

Managing shared climate change risks in a transboundary river basin,

The Nile Basin Initiative experience,

*Abdulkarim H Seid
NBI Secretariat*

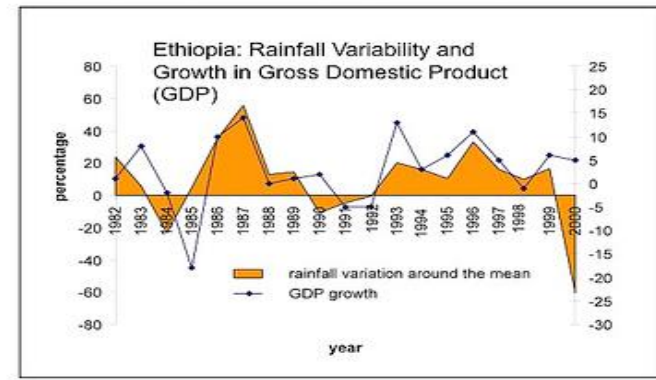
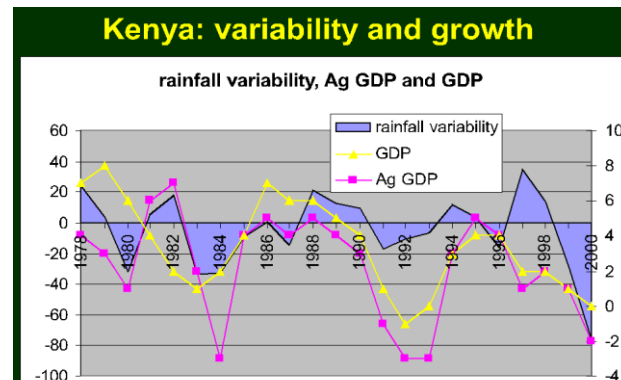
The Nile Basin:

- Basin Area: 3.2 Mill km² ; 11 countries
- Ca 250 Million people live in the basin; Ca 480 Million people in all riparian countries

Rainfall distribution



- Substantial variation in rainfall distribution in the basin
- Upstream parts of the basin receive annual average rainfall that ranges from 1500 – 2000 mm; in some locations > 2000 mm
- Downstream parts of the basin have very little rainfall
- Rainfall in upstream parts is varies from season to season and from year to year
- Economies of most upstream countries are highly dependent on rainfall (rain-fed agriculture) → highly exposed climate to drought and floods





The Nile Basin Initiative

- A joint institution of the 10 Nile Basin States
- Launched on 22 February 1999
- Directed by Nile Council of Ministers (Nile-COM)

The Nile Basin Initiative (NBI)

NBI Shared Vision

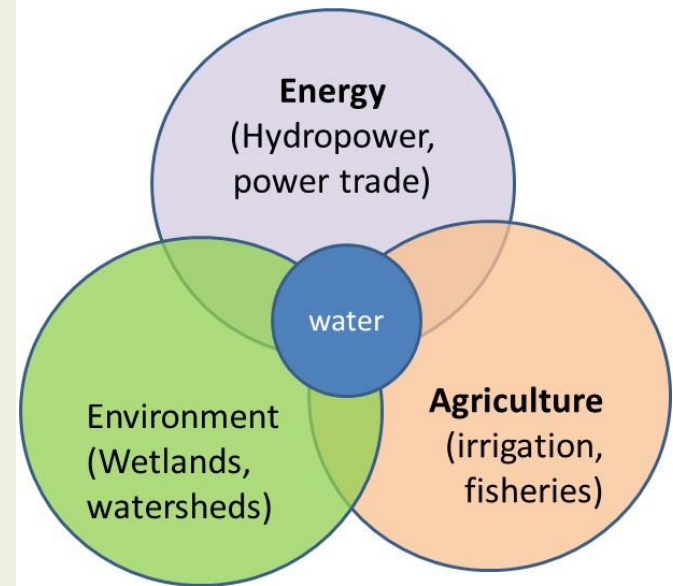
Sustainable socio-economic development through the equitable utilization and, benefit from, the common Nile Basin water resources

Key mandates:

Facilitate basin cooperation: Provide the platform for cooperation among the Nile riparian states and secretarial support to the Nile Council of Ministers (Nile-COM)

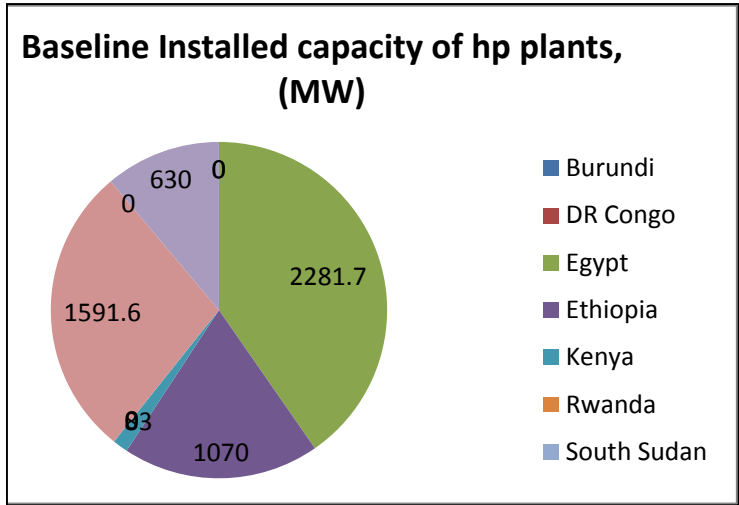
Water Resources management: Ensure efficient and sustainable management and optimal use of the Nile water resources (*policies, water resources analysis, data sharing, basin monitoring..*)

Water Resources Development (infrastructure): Prepare and coordinate implementation of multi-sectoral, multi-country investment projects in water and related resources (*for energy, food, water supply, ...*)

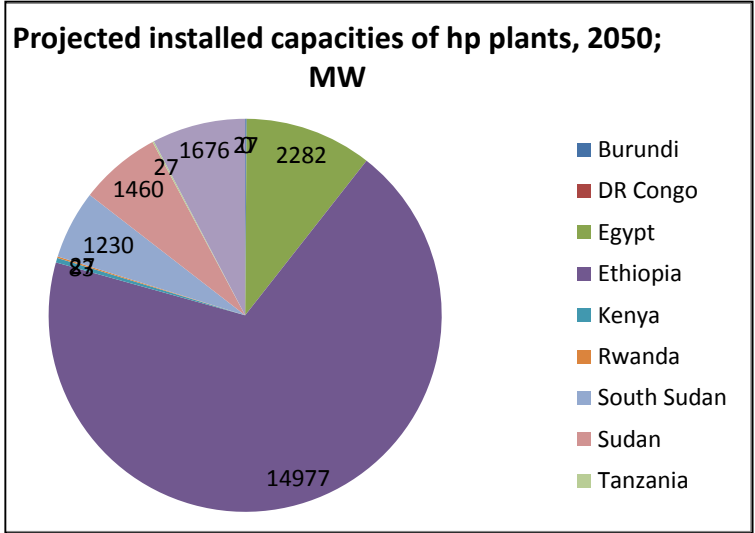


Key Sectors NBI deals with

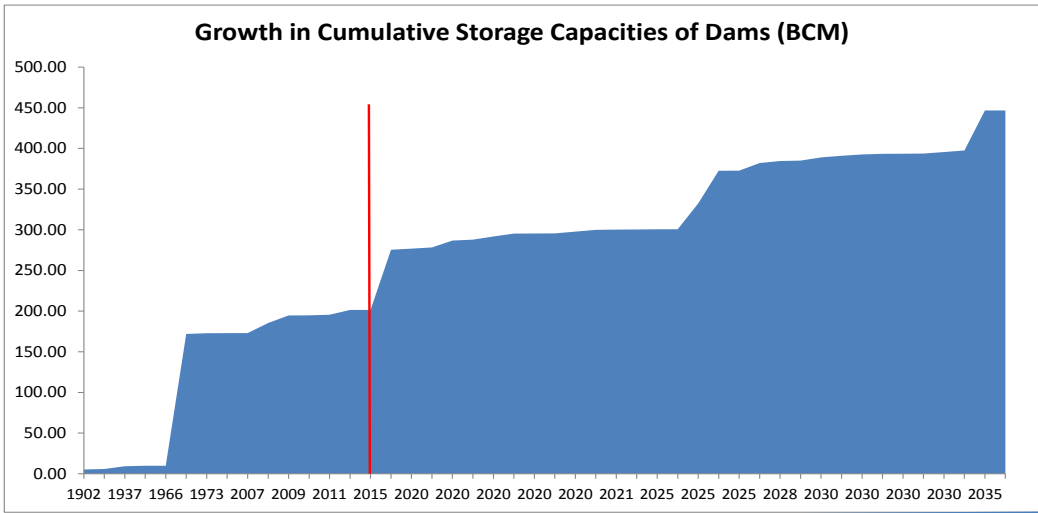
Planned growth in dams and hp plants capacities



2014: 5600 MW



2050: ca 26300 MW

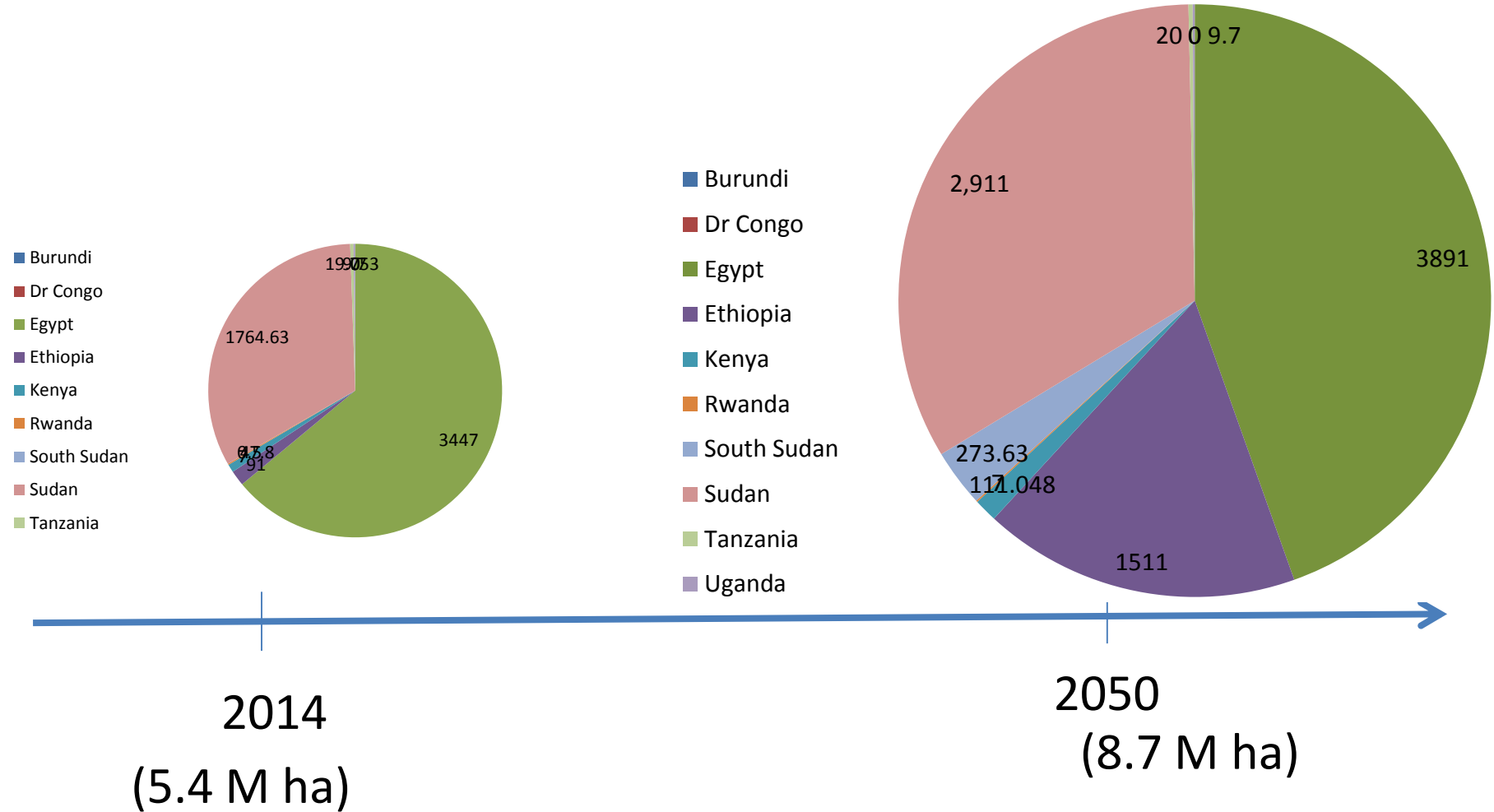


2015 (< 200 BCM)

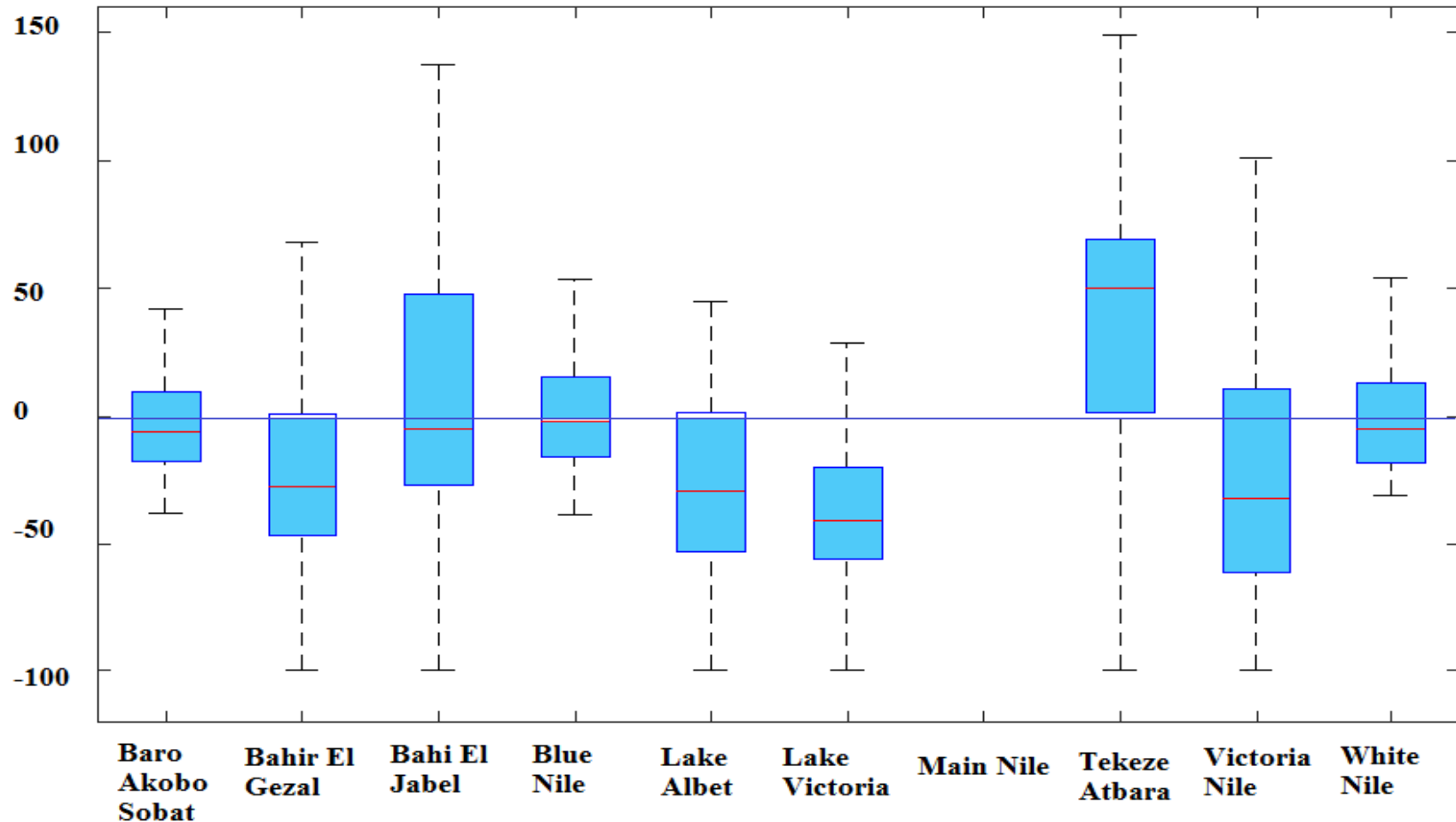
2050 (> 400 BCM)

Growth in water infrastructure

Preliminary estimate of increase in irrigated areas



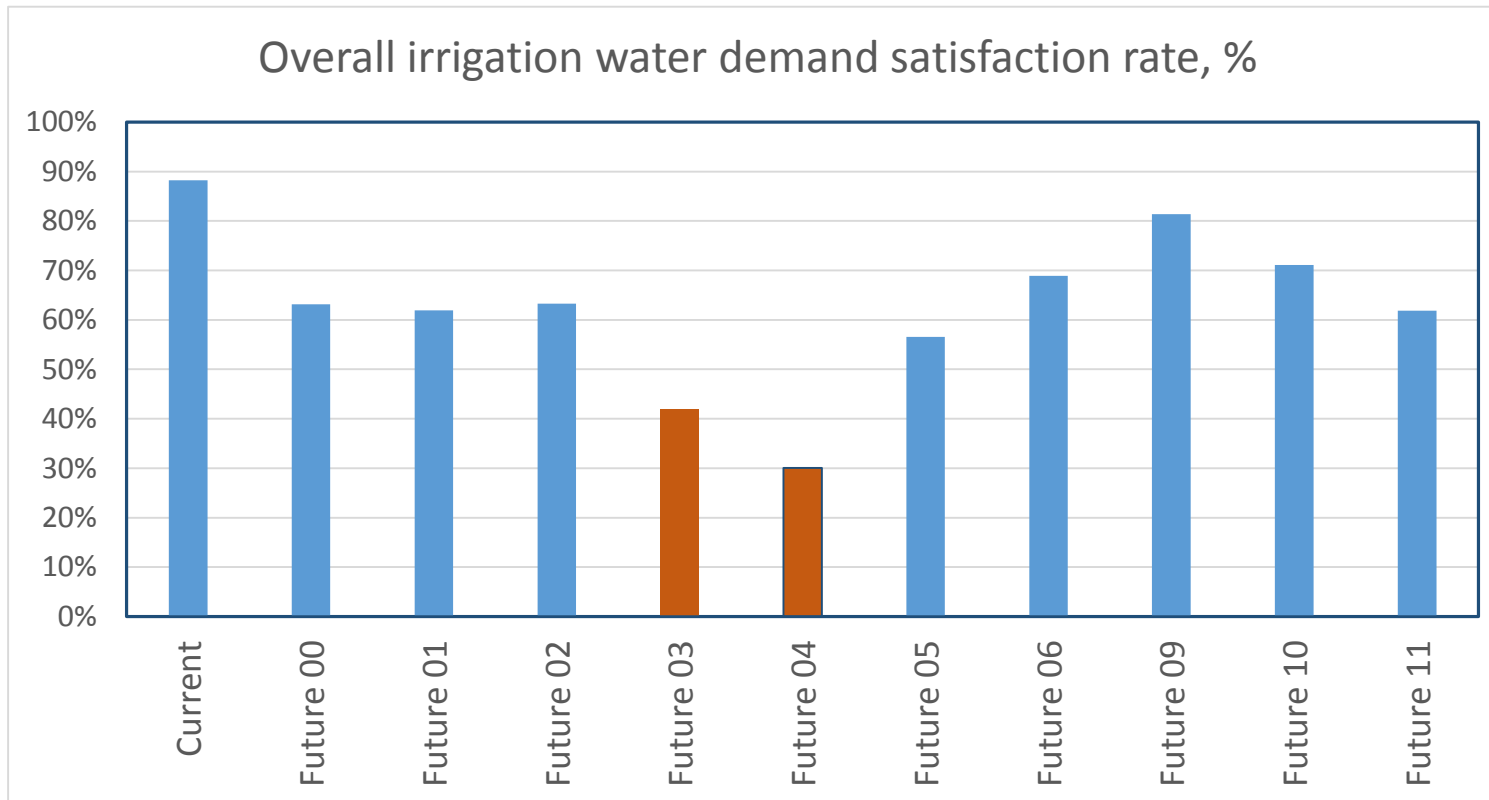
Scenarios of sub-basin runoff under climate



Wide difference in how the future runoff evolves under climate change

- High uncertainty for Tekeze-Atbara, Bahr el Jebel,
- Potentially more runoff for Tekeze- Atbara, Bahr el Jebel,
- Relatively less uncertainty on projection of runoff

irrigation water demand satisfaction rate (CC Scenarios)



Under dry future climate scenarios, meeting all irrigation water demands could be a serious challenge to the basin countries

Key messages

- The Nile Basin **is and will remain** the major source of water for 250 million of basin population, expected to grow to nearly 500 million by 2050.
- It becomes evident that , upon aggregation of all national plans, **demand for water will grow substantially, outstripping supply.**
- Climate change will exacerbate the water scarcity (*a number of projections show likely very low of irrigation water demand satisfaction rate*)
- **Irrigated area** is expected **to increase** from the current **5.4** Million ha to about **8.7** Million by ca. 2050;
- Total basin dam **storage capacity** is expected **to rise** from the current 200 BCM to > 400 BCM; hydropower capacity to increase from 5600 MW to > 26,000 MW .
- Hence, NB countries are planning **WR investments** are planned to meet the growing demand for food, energy and water supply

Nile Basin Initiative response to climate change challenges

- Setting up an overarching policy guide for addressing climate change leveraging transboundary cooperation → *the Nile Basin Sustainability Framework*
- Contributing to *climate change knowledge base and decision making tools*,
- Setting the agenda for climate change adaptation at transboundary level → *the NBI Climate Change Strategy*
- Capacity development of member states: modeling; climate finance
- Addressing climate change *risks and uncertainties in investment planning*
- *Carrying out impacts assessment and generation of options for addressing water scarcity*
- Actively facilitating integration of climate change research into relevant policy planning contexts at regional and national scale (*collaboration with partner institutions*)

NBI response to climate change challenges

Transboundary policies

- The NB Sustainability Framework (NBSF)
- Climate Change Strategy
- Sub-basin level guidelines for investment projects
- Wetland Strategy
- Environmental and Social Policy and guidelines
- The NBI Environmental Flow Management Strategy
- Dam safety framework

Infrastructure

- Joint, multi-sector investment planning (sub-basin level): hydropower, irrigation, watershed management
- Climate proofing guides - investments
- Capacity building (in climate finance)

Institutions

- Provide platform for TB cooperation
- Training and capacity building
- Data and Information exchange
- Partnership building (IWMI, GWP, UNEP, LVBC)

Information

- Joint Analytic tools (NB DSS)
- Water demand & supply projection
- Regional knowledgebase
- Basin monitoring: Evapotranspiration, enhancing basins monitoring infrastructure)
- State of the Basin Report (every 5 years)
- Flood forecasting and warning communication

Summary

- NBI has been following a mix of approaches to address risk of climate change:
 - Policy framework – the NBI Climate Change Strategy
 - Building the knowledgebase
 - Enhancing basin monitoring
 - Establishing its modeling framework (Nile Basin DSS)
 - Partnership with other actors (UNEP, University of Bergen)
- A new 10 year strategy is under preparation that integrates adaptation to climate change as one of the strategic directions
 - Basin monitoring
 - Modeling and scenario analysis for climate –resilient water resources management
 - Knowledge management
 - Investment planning in water resources