



WATER FOR LIFE



Symposium on Space and Water
11 June 2007 (50th COPUOS)
Vienna, Austria

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WATER FOR LIFE



Division of Water Sciences implements the
International Hydrological Programme (IHP):

1. Global changes and water resources
2. Integrated watershed and aquifer dynamics
3. Land habitat hydrology
4. Water and society
5. Water education and training, eg TIGER prog

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TIGER Initiative: Origin



- ESA launched the TIGER initiative in 2002 as a CEOS contribution **to implement the recommendations of the World Summit on Sustainable Development (WSSD, Johannesburg).**
- TIGER goal is to support African water authorities improve **Integrated Water Resource Management** by exploiting the benefits of space technology **to overcome the geo-information gap.**



TIGER Initiative



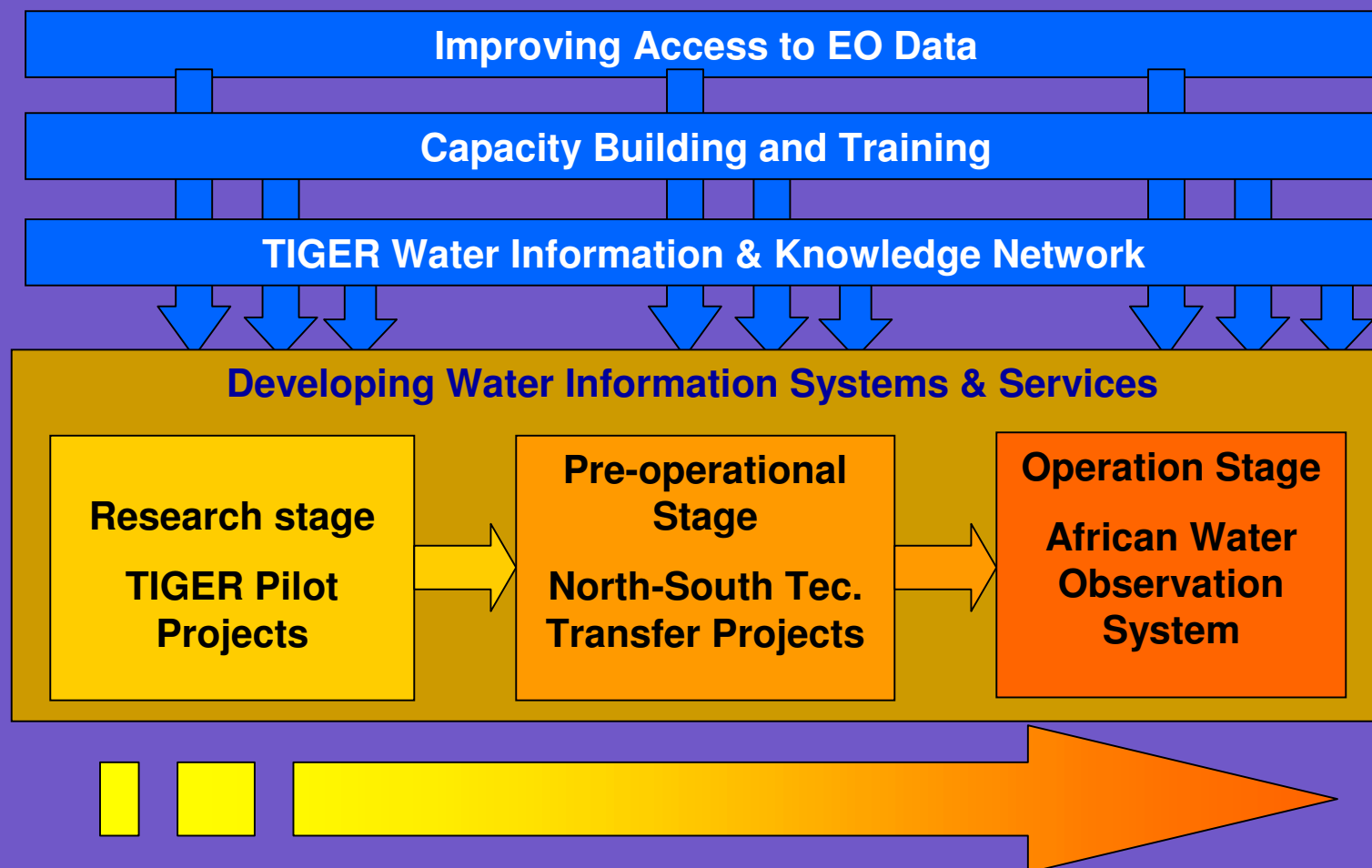
CEOS partners, eg **ESA & CSA** have funded the initial set of TIGER projects

UNESCO provides access to the hydrology community through its **IHP networks**.

- African and international organizations:
AMCOW, AfDB, UNOOSA, FAO, UN-ECA, DWAF-SA



TIGER Lines of Action





TIGER Capacity Building



- More than 20 training sessions *oriented to users* organized by different TIGER projects (eg AQUIFER, GlobWetlands, etc) and to *research and technical centers* (eg organized by ESA & UNESCO on specific remote sensing aspects for water resources).
- **Dedicated training tool kits**, including general courses on remote sensing, SAR, EO applications and free software tools.



TIGER Capacity Building



- **TIGER Capacity Building Facility** (led by ITC) launched in September 2006:
 - *Training sessions*
 - *Tailored support and capacity building activities for 15 research projects.*



TIGER Research projects



50 projects were selected in 2004 from more than 90 proposals submitted by African and North-South research teams.

Thematic areas includes:

- Surface water mapping

- Groundwater

- Water pollution and quality

- Hydrology

- Environmental monitoring, eg erosion

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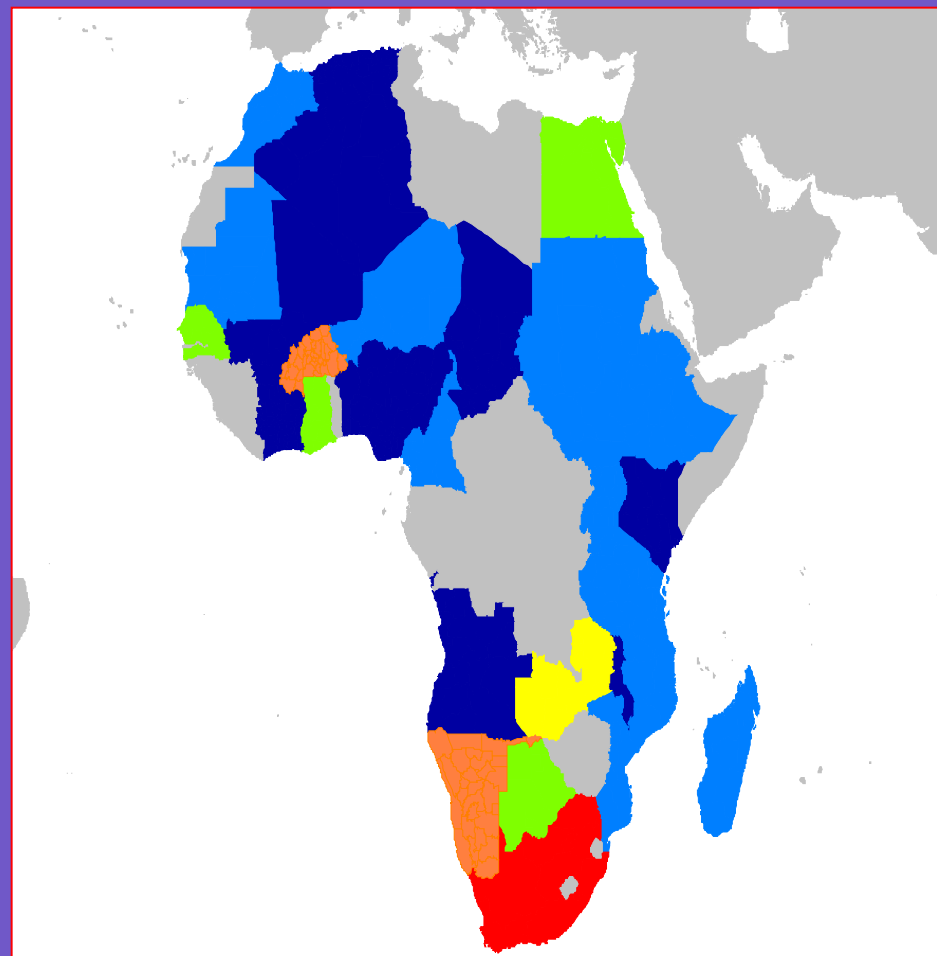
TIGER research projects



Regional distribution of projects

Legend

	12 projects
	5 projects
	4 projects
	3 projects
	2 projects
	1 project





TIGER pre-operational phase



- Set of development and demonstration projects aimed at developing information services and system for IWRM based on EO technology;
- During 2003-2005, ESA and CSA launched a total of 16 North-South Technology Transfer Projects funded in overall with more than 6M Euro.



TIGER pre-operational phase



- All this projects are carried out in close collaboration with almost 30 African Institutions in partnership with European and Canadian companies and technical institutions.
- Projects follows a Develop-Demonstrate-Transfer (DDT) approach aimed at transferring technical capabilities to local service providers

2004

2005

2006

2007



GlobWetlands-pan African (1MEuro)

AQUIFER-SASS & Iullemeden (1MEuro)

River & Lake water levels – pan African (250KEuro)

WADE-Niger (100KEuro)

SHARE-SADC (100KEuro)

Water Quality – Egypt (100KEuro)

Lake Victoria (100KEuro)

IWAREMA-Zambia (100KEuro)

Nile Awareness Kit (500KCDN\$)

IWRM in Africa – Ghana & Burkina Faso (500KCND\$)

ARBRE – Burkina Faso (500KCND\$)

Satellite Hydrogeology – Ghana (500KCND\$)

Integrated aid system for IWRM – Morocco (500KCND\$)

RS & GIS for River Basin Manag. – Mozambique (500KCND\$)

Mosquito & malaria – Kenya (500KCND\$)

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TIGER transition to operational phase



On the basis of demonstrated services and systems:

- African partners will be supported to launch projects in collaboration with development partners and donors (e.g., African Development Bank) in order to support the transition from pre-operational to operational.
- A initial portfolio of projects are under development in collaboration with the AfDB:
 - *A first project has been approved by AfDB for funding (GEO-Aquifer, follow-up of the ESA AQUIFER project);*



TIGER transition to operational phase



Project	Executing Agency	Status proposal
GEO-AQUIFER	OSS	<i>Funded with 500,000 Euros</i>
Lake Chad	Lake Chad Basin Co.	Under evaluation
Lake Victoria	Lake Victoria Basin Co.	Concept definition
Zambezi River	Zambia Water Auth.	Concept definition

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TIGER Executive Bureau



TIGER Executive Office is hosted by UNESCO Nairobi Cluster Office and Regional Bureau for Science and Technology in Africa which provides the facilities to the Manager hired by ESA (Mr David Kirugara, Senior Manager of TIGER Programme)

Contact: Ms Annuka Lipponen (a.lipponen@unesco.org)

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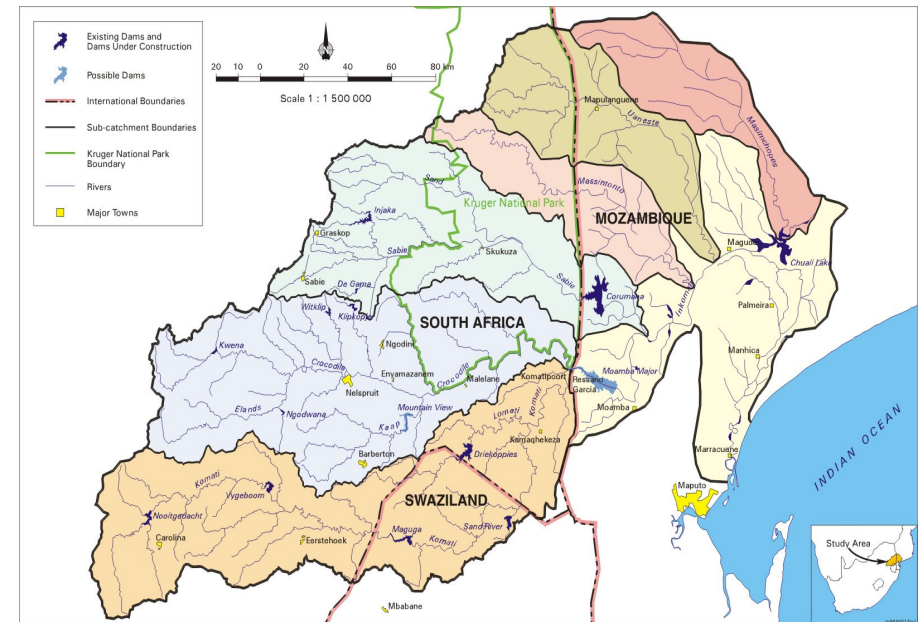
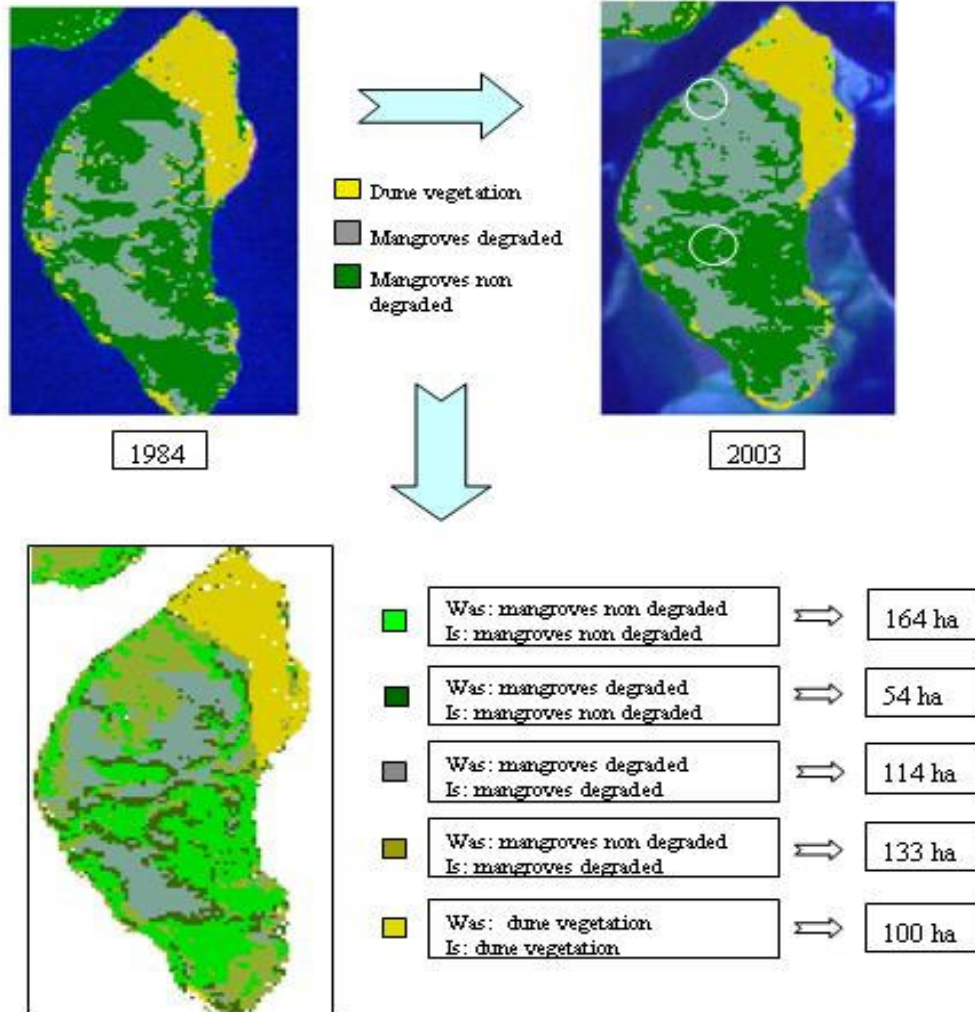
Involves 12 African countries:

(<http://www.unesco.org/remotesensing/africa>)

Contact: Mr Justin Ahahanzo (j.ahahanzo@unesco.org)

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Degree studies at UNESCO-IHE Institute for Water Education, Delft, the Netherlands



The Use of Remote Sensing for Monitoring Environmental Indicators: the Case of the Incomati Estuary, Mozambique

Margarita LeMarie

UNESCO-IHE
Institute for Water Education



**Vegetation classification from satellite images of 1984 and 2003
in Xefina Pequena Island and localization of vegetation changes**



UNESCO Chair - University of Western Cape (UWC),
South Africa

UNESCO-ITC Volume on Groundwater and Remote Sensing

- Manual to give practical examples and cases, discuss spatial aspects of groundwater studies (demonstrates the various aspects of RS contributions for modelling and information systems; image processing and hydrogeologic interpretation; groundwater management, environmental aspects; global databases of interest)
- The manual is expected to be published in 2007

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