Economic Commission for Africa

AISI

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Exchange Forum

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Capacity Building and Knowledge Transfer

Empowering African Stakeholders in Geospatial Science and Technology

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Rationale for GI Programmes in Africa

- Decision-makers and policy-makers are generally map illiterate and unable to use geospatial information or do not use geo-spatial information
- Geospatial professionals have difficulty in convincing decision-makers and policy-makers
- Challenge is what GI for whom, what, how: can be complicated

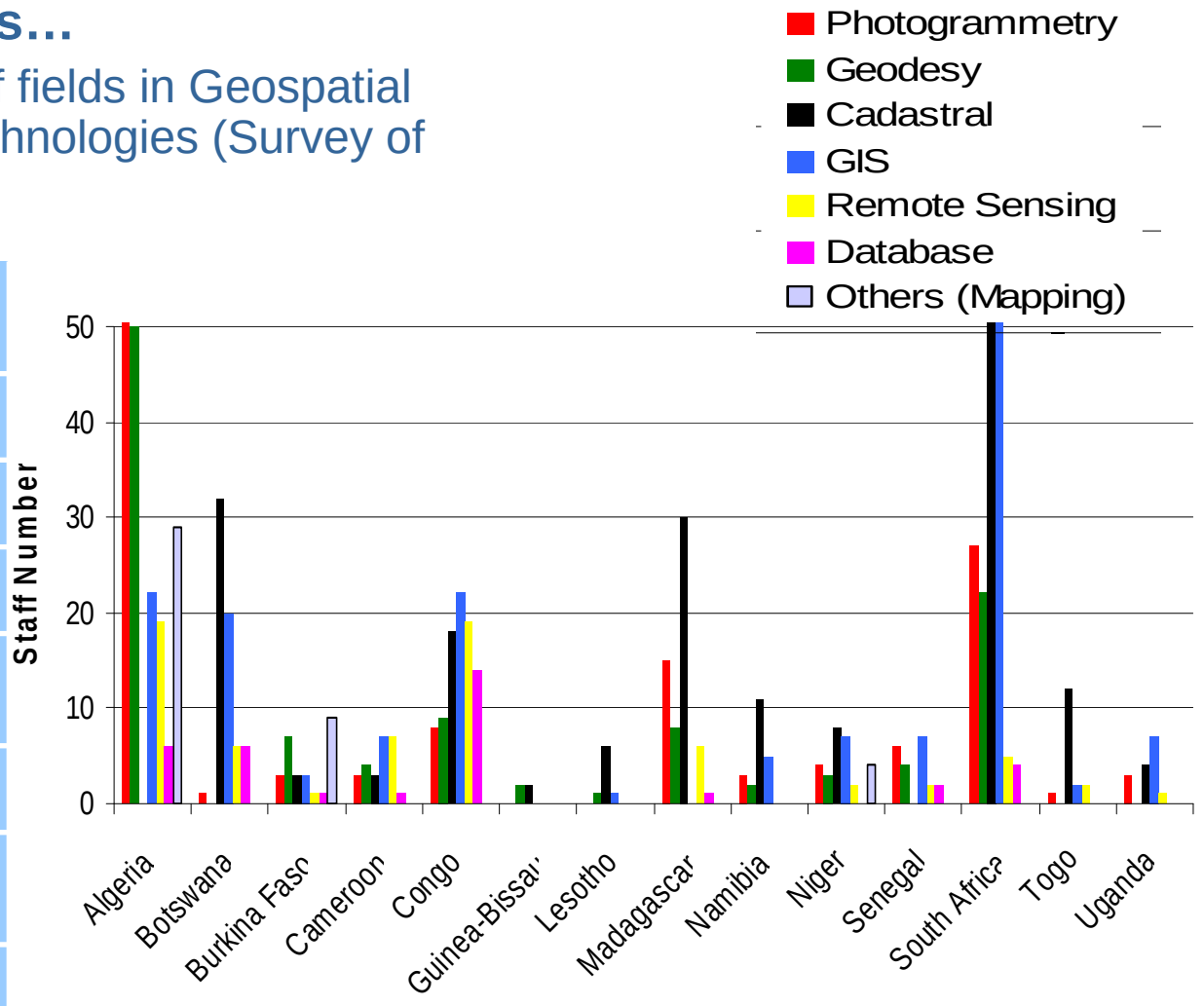
Rationale for GI Programmes in Africa

- Decision-makers and policy-makers need to appreciate the use of geospatial information in decision-making process
- Geo-spatial professionals must understand the work of decision-makers and policy-makers and be able to relate to/communicate with them
- Hence, importance of capacity-building + tech transfer – basis of the work of Committee of Development Information, Science & Tech (CODIST) and UNECA

African Status: Individual Capacity (1)

- **Professional Skills…**
  - Large spectrum of fields in Geospatial Sciences and Technologies (Survey of 2011)

Photogrammetry	15%	151
Geodesy	11%	112
Cadastral	41%	424
GIS	19%	197
Remote Sensing	7%	70
Database	3%	35
Others (Mapping)	4%	42
Total	100%	1031



African Status: Individual Capacity (2)

- Training Typology

Short Training	55%	51
Workshops	38%	37
Degree	7%	14

- Few institutions in training areas at engineer level
- Most high level training outside of the continent
- No synergy among space-related institutions

- Where ?

	Universitie	Regional Centres	National Centres
Awarded Degrees			University of Cape Town
Professionals		CRASTE RECTAS RCMRD	CRTS SAC
Short training		RECTAS RCMRD AGRHYMET	CRTS SAC
Hands-On training		ECA AGRHYMET RCMRD RSAU	SAC CRTS CSE NMA

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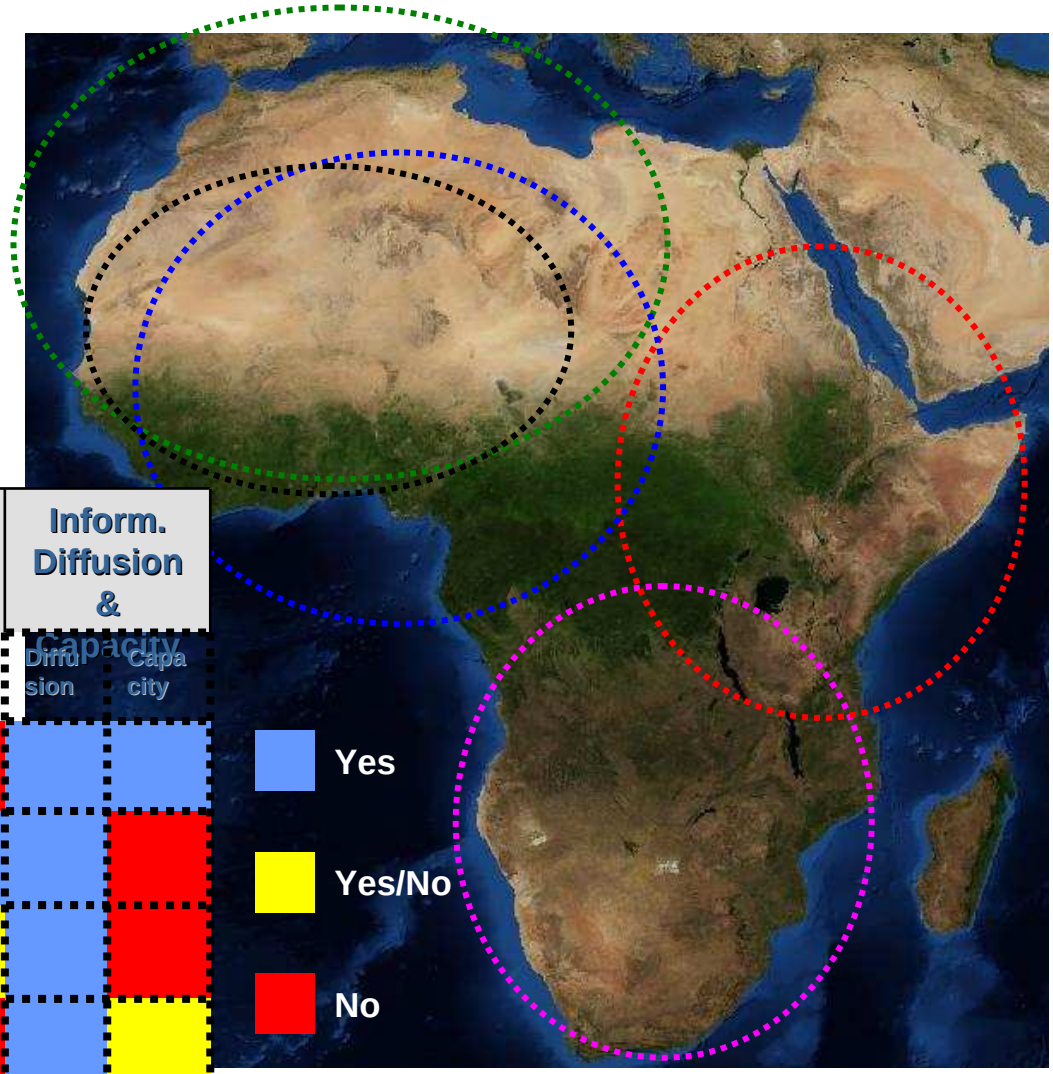
African Status: Infrastructural Capacity

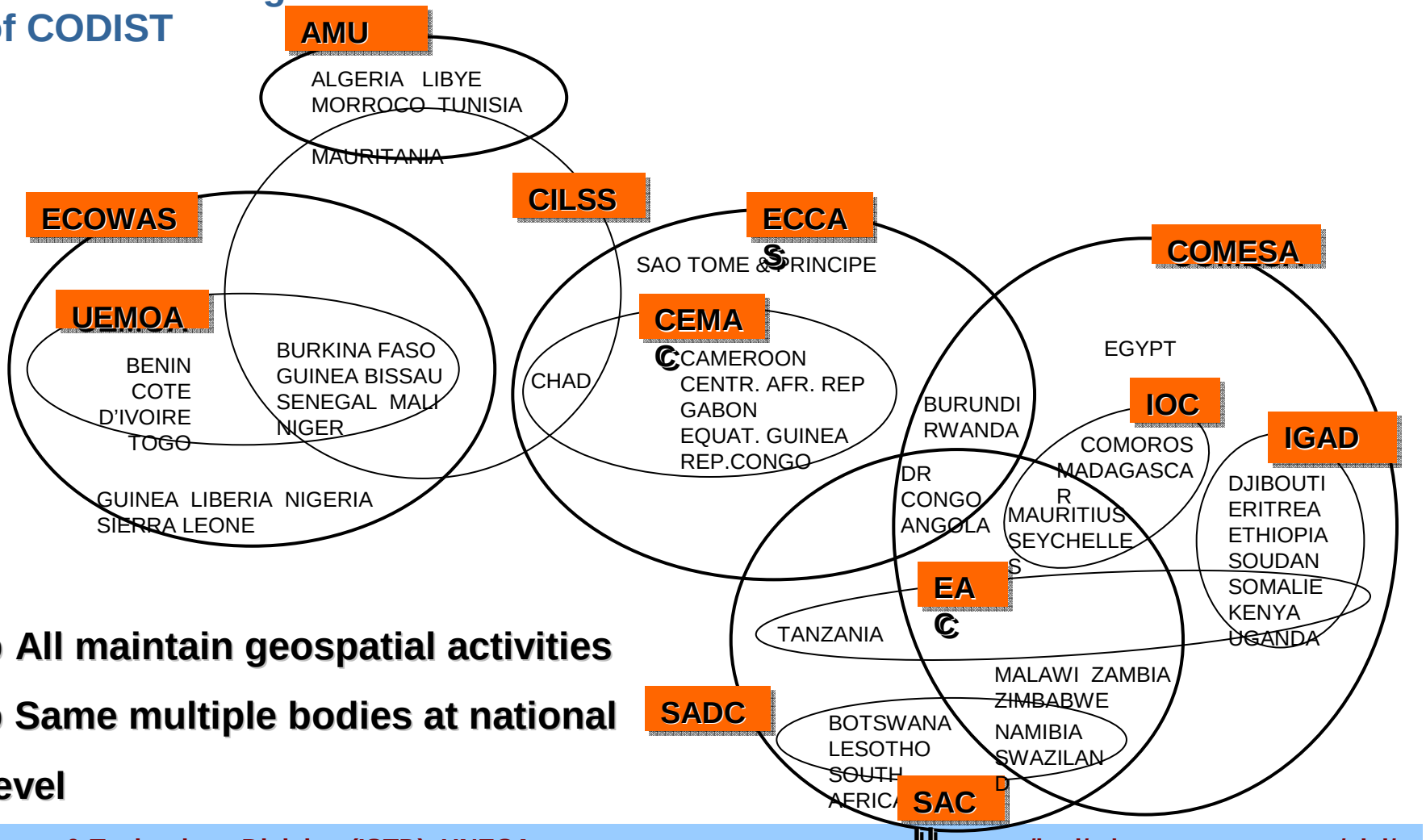
- **Existence of Operational Centres of Excellence**
  - AGRHYMET
  - RECTAS
  - RCMRD
  - RSAU
  - CRASTE
  - National Agencies



	Data collection, accessibility and integration			Monitoring and Assessment			Inform. Diffusion & Capacity	
Institutions	Collect	Access	Integration	Assessment	Monitoring	Forecast	Diffusion	Capacity
AGRYMET								
RSAU								
CRTEAN								
RCMRD								

African Status: Institutional Capacity

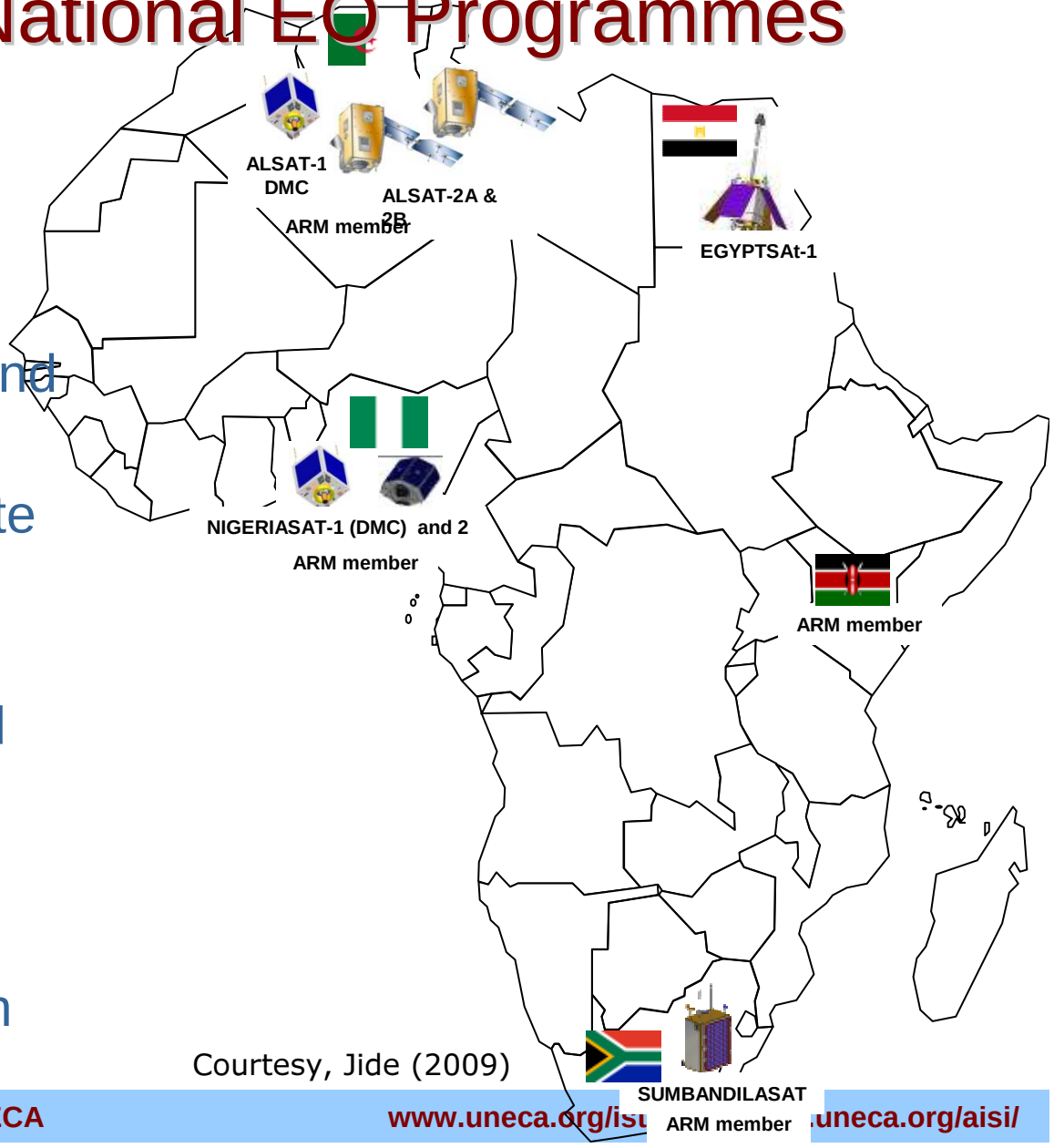
- **Numerous Regional and Continental Bodies: Role of CODIST**



- **All maintain geospatial activities**
- **Same multiple bodies at national level**
- **CODIST integrates all these**

African Status: National EO Programmes

- Many African countries have established national remote sensing centres and/or mapping agencies and many universities on the continent are offering remote sensing programmes.
- Four African countries (Algeria, Nigeria, Egypt and South Africa) have developed/acquired EOS.
- At least two (2) African countries - Egypt and South Africa- have active programmes in Astronomy



Courtesy, Jide (2009)

Capacity Challenges in Africa

- **Individuals**
  - Acceptable mass of Professionals and technicians exists.
  - But, extreme mobility of Geospatial technology professionals.
- **Infrastructures**
  - Data exist. But…
  - Develop and transfer appropriate products & services at various levels
- **Institutional**
  - Few institutions in training areas at engineer level
  - Most of the High Level training is outside of the continent
  - No synergy among space-related agencies (= duplication)
- **Funding**
  - Very limited funding is allocated to capacity building
  - Lack of facilities and infrastructures

Where We Are and Where We Want to be

- We know the main gaps, bottle-necks and challenges and what deserves priority/attention
- We know key elements about capacity development to enhance policy decisions
- We know type of quick wins we need to implement & stimulate the usage of geospatial S&T
- **But, not much progress. We are not moving as fast as we should**

1991 – Madrid : Transfer of Space S&T in Africa. Methodology and requirements for projects success

1995 – Nairobi : Needs and Prospects of Remote Sensing capacity in Developing Countries

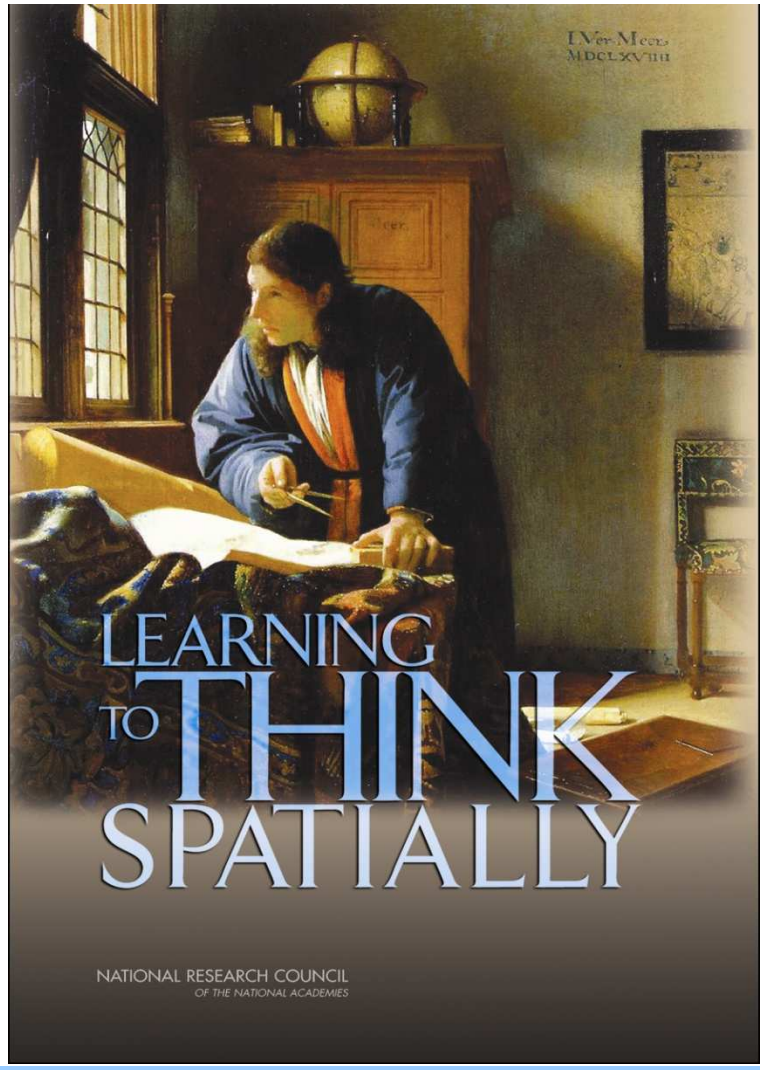
2001 – ECA: Future orientation of Geoinformation Activities in Africa

2005 – AUC : Africa's Science and Technology Consolidate Plan of Action

2011 – GGIM : Africa Capacity vision, needs & prospect

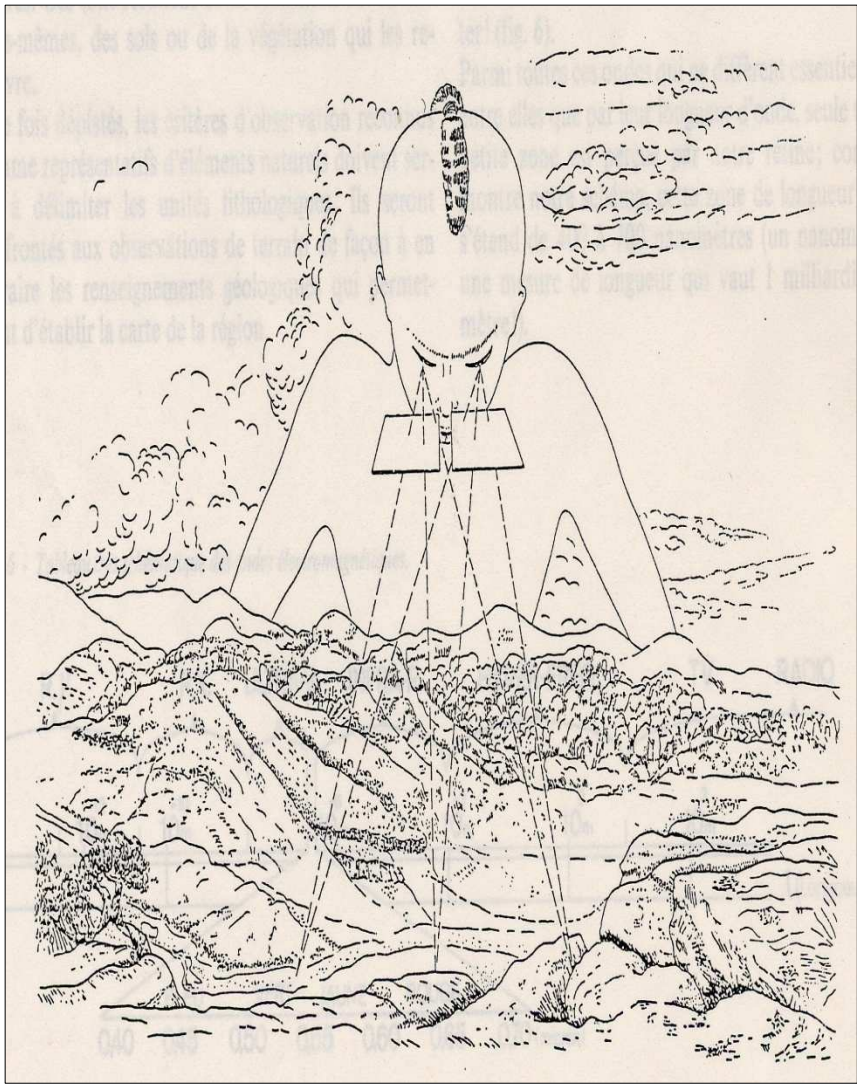
ECA Approach to Capacity Building

- ECA coordinates its capacity building activities with our Regional Centres of Excellence (RECTAS and RCMRD). Making it possible:
- To train a critical mass (almost) of professionals and technicians
- To sustain a large spectrum of training fields in Geospatial Sciences and Technologies
  - But, recognition and retention of geospatial technology professionals getting difficult
  - High Level Training in empowering African youth in all aspects of geospatial technology culture needed across the



ECA Approach to Capacity Building

- **Development of Education, Internship and Fellowship programmes**.
  - Staffing several interns and fellows from all over Africa, in research studies on the core occupational fields of Geospatial Information Technology (GIT) to investigate many challenging issues
  - Organising several seminars to continuously raise awareness and share knowledge on the importance of using geospatial technology for resource management
  - Provision of ICT4D Scholarship Grants for young Geoscientists esp.



ECA Approach to Capacity Building

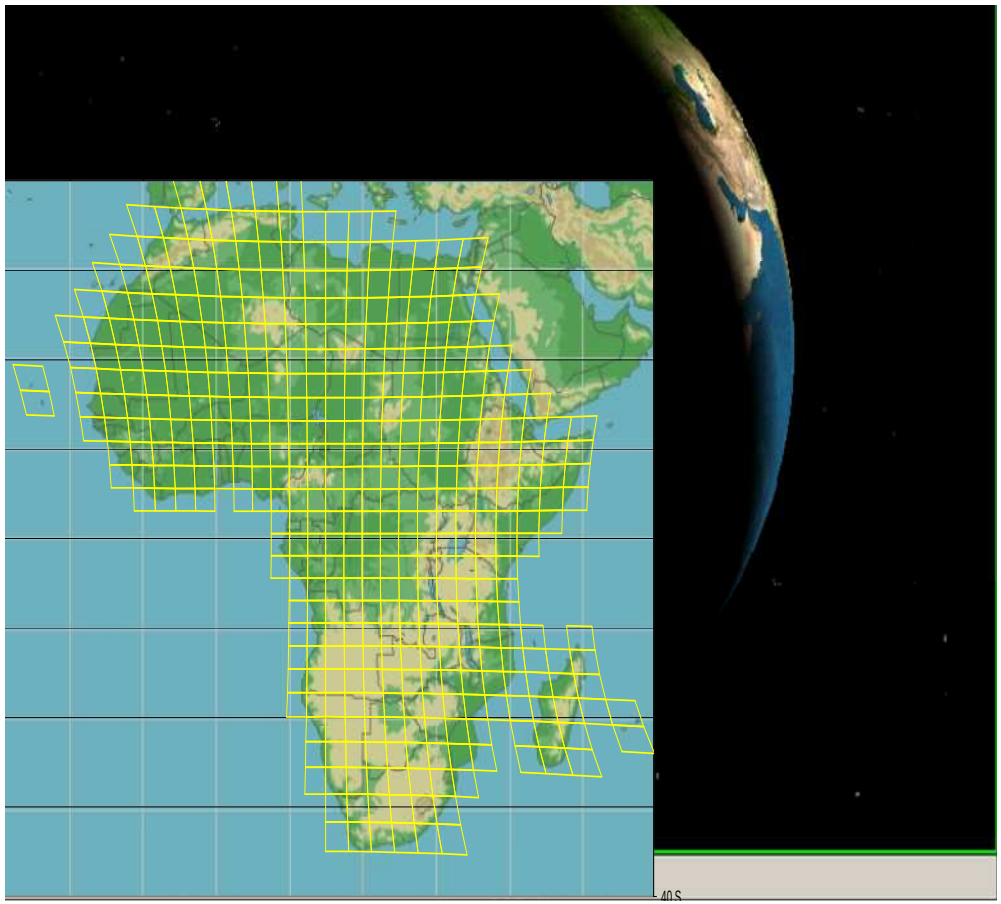
- Champion sound research and transfer of technology programmes, to foster development of innovation, products and services + earth observations applications
  - Derive mandate from our African Member States through Committee on Development Information, Science and Technology (CODIST) – implement resolutions
  - Support specialized regional centres (RECTAS and RCMRD) for training programs in geoinformation technologies for resource technicians, managers and scientists
  - Developing new tools, services, products (e.g Geonyms)

ECA Approach to Capacity Building: Providing Regional Focus

- Ensure that GGIM adequately reflects African issues and shape its direction and dimension to reflect Africa interest.
  - Preparation of a review paper on the needs, prospects and vision for an overall Geoinformation Governance in Africa.
  - In consultation with the member States
- Establish of a continental plan of action towards an active participation of African government officials and other stakeholders in the GGIM initiative.
  - Organisation of an African Preparatory Meeting to develop a common vision and coordinate the contribution for the Africa region

Business Focus: Developing Enabling Environment

- Multi-level Infrastructure and Networking
  - Strengthen the functions and operational infrastructures of existing regional Centres
- Indigenous geospatial Capabilities
  - Dedicated continent-wide space imaging information system owned & operated by Africa
    - ✓ Such as the Geo.AfricaSat-1 initiative
  - Core African scientists and engineers involved in design, planning, development and operation of geospatial systems.



Avenues of Success…

A phased approach :

- **Array 1** : We are taking advantage of existing capacity development opportunities
  - Support from Developed Countries are important with programmes such as GMES-Africa, Galileo, Geonetcast, Servir-Africa, etc…
  - Evolutionary prototyping : Translating knowledge into concrete products that meet user's community immediate and emergent priorities and needs.
- **Array 2**: We are building a long-term Vision
  - Pan-African capabilities (both hard and soft segments)
  - African Holistic Strategy on geospatial information capacity development
  - Building effective partnerships

Conclusion : Way Forward…

- There are well known opportunities to use geospatial science technology to meet African development agenda as well as the emerging global challenges

- Sound technology transfer strategies + better policy implementation

- We need a positive approach in leveraging the potential and opportunities of Geoinformation in solving Africa's problems :

  - ✓ **Change conceptualisation**
    - From mapping as a standalone activity
    - To mapping as information generation
  - ✓ **Organize data so that information (maps) can be produced as and when needed**
    - Just in time maps on demand
  - ✓ **Empower users to do as much as possible by themselves**

Thank You !

http://www.uneca.org/istd/