Nile Basin Initiative (NBI)
Eastern Nile Technical Regional Office (ENTRO)
Cooperation in International Waters in Africa (CIWA)
(AF-2)
Terms of Reference

Water Resource Specialists, (WRS-International) (Two)

1. BACKGROUND AND INTRODUCTION

International experience shows that coordination of the operation of cascade water storage reservoirs has significant contribution for efficient water use, addressing competing ~~or~~ and sometimes conflicting water use by different sectors and users and optimization of the benefits generated from these storage reservoirs.

Internationally there is a wealth of experience on coordinated operation of cascade reservoirs. The Senegal River Basin Authority manages one large dam upstream and a second smaller facility downstream. The Authority has the mandate of securing countries' economies and reducing the vulnerability of peoples' livelihoods through coordinated water resources and energy development. The Zambezi Basin has a framework for managing the international cascade of Kariba and Cahora Bassa dams. The Colorado River is shared by the United States and Mexico. The River accommodate the multiple needs, including residential, industrial, agricultural, hydropower generation, environmental, and recreational of seven western states and Mexico in a coordinated reservoir operation framework.

Compared to other river basins, the Eastern Nile is home to number of large and complex dams. There are four existing cascade dams situated along the Abay/Blue Nile-Main Nile (Roseires, Sennar, Merowe, High) with an aggregate storage capacity of 182 BCM and further the Grand Ethiopian Renaissance dam (GERD) in Ethiopia, with a storage capacity of 74 BCM will be commissioned soon. There are also two cascade dams along the Tekeze-Atbara Rivers (Tekeze, Kashim Al Girba). Further Upper Atbara complex in Sudan, with a storage capacity of 8BCM is almost completed. There are also other dams in the pipeline in Sudan and Ethiopia.

At present, those dams in Egypt, Ethiopia and Sudan that are operating are managed without any coordination. However, uncoordinated operations of these large dams, compounded with climate seasonality, variability and/or rainfall variability, would bring changes to the river system, alter the water use and management of dams and thus potentially create tensions among riparian countries. As of now, even if the countries chose to coordinate the management of these dams, they cannot simply because the technical (e.g. water release and operation rules), the institutional (e.g. responsible and accountable entity for coordinated management) and the legal (e.g. treaties encoding coordination) are not there.

Recognizing the importance of the coordinated operation of dams in Eastern Nile countries, ENTRO, in collaboration with World Bank, had organized a one day training and awareness workshop on 22 November, 2016 in Khartoum, Sudan. This training program is a continuation of the Khartoum workshop.

2. OBJECTIVE

The objective of this training program is to create awareness on concepts, application and international best practice on coordinated reservoirs operations, particularly on transboundary cascade dams. The key target groups for this program are policy makers, regulators, planners and senior experts from the three countries.

3. SCOPE OF WORKS

The overall scopes of work for the Water Resource Specialist include, but not limited to, the following major activities.

- Design a training on key concepts of cascade reservoir operation, including a detailed agenda for the training. Assemble materials for the training program addressing key concepts of cascade reservoir operation (legal, technical and institutional aspects) and international best practices.
- Provide a Technical training addressing, but not limited to, the following key topics.

  - ✓ Basic concepts of coordinated reservoir operation;
  - ✓ Challenges and opportunities in implementation of coordinated reservoir operation;
  - ✓ Legal, policy, regulatory, human capacity organizational structure requirements,
  - ✓ International experience on coordinate reservoir operation in a transboundary context.
  - ✓ Modeling principles;
  - ✓ Data Management, data sharing arrangement, etc.
  - ✓ Environmental and Social considerations, including international examples of environmental flows, participatory processes for rule setting, etc;
  - ✓ Cascade Reservoir System Operation
    - Principles for coordinated reservoir zoning
    - Principles for coordinated flood management
    - Principles for coordinated drought management
    - Transition between normal operation and emergency situations

- Potential impact of extreme events and climate change/uncertainty on uncoordinated reservoir operations and outline benefits of coordinated operation to mitigate this impact at sub basin level.;
- Prepare a summary report that includes main topics presented, discussed and feedback from participants.

4. PROJECT DELIVERABLES

The Water Resource Specialist shall deliver the following products:

Task	IDE1 Deliverable	Target Date
1.1	An agenda and training materials addressing key concepts of cascade reservoir operation (legal, technical and institutional aspects) and international best practices.	one month after commencement
1.2	A summary report that includes main topics presented, discussed and feedback from participants	Two weeks after the workshop

5. IMPLEMENTATION ARRANGEMENT

The Regional dam safety coordinator, representing ENTRO, is responsible to coordinate and lead the activities.

The services to be provided by ENTRO include the following:

I. Be responsible for the overall implementation of the project and managing the interfaces between this Consultancy and other relevant activities.
II. Organize and facilitate the training program with the help of the Consultant.
III. Provision of Office space suitably furnished with electricity, telephone and internet connections;
IV. Facilitate access to the different government departments/utilities//institutions with data and information relevant to the consultancy.

6. QUALIFICATIONS AND EXPERIENCES

The Water Resource Specialist shall have some familiarity of the Nile basin and its socio-political and environmental context. In addition he shall have the following minimum qualifications and experiences:

Advanced university degree M.Sc. (or above) in Law, Water Resources, or related fields; and at least15years of work experience in the following key areas:

- Experience in water resource planning, particularly in transboundary water resource development and management;
- Experience in developing reservoir operations strategies at national and regional level;
- Experience in developing framework, regulation or legislation for transboundary water management;
- Demonstrated experience in organizing similar technical training to policy and decision makers.
- Strong analytical, report writing and communications skills;

- Fluency in English.

7. LEVEL OF EFFORT, BUDGET AND SCHEDULE

The Water Resource Specialist will provide a total of 10staff days over a period of 2 months. He will undertake one trip to one of Eastern Nile countries in this period.

Payment shall be effected upon submission of invoices to ENTRO as well as submission and acceptance of deliverables. Reimbursable expenses will include international travel (economy class), accommodation and daily subsistence allowance at the ENTRO rate, in accordance with ENTRO policies.