

Session 1 – DATA



NILE BASIN INITIATIVE
INITIATIVE DU BASSIN DU NIL

From Data to Action: Modernising Water Resou Monitoring for Resilier Basin Management

Intervention Focus:

Practical experience from the
Nile Basin Initiative (NBI)

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THE CORE QUESTION

How does the Nile Basin move from data collection to actionable decisions under increasing climate variability?

Nile Basin context:

- **11 Countries**
- **Rising climate variability and extremes**
- **Increasing water demand across sectors**
- **Unevenly distributed resources**



Core challenge:

- **Not data scarcity, but transforming data into decisions for planning, operations, and investments**

WHAT DATA TO ACTION MEANS IN PRACTICE

In the Nile Basin, value emerges when:

1 Data is shared across countries



2 Systems are interoperable and connected



3 Information is jointly interpreted for decisions



Key NBI shift:

- From fragmented national datasets
- To going beyond storage to basin-wide, forecasting and decision support systems.

INTEGRATED MONITORING SYSTEM

NBI combines Insitu and Earth Observation:



DATA & ANALYTICS

Services powered
by the Nile Basin Initiative

Measures:

- Real-time river flows and water level
- Lake and reservoir levels
- Water quality parameters

Outcome: Harmonised, real-time understanding of water conditions.

Emerging good practice: Conjunctive water use monitoring (Kagera)

FROM DATA TO DECISION

SUPPORT

NBI systems move data into action through:

- **Flood and drought early warning systems (sub-basin)**
- **Seasonal Hydrological Outlooks (basin-wide forecasts)**
- **Decision Support Systems (evidence-based cooperation)**

Outcome:

- **Reservoir operations**
- **Agricultural planning**
- **Emergency preparedness**
- **Reduced unilateral decision-making**
- **Life-saving decisions protecting lives, livelihoods, economies**

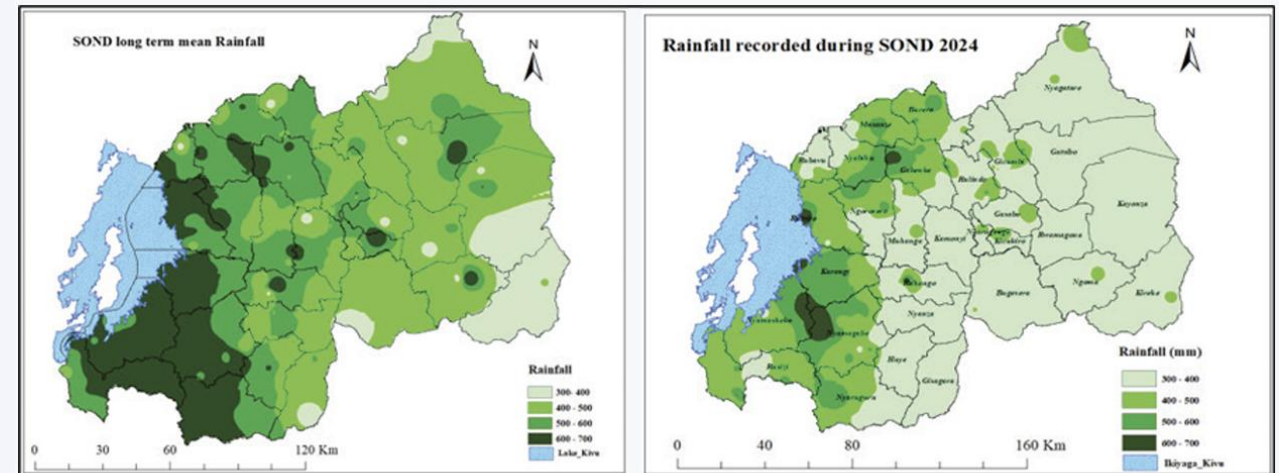


Figure 21: Long Term Average for SOND Vs Observed rainfall

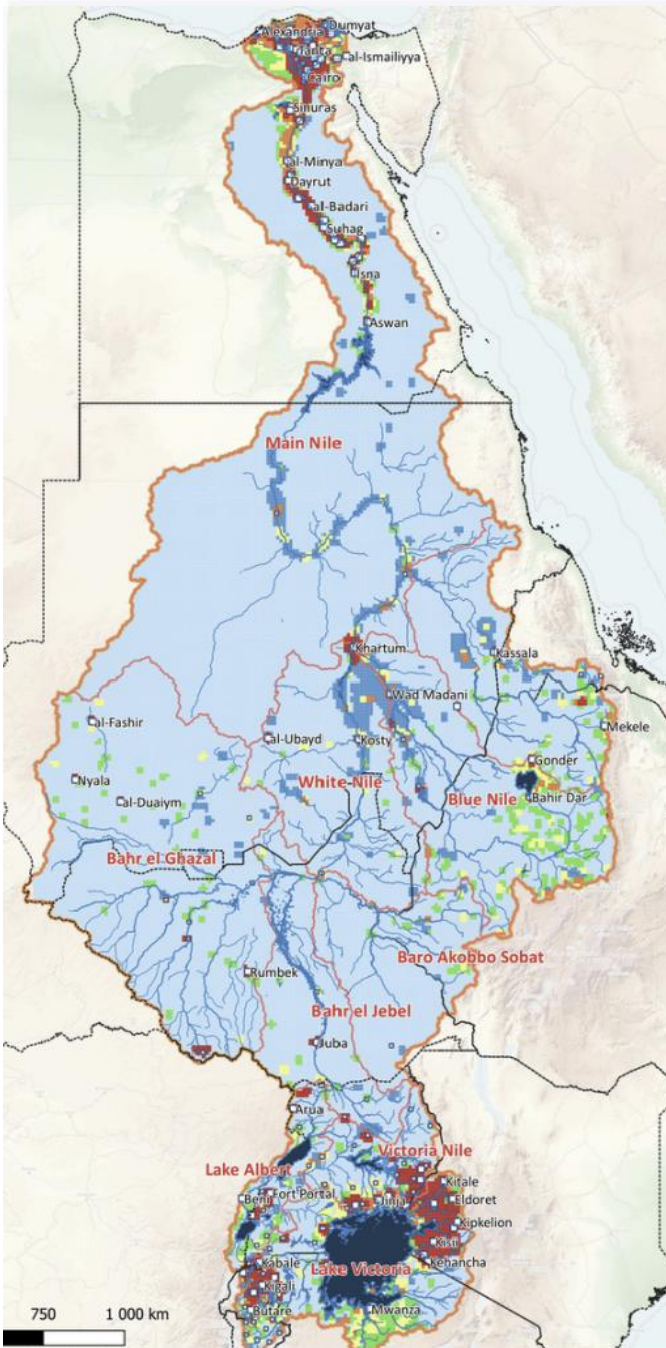
WATER QUALITY & ENVIRONMENT MANAGEMENT

The Nile Basin Water Quality Database:

- Shares pollution data from national monitoring campaigns
- Identifies hotspots, informs joint water treatment
- High-tech sensors and trained lab staff (9 countries)

Strengthens

- Ecosystem protection
- Climate resilience
- Sustainable investments



DATA FOR INVESTMENT AND OPERATIONS



Data directly supports:

- **Hydropower system operations (e.g. Rusumo cascade)**
- **Climate-resilient infrastructure planning**
- **Strategic Water Resources Assessments**
- **Safeguards under regionally-led investment programme**
- **Shared understanding of aquifers (Groundwater database)**

NBI also invests in people:



- **Young professionals**
- **Regional Expert Working Groups**
- **Institutional platforms**

WHAT NEEDS TO BE SCALED & KEY

TAKEAWAYS

Data in Action Requires:



1 Strong Institutions
and clear mandates



2 Regional expert groups
and youth engagement



3 Sustainable financing
for long-term systems



4 Institutional memory,
shared learning, continuity

Key messages:

- **Shared data improves decisions and builds trust**
- **Data-to-action is institutional and political, not only technical**
- **Basin-wide systems strengthen resilience, stability, and peace**
- **Impact depends on institutions and financing – not technology alone**

THANK YOU