

# From the numerisation of the Soil Map of Wallonia to a real information and management tool

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## The Belgian Soil Map – BSM / CSB (1947-1991)

The Belgian soil map, source document for creating the Digital Soil Map of Wallonia, was drawn up between 1947 and 1991 and published in a collection of 457 colour sheets at the scale of 1:20.000 with an explicative booklet each. This map is the result of a 75 m. grid survey by augerings ( $\pm 6.10^6$  augerings for Belgium).

## The Digital Soil Map of Wallonia – DSMW / CNSW (2001-2004)

The objective of the Project « Digital Soil Mapping of Wallonia » was the constitution for the whole territory of the Walloon Region (Belgium) of a cartographic database about the soil characteristics.

- **Restitution** phase : digital reproduction of the pedological sheets of the BSM covering the territory of the Walloon Region.
- **Intégration** phase : production of a homogeneous legend ; geometrical local corrections (due to two different projection system) ; resolution of « joining » problems so as to establish geometrical and semantical continuity between adjoining sheets.

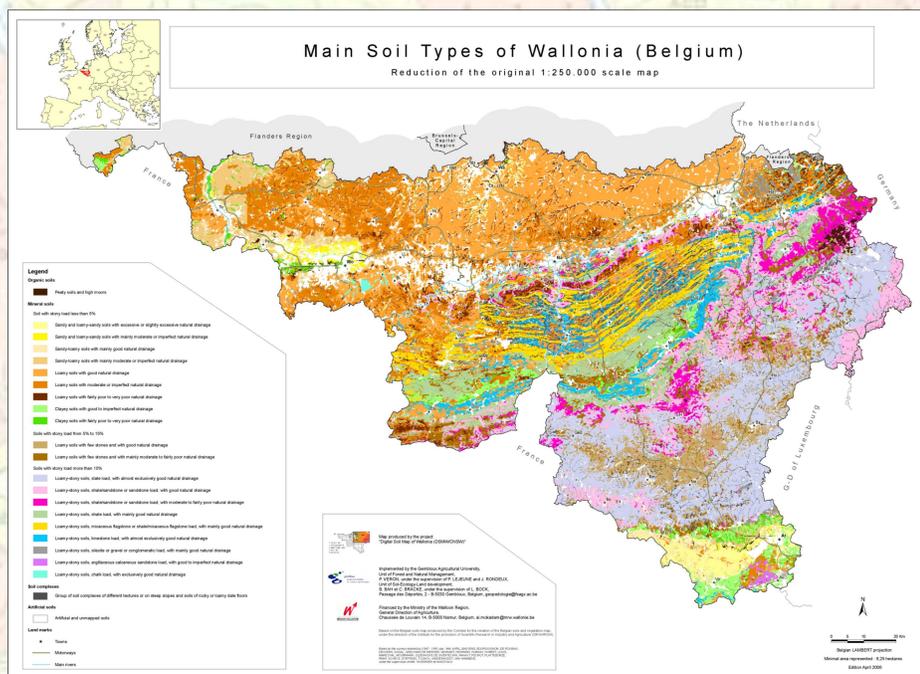
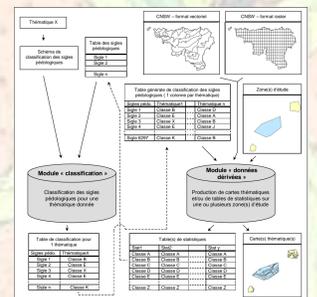
Now this database is integrated in a regional Geographical Information System where the soil layer can be used in relation with information concerning other aspects of land development (relief, land use, water, cadastral register, ...).

## Valorisation, exploitation and interpretation of the DSMW (2004-2007)

### Development of generic tools and exploitation interfaces of the DSMW and its related informations

- Ex.: module for the classification of the soil map units for a given thematic ;
- module for the production of thematic maps and/or of statistic tables on one or more zone ;
- module for extracting, managing, structuring and archiving the information contained in the explicative booklets.

### Elaboration of thematic maps from the DSMW



## Main Soil Types (MST / PTS) at 1:250.000 of the Walloon Region

23 MST were created by soil map units aggregation guided by 3 of the 4 main criteria of the main serie (texture, natural drainage, nature of the stony load), allowing suitable explicitation of the (sub-)regional specificities at the chosen scale, with the best cartographic representation.

Simplified versions at scale :

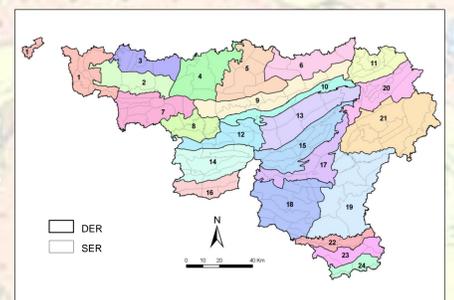
- 1:500.000 : comparison with the soil associations map at 1:500.000 of Maréchal and Tavernier, 1974 ;
- 1:750.000 : A3 didactic document.

## Stratification of the regional area – The Rural Area Units (RAU/UER)

→ Delimitation of 24 Districts (RAD/DER) and 196 Sectors (RAS/SER).

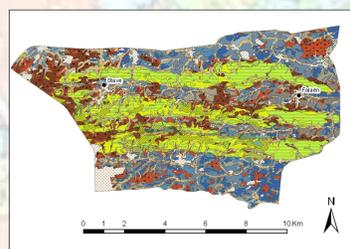
Boundaries drawn on the MST map at 1:250.000 of the Walloon Region.

Confrontation of the pedological boundaries with other related and relevant informations, in order to argue as far as possible the rock-relief-soil-occupation relations (geomorphopedological approach).



## Main Soil Types (MST / PTS) at 1:100.000

For each RAD/DER : Broadening of the MST/PTS at 1:250.000 by taking into consideration the profile development and the presence, the nature and the appearance depth of a substratum.



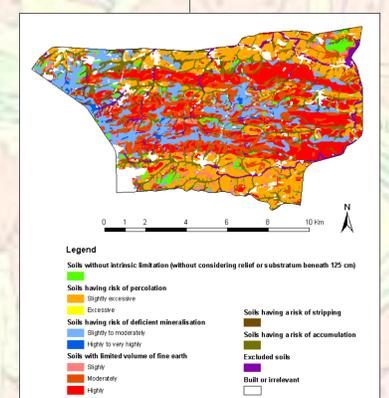
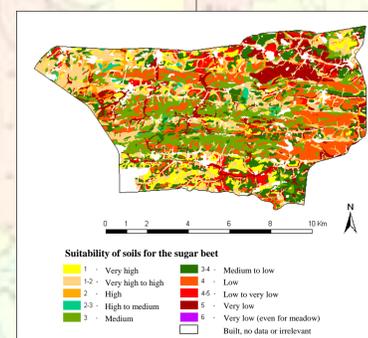
## Agriculture suitability of soils

Transcription of the evaluation supplied by the explicative booklets.  
Reflexion for the integration of the new crops.  
Compilation and restructuration by RAD/DER.  
Definition of a new legend.  
Crops classified in 3 groups of agropedological requirement.

## Intrinsic limitation of soils for organic substance spreading

Elaboration of an interpretation key, along which the soil characteristics are evaluated in term of limitation with regard to the percolation, the retention (useful volume of fine earth), the mineralisation, the hypodermic or surface runoff and the erosion. It doesn't take into account other factors (geology, climate, relief, occupation,...).

## Illustration with the RAS/SER of Stave - Falaën



## The future ...

The **partial revision** phase will be the occasion to go back to the field, in a reasoned way, the objective being to reach a pedological information precise enough in the eyes of the requirements needed for the gestion and the protection of soil, actually forecasting the requirements of the future Framework Directive for the protection of soil. Apart the revision strictly speaking, the strategy include the acquisition of missed data on the Walloon soils and, *in fine*, the setting up of an interface for the management of the relation with the DSMW users and the authors of thematic data.

