

Introduction

Given the economic importance of agriculture in the Congo Basin, there has always been a great need for soil information. A multitude of soil survey data were collected in the D.R. Congo from 1935 till the 90s. However, since 1960, during the major events and subsequent periods of instability that took place in D.R. Congo, a major part of the legacy soil data was lost. Other data were not easily accessible as they were not published. This poster illustrates (1) the digital soil information system using legacy soil data collected from 1935 until present, and (2) the SOil and TERRain (SOTER) database of D.R. Congo. Both soil information systems can be consulted online.

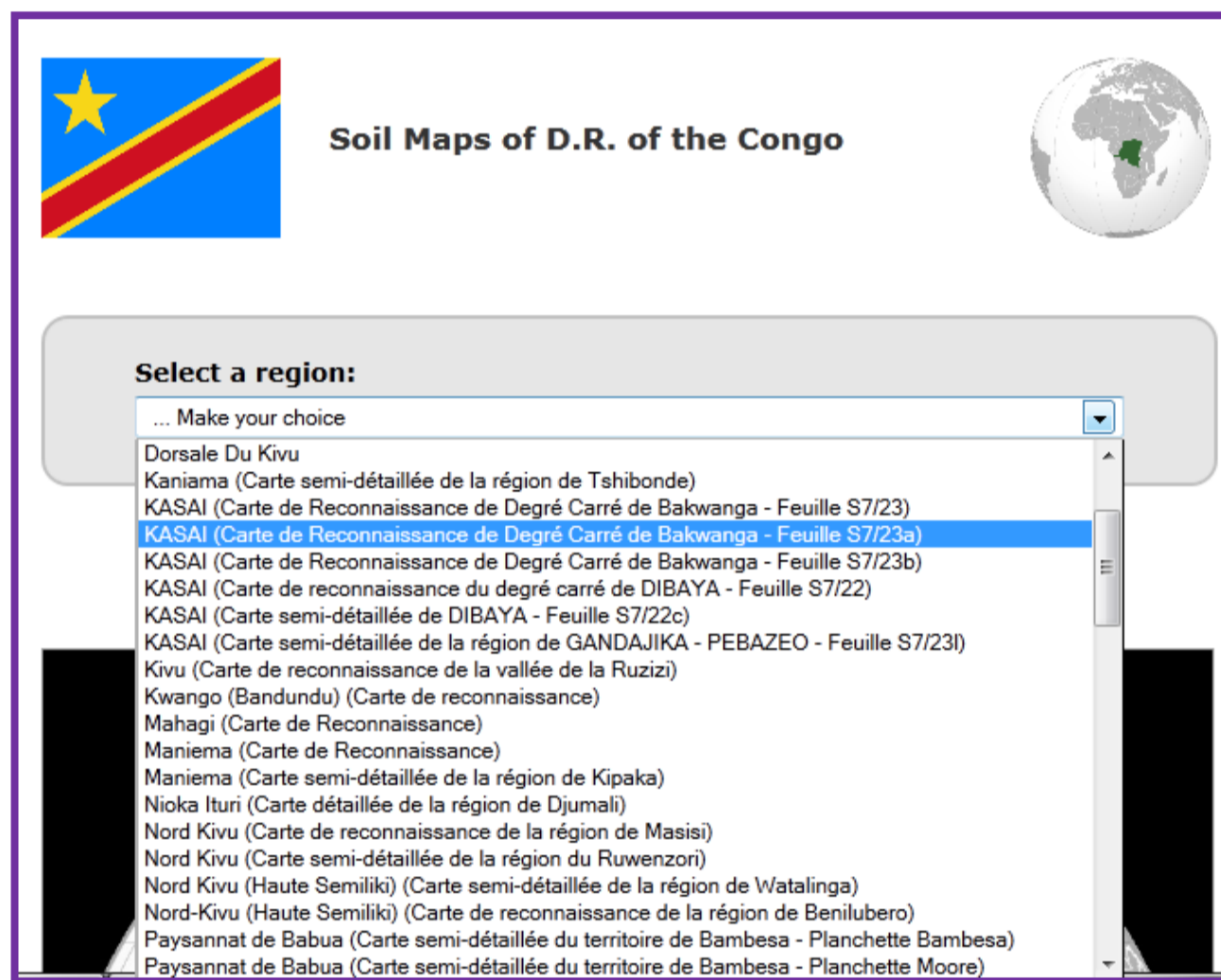
Digital Soil Information System

Geographic completeness

Small-scale soil maps (1:500,000 – 100,000)	Medium-scale (1:100,000 – 50,000)	Large-scale (± 1:25,000)
10	5	Nioka, Maniema, Ruzizi

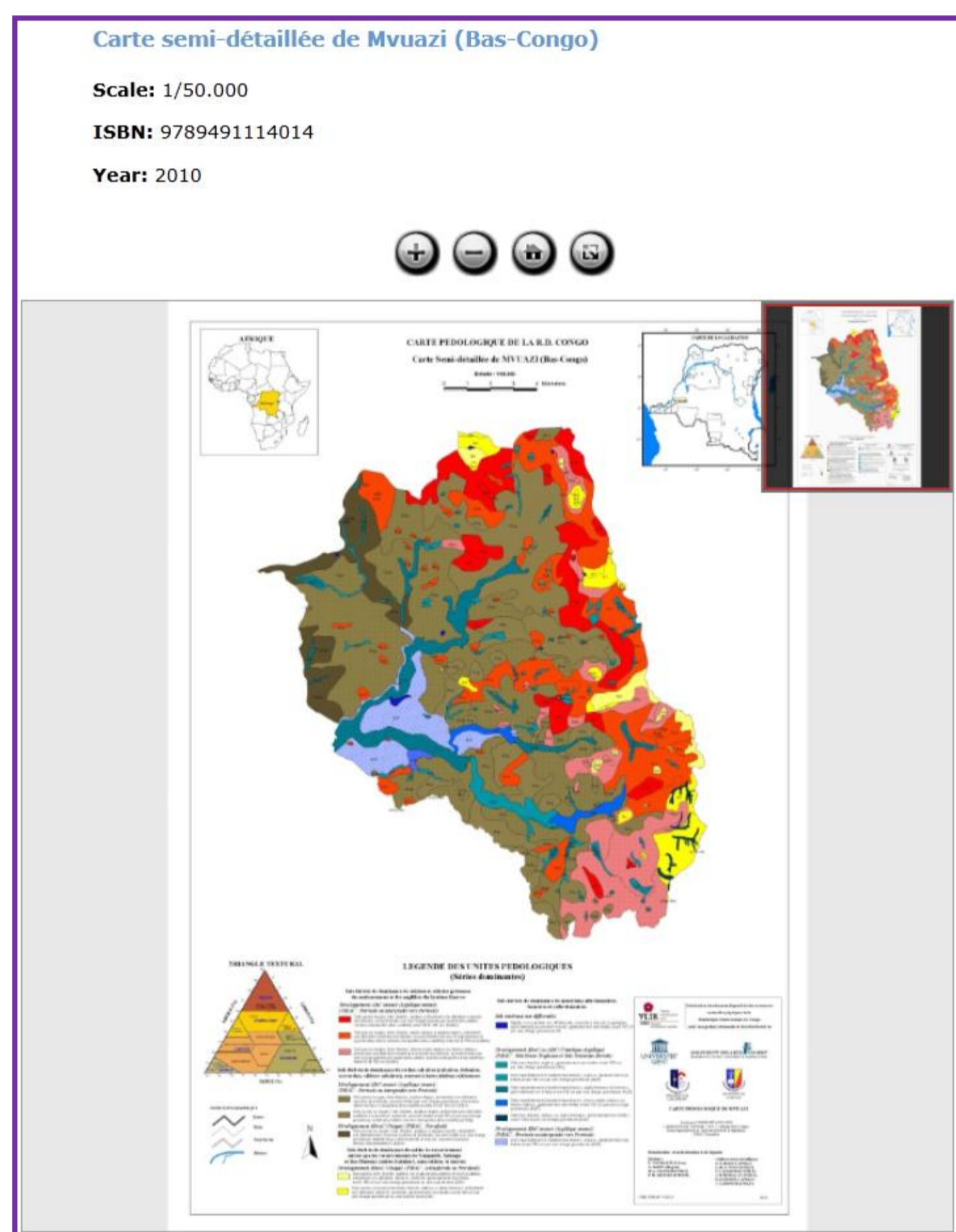
Online consultation of maps

(1) Selecting a region at welcome screen



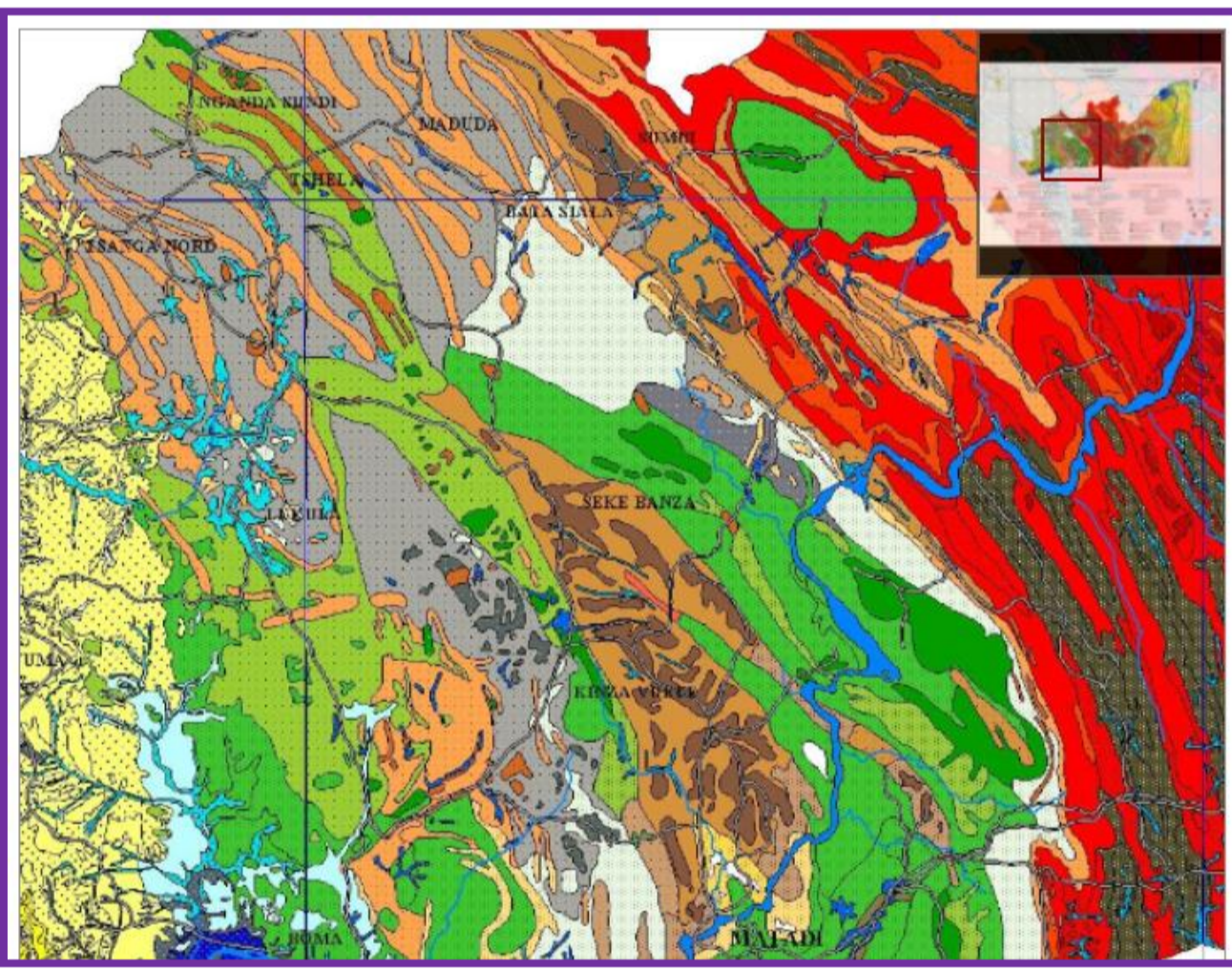
www.labsoilscience.ugent.be/Congo

(2) View metadata and map layout



Screen captures of the online database of soil maps

(3) Zoom to detail



Soil profile database (analytical data)

N° of profiles: 231
N° of horizons: 1311

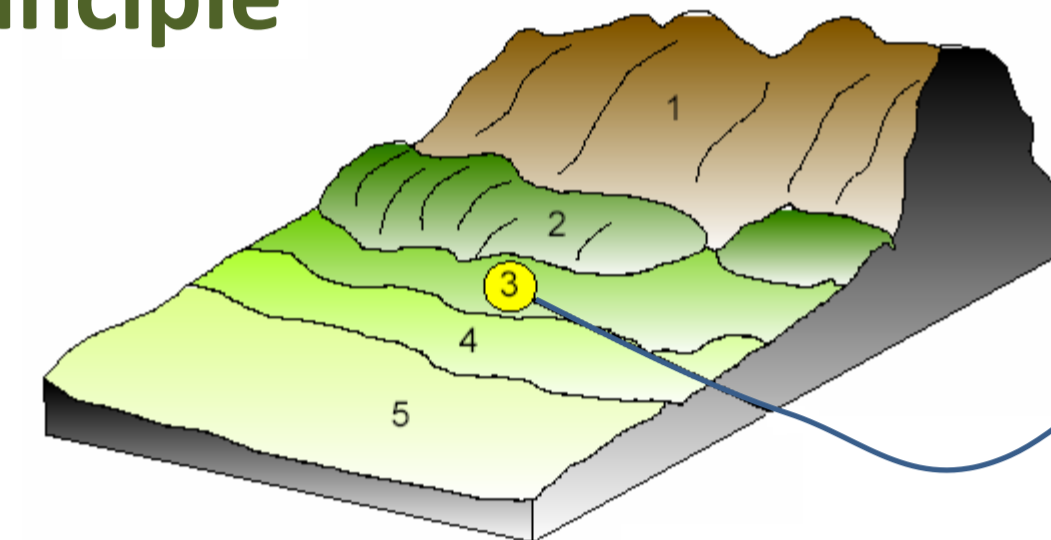
source : Sys (1972)

+ analytical data of various reconnaissance and semi-detailed surveys (e.g. Lower Congo survey: Baert, 1991)

profil	horiz	horiz	uppe	lowe	CL	TSI	CSI	VISA	FSA	mSA	CSA	vsSA	OC	N	pH	Ca	K	CEC	Fe2O3	EC	CaSO	CaC
006	006-1	A1	0	38	8.6	1.3	3.4	19.5	41.1	19.1	6.8	0.2	0.95	0.072	5.6	0.40	0.21	3.6	0.08			
006	006-2	A2,1	38	56	6.4	0.7	3.1	14.8	46.2	21.3	7.3	0.2	0.72	0.047	5.7	0.30	0.12	2.8	0.05			
006	006-3	A2,2	56	82	6.3	1.0	2.1	20.0	50.5	16.0	4.1	0.0	0.46	0.032	5.8	0.40	0.21	2.1	0.05			
006	006-4	B1	82	92	10.0	0.8	3.6	17.2	45.2	17.5	5.1	0.0	0.47	0.031	5.5	0.20	0.17	2.8	0.04			
006	006-5	B2	92	112	8.1	2.0	3.8	16.8	42.3	20.0	7.0	0.0	0.56	0.035	5.6	0.30	0.15	2.3	0.10			
006	006-6	C	125	170	10.4	1.0	3.2	17.3	44.1	18.8	5.0	0.2	0.17	0.011	5.5	0.50	0.17	1.6	0.12			

Soil and Terrain Database

Principle



SOTER unit

Terrain: landform & lithology

Terrain Component (surface form, slope, parent material)

Terrain Component

Soil Component

Soil Component

Soil Component

Soil Profile

Soil Profile

Soil Profile

Soter units are areas of land with a distinctive, often repetitive, pattern of landform, lithology, surface form, slope, parent material, and soil.

Input maps

Map	Scale	Year
Soil map of Belgian Congo, Rwanda & Burundi	1:5,000,000	1959
Geological map	1:2,000,000	1974
Soil map of the Lower Congo	1:200,000	1991

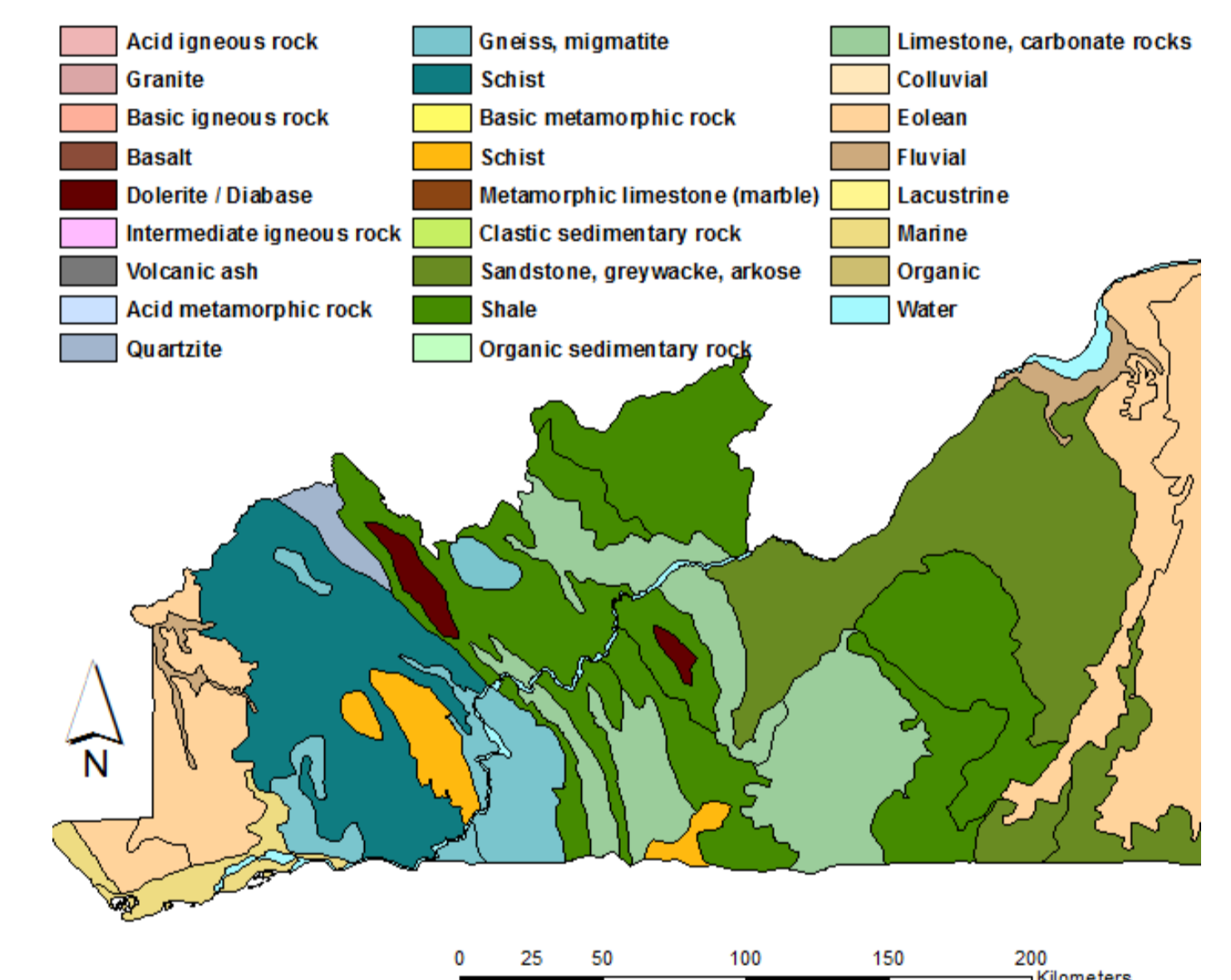
Results

<http://www.isric.org/projects/soter-central-africa-sotercaf>

Dominant soil units



Landforms – zoom to Lower-Congo



Comparison of the soil profile density used to characterise various 1:2 M scale SOTER maps

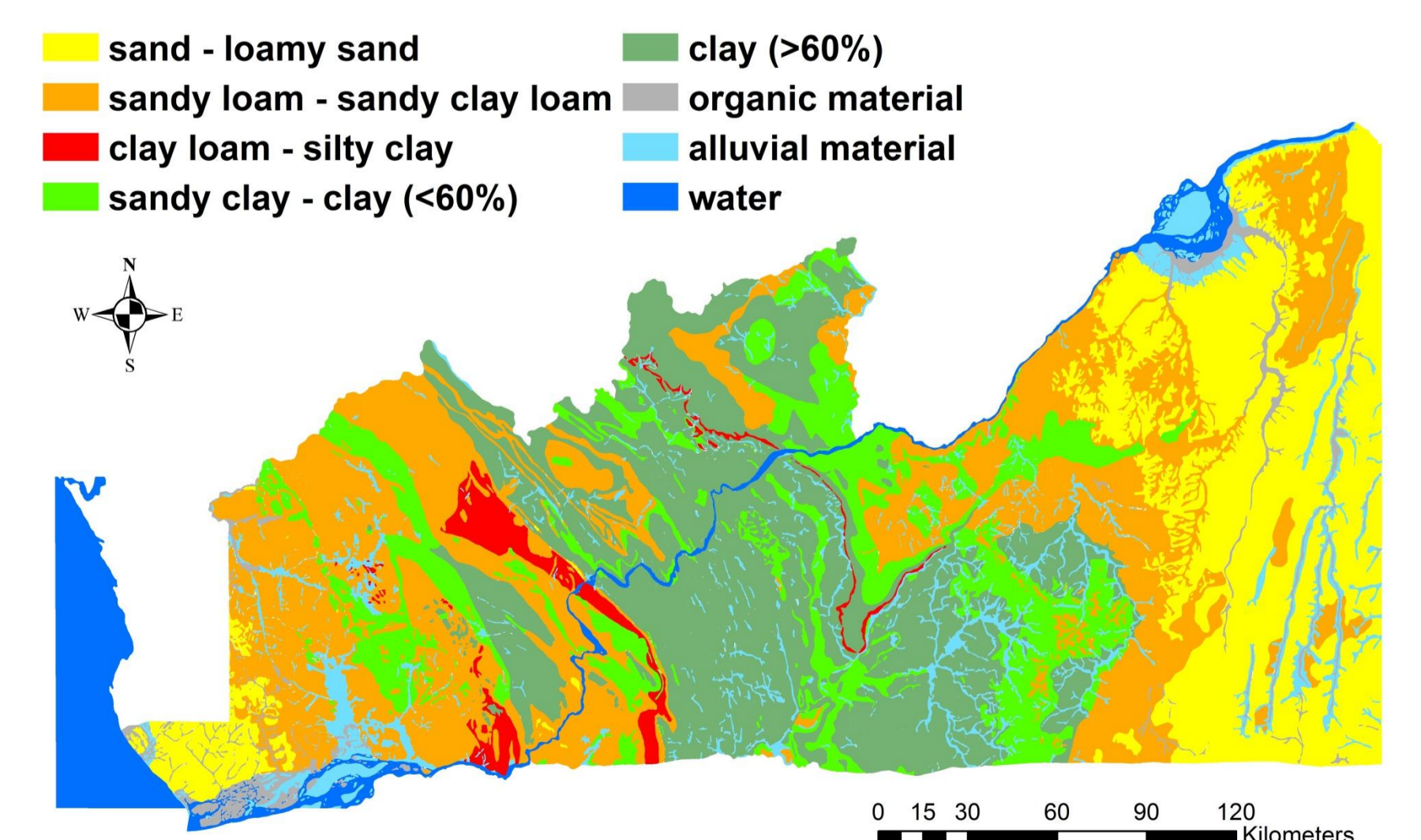
country	# soter units	# soil components	# profiles	profile density (per 1000 km ²)
DRC	147	322	96	0.04
Tanzania	169	687	54	0.06
South Africa	3,039	11,822	328	0.26

Applications – Future needs

The SOTER map constitutes the most detailed region-wide coverage of the soils of D.R. Congo. It integrates all information on the soil-terrain relationship in a ready-to-use format, available to potential users and compatible with other environmental databases.

The soil information system provides inputs in a large number of applications such as land evaluation for food and industrial crops in different agro-ecological zones of D.R. Congo, investigation of soil hydraulic properties, modeling of carbon sequestration,

Addition of legacy soil profile data collected during the various surveys as well as newly collected analytical soil data will allow a further development and updating of the digital soil information system of D.R. Congo.



Soil texture map derived from the 1:200,000 scale soil map of the Lower Congo

References

- Baert, G. (1991). Cartographie des sols, évaluation des terres. Etude de reconnaissance au 200,000ième. Annexe. Descriptions et données analytiques des profils types du Bas-Zaïre, ITC, Université de Gand et Administration Générale pour la Coopération au Développement, Bruxelles.
- Sys, C. (1972). Caractérisation morphologique et physico-chimique de profils types de l'Afrique Centrale. Institut National pour l'Etude Agronomique du Congo Belge. Bruxelles.
- Van Engelen, V., Verdoodt, A., Dijkshoorn, K., Van Ranst, E. (2006). Soil and Terrain Database of Central Africa – DR of Congo, Burundi and Rwanda . Report 2006/07, ISRIC – World Soil Information, Wageningen.