Report on the activities of the

Digital Soil Mapping Working Group

Hannover, 2007

History

- The WG on DSM was launched in 2004 plenary meeting in Ispra.
  - To create a state of the art report on DSM
- Report has been published in 2006.
- New mandate was given by the SC in 2006.

Recommendations from ESBN Steering Committee

- There is an urgent need for improved soil information
- There is new technology that can provide additional soil information, but which can not replace field soil data. By embracing the new technology the case for collecting new soil field data will be strengthened
- ESBN should have a WG of soil science experts who also have relevant knowledge of new disciplines (“modern soil scientists”)
- Improved estimation of soil properties is possible with DSM
- At this stage methods for estimating functional capacities are nor fully defined
- The WG should focus on improving our soil information from existing data
- Improve functional capacity estimation methods
- The WG should focus on delivering an early estimation of functional capacities in a narrow field (hydrological properties)
- Establish an experimental laboratory for using the available soil data and evaluate them in relation to applications

Mandate of the WG

- Advise the ESBN-SC on soil mapping and database development issues supporting the European soil data center
- Advise on what extent of the current knowledge/technologies/information can provide answer to soil information needs.
- Definition of soil functional mapping
- Advise on the development, implementation and testing of a methodological framework for soil characteristics, threats and functions.

New WG to define what to do

- Current chair (Endre Dobos)
- Two members from previous WG
- Two initial members from SC (Erika and Henrik)
- Two members from JRC
- Reports back to the next SC meeting

Members of the group:

- Arwyn Jones
- Endre Dobos (chair)
- Erika Micheli
- Florence Carre
- Franz Daffner
- Henrik Mudsen
- Luca Montanarella
- Philippe Lagacherie
- Thomas Mayr

The WG was founded to define the road map for soil data maintenance and development within the European soil data centre using the state of the art tools and data inputs.

The key issues:

- Soil data specification (most widely used parameters, quality of input data and outcomes, resolution)
- DSM implementation
- Definition of a priority list of feasible activities that serves the needs of policy support
- Modelling (collection of tools for modelling threats and soil functions)
- Definition of the soil data development, management and modelling framework following the scheme below defined in the DSM WG report.

Two meetings

- 2006 March, Ispra
- 2006 June, Ispra

Potential names for the WG

- **DSM Implementation WG**
- Digital Soil Assessment WG
- Soil Mapping and Assessment WG
- Soil Assessment WG
- Spatial Soil Assessment WG

Relevant DSM needs from previous meetings

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- Provide support for risk area delineation
- Improve the quality of existing soil data
- Fill the gaps of the missing data for supporting policy
  - ENVASSO
  - Risk area delineation

Topics we discussed

- How to transport the results towards the commission
- Database development options
- 1:250.000 soil map, procedure, potential upscaling, downscaling
- Profile database, forestfocus, Danube, its harmonization and use
- Call for pilot areas
- Stratification

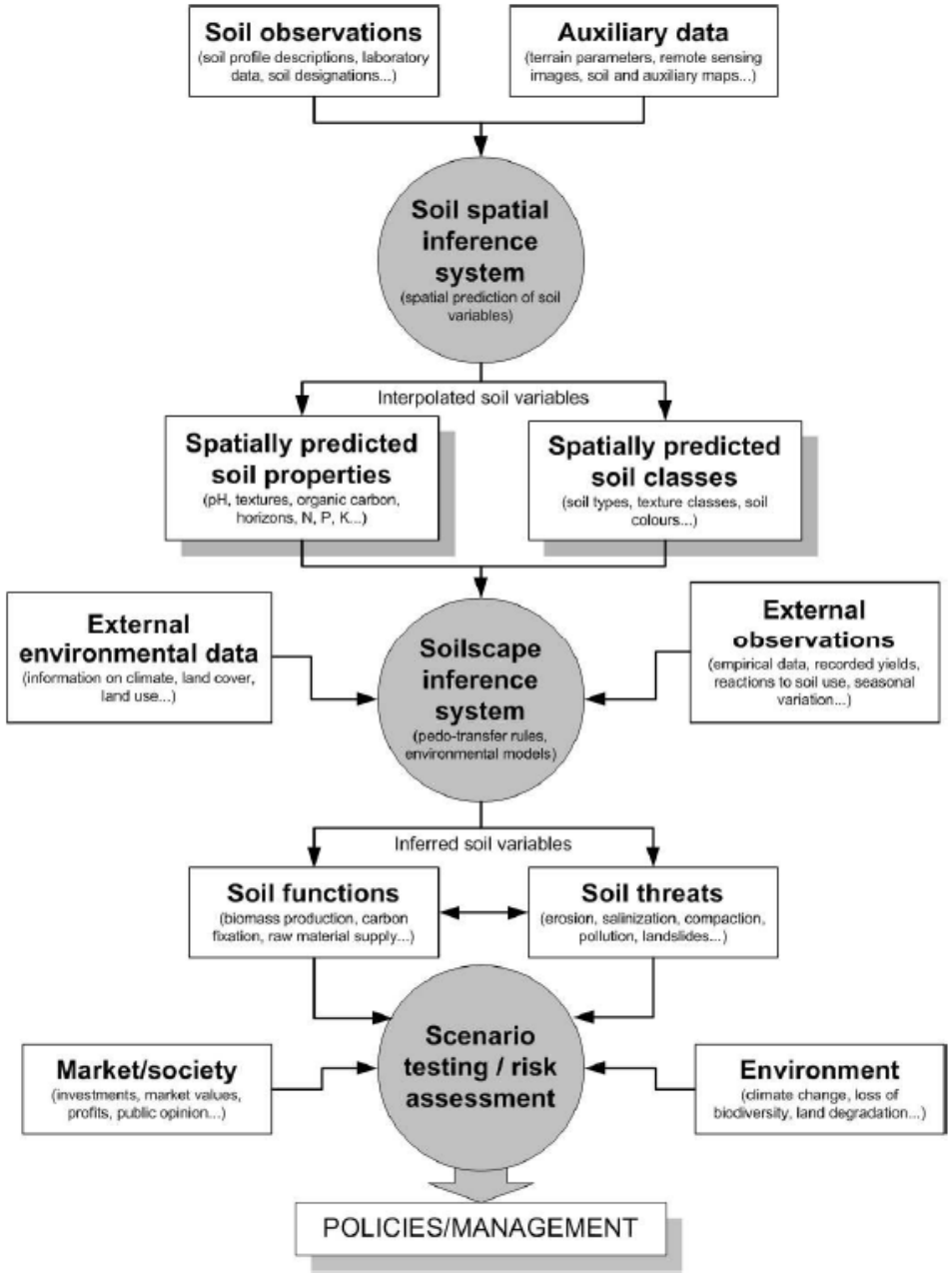
Topics we discussed

- Collection of soil function modells (few pilot studies to define the detail, hierarchy needed)
- Subgroup on Soil functions
- Input data screening, QA/QC
- 1:1 million soil database, its continuous updating
- Soil threats, Common parameters as input for threat delineation
- Data description protocol, technical aspects of data implementation
- ENVASSO, Risk area delineation

Future???

Topics to be discussed

- Priority and activity list, identification of research issues
- Data
- Tools
- Human resources,
- Organizational framework
- Calls and tenders
- FP 7
- A Blue Print of the European Digital Spatial Soil Inference System to be outlined (2006)


Soil observations
(soil profile descriptions, laboratory data, soil designations...)
Auxiliary data
(terrain parameters, remote sensing images, soil and auxiliary maps...)
Soil spatial inference system
(spatial prediction of soil variables)
Interpolated soil variables
Spatially predicted soil properties
(pH, textures, organic carbon, horizons, N, P, K...)
Spatially predicted soil classes
(soil types, texture classes, soil colours...)
External environmental data
(information on climate, land cover, land use...)
Soilscape inference system
(pedo-transfer rules, environmental models)
External observations
(empirical data, recorded yields, reactions to soil use, seasonal variation...)
Inferred soil variables
Soil functions
(biomass production, carbon fixation, raw material supply...)
Soil threats
(erosion, salinization, compaction, pollution, landslides...)
Market/society
(investments, market values, profits, public opinion...)
Scenario testing / risk assessment
Environment
(climate change, loss of biodiversity, land degradation...)
POLICIES/MANAGEMENT