

## The Spatial Data Infrastructure for Georesources in Africa

### Project Background and Overview

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*Stakeholders Workshop*

*Accra – 6 October 2010*

# Presentation outline

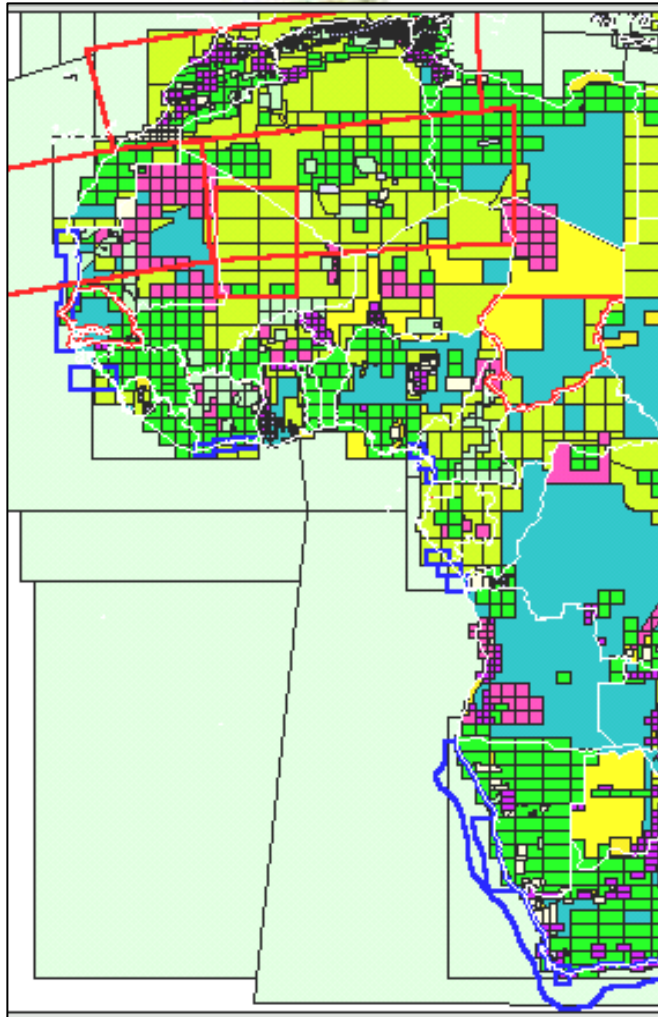


- Why AEGOS ?
- Contexts: cooperation and geoscience
- Objectives
- Results and deliverables
- Project team and organisation
- Who else can participate ?
- Which benefits from AEGOS ?
- AEGOS: when and where ?

**Mr./Mrs. Investor: I wish I knew, in my language or English at least, which is the mineral sector investment framework, what data / information is available on mineral potential, in which format, and how to access it, its quality and if it is interoperable with our IT system...**



# Context



- > Africa has an important share of the global mineral resources and reserves – necessary for national and international economies: **40% of the world known reserves in bauxite, manganese, cobalt, platinum, gold, diamond and rhodium**
- > A **unique archive** of Africa-related geoscientific data and information exists:
  - they were acquired by **African and European** geoscientific organisations;
  - **public**, disseminated, partly hard to identify and access;
  - multiple formats, diverse geometric projections, several languages, under **various custodianships**;
  - they should be identifiable and **accessible** thanks to modern IT.

# Why AEGOS ?



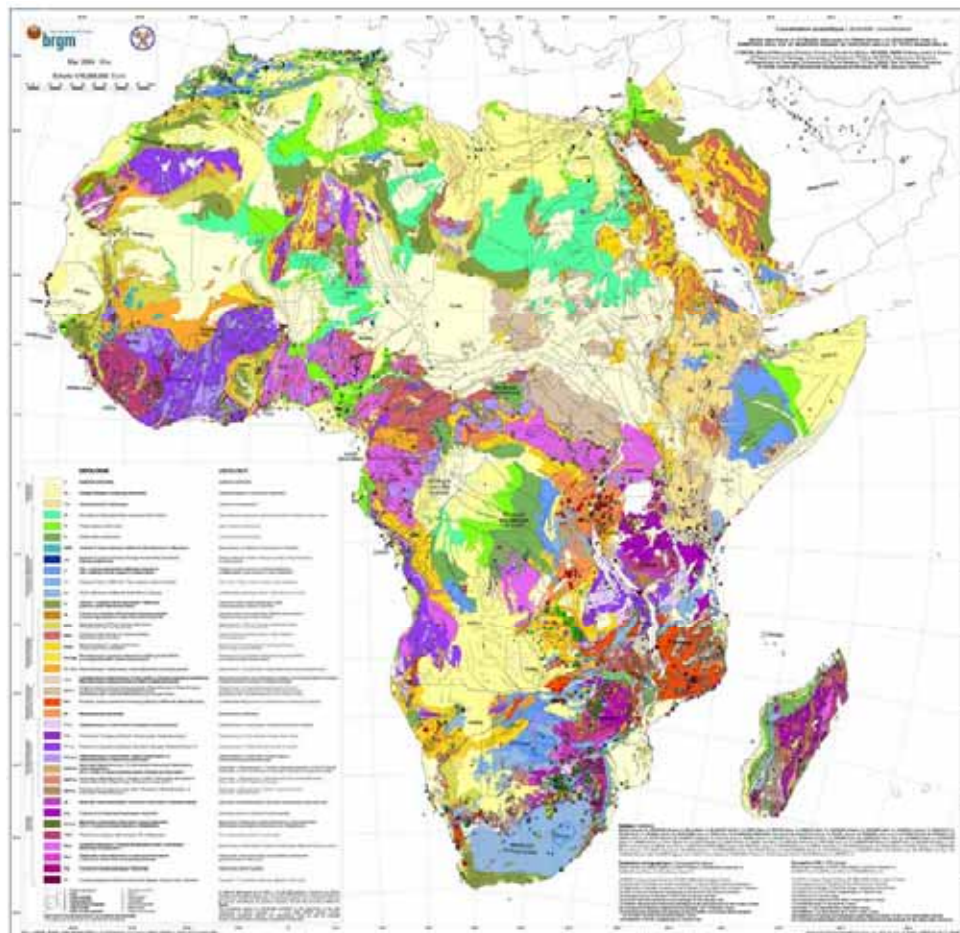
- **Data** realises its full potential and **value** when made accessible (at affordable cost), used and disseminated.
- **Developing the knowledge** on mineral resources potential benefits to knowledge development on other underground natural resources e.g. groundwater and geothermal energy.
- Sustainable use of geology-related resources requires data, information and expertise for **informed decision-making**.
- **Web-based Georesources databases** are a key factor to base proper land-use planning/ environmental management policies and to attract local/ foreign investment both at large and small scales.
- They are **essential infrastructures** for combining data, knowledge and skills in support of the sustainable development policies. The role of AU, UNECA, RECs, OAGS and the ACP Group of States is essential.
- **AEGOS scope:**
  - **Visibility and accessibility** of accurate and reliable public data
  - **Capacity building** for qualified human resources
  - **Efficient promotion of the available information** on potential resources with appropriate Intellectual Property Right management

# Georesources: vital for the sustainable development of African countries



- **Cotonou Partnership agreement (2000)**: the ACP-EU cooperation shall “provide technical and financial assistance for the acquisition, conservation, processing and dissemination of geoscientific data”.
- **Addis Ababa Declaration (AU, 2008)** calls on “Africa’s development partners to enhance their support for the building of physical and resource knowledge infrastructure and for the strengthening of the institutional, human and technical capacities needed to develop the continent’s mineral resource potentials”.
- **Abudja Declaration (ECOWAS, 2009)** “welcomes the geomineral information system initiatives in Africa including AEGOS”.
- **The African Mining Vision 2050** adopted by the Africa Union (2009) strategic axes includes:
  - “Improve the level and quality of Africa’s resource potential data and make regional/nation-wide geodata to help the prioritisation of projects”
- **The EU Raw Materials Initiative** aims, *inter alia*, to:
  - “Ensure sustainable and more transparent supply from third countries,
  - Encourage capacity building in developing countries”.

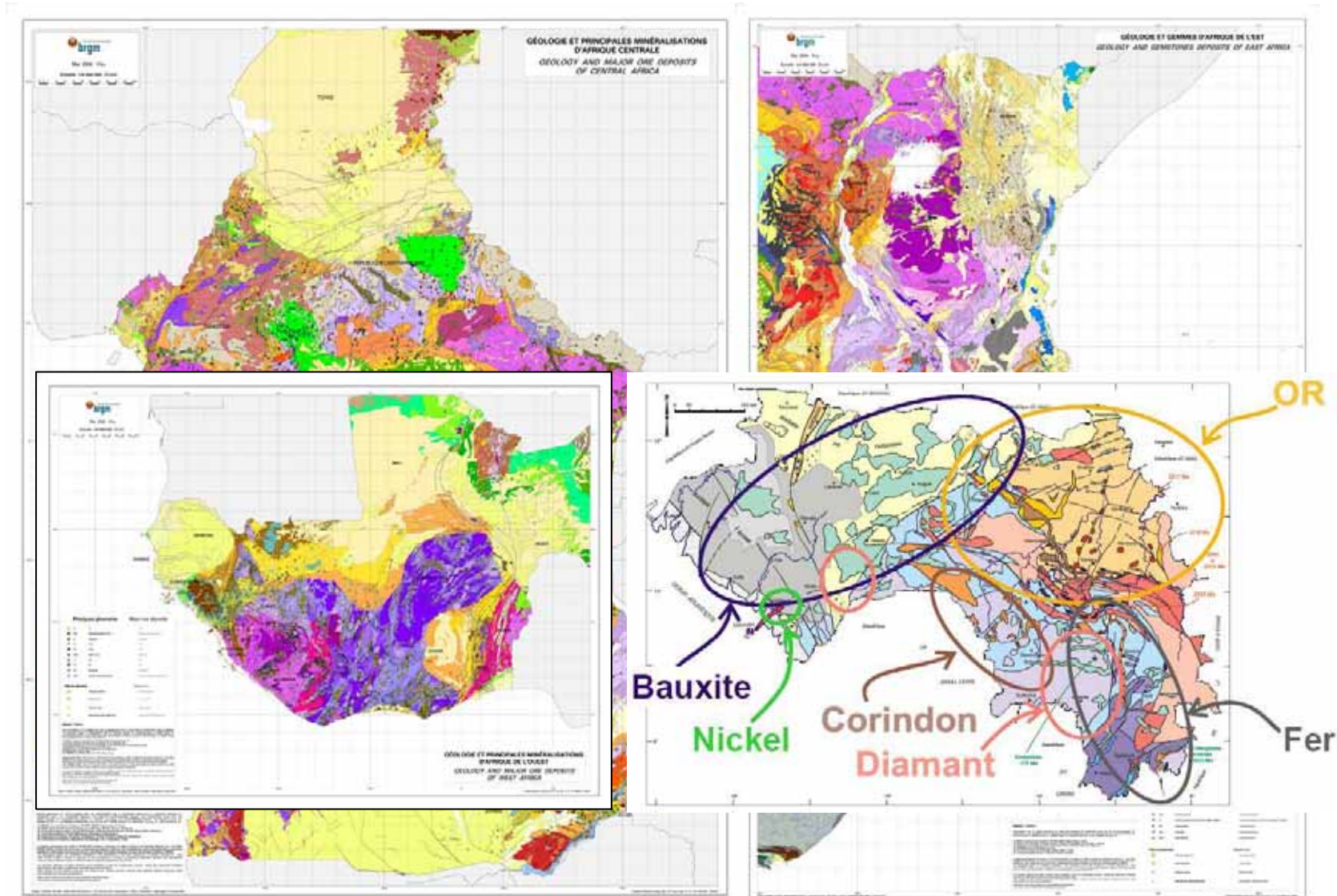
# SIGAfrique network and GIS: a first step



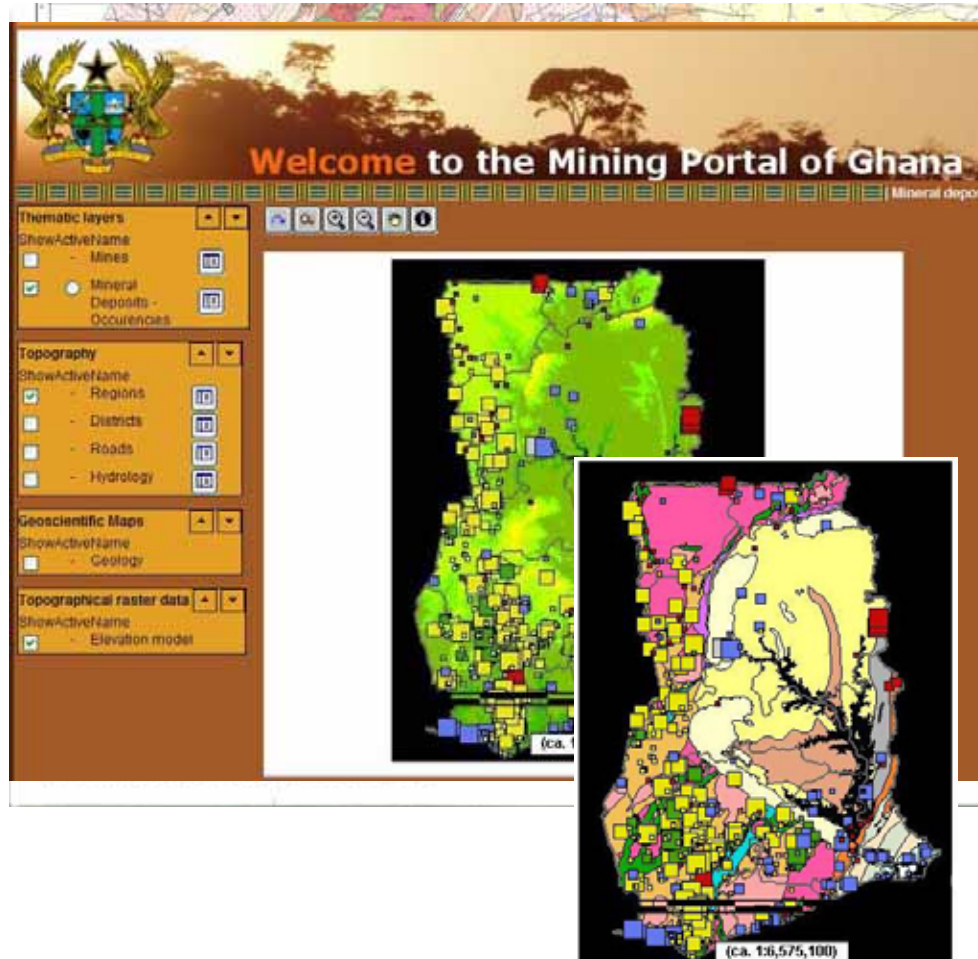
[www.sigafrique.net](http://www.sigafrique.net)

- 2003-2005 – 13 ACP countries, 2 regional centres (UEMOA & SEAMIC), BRGM and CIFEG
- Synthesis of scientific knowledge and up-to-date concepts: descriptions, typology, metallogenic models.
- Cross-border correlations.
- A digital harmonised map coverage of Africa at continent and regional scale (1:10,000,000 and 1:2,000,000) shared by all partners.
- 2 georeferenced databases: geology & structural / 40,000 deposits & occurrences

# SIGAfrique GIS: regional and thematic maps



# Mining Sector Support Programme at Geological Survey of Ghana



- Cooperation between European Commission and Republic of Ghana (2002)
- 40 M€ (8<sup>th</sup> EDF) to enhance the sustainability of the mining sector – Several projects:
  - Geological mapping
  - Airborne geophysical survey
  - Information management system:
    - Databases
    - GIS
    - Website and Data Portal
  - Others

# Georesources and society



- The exploitation and use of non-renewable natural resources must involve the people in an environment-friendly context
- The Earth is a complex system of systems with as many observation and environment monitoring infrastructures
- These infrastructures need to be coordinated and use standards (metadata, common data models, interoperability)

➤ **GEO**-Group on Earth Observations: 9 Societal Benefits



➤ **GEOSS**-Global Earth Observation System of Systems:

- more open data access (data sharing principles)
- foster use of Earth observation data through science, application and capacity building



➤ **INSPIRE**: Infrastructure for Spatial Information in Europe



➤ **AEGOS**: contribution of geoscience to GEOSS in the context of INSPIRE

# Objectives

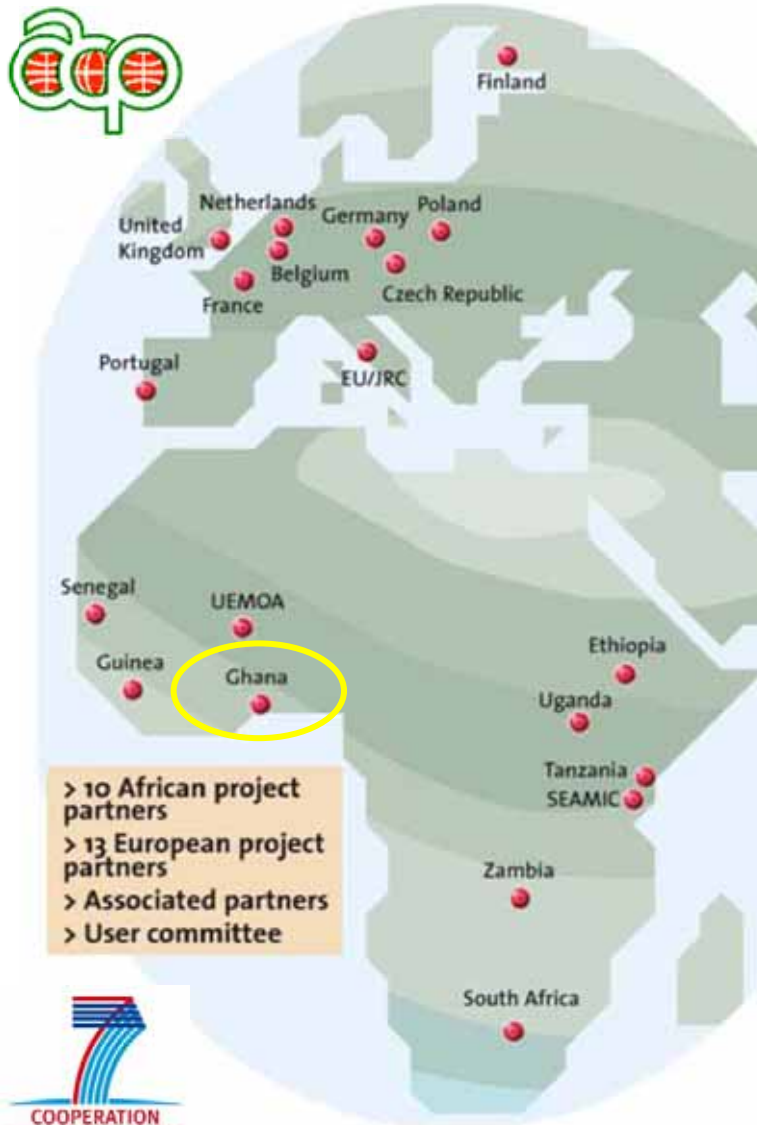


## *African-European Georesources Observation System*



- Strengthen the sustainable use of underground resources in Africa by **designing the SDI for Georesources** based on interoperable geoscience data and user-oriented services
- **Safeguard, share and valorise** the knowledge and data archived in African and European geological surveys
- **Support geoscientific communities** and **institutional decision-makers** for sustainable development public policies
- **Elaborate common strategies** for capacity building and training programmes

# ACP – EU initiative in FP7 RTD



- **Preparatory phase** (2008-2011) to design a multi-national georesources observation system
- **Main targets:** institutional decision-makers, investors, geoscientific communities and education
- **9 European** geological surveys
- **8 African** counterparts: geological surveys, ministries of mines, school of mines
- **4 International** organisations: EU Commission (Joint Research Centre), CIFEG, UEMOA, SEAMIC

# Project team



## Consortium of 23 partners



# Associated partners



- **Geological Survey of Tanzania**
- **Geological Survey of Mozambique**
- **Geological Survey of Sweden**
- **Cranfield University, United Kingdom**
- **Royal Museum for Central Africa, Belgium**
- **EUMETSAT, European Union**

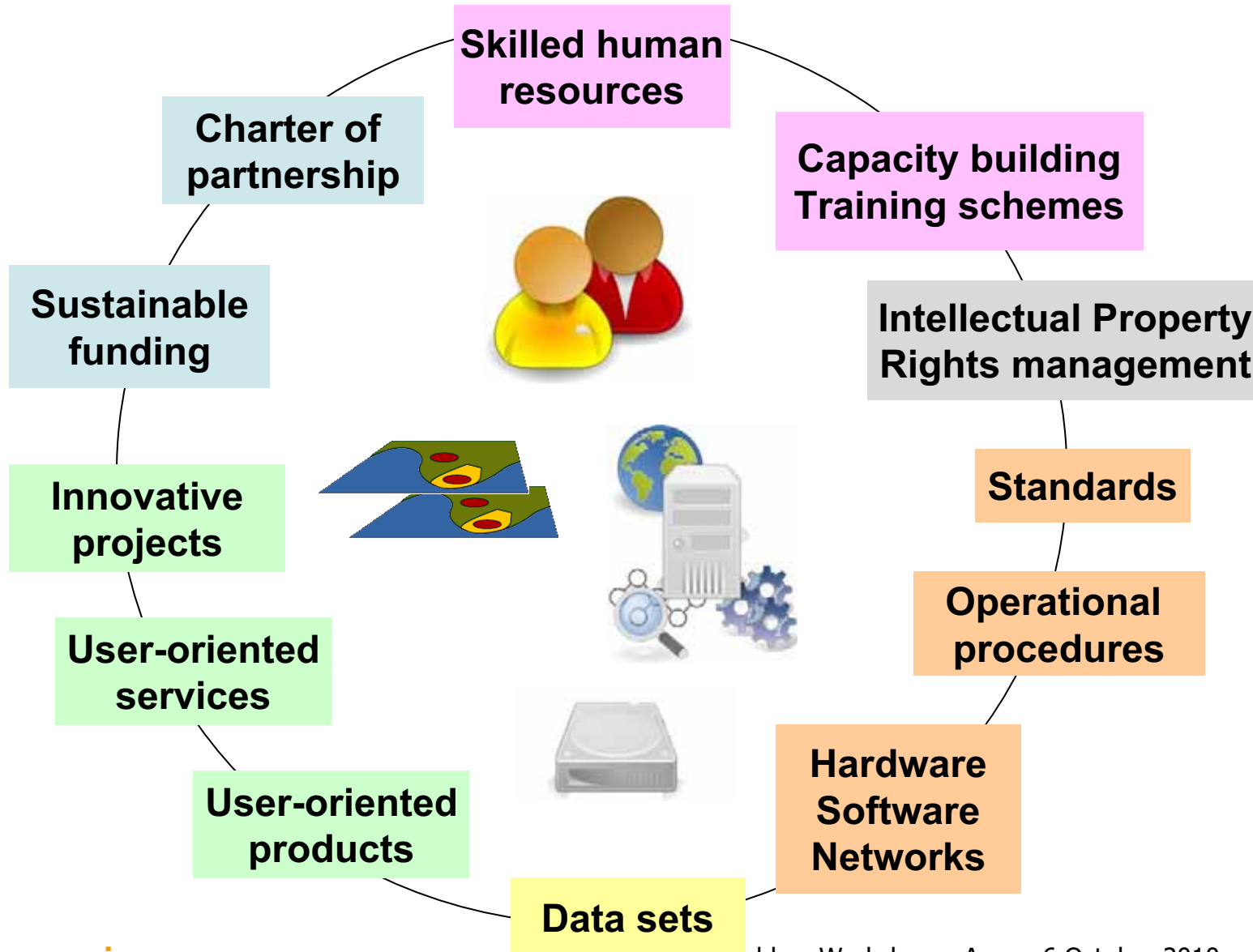


# Advisory Board



- **ACP** (African Caribbean and Pacific Group of States)
- **AUC** (African Union Commission – Science & Technology Div.)
- **EuroGeoSurveys** (Association of the Geological Surveys of Europe)
- **GEO** (Group on Earth Observations)
- **GSAf** (Geological Society of Africa)
- **ICSU/ROA** (International Council for Science/ Regional Office for Africa)
- **OAGS** (Organisation of African Geological Surveys)
- **UNECA** (United Nations Economic Commission for Africa – ICT, Science & Technology Div.)
- **UNESCO / IHP** (International Hydrological Programme)

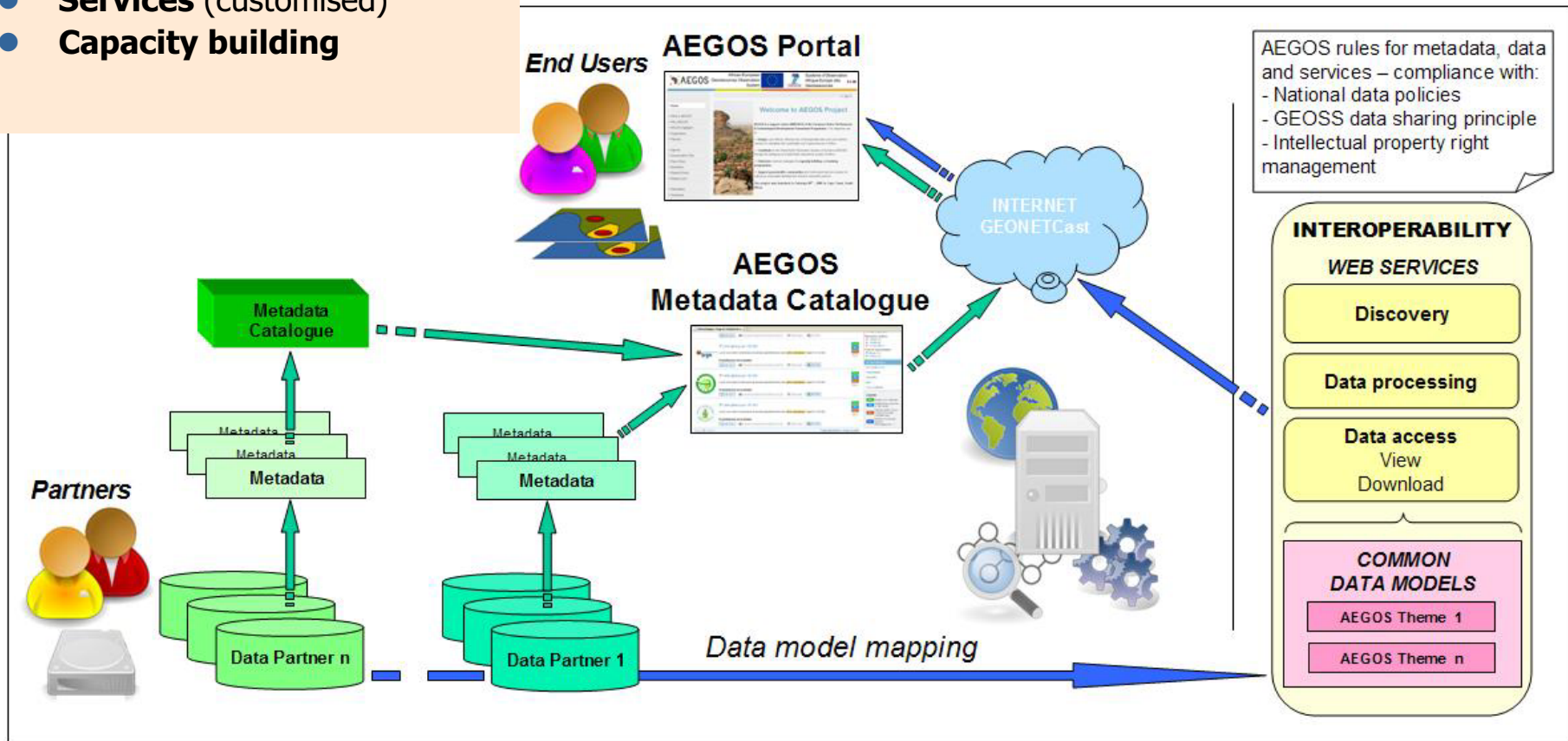
# Infrastructure components



# AEGOS distributed infrastructure



- **Metadata** on-line
- **Data** (on-line and off-line / e-AEGOS)
- **Products** (on-line and off-line)
- **Services** (customised)
- **Capacity building**



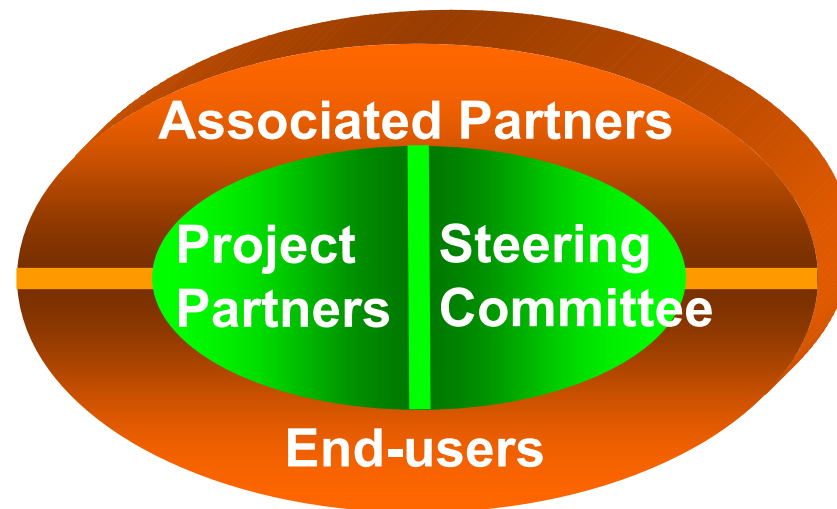
# Results and deliverables at the end of the future Phase 2



- **Distributed infrastructure** of national multidisciplinary data sets
- **Internet and satellite-based access** to public geoscientific metadata and harmonised data
- **Operational procedures and open standards** to browse interoperable spatial information
- **User-oriented products and services**: customized decision- support systems
- **Capacity building and training programmes**
- **Permanent network** of institutions and geoscientists
- **Charter of partnership** - Intellectual Property Right Management
- **Funding model** for the sustainability of the AEGOS infrastructure “Plan for Sustainable Operation”

# Who else can participate ?

- Policy makers, geoscientific communities, education, research, non-governmental organisations, entrepreneurs, investors...
- Mines, energy, environment, land use, agriculture and forest, water, hydraulics, natural hazards, socio-economy...



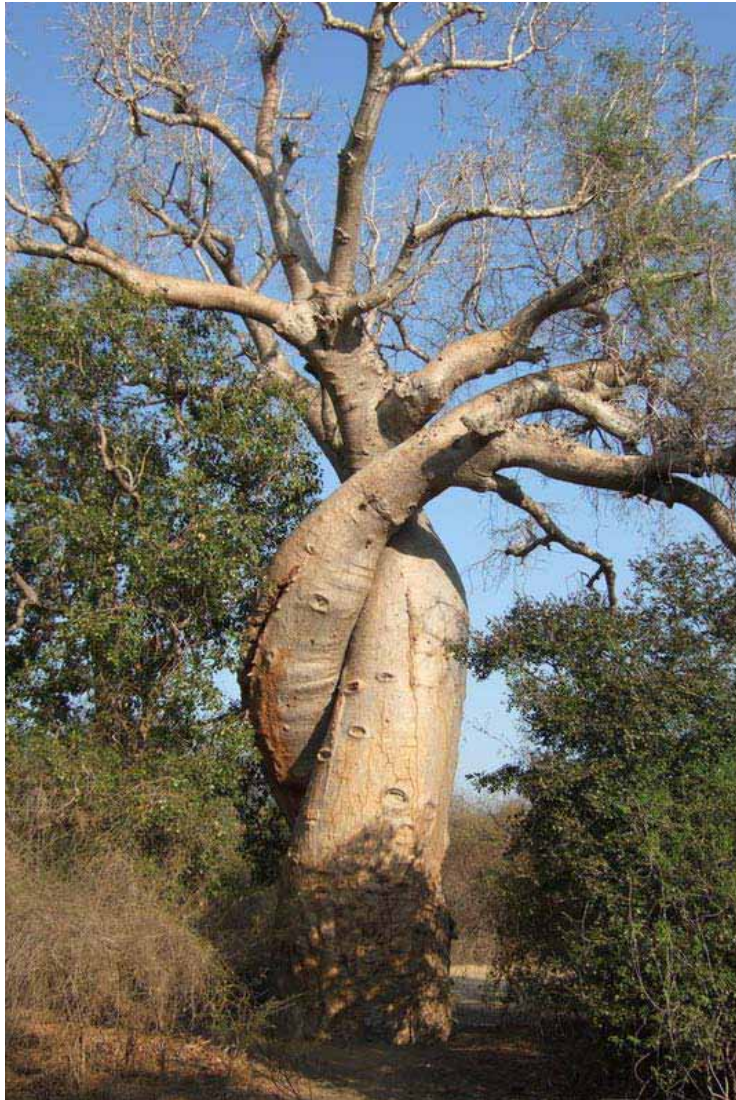
- Attend to the conferences as end-users
- Contribute to the thematic workshops as stakeholders and future associated partner

# Which benefits from AEGOS ?



- Be an active **partner in designing and implementing** a modern Spatial Data Infrastructure for georesources Africa and relevant capacity building programmes.
- Benefit from the **strength and efficiency of collective means** and actions rather than at individual level.
- Facilitate **cross-border harmonisation** of georesources data within the AEGOS networks of partners
- Enhance the **capacity to plan and build scenarios** to better manage the non-renewable resources wealth in minerals, aggregates and groundwater.
- Market **investment opportunities** in the georesources sector
- **Improve the governance** taking into account the socio-economic factors
- Further **develop domestic commodities** to support the economy and meet the Millennium Development Goals (poverty reduction)
- Enhance the **level of human capacities** through dedicated schemes in information technologies and SDI management

# Towards AEGOS Phase 2



## AEGOS – Phase 1, 2008-2011

- ***Infrastructure design and network of contributors***

Upcoming events:

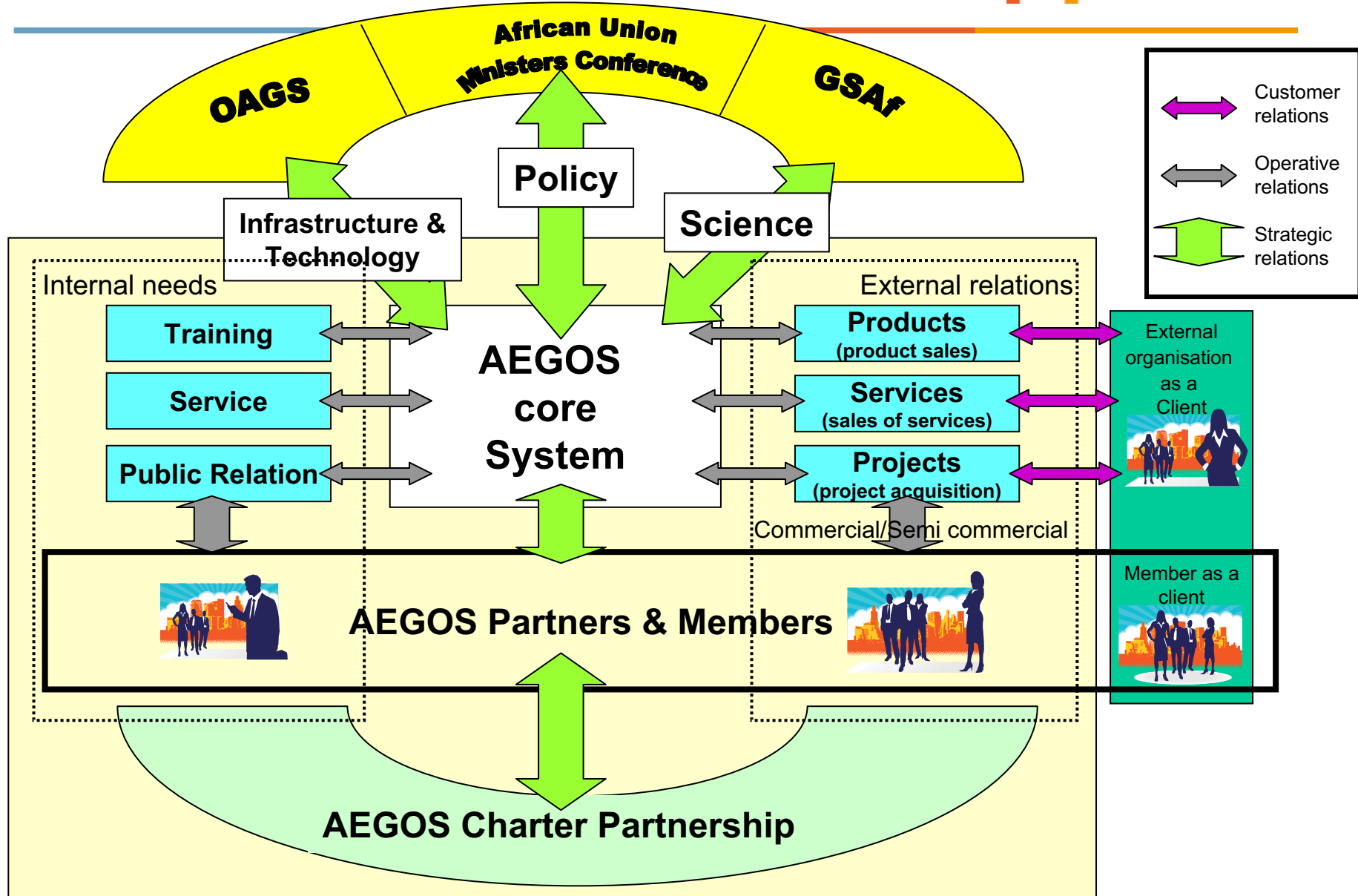
- **5 workshops** in Ghana, Senegal and South Africa (October 2010)
- **Final Conference:** Senegal (March 2011)

## AEGOS – Phase 2, 2012-2016

- ***Extension of the network of involved African countries and RE Communities***
- ***All partners to reach the minimum required baselines (equipment, skills)***
- ***Infrastructure development and implementation***
- ***Training of concerned persons***

# Strategic and operative relations

## Strategic integration of AEGOS



## Preparing AEGOS Phase 2: present context and opportunities

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- **Africa-EU Strategic partnerships**, including “Science, Information Society and Space” (Lisbon, 2007)
- Action plans (1<sup>st</sup> on going / 2<sup>nd</sup> to be adopted at the 3<sup>rd</sup> Africa-EU Summit in Nov. 2010)
- AU-EU college-to-college meeting in June 2010, Addis Ababa:
  - with participation of the Regional Economic Communities
- **Bilateral cooperation on raw materials**
  - AUC “African Mining Vision 2050” (adopted Feb. 2009)
  - EC “Raw Material Initiative” (formal communication Nov. 2008)
  - Link these two strategies
  - Create a win-win situation

## Preparing AEGOS Phase 2: present context and opportunities



- **Bilateral cooperation on raw materials** - 3 subjects areas:
    - Governance
    - Infrastructure and investment
    - Geological knowledge and Skills
  - AEGOS is specifically identified as a potential EU instrument
  - It corresponds to the AMV 2050 ST Action 8 “Increase the level and quality of resource potential data”.
- 
- **Phase 2 of AEGOS** organisation is the **natural follow-up** of the Mining Sector Support Programme
  - It is a “**practical example**” which is technically possible to implement as an actual example of the AU-EU joint strategies for the sustainable development of non-renewable underground natural resources.

## Preparing AEGOS Phase 2: support and leadership of African partners



- African Union and UNECA representatives (Advisory Board)
  - AEGOS partners:
    - Promote AEGOS ongoing phase 1 and future phase 2 at national level: meetings with stakeholders, data producers and end-users
    - Support actions (resolution in declarations) at regional levels in Africa:
      - Regional Economic Communities
      - African Ministers Conferences: science & technology / water / mines (next meeting in 4<sup>th</sup> quarter 2010)
    - Support actions (letters, messages) towards European Commission:
      - Development Directorate-General
      - Enterprise and Industry Directorate-General
- As many forums and opportunities of which we have to take advantage now, in view to secure the appropriate financial instrument and start implementing AEGOS infrastructure as soon as possible, i.e. mid-2012.



**Thank you for your attention**  
**Merci de votre attention**

***[www.aegos-project.org](http://www.aegos-project.org)***