



Presentation from  
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# Managing shared risks in a transboundary river basin,

*Blending analytic work with water diplomacy,  
the NBI experience*

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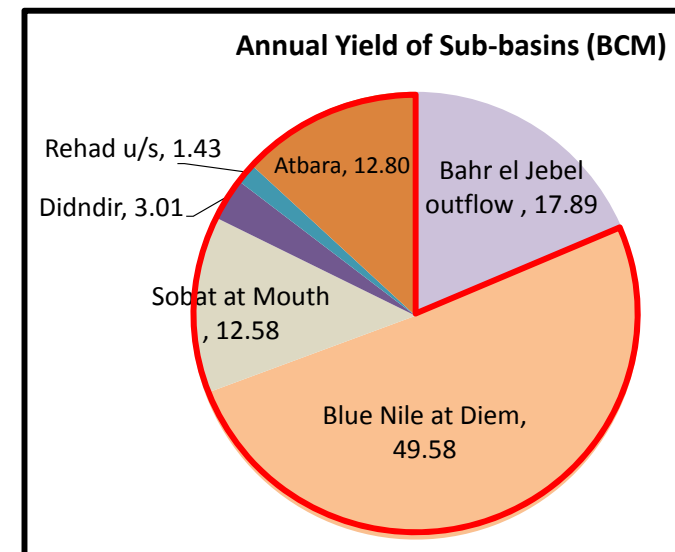
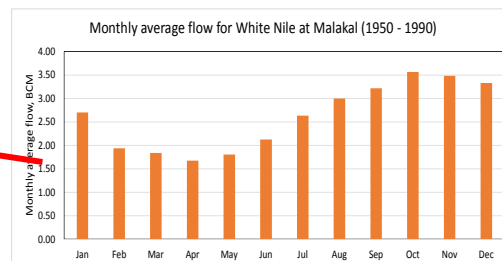
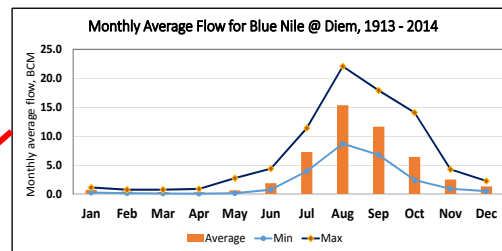
*Abdulkarim H Seid  
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This study has been undertaken upon the directive of Nile-COM 23<sup>rd</sup> to Nile-Sec to carry out a “projection of water demand” over the entire Nile Basin factoring growing demands for food and energy considering impacts of climate change .

The study combined analytic work with a stakeholder engagement process with frequent interactions and dialogue through out the study steps.

# The Nile Basin

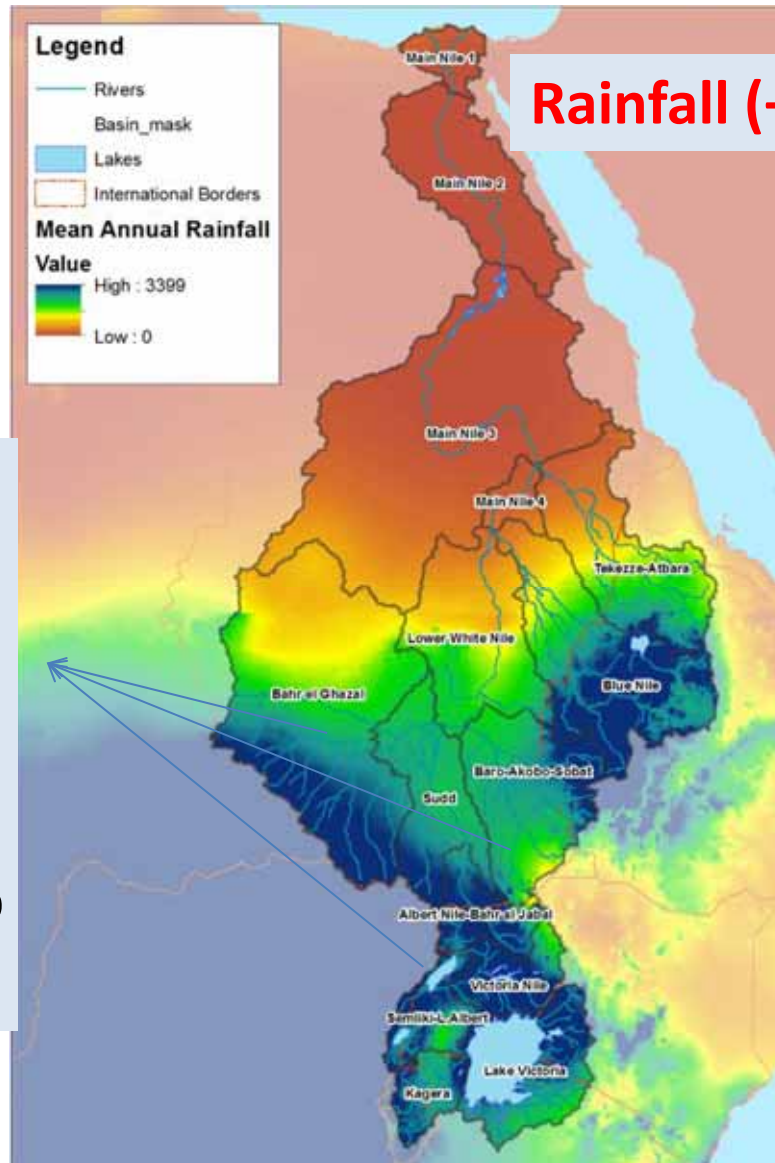
- Basin Area: 3.2 Mill km<sup>2</sup>
- Ca 250 Million people live in the basin;
- Ca 480 Million people in all riparian countries
- Shared by 11 countries



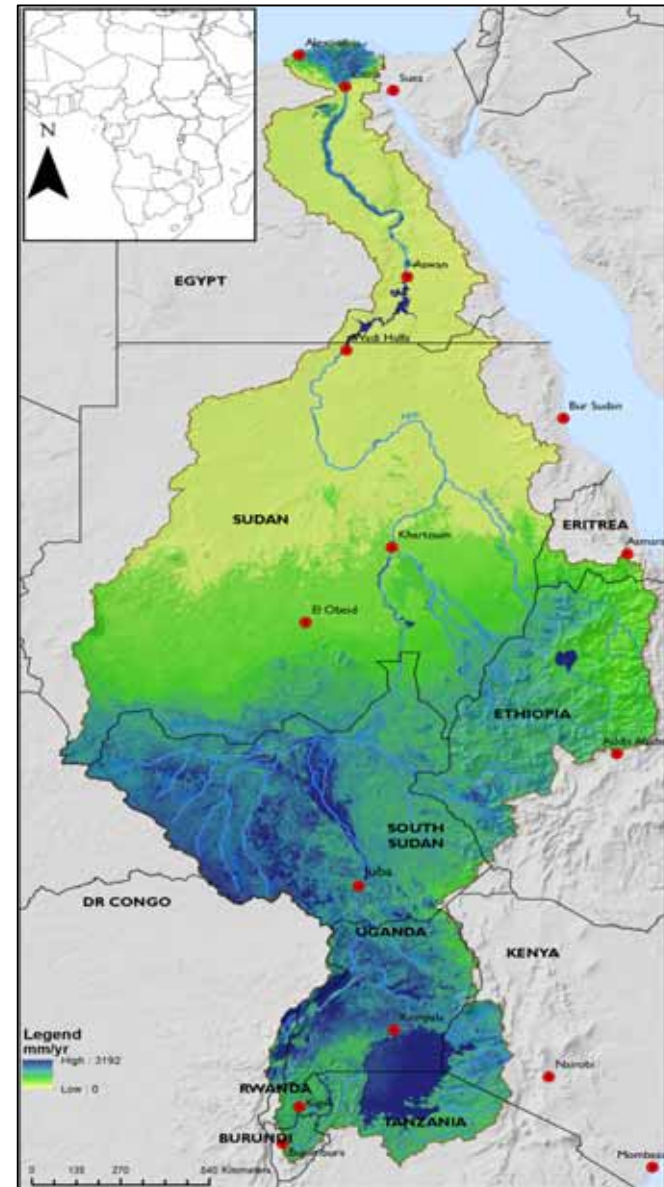
## Key messages:

- Most of the river flow generated in the Eastern Nile Sub-basins
- There is strong variation of river flow from year to year → *average flow estimate depends on which time window considered*
- Relative proportions of the flow contributions vary between wet and dry seasons
- About 70 percent of the annual flows are recorded in 3 – 4 months

# A basin with stark spatial and temporal variation of water resources

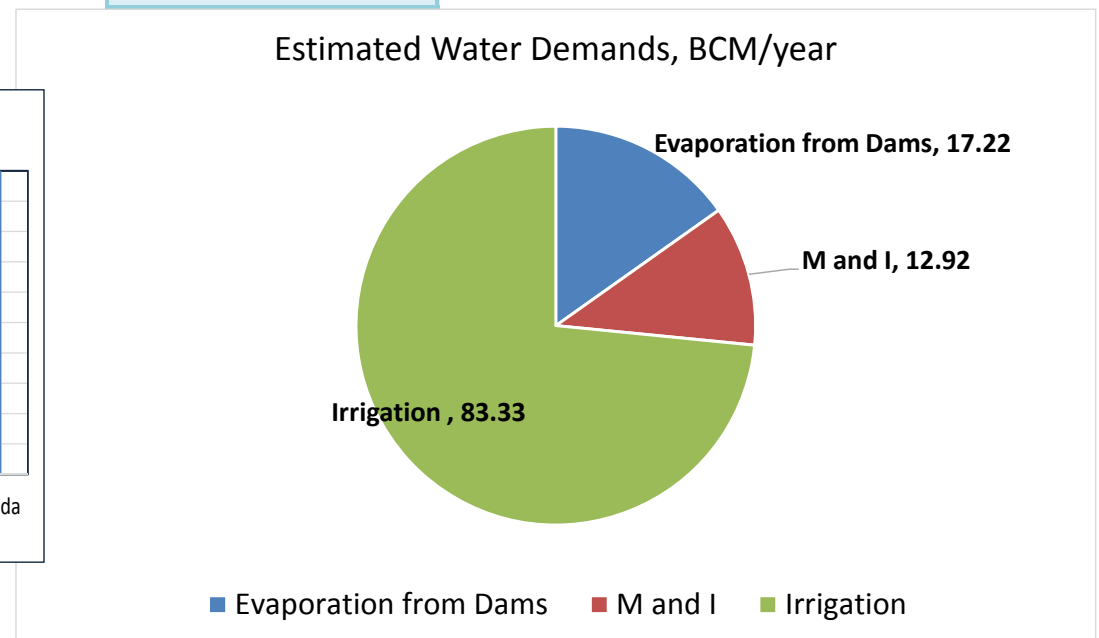
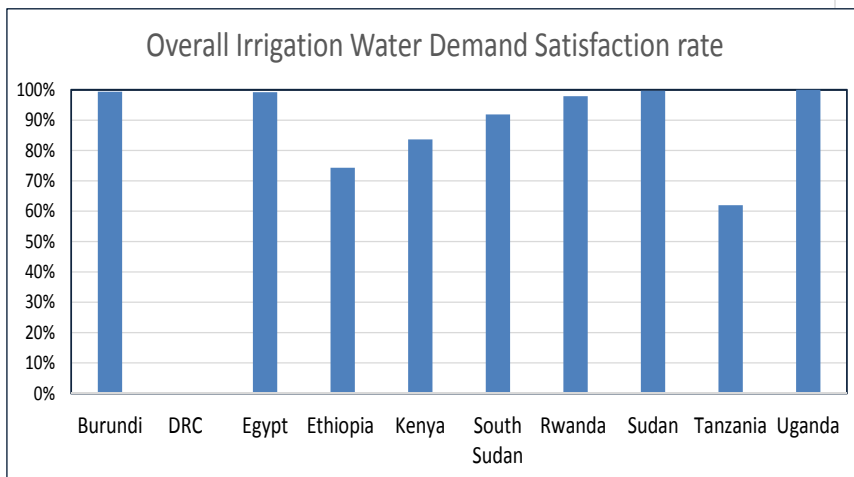


High Rainfall areas



# Water Demand for Key Uses

Country	Estimated Irrigation water demand [MCM]
Burundi	28.9
DRC	0
Egypt	66551
Ethiopia	2018
Kenya	367
South Sudan	3
Rwanda	59
Sudan	13960
Tanzania	102
Uganda	260
<b>Total</b>	<b>83322</b>



# Key messages from key trends in the Nile Basin



- Population is growing rapidly across the basin to over one billion by 2050
- There will be extreme pressure on governments to deliver key water dependent services and provisions
- Unlike the past, upstream developments will accelerate
- Development is happening in the absence of a TB effective coordination mechanism = institutional lag
- Such developments have the potential to generate risks:
  - Environmental: biodiversity loss or ecosystems degradation; land degradation; water quality deterioration;
  - River fragmentation and degradation
  - Hydro-political/conflicts
  - Legal – contested legitimacy to rights

**Key question:** how to meet growing demand for water, food and energy upstream and downstream sustainably? How can NBI support inter-riparian dialogue to achieve this?

**Objective:** inform riparian dialogue on selected (current and emerging) challenges of transboundary water resources management at basin and sub-basin levels through *scenario and tradeoff analyses*.

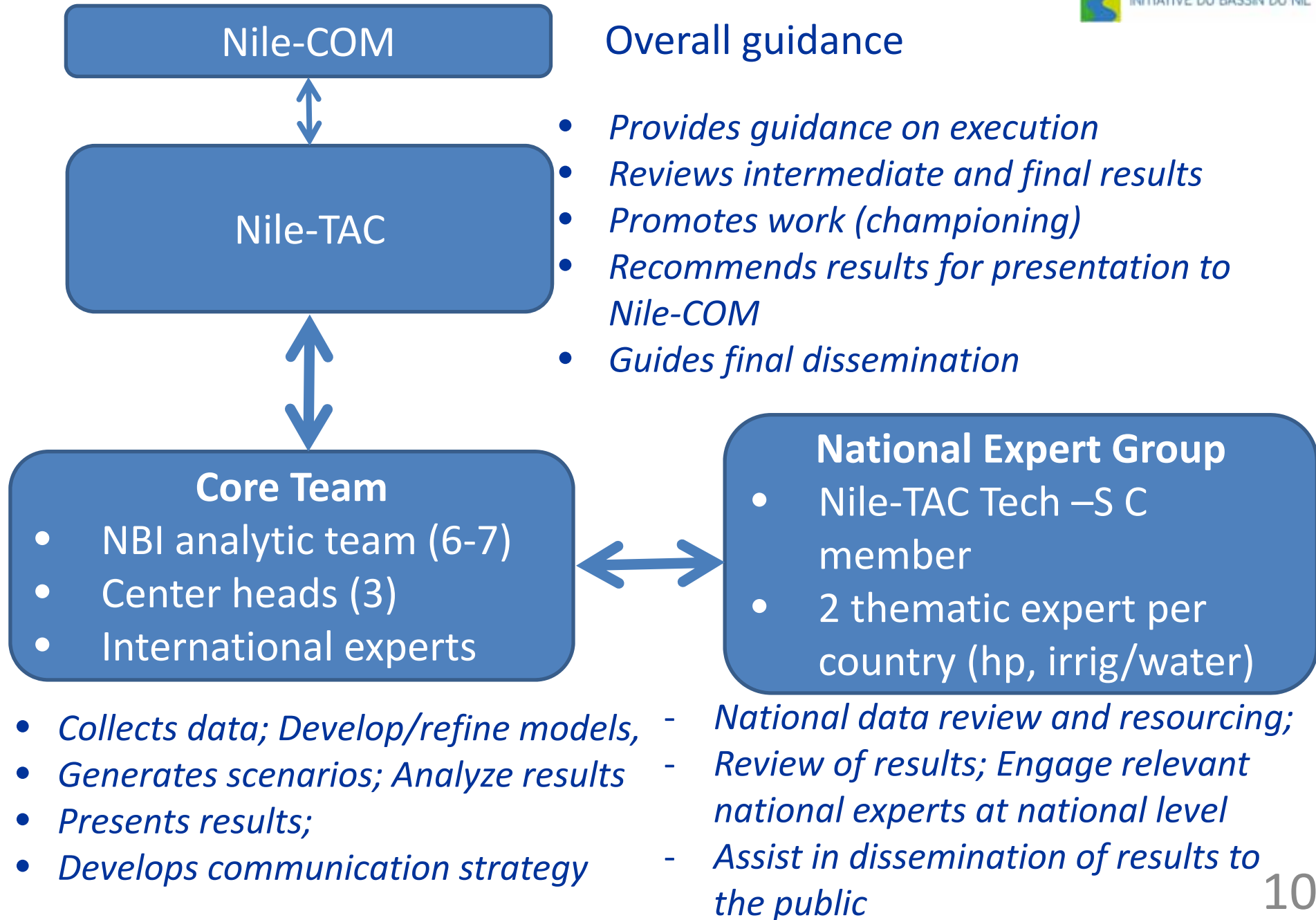


# Blending analytic work with water diplomacy

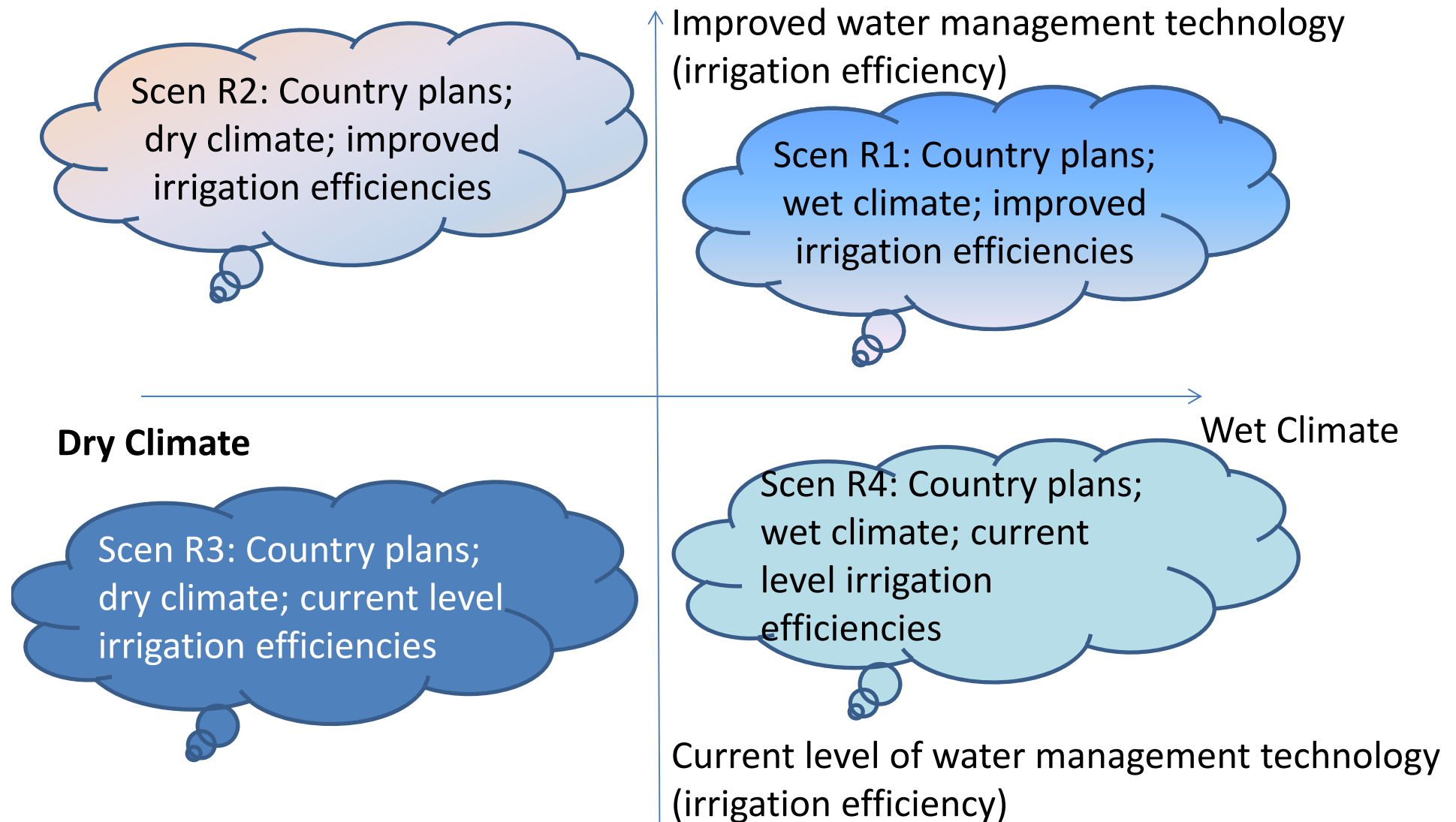


- Technical solutions can address a range of our water management problems
- However, technical solutions need to be internalized and accepted by those making the decisions
- Engagement of decision/policy makers in detailed technical work not feasible
- Finding appropriate mechanism for blending technical work with water diplomacy is key for finding sustainable solutions to water challenges in transboundary problems
- The strategic water resources analysis is about finding the right process as it is identifying viable options for meeting the growing water demands under climatic uncertainty

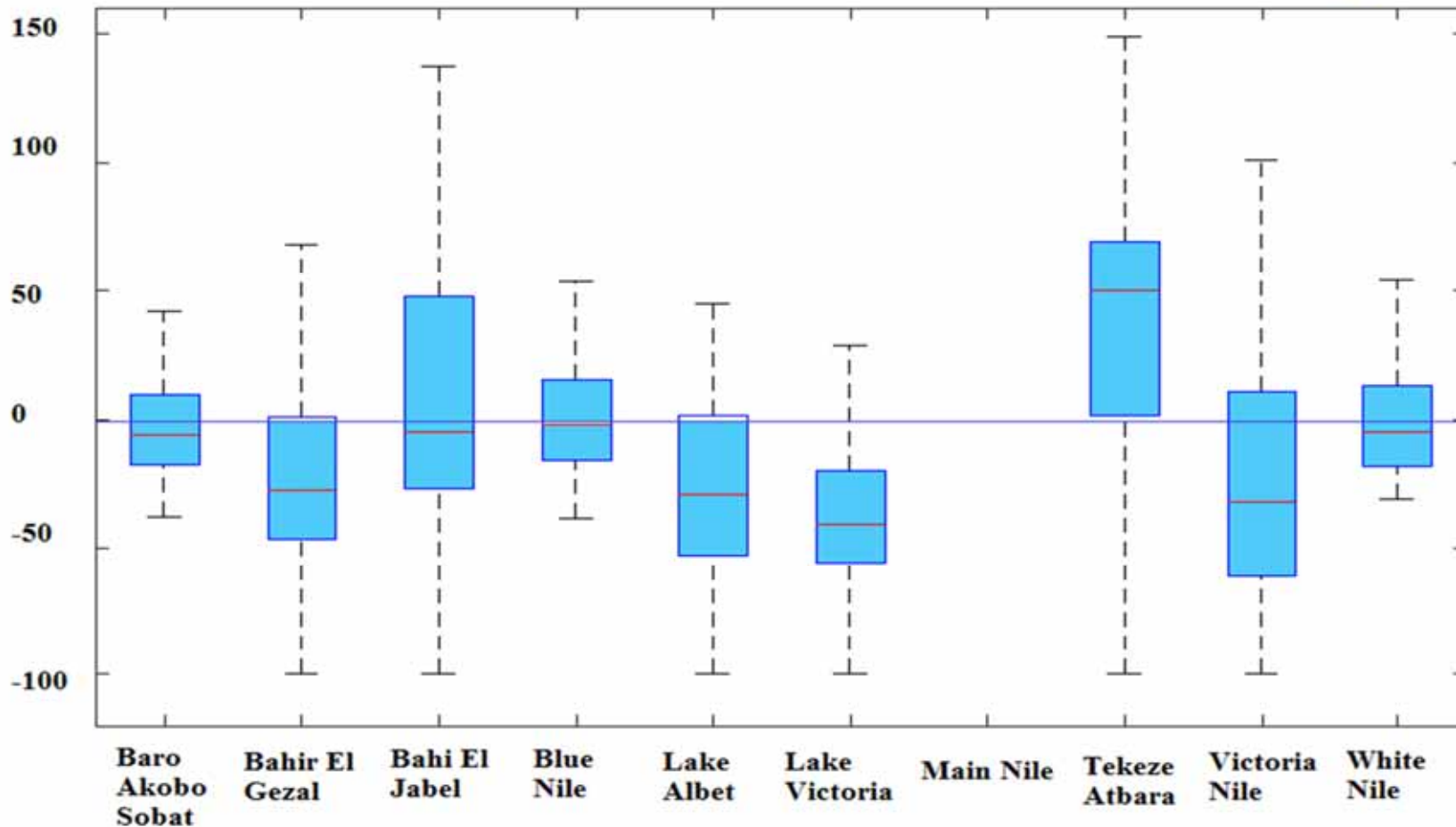
# Implementation arrangements



# Scenario analysis – core of the study approach



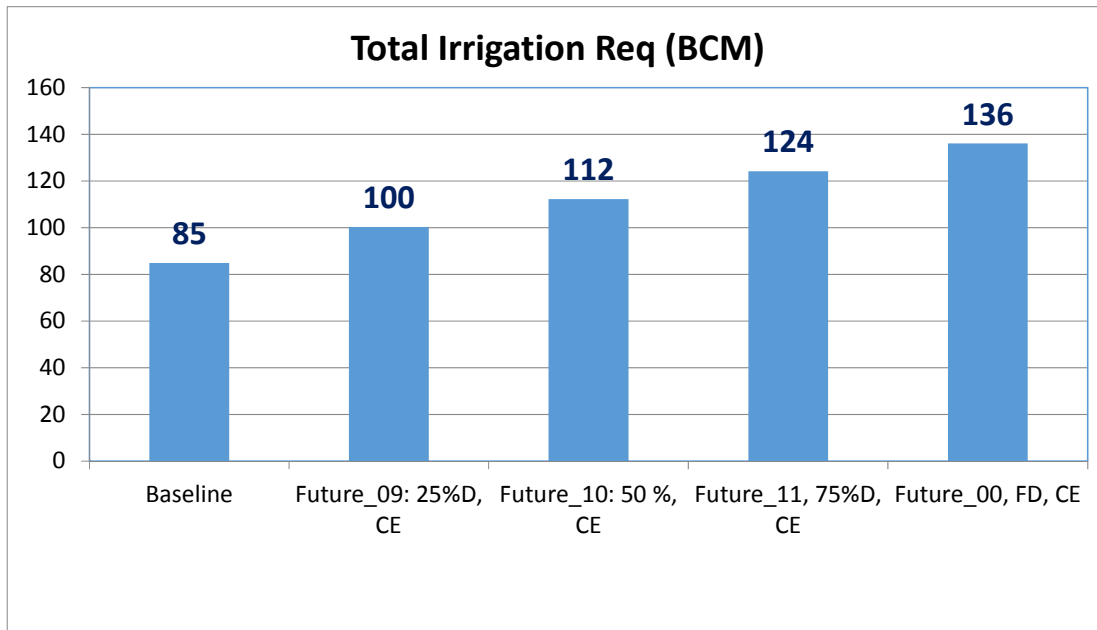
# Scenarios of sub-basin runoff under climate



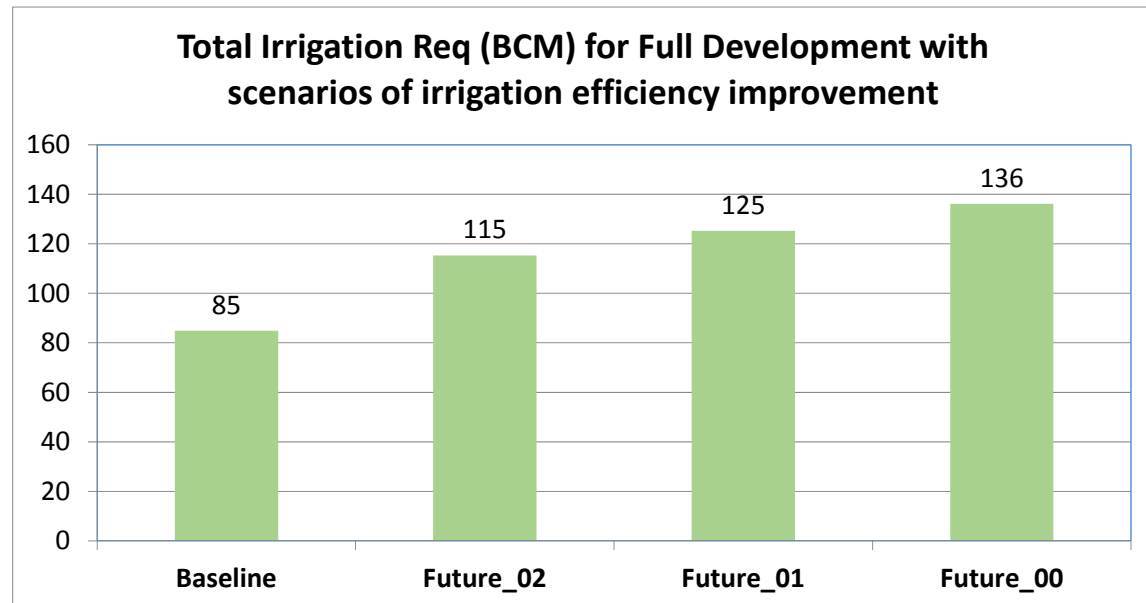
Wide difference in how the future runoff evolves under climate change

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

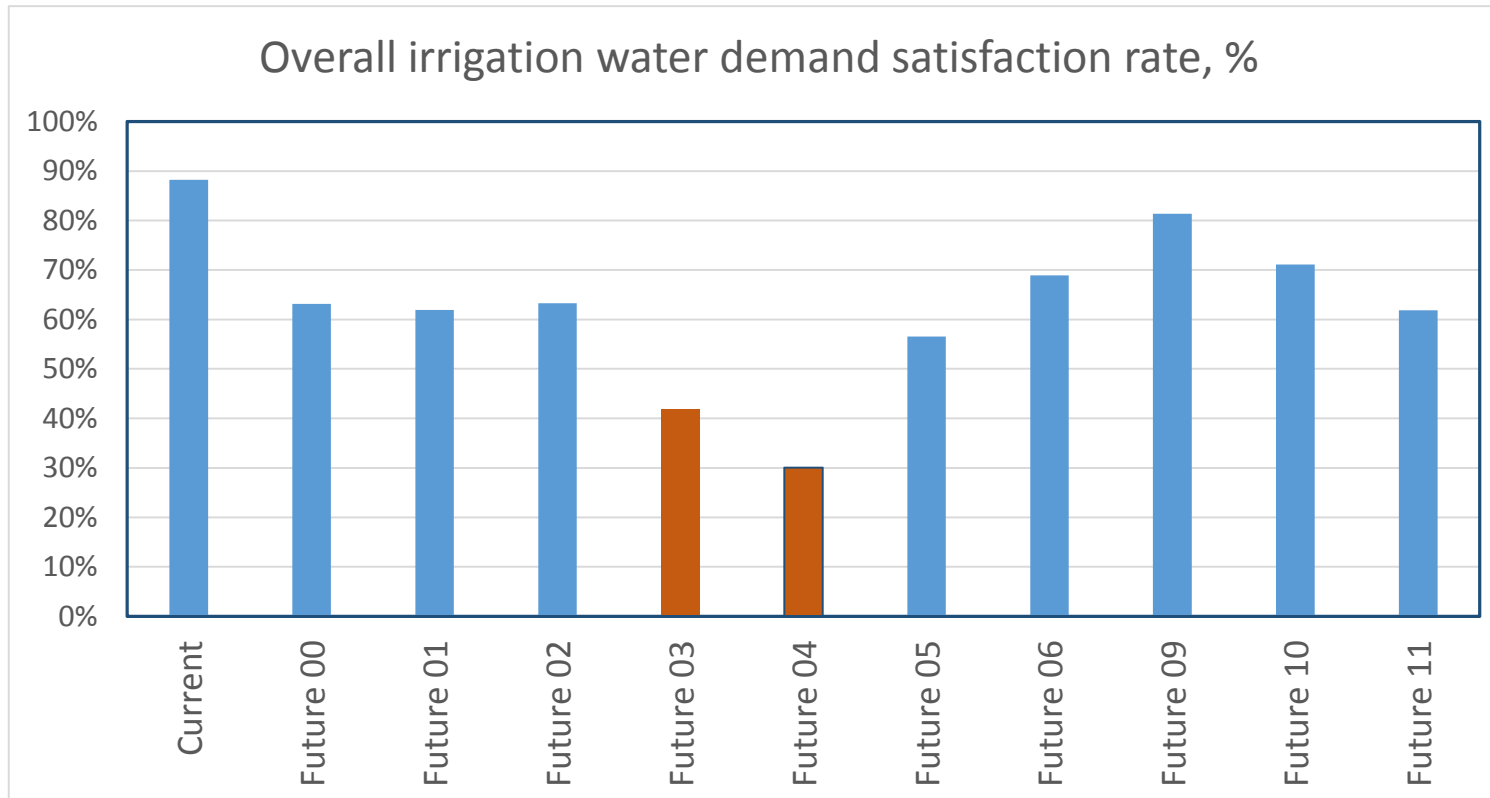
# Growth in Irrigation Water Demand (no cc)



*By 2050, the total (basin-wide) irrigation water demand is expected to increase by about 60 percent*



# 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



- Based on national plans, **substantial increase in water demand** is expected.
- If planned developments are **not coordinated and optimized** basin-wide, there is **risk of not meeting** the growing demand
- **Climate change** →
  - Greater variability in runoff → reduced reliability in meeting the water demands (*some sub-basins more affected than others*)
  - Can result in substantial deficit in meeting the growing water demands
  - Also, an opportunity for the riparian countries to closely coordinate the development and management of their water resources
- **Options** have been **identified** to **address** the growing **imbalance** between supply and demand
- Riparian countries can **mainstream these options** into national and regional WR development and management plans

# The way forward

***The growing water demands can only be sustainably addressed through cooperative water resources development planning taking the basin as one planning space***

Through cooperative efforts, the Nile riparians need to explore options, identify specific measures and mainstream them into their water resources development planning at national and regional levels:

- Water supply enhancement (increase basin yield, groundwater-surface water use, etc)
- Demand side management (increase water use efficiencies, etc)
- Optimize basin-wide water resources use (e.g. coordinated operation of dams,)
- Managing climate change risks provides avenues for linking water and climate change governance for increased coordinated planning
- Blending technical analysis with TB governance can be considered key for finding viable solutions to emerging water challenges