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NBI Technical Reports: Water Resource Management Series

Nile-TAC Guidelines on the implementation of 23rd Nile-COM Meeting Decision from 4th June 2015 on the establishment of a regional Nile Basin hydro-meteorological monitoring system

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The purpose of the technical report series is to support informed stakeholder dialogue and decision making in order to achieve sustainable socio-economic development through equitable utilization of, and benefit from, the shared Nile Basin water resources.

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Nile-TAC Guidelines on the implementation of 23rd Nile-COM Meeting Decision from 4th June 2015 on the establishment of a regional Nile Basin hydro-meteorological monitoring system

Background

The Nile Basin Initiative (NBI) is a partnership between the riparian states of the River Nile established in 1999 as a transitional mechanism to foster cooperative development and management of the common water resources of the Nile. The NBI is guided by the Shared Vision whose objective is “To achieve sustainable socio-economic development through the equitable utilization through the equitable utilization of, and benefit from, the common Nile Basin water resources”.

One of the core mandates of the NBI is to provide support to water resources management to countries; joint monitoring of the Basin is therefore necessary for enhanced knowledge-based water resources planning and management. The Nile Basin riparian countries recognized the need for improved joint hydro-meteorological monitoring system through continuous efforts to establish joint monitoring in the Basin, reaching back to the Hydromet Project between 1967 – 1972, which focused on hydro-meteorological survey of the Nile Equatorial Lakes.

NBI member states subsequently agreed on a Nile River Basin Monitoring Strategy in 2010. The objective of this strategy is: “to have a comprehensive suite of river basin monitoring programs in place that supports decision makers, professionals and other stakeholders in the planning, development, management and protection of the shared Nile Water Resources to achieve the Shared Vision of the Nile Basin Countries”.

Design of the regional hydro-meteorological monitoring system

NBI Member States jointly developed a detailed design of a regional hydro-meteorological monitoring system for the Nile Basin, captured in the “Design Report: Regional Nile Basin Hydromet Services (May 2015)” and implementation plan. The design and implementation plan was approved by the Nile Council of Ministers (Nile-COM) in its 23rd meeting on 4th June 2015, in Dodoma-Tanzania.

In their decision the Nile-COM agreed on the following statement of purpose for the Nile Basin Regional Hydro-Met System: “We, Member States of the Nile Basin Initiative, are united and dedicated to establish and share an ever-growing understanding of the water resources of the Nile Basin and to engage that understanding in wise stewardship and sustainable socio-economic development”.

Further, “The NBI Member States commit to share the data and information from the regional hydro-meteorological monitoring system in accordance with existing data sharing arrangements at NBI to support cooperative management and development of the shared Nile basin water resources” and “The NBI Member States commit to operate and maintain the regional hydro-meteorological monitoring system once implemented to ensure its sustainability”.

Funding for Phase 1 of implementation plan

Based on the Nile-COM approved design and decision the European Union and Federal German Government allocated funds for implementation of Phase I under the current project “Support to transboundary water cooperation in the Nile Basin” (the project). The project focuses on the rehabilitation and upgrade of the national hydrological monitoring stations that are part of the regional hydrological system up to the regional standard, the upgrade of national and regional data centers and development of information products based on shared information from the system.

Phase 1 Stations’ Rehabilitation Needs and Rehabilitation and Upgrade Plan (Annex 1)

A detailed station rehabilitation needs assessment of the stations in the network as per the Design Report of 2015 has been concluded in 2020. This was conducted by country teams supported by NBI and is based on field visits to each of the station locations to determine the status of each station and verify rehabilitation and upgrade requirements. The detailed results of the rehabilitation need assessment of the network are presented in the report “Nile Basin Regional Hydrological Monitoring Design” (2020).

Annex 1 summarizes the rehabilitation and upgrade needs of those stations from the rehabilitation needs assessment conducted in 2015/2020, that countries have agreed to include in implementation of Phase 1. The stations’ rehabilitation and upgrade plan indicated therein to bring the included stations to the regional standard will be implemented under the project.

NBI will consider stations not currently nominated by countries and/or proposed additional stations and/or alternative configurations in the continuous review of the system design and subsequent station rehabilitation and upgrade plans.

Transmission Approach (Annex 2)

Transmission of data from hydrometric stations to data management centers at hydrological services agencies in individual countries is a core element of network operation. Loss of data transmission is one of the principal factors in unsustainable hydromet systems, and non-payment of cellular data charges in GPRS telemetry systems is the principal cause of transmission loss. To avoid this weakness, the project will deploy dual telemetry systems including GPRS, which is familiar to hydrological services in Africa, as well as satellite telemetry using EUMETSAT communications to provide robust telemetry using low profile, low power antennas and transmitters. Satellite telemetry will be configured and demonstrated in each country. Thereafter, countries that cannot adopt satellite telemetry for policy reasons may still opt to use the GPRS transmitters only.

Annex 2 summarizes the choice of transmission approach by country that will be implemented.

DMS Upgrade (Annex 2)

Effective Data Management Systems (DMS) are essential, because they are integral to the way in which countries provide hydrological services, including generation of information products. Many countries in the Nile Basin have indicated a need for support in selecting, acquiring, and configuring a suitable DMS. NBI will provide support to countries in establishing key elements of data flow by means of their DMS.

NBI has identified a cost-effective DMS option employing cloud-based data hosting. Under the project NBI will provide up to 5-years of cloud-based DMS hosting using *DataSight* (<http://seveno.com/seveno-datasight/>) for each country that opts for this, and will support the setup and configuration of the system. For countries that choose alternate options, NBI will assist with the configuration of the existing systems, with a focus on meeting the regional objectives for information sharing.

Annex 2 summarizes the choice of DMS approach by country that will be implemented.

Approach to developing information products (Annex 3)

The regional hydrological monitoring system is designed to facilitate the process of data and information sharing needs of the countries at their own discretion in their various water management cooperation processes at basin-wide, sub basin or cross-border level. The approach to data and information sharing accordingly remains voluntary and based on a subsidiarity approach in that any data and information sharing countries may decide to pursue, is to be done at their own discretion and based on their own decision which, if any, information sharing arrangement they want to make reference to. NBI – in its role of a service provider to the countries - will upon country request, provide technical support to respective countries and/or sub-regional entities to effectively make use of the regional hydro-meteorological monitoring system and implement any requested data and information sharing configuration. For information and data countries may agree to share in the NBI framework the “NBI Interim Procedures on Information and Data Sharing” apply.

Based on this approach, information products to be supported by NBI under the project can generally be categorized into three categories:

- Category 1: Information products requiring exchange of data only between two or three countries involved, governed under their own existing and applicable bi- or trilateral agreements among countries, requiring data to only be shared amongst the participating countries.
- Category 2: Information products requiring exchange of data only between two or more countries, governed under their own existing and applicable sub-basin arrangements (such as LVBC, etc.), requiring exchange of data with the sub-regional entity.
- Category 3: Regional information products governed under the existing “NBI Interim Procedures for Information and Data Sharing”, requiring exchange of data with NBI.

NBI through the project will support countries to develop information products in any of the three categories as requested by countries. To this end, interim country working groups will be established for each proposed product. The objective of the interim working groups is (1) for countries to assess the feasibility and (2) only after positive assessment is made by participating countries, to then develop detailed specifications and implementation plans for the required information products. Based on the implementation plans, a prioritization into lots to be taken forward for implementation in Phase I (FY 2021/22) or Phase II (FY 2022/23 to 24/25) will be made.

Annex 3 summarizes the choice of countries to participate in a first round of interim country working groups to be put in place in accordance with this approach under the project. The list is open to continuous amendment as additional products of interest are identified by member states.

Implementation arrangements for the rehabilitation and upgrade of the monitoring network

Immediate next steps for the rehabilitation and upgrade of the monitoring network are equipment procurement, civil works, and data management system deployment. The implementation and commissioning has to be completed within the project period ending 6/2022. The national team shall lead the implementation phase (civil works, installation and commissioning of stations, establishment of data management centers, etc.) in close cooperation and support provided by NBI (including the consultant). Capacity building of country teams will be part of the process.

Equipment Procurement

NBI will undertake equipment procurement according to the quantities and specification outlined in the agreed project design documents. Country involvement will be to receive the equipment, arranging for customs clearance at no cost to NBI or the equipment vendor, and to store it at a secure location in preparation for bench testing and installation.

Civil Works

Civil works will be initiated, so that sites will be prepared for installation by the time the equipment is delivered. Civil works will be contracted by NBI. The process will entail direct participation from country staff in the tendering process, orientation and site visits with the contractor, supervision and inspection, and approval of completed civil works, in cooperation with NBI. NBI procurement and accountability procedures apply. QC & QA shall be led by Member States.

Data Management Systems

As per the confirmed DMS option selection, NBI immediately begin working with countries to support implementation of regional data management protocols within their respective Data Management Center.

Sustainability and steering of the regional hydro-meteorological monitoring system

The stations are in the ownership of the respective Member State. Member State therefore continue to be responsible for the sustainable operation and maintenance of the stations and the National Data Management System. Based on the lessons learned and consultations with national teams, NBI shall develop a hydro-meteorological monitoring system sustainability strategy that shall guide NBI and the Member States in ensuring sustainable management of the regional system beyond Phase I.

In accordance with the approach of NBI to confidence building and cooperation based on consensus, the regional hydro-meteorological monitoring system will be continuously develop by countries over time.

In this process, the regional Nile Basin Hydro-Meteorological Monitoring System is governed by the Nile Basin Initiatives organs as per the rules of procedure of NBI through the Nile Council of Ministers (Nile-COM) and Nile-Technical Advisory Committee (Nile-TAC).

Accordingly,

- The member states designate the respective hydrological service agency with a focal point to NBI as liaison for the operation and maintenance of the system.
- The Nile-TAC appoints a standing Regional Expert Working Group for Hydrological Monitoring (REWG), composed of a Nile-TAC member and representatives of the designated hydrological service to advise Nile-TAC on any issues related to the operation and maintenance of the hydrological monitoring system.

The NBI Nile Technical Advisory Committee shall regularly review the status of the system and its implementation and recommend necessary actions to Nile-COM for consideration.

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