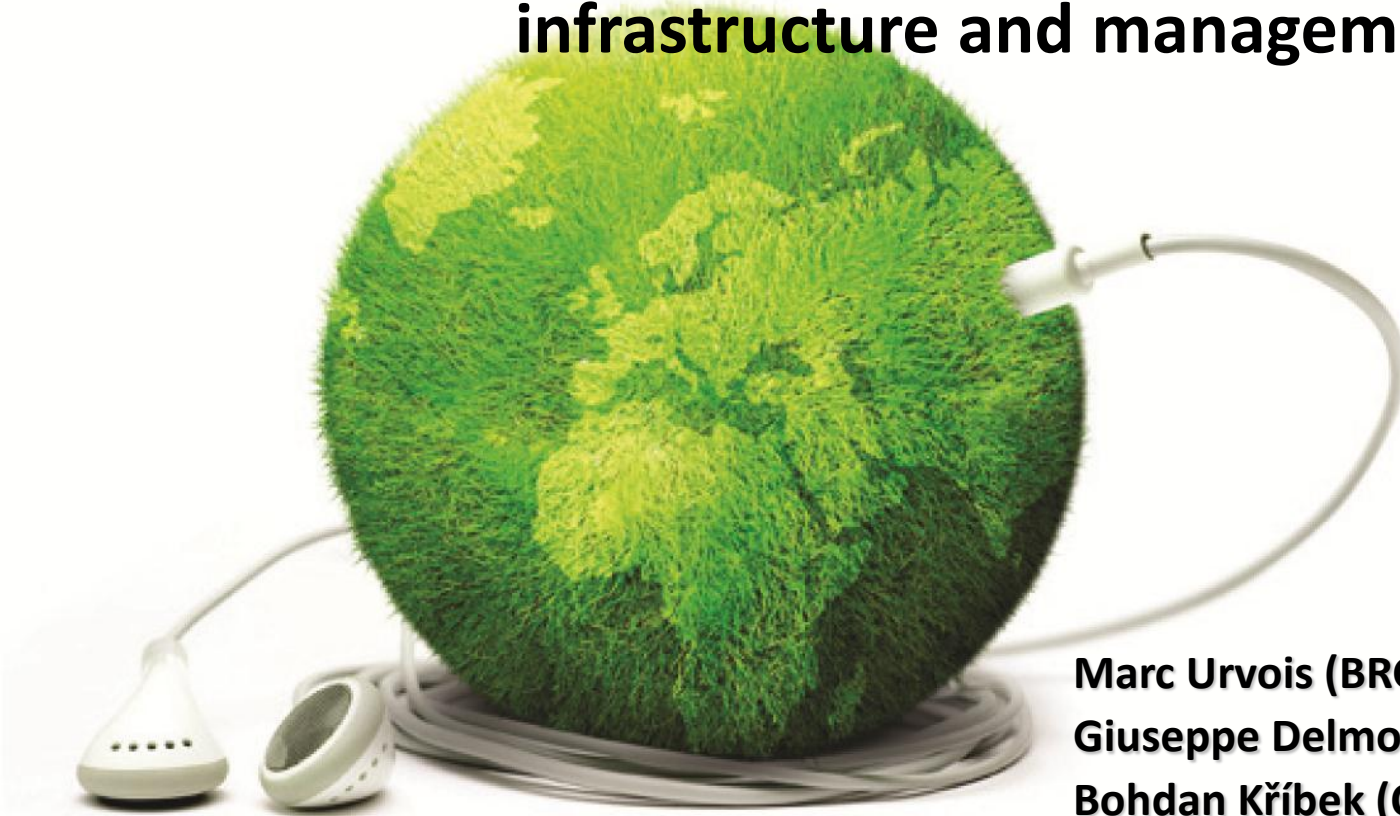


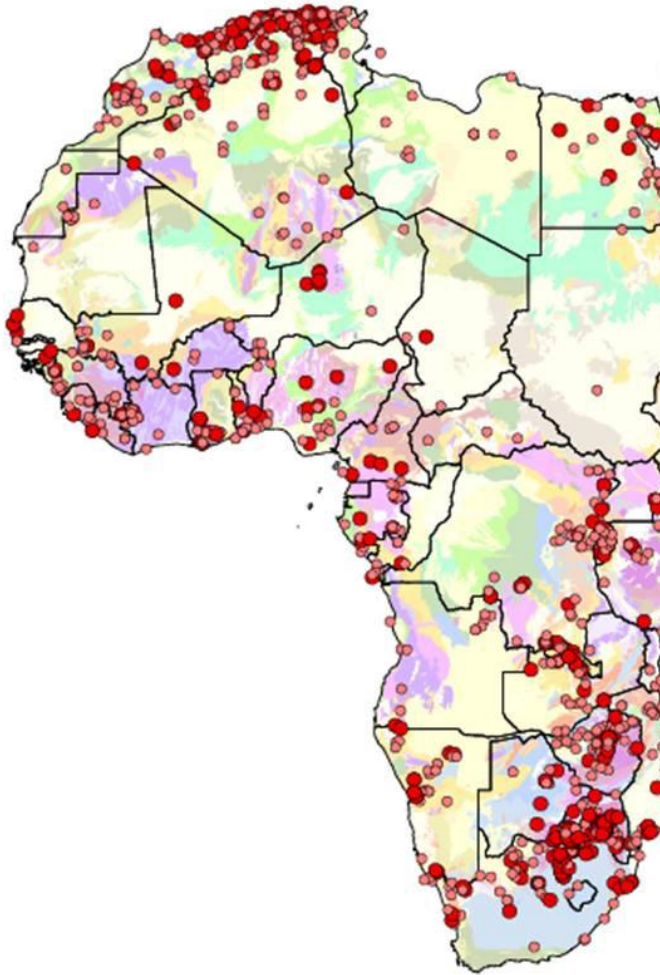
## Activity 6.3 Geoscience information infrastructure and management



**CAG25 - TW4 Workshop**  
**Dar Es Salaam 14.08.2014**

**Marc Urvois (BRGM)**  
**Giuseppe Delmonaco (ISPRA)**  
**Bohdan Kříbek (CGS)**  
**Amadou Hassane (DNG)**

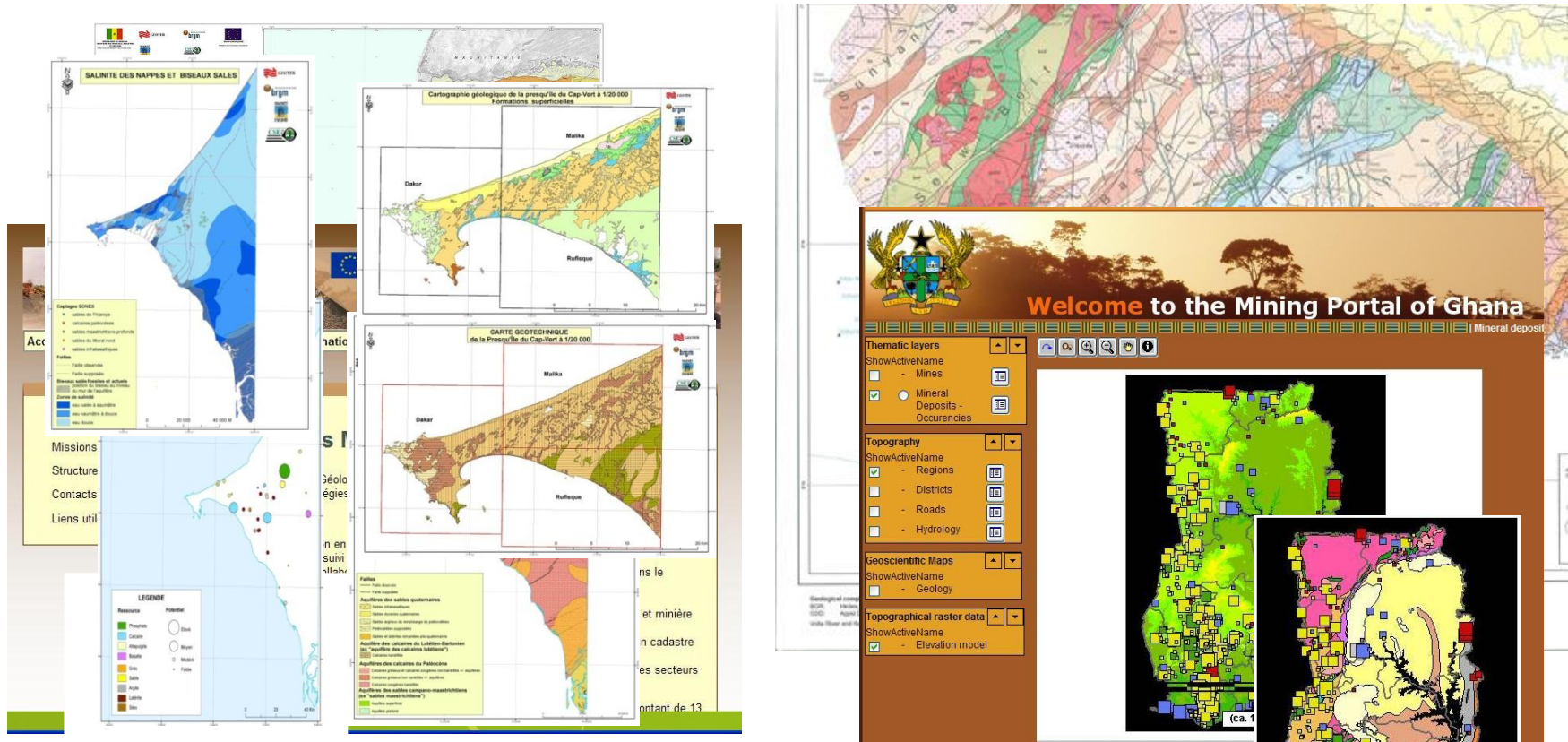
# Relevance of the Topic



- Africa has an important share of the global mineral resources
  - necessary for national and international economies
  - significant part of the Gross Domestic Product in most of African countries (up to 85%)
- Missions of the Geological Survey s
  - Collect data (national inventories)
  - Store & Manage (national custodians)
  - Valorise (generate added value)
  - Ensure availability (in paper & digital form)
  - Contribute to the promotion of the sustainable use of non-renewable resources (attractiveness development)
- ▷ Availability of reliable information represents an important part of the infrastructure a country has the duty to supply.



# Results of national mapping, mineral inventories “Mining Sector Support Programmes” (EC, WB, etc.)

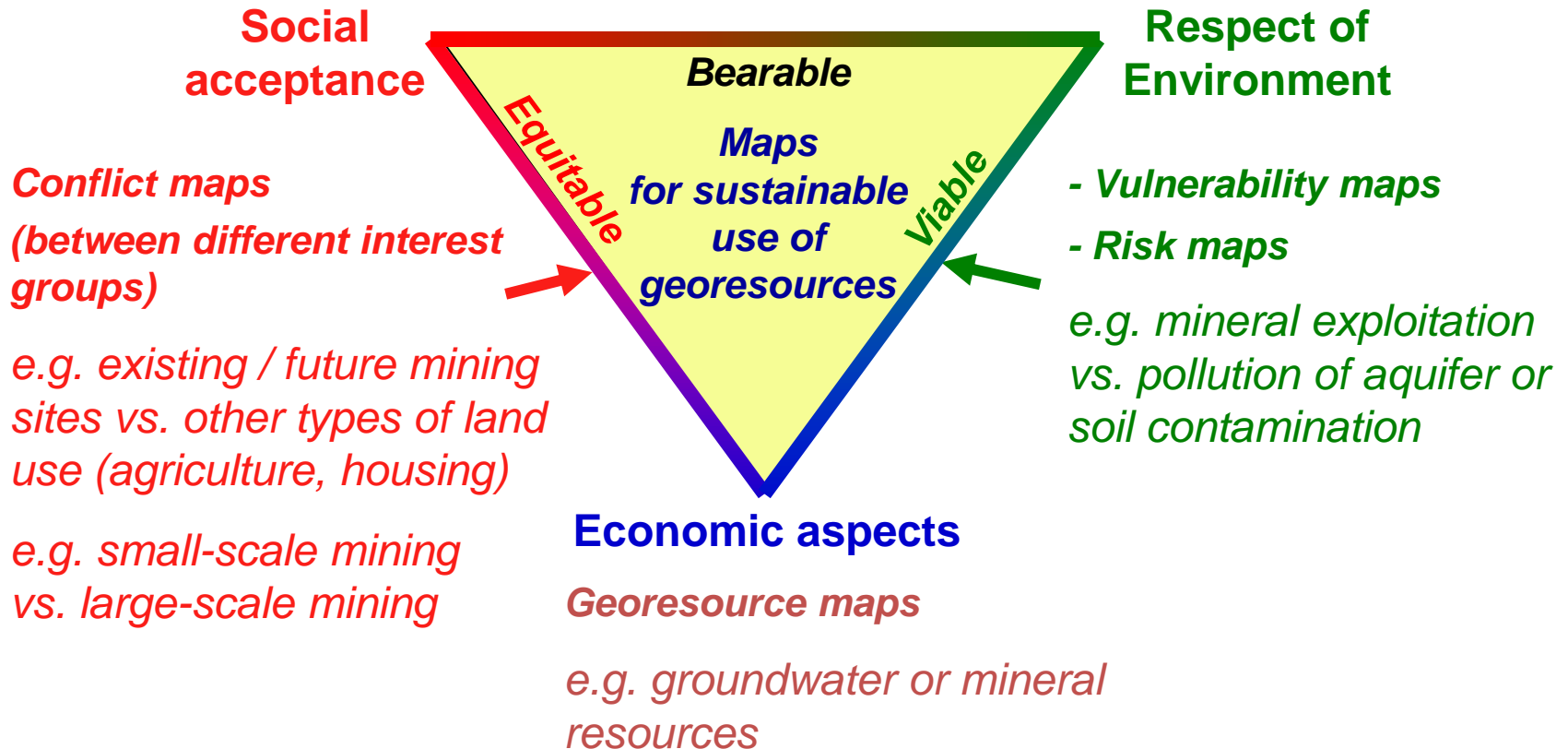


Development and Cooperation Programmes: Senegal, Ghana, Niger, Guinea, Mali, Burkina Faso, Ethiopia, Kenya, Uganda, Mozambique, Angola, Gabon, Madagascar, South Africa, RD Congo, Namibia, Morocco, Ivory Coast, Central African Rep., Algeria, Botswana, Tanzania



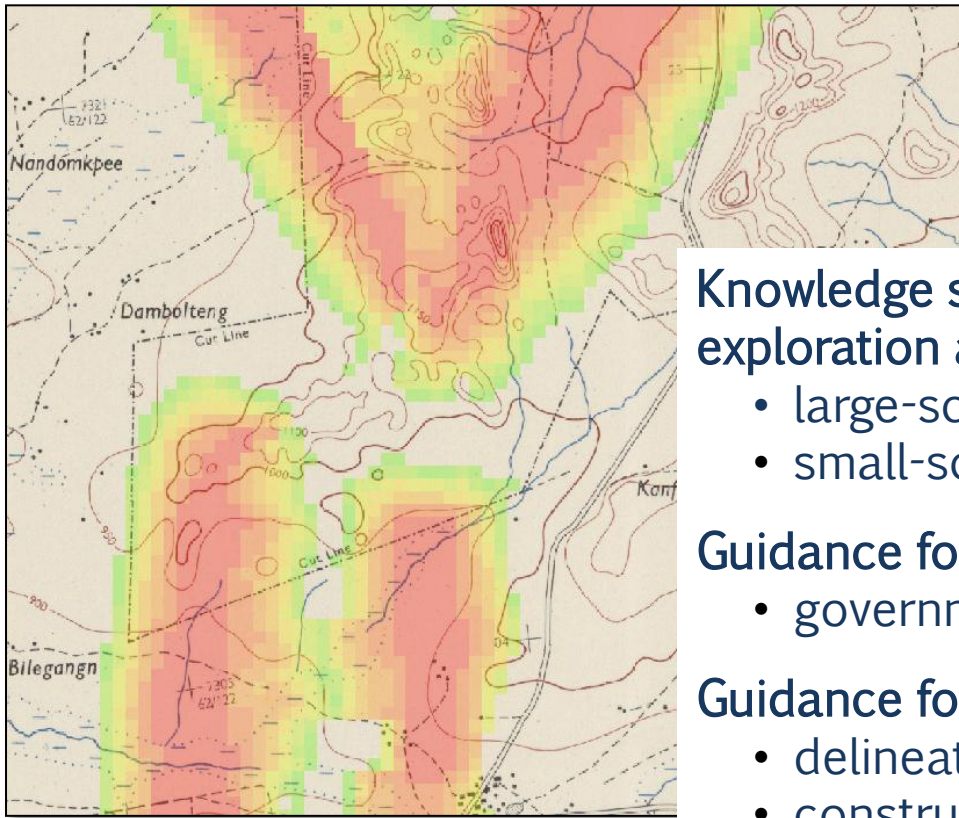


# Governance maps for sustainable use of georesources



# Mineralisation predictive maps

- Advanced methodologies for predictive modelling (neural networks)
  - ➔ High resolution mineral predictive map, e.g. gold in NW Ghana



Knowledge synthesis for prospecting and exploration activities for:

- large-scale mining companies
- small-scale miners and cooperatives

Guidance for mining block & licence allocation

- government and district administration

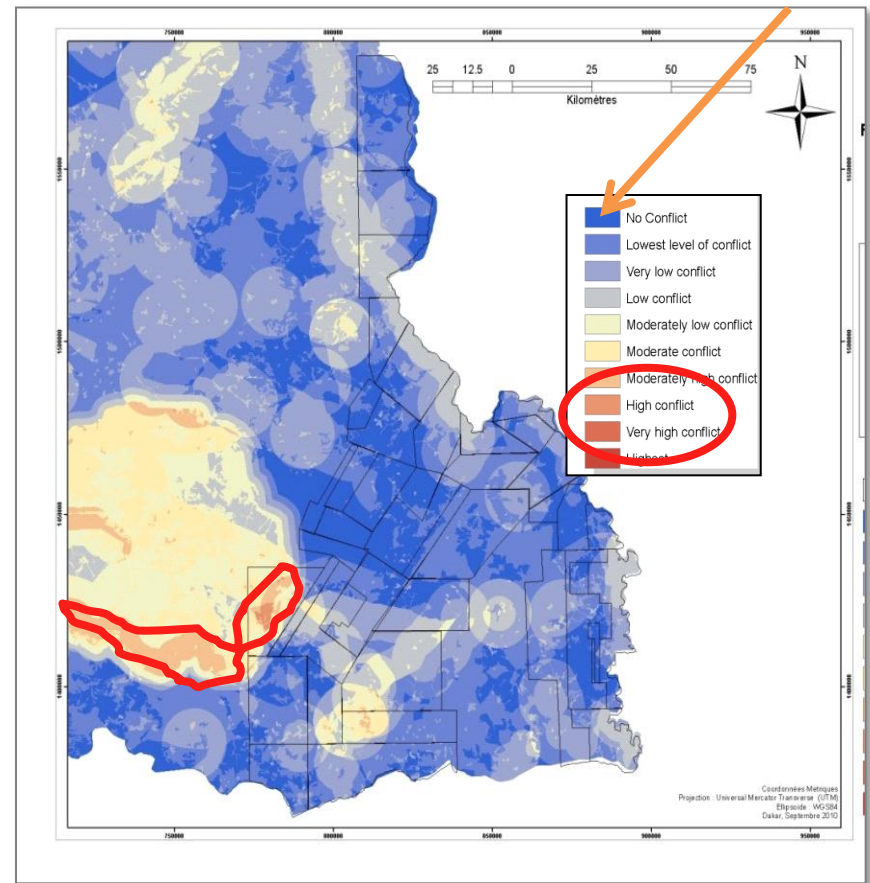
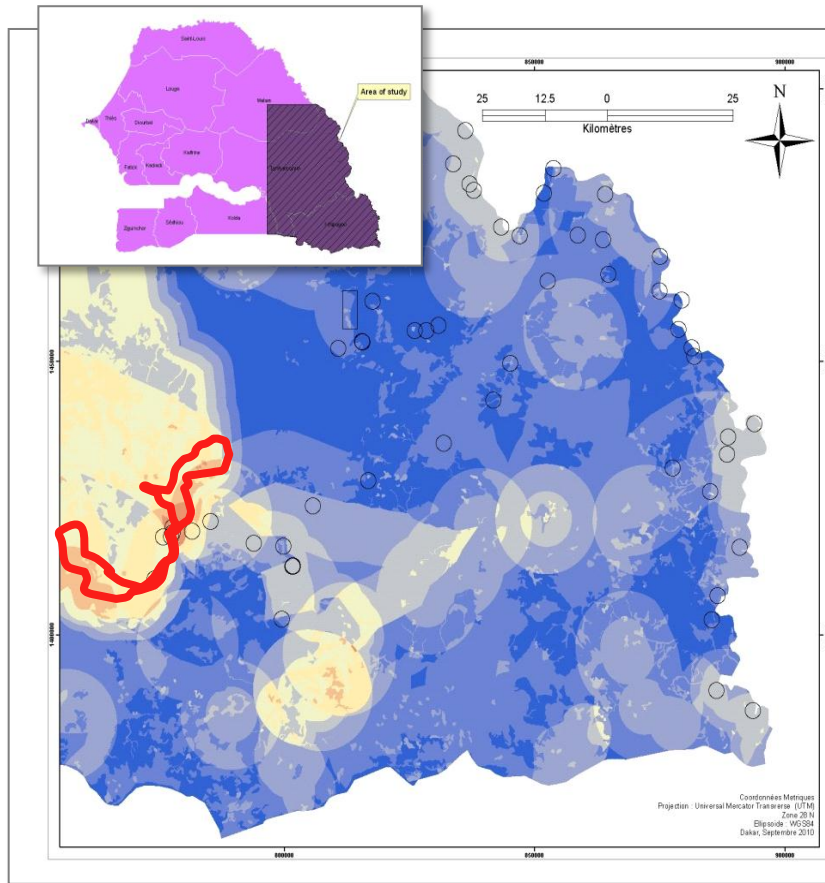
Guidance for local land use planning:

- delineation of preferred prospecting areas
- construction of roads and settlements

Accuracy 50 - 100 m



# Conflict analyses in land use planning in Senegal



Conflicts between existing gold mining and other land use (left), and a predictive map of conflicts between licensed gold exploration and other land use (right).



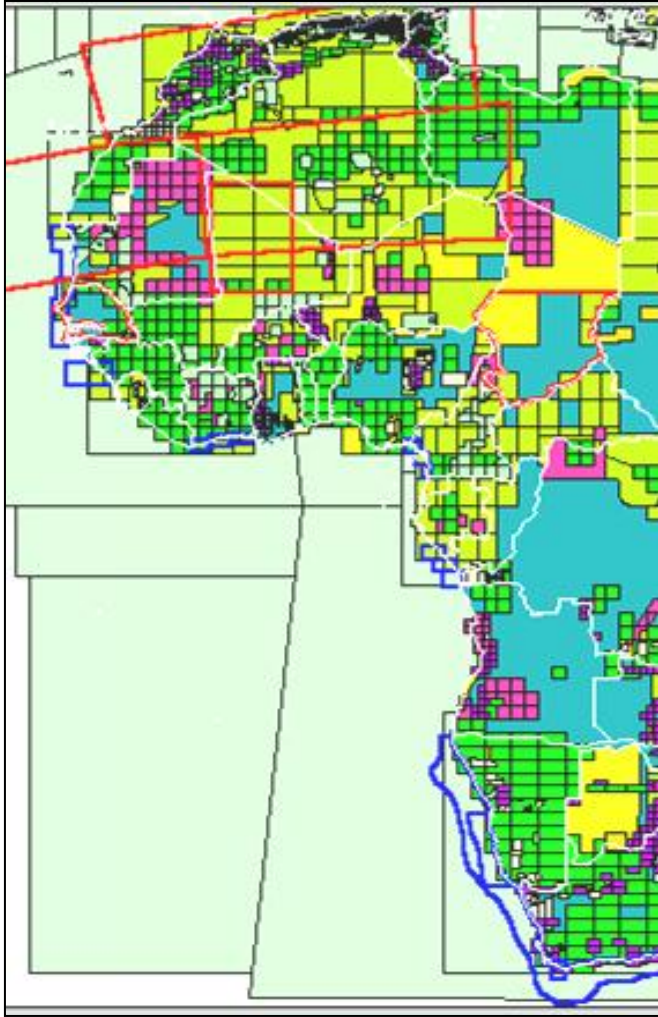
Mr./Mrs. Stakeholder: I wish I knew,  
in my head, at least,

Or how the wealth generated by  
the mineral resources of African  
countries can financially benefit  
to prioritise Information  
Management at national and  
regional levels?





# Relevance of the Topic



- A **unique archive** of Africa-related geoscientific data and information exists in **African and European** geoscientific organisations
- **Data** realises its full potential and **value** when **made accessible** (free or at affordable cost), used and **disseminated**.
- **Geological database** (quality & scale of maps, ease to access to information, etc.) is an attractiveness criteria for the mining companies [*Fraser Institute ranking index*]
- ▶ The development of Africa's mineral resources potential through **informed decision-making** requires national **digital information management** and a **continental SDI** based on interoperability standards





# Objectives & Actions

- Assessment of human and equipment resources (software, hardware, network) of the OAGS members in view to strengthen and operate national focal points as part of the African network of geoscientific spatial data infrastructures
- Analyse the existing situation of the geoscientific IT equipment, personnel and skills in OAGS member organisations
- Recommend improvements in view to strengthen the facilities and capacities
  - ☐ IT infrastructure
  - ☐ Existing IT hardware
  - ☐ Existing IT software
  - ☐ Data architecture
  - ☐ Skills adequacy
  - ☐ Investment priorities
  - ☐ Metadata
  - ☐ Publication of data & products



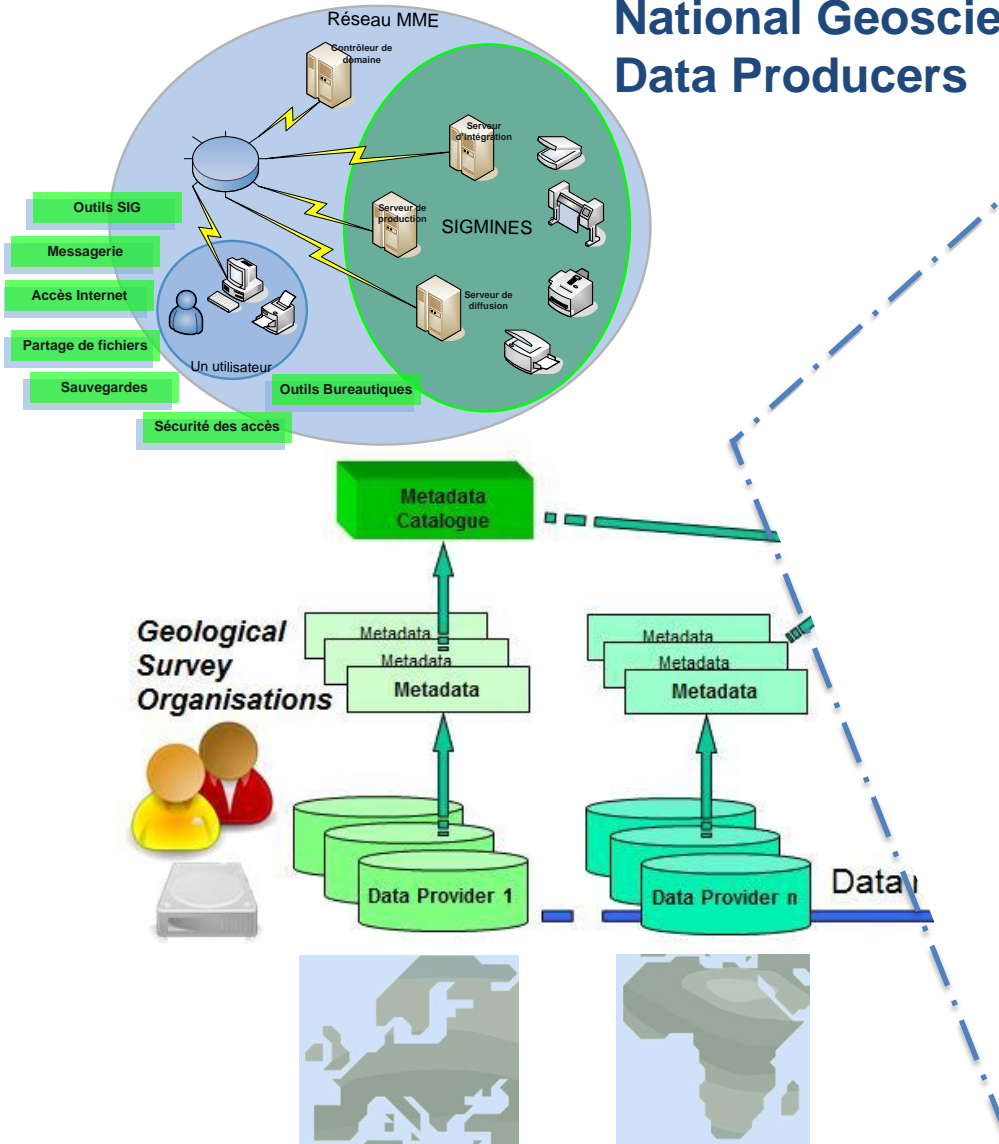
# Existing relevant SDI initiatives

- **GEO –GEOSS** (Group on Earth Observations – Global Earth Observation System of Systems): AEGOS integrated in GEO work plan 2009-2011 and 2012-2015 | **GEOSS Common Infrastructure**
- **AfriGEOSS**: GEO initiative (launched in 2013) aimed at building infrastructural capacities in Africa to benefit from the geospatial data for sustainable development
- **INSPIRE** (Infrastructure for Spatial Information in Europe): specifications for implementing the interoperability of metadata, data and services through open systems
- **OneGeology-Global** “Providing geoscience data globally”. Practical implementation of relevant standards and methodologies through web map portal and web services
- **Geo-Information policies and SDIs in Africa** initiated and supported by AUC and UNECA: African Regional Spatial Data Infrastructure (**ARSDI**) and national SDI plans; UNCTAD Natural Resources Information Exchange (**NRIE**)



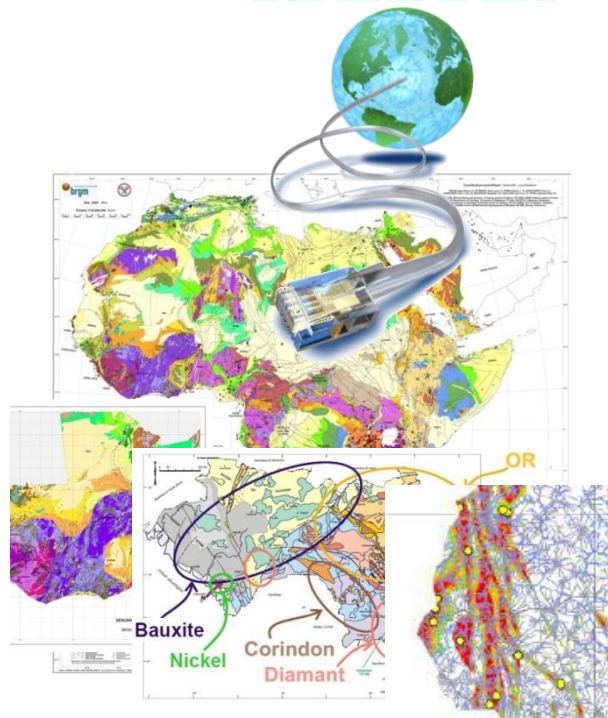
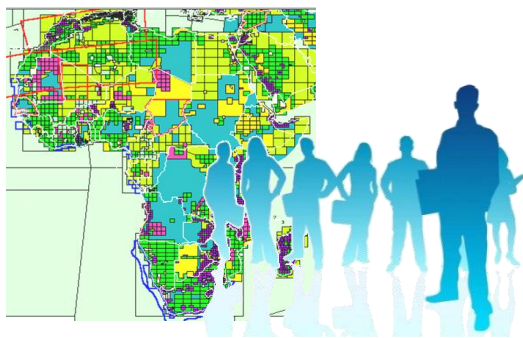
# Pan-African distributed geoscience infrastructure

## National Geoscientific Data Producers





# Distributed Geoscience Infrastructure in a nutshell



- a **pan-African spatial data infrastructure** of public geology-related metadata, data and user-oriented products & services;
- a **web-based multilingual portal** for controlled access to a **network of interoperable databases** distributed over Europe and Africa;
- a **one-stop information system to share knowledge on georesources in Africa**: maps, reports, data, added-value products and services, downloads, access conditions, contacts;
- a **charter of partnership** re. data sharing principles and data right management;
- a **network of geoscientific institutions and skilled geoscientists** to support informed decision-making, investments and education.

Permanent, autonomous, African-driven, part of the  
AMDC Geology and Minerals Information System



# Recommendations: IT infrastructure

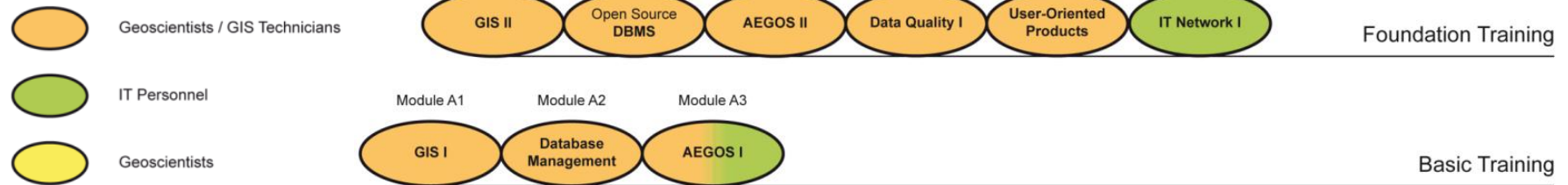
- Avoid the “One size fits all” approach
- Consider each local context with respect to the available logistics and resources (government, self-generated income, projects):
  - Equipment to serve the geological survey missions as data producer
  - Build on operational equipment and staff with improvements in standards and procedures
  - Open source software to limit the investment and maintenance costs
  - Put together the conditions for sustainability after the PanAfGeo delivers
- **Keep the balance between:**
  - Necessary facilities and capacities to run PanAfGeo case studies
  - Ability to keep them operational afterwards with local resources
- **Spatial Data Infrastructure for georesources management:**
  - Pan-African distributed architecture: OAGS and AUC umbrella + GSaF
  - Such SDI identified as a partner project of AMV implementation at the 3<sup>rd</sup> Conference of Ministers responsible for mineral resources (Dec. 2013)



# Recommendations: IT personnel and skills

- Build on personnel and skills already in operation
  - AEGOS capacity building scheme identified 3 target groups:
    - IT personnel (infrastructure) ☐ Face-to-face / On-the-job
    - Geoscientists (manage + process) ☐ Open distance e-learning
    - GIS professionals (products + services) ☐ Info day / Workshop
- ▷ Training of IT and geodata professionals + Training for trainers to overcome the staff turnover subsequent to project implementation.

*28 modules – Africa –  
Regional & local training  
sessions – 2 to 3  
languages – 3 levels*





Merci de votre attention  
Thank you for your attention  
Obrigado pela vossa atenção

