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COOPERATION FOR DAM SAFETY IN THE EASTERN NILE

Dams provide critical services such as flood protection, irrigation, hydropower generation, and water supply for 156 million people in the Eastern Nile sub-basin spanning Egypt, Ethiopia, Sudan and South Sudan. Thirty transboundary dams operate in the region – including Roseires in Sudan, Aswan in Egypt, and many smaller dams no higher than 15 meters – with a combined storage capacity of 210 billion cubic meters. More, including on the mighty Blue Nile, are being built. Attention to dam safety is critical: issues with design or inadequate monitoring and maintenance could increase the risk of dam failure, which could have significant flood consequences and affect river bank settlements, fisheries, power generation, agriculture, the environment, and the regional economy overall.

Through its dam safety program, the Nile Basin Initiative's Eastern Nile Technical Regional Office (ENTRO) works with Eastern Nile countries to build technical capacity and establish national and regional safety norms. Supported by CIWA, the World Bank's Cooperation in International Waters in Africa program, ENTRO is setting up national dam safety units so countries can standardize dam safety management, safeguarding against such threats as dam breaches that put at risk a Nile Basin population that may double in 20-30 years.

Additionally, the collaboration among countries in the dam safety program allowed technicians across the region to discuss technical operational issues beyond dam safety, further increasing trust among the participating countries.



REGION:
Nile Basin



COUNTRIES:
Egypt, Ethiopia, South Sudan, Sudan



FOCUS:
Environmentally and socially sustainable infrastructure

RESULTS

CIWA-supported capacity building activities, tools, and regulatory guidelines have helped improve dam planning and operational safety in the Eastern Nile Region, which covers the Blue Nile (Abbay), Atbara (Tekezze), Baro, Akobo-Sobat, and main-Nile rivers.

- At a **series of seven dam-safety workshops**, 195 dam operators, regulators, government officials, academics, and civil groups were trained. The result: decision-makers can better integrate risk management into planning, construction, and operation of dams as well as in emergency preparedness planning. More timely and informed decisions can boost infrastructure sustainability and reduce catastrophe threats in an area where almost two-thirds of the four countries' 240 million residents live.
- A **dam safety training module** developed for Eastern Nile universities to train technical personnel continues to build long-term professional dam safety capacity in the region.
- **Dam safety policy guidelines were developed** to enhance existing dam planning and operation. Social, environmental, and evolving economic considerations in these guidelines improve the productive lifetime and sustainability of dams. Flexibility in design options and operating rules helps ensure that the guidelines' safety recommendations are able to handle more frequent and extreme rains and dry periods due to climate change.
- Governments of Ethiopia, Sudan, and South Sudan affirmed their commitment to regional dam safety by **establishing national dam safety units in each country**, to implement the proposed guidelines and ensure that neighboring countries coordinate in dam planning, operation, and maintenance. This is significant; given the large existing and upcoming storage structures on the Eastern Nile rivers, improved dam safety practices can help avert potential disasters in the region.

“Because of the Eastern Nile Dam Safety program, the Ethiopian government recognized [the need] to establish a responsible directorate dedicated to oversee the dam safety issues at national level.” The establishment of a dam safety directorate at Ethiopia’s ministry of water, irrigation and electricity “is one of the success stories of the regional dam safety program.”

— Michael Abebe, Regional Dam Safety Coordinator, ENTRO

CONTEXT

While most dams in the Eastern Nile are small, additional large transboundary, multipurpose dams are being considered and constructed to tap the region’s vast water resources potential. The transboundary nature of the Nile River’s annual flow, lends complexity to the planning, operation, and maintenance of dams. Safe functioning of dams of all sizes requires monitoring, evaluation and identification of safety risks over their operational lifetime – not just during construction.

Many of the countries in the Eastern Nile aim to improve their attention to dam safety, which historically faced institutional, technical, and financial limitations. ENTRO strives to assist countries on this front, to protect the people, property, and environment in the Eastern Nile from dam failure and adverse transboundary impacts. Through the CIWA-supported dam safety program, ENTRO has made important strides on dam safety.

APPROACH

ENTRO improves dam safety in the Eastern Nile by strengthening institutions at regional and national levels, and building decision-making and operational capacity.

ENTRO has helped review the structural and operational robustness of planned and existing dams in the region, and highlighted those that would have larger consequences if failure were to occur. By tailoring best practices in dam safety for the Eastern Nile topography, ENTRO enables countries to begin addressing these dam safety needs. Its recommendations for infrastructure safety and social and environmental sustainability have been incorporated into a set of regional guidelines for large and small dams. To standardize the implementation of these guidelines across the region, the countries are developing an Eastern Nile Dam Safety Regulatory Framework. Each country is also establishing a national dam safety unit. Through its CIWA-supported dam safety program, ENTRO has successfully trained dam operators, policy planners, and young professionals from four countries, improving long-term capacity and dam safety management.



NEXT STEPS

With an expanded program, CIWA hopes to continue support for ENTRO’s dam initiatives on several fronts. ENTRO seeks to strengthen coordination among national dam safety units in the Eastern Nile. Given the significant ongoing and planned development on the Eastern Nile rivers, ENTRO plans to develop a regional framework for coordinated operation of cascade dams along transboundary rivers. Also urgently needed: comprehensive guidelines for preparedness in case of emergency to protect the lives and safety of downstream residents.

FOR MORE INFO

- Eastern Nile Technical Regional Office (ENTRO): <http://entroportal.nilebasin.org>
- ENTRO projects: <http://entroportal.nilebasin.org/pages/projects.aspx>

ABOUT CIWA

CIWA, the Cooperation in International Waters in Africa program, is a multi-donor trust fund representing a partnership between the World Bank and the governments of Denmark, the European Union, Norway, Sweden, the Netherlands, and the United Kingdom. CIWA supports the governments in Sub-Saharan Africa in unlocking the potential for sustainable and inclusive growth, climate resilience, and poverty reduction through cooperative transboundary water management and development. Since 2011, CIWA has supported improving the social, environmental, and economic sustainability of transboundary investments worth US\$8.9 billion across Sub-Saharan Africa.

