The Soil Atlas of Africa

Availability of materials at Africa continent level

Dr Robert Zougmoré
Secretary General, Africa Soil Science Society (ASSS)
Dr Martin Yemefack
Vice President ASSS
www.asssonline.org

PLAN

1. **The soil Atlas of Africa initiative & ASSS**
2. **African soils**
3. **Availability of materials**
    1. Examples of existing soil maps in Africa
    2. Actual state of soil information systems in African countries
    3. Expertise in soil science
    4. ASSS and national soil science societies in Africa: a strong network
4. **Expected outputs**

The soil Atlas of Africa initiative & ASSS

1. ASSS is grateful to being actively associated in this project and is thankful to IES/JRC, ISRIC, FAO, etc.
2. Outlines of ASSS 4th International Conference
   1. There is a declining interest in the subject of soil science by young scientists, especially female scientists.
   2. Soil scientists in Africa are not being strongly involved in projects devoted to Food Security.
   3. There is need for advocacy to soil science interest.
   4. The ASSS should make a strong contribution to the production and maintenance of an Atlas of African Soils

African soils 1/4

- **Africa Continent**
  - Covers 3,010 x 10^6 ha
  - 230 x 10^6 ha represent natural water resources
  - Wide range of soils and climatic conditions.
- **African soils**
  - Range from stony and shallow with poor life-sustaining capabilities to deeply weathered soils that recycle and support large amounts of biomass

African soils 2 / 4

☞ African soils

- Have an inherently poor fertility because they are old and lack volcanic rejuvenation
- Inappropriate land use, poor management and lack of inputs have led to a decline in productivity, soil erosion, salinization, and loss of vegetation
- More than half of land is affected by degradation: Yield reduction in Africa due to past soil erosion may range from 2 to 40%, with a mean loss of 8.2% for the continent.

Major soil types in Africa

Soil type	Covered zones
Acrisols/ Ultisols	Southern sub-humid West Africa, Tanzania
Nitisols/ Plaeudults, Paleustults, Plaeudalfs, Paleustalfs	Ethiopia, Kenya Tanzania, East DRC
Lixisols/ Alfisols, Oxic kandiudalfs	West Africa, Southeast Africa, Madagascar
Arenosols/ Psamments	West Africa, Botswana, Angola, southwest DRC
Vertisols/ Vertisols	Semiarid & sub-humid zones of Sudan & Ethiopia; Tanzania
Gleysols & Fluvisols/ Aquic suborders, Fluvents	Equatorial Africa & inland valleys across Africa
Rendzinas, Phaeozems, Cambisols, Kastanozems, Arenosols, Solonchaks	Are unique in the Mediterranean region

Availability of materials

- **Soil is our life-support system**
  - Delivers food & fresh water; recycles wastes, etc.
  - Decision makers: need good baseline information about soils and land – for development planning, avoidance of natural hazards, investment, & Management
  - Soil maps are resources for researchers in many fields apart from soil science: monitor land degradation & improvement, changes in land use & water resources, predict climatic & environmental changes
  - But, in many African countries, soil maps are being rapidly lost (storage, lack of proper attention, etc). These valuable data, currently only available on paper, must be digitized before they are lost forever.

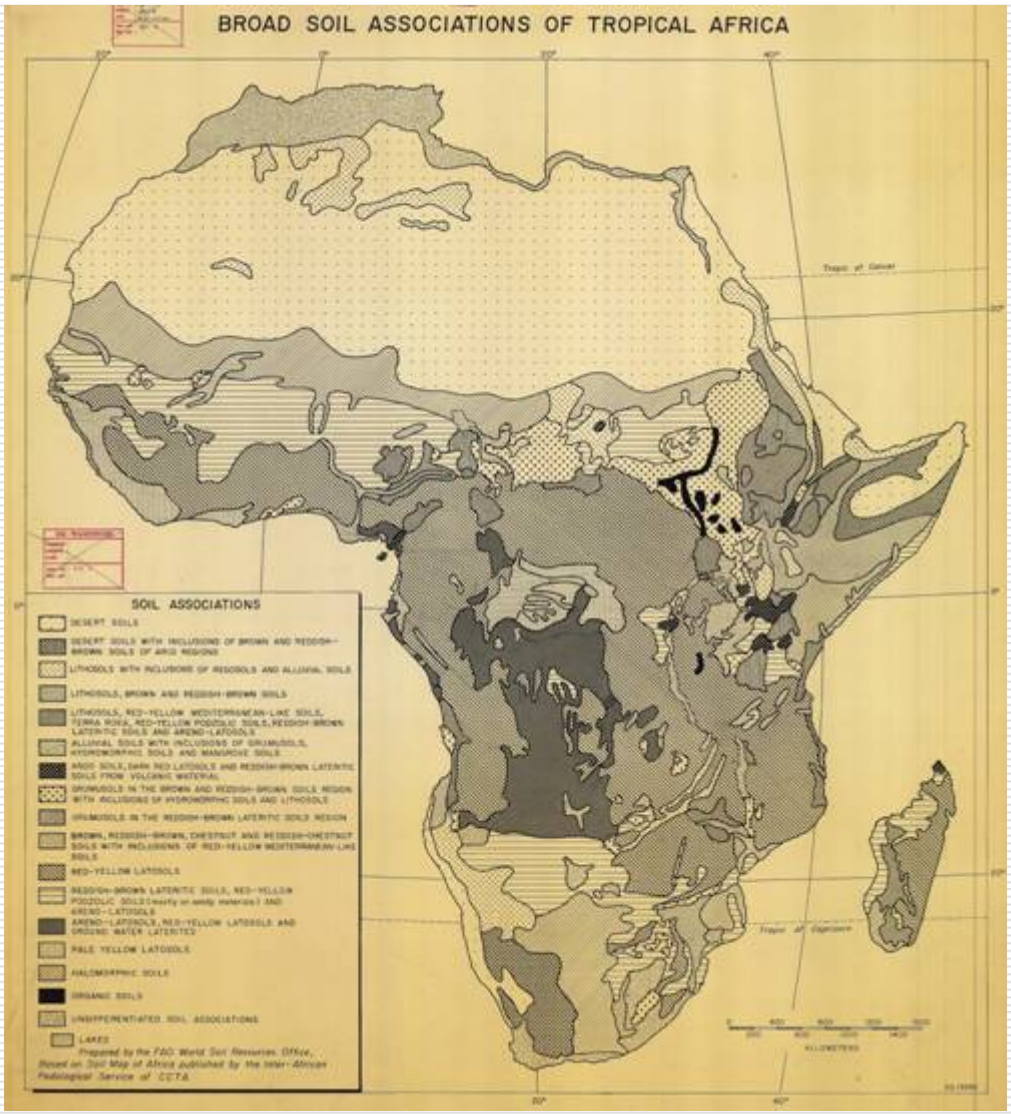
Availability of materials

- **Soil Maps digitalization**
  - **The digitization of the African maps will enable the African countries to recover and re-use their soil information.**
  - **The work done by** Selvaradjou, S-K., Montanarella, L., Spaargaren. O. and Dent. D. (2005). European Digital Archive of Soil Maps (EuDASM) - Soil Maps of Africa. EUR 21657 EN, 386 pp. through **the EuDASM is a very important baseline in this process of securing the soil information system for the future.**

Availability of materials

- **Existing Soil Maps: Maps from the ISRIC Africa collection, of more than 2000**
  - Scanned using a CONTEX Wide format colour scanner
  - Scanned maps stored at 150-200 dpi in JPEG compressed format
  - Further processing of the digital maps carried out using Adobe Photoshop 7.0
- **Main repositories:**
  - **European Institutions**: ISRIC, IRD, JRC, Universities, Cranfield, Institut Géographique Militaire Bruxelles, etc.
  - **United Nations specialized Institutions**: FAO, UNESCO, UNEP, etc.

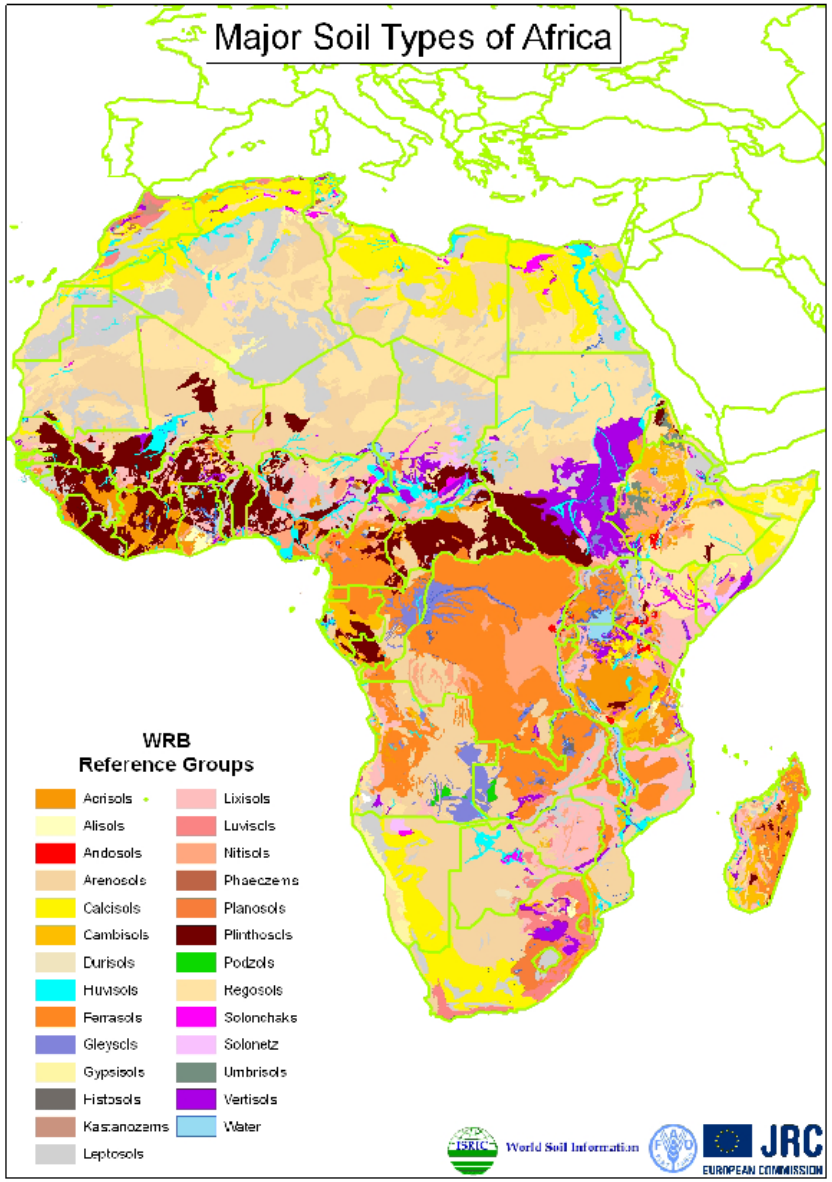
Availability of materials



Broad soil associations of tropical Africa

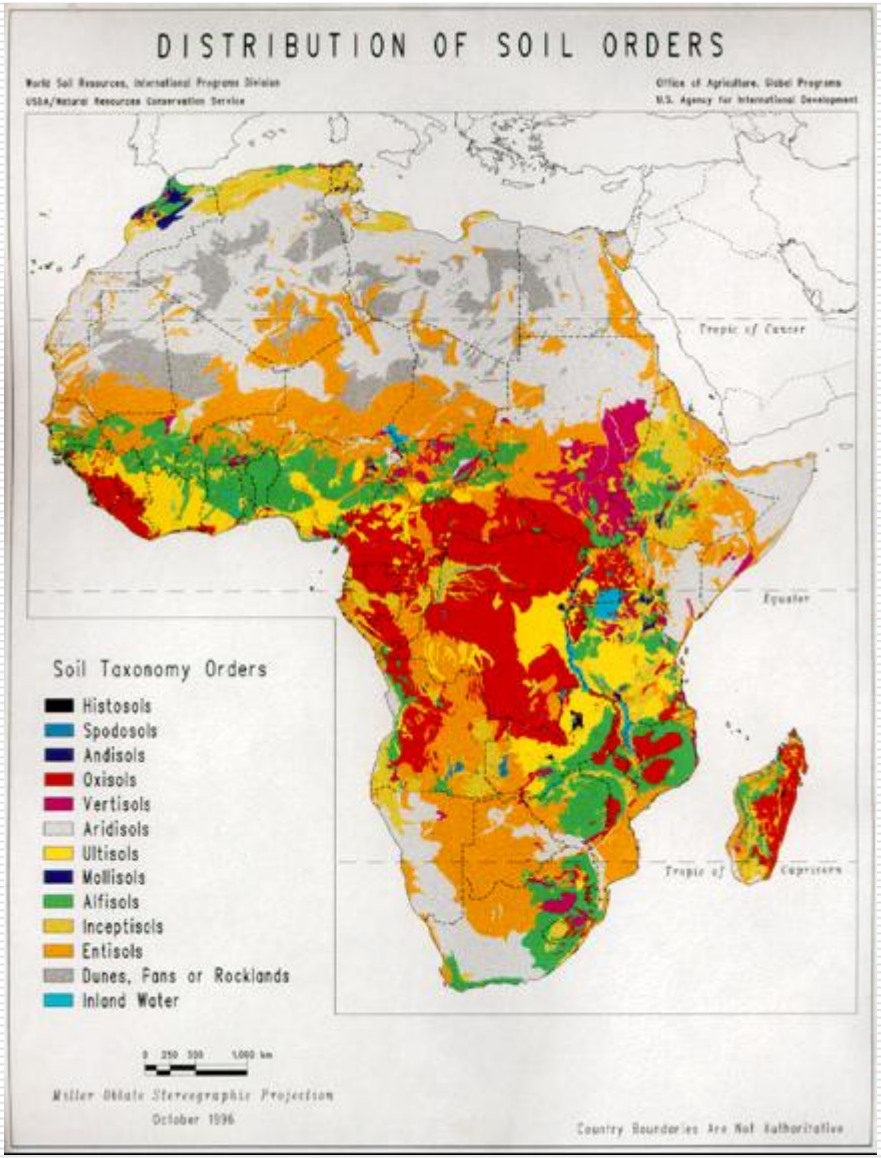
- Prepared by the FAO World Soil resources Office,
- Based on Soil Map of Africa published by the Inter-African Pedological Service of CCTA

Availability of materials



ISRIC
World Soil Information
FAO
JRC

Availability of materials



USDA / NRCS

World Soil Resources

October 1996

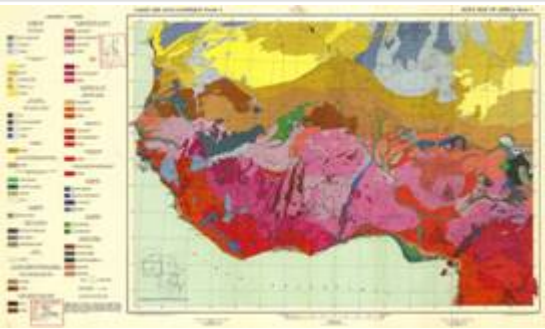
Availability of materials

Maps of the Institut géographique Militaire, Bruxelles, Belgium, **1963**

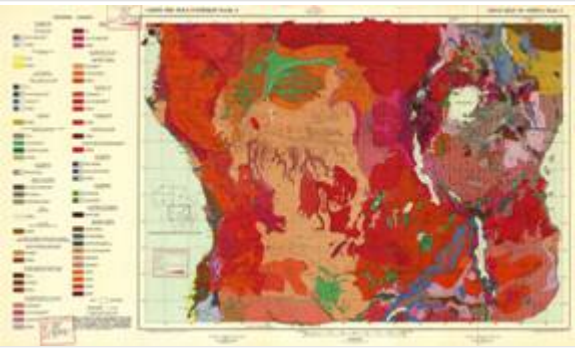
Title:	Soils Map of Africa. Sheet 1. [Carte des Sols d'Afrique. Feuille 1.]
Author(s):	D'Hoore, J.L.;
Publication year:	1963
Publisher(s):	Institut Géographique Militaire, Bruxelles.
Country:	XF OA BW NA ZN NZ ZA SZ LA LS MZ MG
Geograph. coordinates:	
Latitude:	S12°0 - S34°0
Longitude:	E11°30 - E41°0
Scale:	5,000,000
Keyword(s):	Soil

EuDASM collection sheets

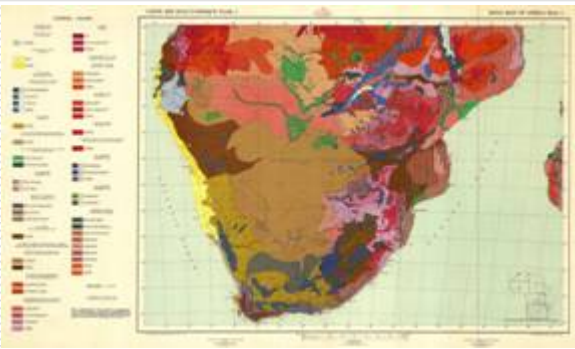
☞7 sheets



West Africa sheet



Central Africa sheet



Southern Africa sheet

Actual state of soil information systems in Africa

- National soil bureaux of most African countries have started to organise their soil information systems
  - Soil Data computing
  - Maps digitising
- Main Problems
  - Data capitalisation
  - Access to data
  - Mapping methods (software, formats, scales, etc.)

Expertise in soil science

- **Availability of African soil science Experts**
  - **Well-trained at university degree**
  - **Well-experienced through national and international services and institutions**
- **ASSS, through a strong networking with National and regional soil science societies and in collaboration with international institutions**
  - **Could interact for a significant input of African soil scientists to the production of the Soil Atlas of Africa**

ASSS and national soil science societies in Africa: a strong network

- **Northern Africa:** Egypt, Morocco, Tunisia
- **Eastern Africa:** (Kenya, Tanzania, Uganda), Ethiopia, Sudan
- **Central Africa:** Cameroon, Chad
- **Southern Africa:** South Africa
- **Western Africa:** Nigeria, Ghana, Senegal, Burkina Faso, Ivory-Coast, Benin, Sierra Leone

Expected outputs

- **For ASSS, the soil Atlas of Africa initiative will be an opportunity to:**
  - **Strengthen the capacity of expertise of African soil scientists (training process)**
  - **Realize a lobbying towards political institutions in Africa (Africa Union) for a better consideration of soil aspects by decision makers**
  - **Insure a widespread diffusion, appropriation and information updating of the soil atlas by most users in Africa through ASSS website and ASSS regular activities.**

Thank you for your attention!