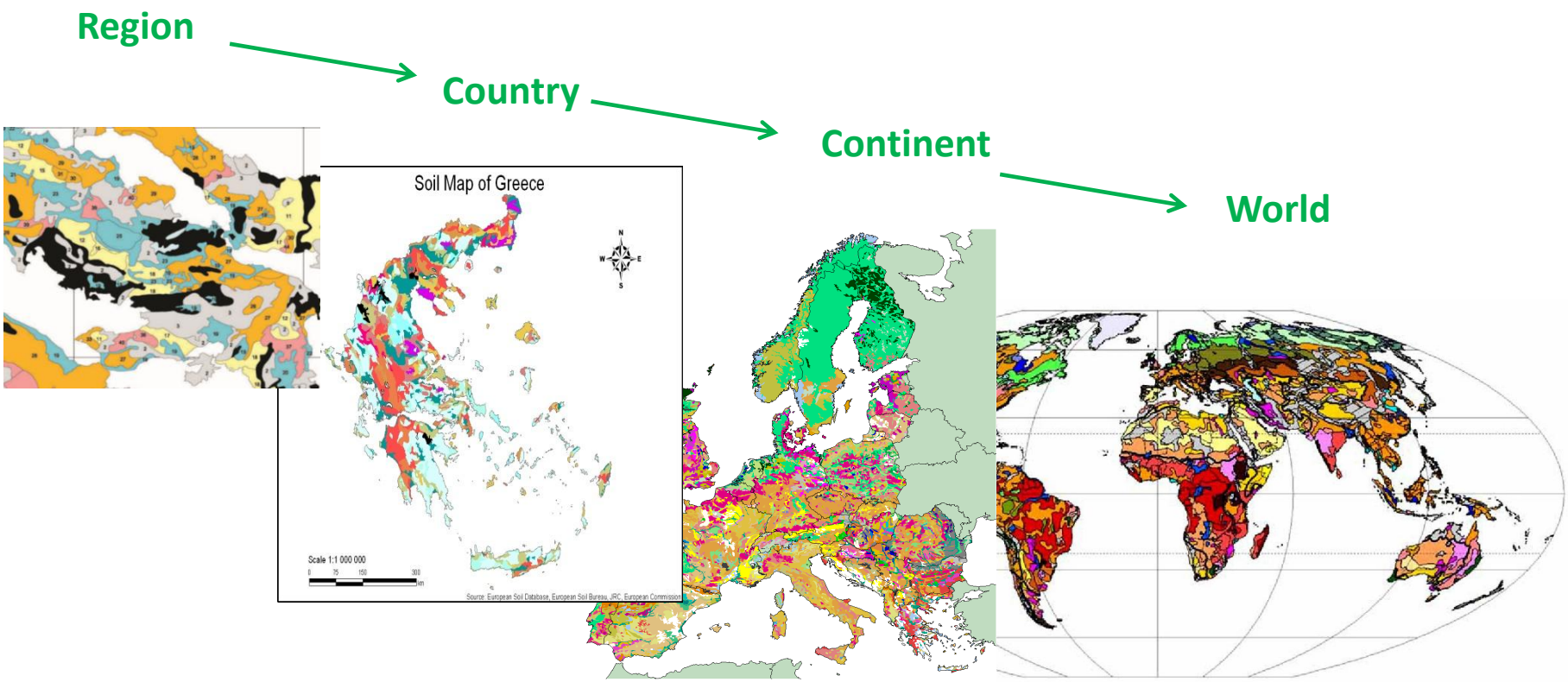


Jones (2005)

Harmonized soil mapping

Recommendation 7:

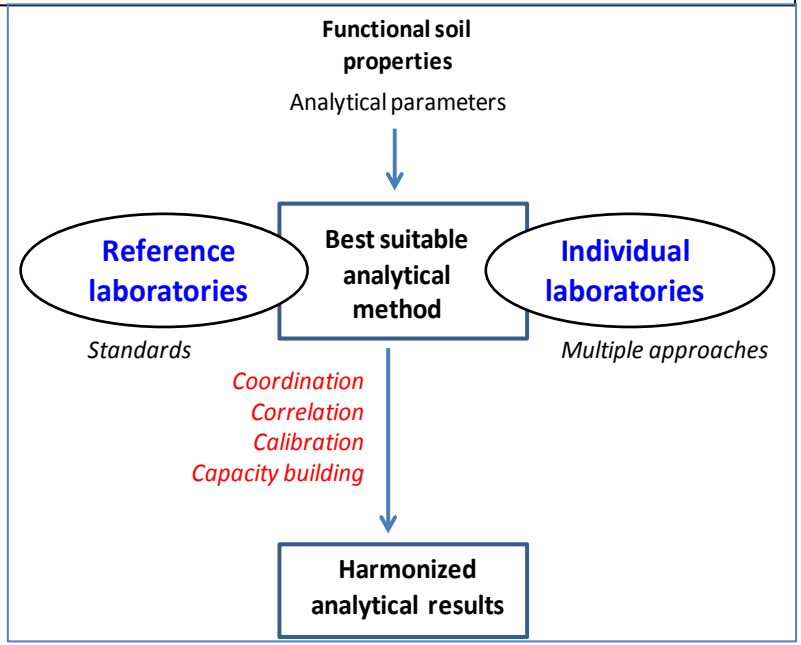
Create a **reference system for the integration of soil maps** from different sources and ensure harmonized products meet the needs of users (⇒ Pillar 4)



Harmonized soil analysis

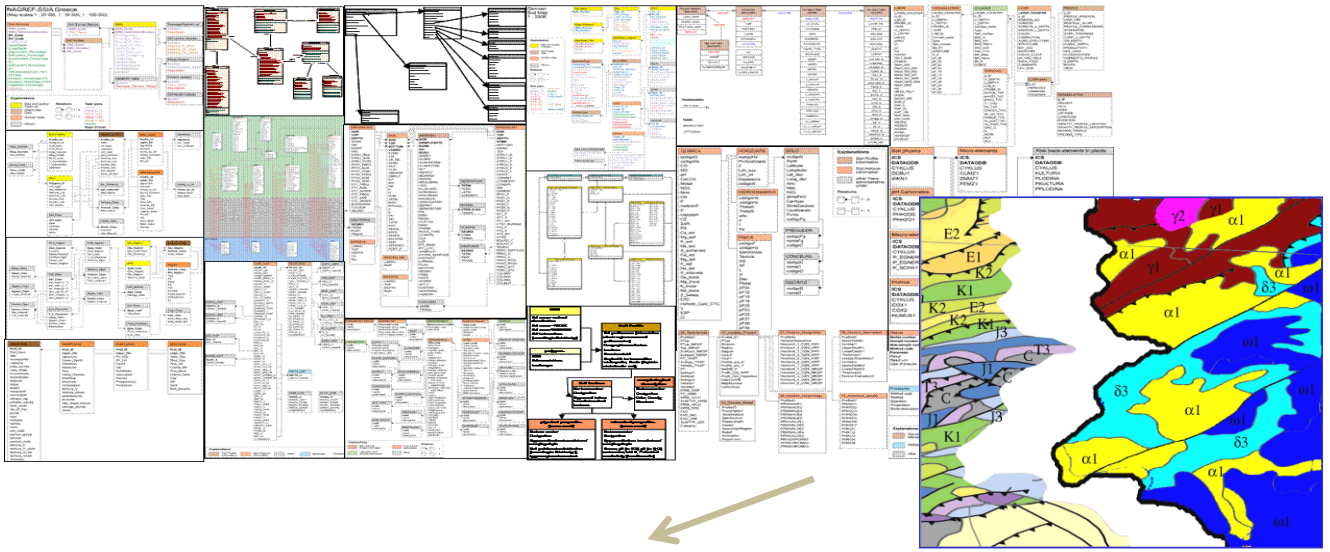
Recommendation 8:

Review existing practices for field sampling, sample preparation and measurement (including laboratory standardization and QA/QC) and **prepare specifications and guidelines** for harmonized approaches to the determination of the main functional properties of soils (i.e. chemical, physical and biological).

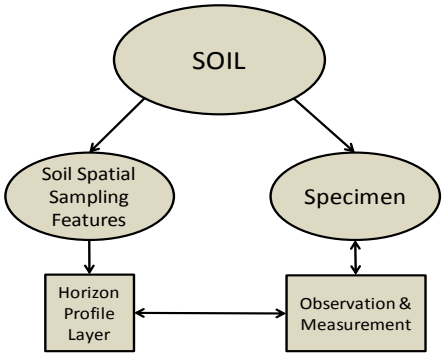


Harmonized exchange of digital soil information
- Interoperability -

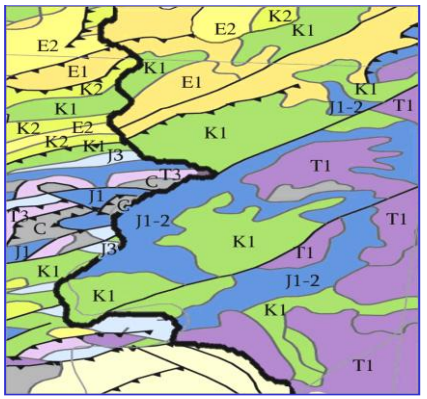
Multiple ways to store data



Global soil information model



Harmonized data exchange through the web



Harmonized exchange of digital soil information

Recommendation 9:

As a significant added value to the considerable investment embodied in existing soil data, the **publishing of interoperable soil data via web services should be promoted** in order to make soil data more readily accessible.

Recommendation 10:

To enable the exchange of digital soil-related data, agreement is reached on a **global soil information model**, vocabulary service and meta-data standards. Implementation of this model-driven architecture will be consistent with the aspirations of the global soil information infrastructure (GSP Pillar 4).

Interpretation and evaluation

1. Soil Indicators < Measure soil health
Soil management impact

In general, indicators quantify information by aggregating different and multiple data. Scope of indicators is to simplify information to describe complex phenomena.

Recommendation 11:

Support the development of indicators for monitoring the condition of soils and to assess the needs and effects of sustainable soil management.

Interpretation and evaluation

2. Pedo-transfer rules and functions

- Map soil hazard
- Fil gaps
- Harmonized analyses

Recommendation 12:

Support the development of effective correlation procedures and evaluation functions.

Governance

Recommendation 13:

Because of the similarity of institutions involved with Pillar 4 and 5, the **global soil information management committee**, as proposed by Pillar 4, shall be extended to Pillar 5. Close liaison with IUSS and ISO working groups shall be sought.