



NBCBN-Foundation
Nile Basin Capacity Building Network Foundation

Capacity building under nbcbn & Water scarcity case study

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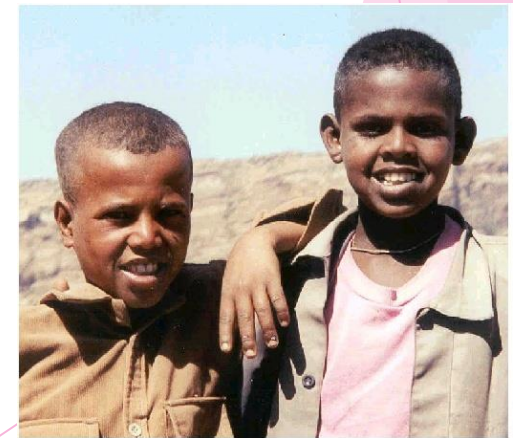
Presentation outline

- ▶ Introduction
- ▶ Background
- ▶ Research Activities Under NBCBN (Network & Foundation)
- ▶ Water Scarcity Study
- ▶ Achievements
- ▶ Future Prospects



Nile Basin inhabitants are striving

***“To achieve sustainable
socio-economic development
through equitable utilization
of,
and benefit from,
the common Nile Basin water
resources.”***



NBCBN background

- ▶ Initiative from 2000 by IHE
- ▶ To develop Knowledge networks in the Nile basin region in River Engineering and Water Resources Management
- ▶ Network will comprise of Researchers and Professionals with track record of research and capacity building within water management themes
- ▶ The goals of this demand driven network was to strengthen knowledge and support the communities of practice, generate and implement joint research with tangible outputs.

FOUNDER MEMBERS

Involved countries: Burundi, D.R. Congo, Egypt, Ethiopia, Eritrea, Kenya, Rwanda, Sudan, Tanzania and Uganda.

Partners: Hydraulics Research Institute (HRI) Egypt, UNESCO-IHE, the Netherlands
Involved organizations: Université du Burundi, Ministry of Environment **D.R. Congo**, Hydraulics Research Institute **Egypt**, Ministry of Water Resources **Eritrea**, **Addis Ababa University**, Nairbi University **Kenya**, Institut de Recherche Scientifique et Technologique **Rwanda**, UNESCO Chair in Water Resources **Sudan**, Dar Es Salaam University **Tanzania**, and Makerere University **Uganda**.

Network members: 400 Nile Basin Water Professionals

Contact address: 13621, Delta Barrage, Cairo, EgyptNBCBN

Website: <http://www.nbcbn.com>

Main Activities

1. Network development process
 - ▶ To develop a mature and sustainable regional knowledge network for River Engineering professionals from all ten Nile Basin countries, applying the concepts of Knowledge Networking and CoP's
2. Knowledge sharing & generation
 - ▶ To support the Research Clusters and CoP's of the NBCBN- in sharing and generating information and knowledge to improve the performance of the individual professionals in their own specific field.

Main Activities (cont.)

3.

- ▶ To capture and store the information and knowledge that is produced by the knowledge network and CoP's and disseminate it to all water sector professionals in the region to enhance dialogue on water issues.

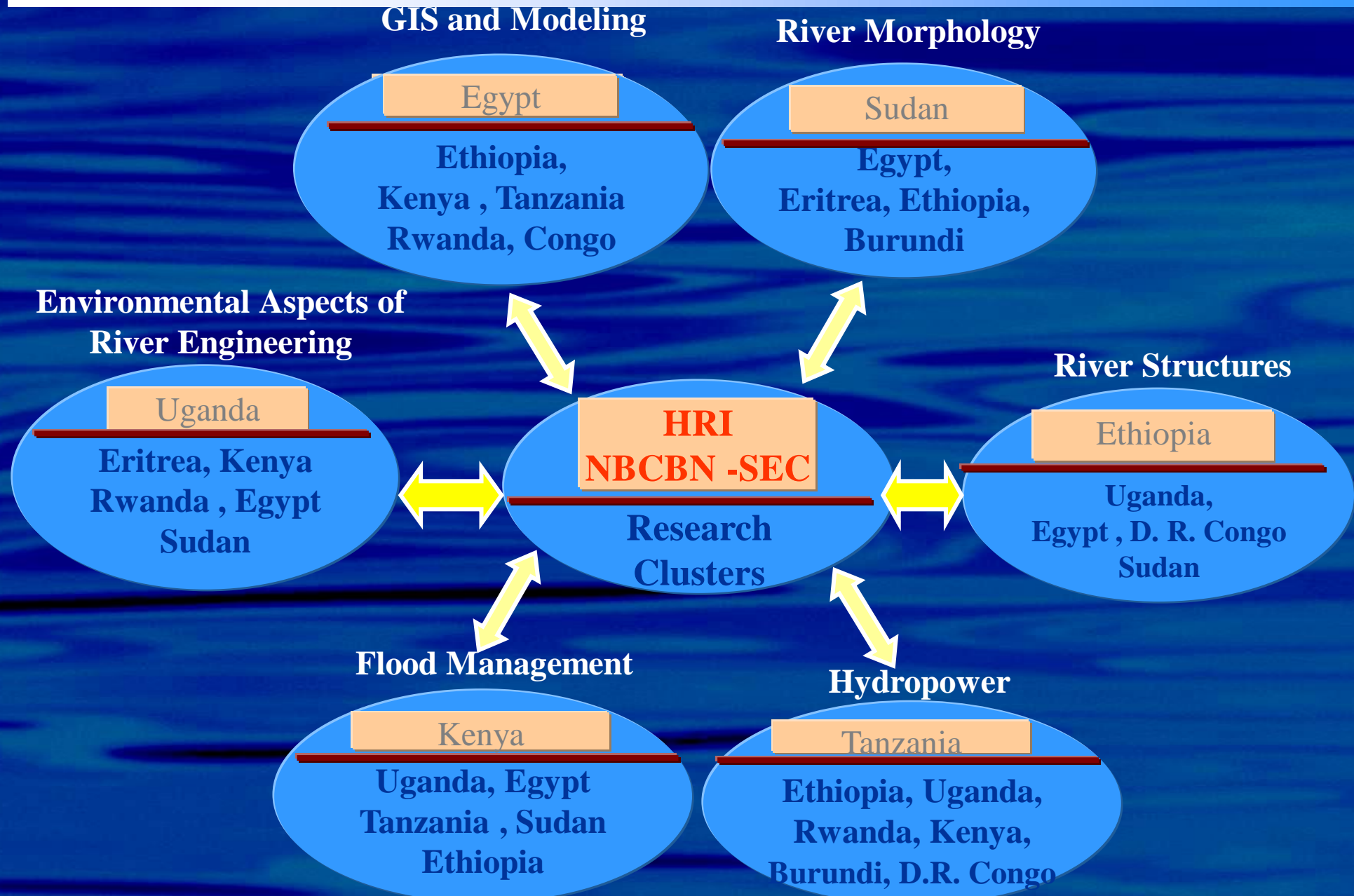
4.

- ▶ To support professionals to become more involved in market-driven regional water sector related R&D activities. The next stage in development of the network will be characterised by more integration among the researchers involved in the 13 research groups tuned to solving relevant practical problems

5. Network monitoring & assessment system

- ▶ To develop a sound monitoring and assessment system to facilitate the network development process.

RESEARCH CLUSTERS



NBCBN- Initial Research Topics

	Cluster	Research Groups
1	River Morphology	Reservoir Sedimentation
		River Bank Erosion
		Watershed Erosion and Sediment Transport
2	Hydropower	“Small Hydro”: Small Scale Hydropower for Rural Development
		“Large Hydro”: Regional Integration in Hydropower
3	GIS and Modelling applications in River Engineering	Floods and Their Influences on the Nile River System
		GIS-Based Watershed Modeling in the Nile Basin
4	River Structures	Micro Dams
		Design & Operation of Diversion Systems
5	Environmental Aspects Of River Engineering	EIA Process (methodologies, procedures, legal and institutional aspects)
		EIA Best Practices and Guidelines
6	Flood Management	Flood Forecasting and Early Warning
		Flood and Catchment Management

Achievements

1. Successful implementation of a new concept in capacity building in the Nile region by fostering a network focusing on people (Communities of practicing Professionals).
2. A network secretariat (NBCBN-SEC) is active in Cairo and has been registered as an TRUST (NGO)
3. In eight out of the ten Nile Basin Countries in-country nodes have been created
4. Six regional research clusters have been established, connecting more than 200 professionals from all ten Nile Basin Countries.

Achievements

5. Out of the 6 research clusters a total of 13 regional research groups have emerged.
6. Apart from a static also a dynamic web site has been developed for NBCBN that functions as the virtual collaborative meeting place (platform): www.nbcbn.com.
7. Initial development of a comprehensive knowledge map and knowledge/dissemination centre at NBCBN-SEC merging all the scientific outputs of the regional research clusters.
8. Production of the NBCBN-RE Newsletters and Journal.

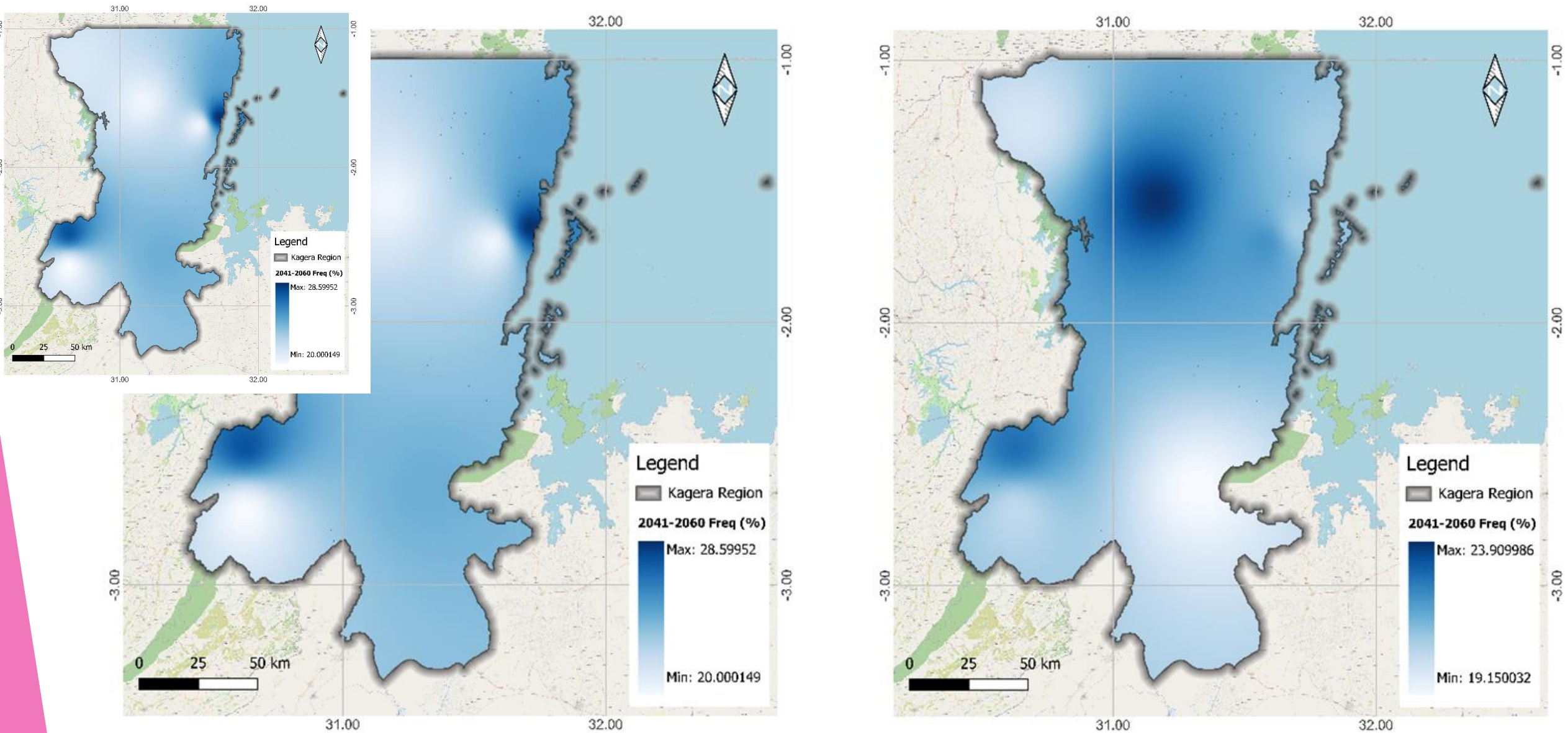
WATER SCARCITY Quantification & PREDICTION AROUND LAKE VICTORIA ZONE

- ▶ Water scarcity is mainly caused by insufficient rainfall and sharp rise in temperature thus evapotranspiration in an area. For rainfed agriculture among others, water scarcity can be evaluated using rainfall and temperature.
- ▶ The corresponding water scarcity indices for water supply (rainfall) & water demand (evapotranspiration) for agricultural crops can be the standardized precipitation index (SPI) and the standardized precipitation evapotranspiration index (SPEI) respectively
- ▶ For example, SPI is a valuable tool for all water resource management for either short or long-term moisture supplies (Hayes *et al.*, 1999), and choice of crops and management decisions to conserve water in rain-fed systems (Yamoah *et al.*, 2000).
- ▶ The SPI is the number of standard deviations that the monthly rainfall data would deviate from the long-term mean (Eq. 1).
- ▶
$$SPI = \frac{(X_i - X_m)}{\sigma} \quad (1)$$
- ▶ where, x_i is monthly rainfall record of station, x_m is rainfall mean and σ is the standard deviation

FUTURE Water SCARCITY Across The CASE Study

- ▶ The distribution of areas under high dry conditions is expected to be less in 2041-2060 but is to increase towards the central areas in 2081-2100 than the baseline 1971-2000
- ▶ Generally, the northern and southern areas of Kagera area in Tanzania may experience relatively low degree of dryness, hence favourable for rain-fed agriculture in future
- ▶ These results could be useful for **precautionary agricultural planning** (early warning on weather changes and on types of crop production in the agroecological zones)

FUTURE Water SCARCITY Across The CASE Study



Future (a: **2041-2060**; b: **2081-2100**) distribution of percentile frequency of deficient water supply in Kagera area by SPI

FUTURE PROSPECTS

The end,
Thanks for your attention!