

## CLIMATE SERVICES POLICY BRIEF

### Improving Climate Services in the Nile Basin: How the Nile Basin Initiative can play a catalysts role in enhancing the use of climate services

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#### Key findings

- The demand for climate services will continue to rise and diversify due to climate variability and change and the increased level of investments in water related infrastructure in the Nile basin.
- The Nile Basin Initiative, using its central role in the basin can influence policy and institutional changes for a more climate resilient basin.
- This would be to support a policy of free and open sharing of data and information among member institutions and also support the improvement and integration of value-added products into its work processes so as to climate proof water related infrastructure investments it undertakes

#### **The specific niche of NBI in climate services provision that shall be developed and specified are:**

**Role 1:** provide guidance on what kind of climate scenarios to be used in the Nile Basin in assessing water resource development and how to access them

**Role 2:** provide climate modified hydrological time series for planning and designing infrastructure projects in the basin based on hydrological modeling tools maintained by NBI

**Role 3:** provide guidance on appropriate methods for climate risk assessment for water resource development in the Nile basin. This includes support to climate proofing of infrastructure at the design level and at the level of basin development planning. This service is in particular offered for projects being prepared within the NBI framework

**Role 4:** provide support to countries to access climate funding for regional projects based on climate proofed portfolios of projects

In order for the National Meteorology and Hydrology Services (NMHS) within the Nile basin to make progress on the provision of climate services, certain policy and institutional alterations should be done to enable both current and future user needs to be met. First the NHMS institutions need to move their services beyond the current level of performing basic and essential level responsibilities such as carrying out medium range flood forecasting, water level and flow monitoring, climate monitoring and warnings, providing seasonal climate outlooks or having established links with media and disaster risk communities, etc. to be able to attend to emerging value-added service requirements by different user groups; Second a benefit-cost and social economic impact analysis of climate services should be conducted; Third NHMS need to be guided to free and open data sharing amongst themselves and also to the wider climate services industry in general to encourage growth. This brief therefore examines the role the NBI can play to improve climate services amidst the current threats of climate and institutional challenges in the basin.

### **Climate change and infrastructure undertakings in the basin.**

The Nile Basin countries are undertaking several infrastructure projects mainly in energy, irrigation and water management. Currently, the Nile Basin Initiative (NBI) is responsible for infrastructure projects with nearly USD 1.5 billion of Investments realized and a further investment pipeline of approximately USD 6 billion being planned. Similarly, the NBI through its strategic vision plans for 25-30 dams within the basin that have a potential capacity of 200-400BCM by 2050; all this shall be subjected to weather and climate induced impacts.

Already, the Nile basin water resources are highly sensitive to climate change with future predictions for most of the countries suggest reduced flows in the near future (2020–2049) while the far future (2070–2099) shows both increasing and decreasing trends. Rainfall prediction is expected to increase but shall be very varied in intensity and location while temperature trends suggests the warming of surface temperature over the entire region; the impact would create extreme weather events like floods and droughts which can be disastrous to water related infrastructure. Under these projected scenarios, adaptation of innovative ways to safeguard these infrastructures shall be required but this will remain a challenge under the current status of climate services provision by the NMHS within the region.

### **Current status of climate services within the Nile Basin**

A baseline assessment study carried out by NBI indicates that nearly all the eight NHMS from the basin: 1) are primarily providers that fall under category 2 of the Global Framework of Climate Services (GFCS) categorization, while the beneficiaries of climate services see themselves mostly as end-users which leaves a very critical intermediary gap of value-adders in the value-chain of climate services; and 2), most of NHMS indicated to having a policy that restricts free and open sharing of meteorological and hydrological data, have inadequate databases including limited cost-benefit analysis of their service contribution to the wider economy in their countries and therefore detrimental to the growth of climate services in general.

### **Policy recommendations for the Nile Basin Initiative**

NBI is the intergovernmental partnership of the 10 Nile Basin countries of Burundi, DR. Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania and Uganda. The NBI can play a role in addressing the above challenges through mobilizing for immediate action to enable the countries adapt to climate change and its impacts within the basin through improved climate services. In the short term, mobilize resources and participate in the development of value-addition products and benefit cost analysis of climate services within the region especially those relevant to its work and secondly, use its collaborative role in calling for policy change to free and open data sharing within the basin; which should contribute to its overall objective of achieving sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile Basin water resources'. To this, follows details of some policy options available to the NBI for consideration.

### **Support to value-addition within existing regional climate outlook forums**

Although none of the NMHS within the Nile basin can be exclusively grouped into any of the four categories of basic, essential, full range or advanced level service providers as per WMO's classification, most of the NMHS meet the basic and essential level requirements in their roles and responsibilities.

Therefore in order for them to meet and have access to products and services which are full range and advanced, they need to have engagements with different forums and collaborations with regional and international organizations. These forums for example, the Greater Horn of African Climate Outlook Forum (GHACOF) is one of the most important engagements that the NMHS have within the region to participate in and offer valuable contributions and as such, the NBI can further strengthen NMHS participation but also its own engagement in it.

The GHACOF which is hosted by IGAD Climate Prediction and Application Center and the African Center of Meteorological Application for Development are two of such regional forums that NBI could participate and support the value-addition process, at least in those sectors with specific interest to its work on water infrastructure development. The other value in participation is having the ability to contribute its technical competences in improving seasonal climate outlook products. This would go towards offering downscaling support on the seasonal climate products to the NMHS through a fully dedicated office.

### **Conduct social-economic impacts and benefit-cost analysis of climate services**

Another form of support from the NBI would be to assist the NMHS in conducting studies on the social-economic impacts of climate and benefit-cost analysis of climate services in the region so that climate information is linked to decision-making and provides that much needed evidence based support towards policy change to its member countries. Although the baseline assessment carried out by NBI does not give any concrete examples from within the basin, there are best practices which can be used as examples to justify these options and they are:

1. The World Bank estimates that improved weather, climate, and water observation and forecasting could increase global productivity by up to US\$ 30 billion per year while it will reduce asset losses up to US\$ 2 billion per year. Therefore such socio-economic impact studies can be done by the NBI for the entire basin.
2. Similarly, other studies have been used to justify continued investments in climate services for example the economic assessments of meteorology and hydrology services in terms of benefit-cost ratio (BCR). An example given is that for an Ethiopian program on Livelihoods, Early Assessment and Protection (LEAP) for drought early warning and response system was given as having a BCR of 3:1 to 6:1; thus justifying the need for more investments in climate services.

Similar studies should be done by NBI and this would promote the use of climate services in the basin and its countries.

### **Promote a free and open sharing policy on data and climate information.**

The NBI through its governance structure of the Nile Council of Ministers (Nile-COM) could start the process of getting all the Nile basin countries to consider a free and open data sharing policy within the region. An open and unrestricted access to public sector information (PSI) has resulted in the rapid growth of information intensive industries particularly in the geographic information and environmental services sectors in the US compared to Europe.

According to a study carried out in Europe and United States:

- Charging for PSI may be counterproductive, even for the short term perspective of raising direct revenue for government agencies;
- Governments should make PSI in digital form available at no more than the cost of dissemination;

- Governments realize financial gains when they drop charges on PSI because of higher indirect tax revenue from higher sales of products that incorporate PSI.

It is therefore in the interest of Nile basin countries and their NMHS institutions to see beyond the immediate benefit of selling data vis-à-vis the long term benefit of having free and open data and information exchange. This could also create interest from the private sector in the provision of climate services. The three options recommended above could still be subjected to in-depth analysis for each country and the basin, with the best alternatives thereafter adopted.

### **Related Publications**

CDSIP- (2012), Categorization of NMHSs, Annex4 <https://www.wmo.int/pages/prog/dra/documents/CDSIPAnnex5.doc>

Law, A., 2012: Evaluating the cost-effectiveness of drought early warning early response systems for food security:

A cost-benefit analysis of Ethiopia's Livelihoods, Early Assessment, and Protection (LEAP) system.

Submitted in partial fulfillment of a degree of Master of Science in Environmental Change and Management. Environmental Change Institute, University of Oxford.

NBI Report (2016): Thematic Report-Phase 1, NBI Strategic Water Resources Analysis 2016-unpublished.

NBI (2018). Climate Services for Infrastructure Baseline Assessment Report for the Nile Basin Countries- Unpublished.

PIRA International (2000), Commercial exploitation of Europe's Public Sector Information. Final Report