PROJECT INFORMATION DOCUMENT (PID)
APPRAISAL STAGE

Report No.: AB3077

Project Name	Eastern Nile Planning Model
Region	AFRICA
Sector	General water, sanitation and flood protection sector (50%); Information technology (25%);General public administration sector (25%)
Project ID	P103639
Borrower(s)	ENTRO
Implementing Agency	
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	Eastern Nile Technical Regional Office (ENTRO) Africa
Environment Category	[ ] A [ ] B [X] C [ ] FI [ ] TBD (to be determined)
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1. Country and Sector Background

1. Water has played a central role in the history and political economy of the Eastern Nile region and has shaped its socio-economic and environmental dimensions. The Eastern Nile consists of five major sub-basin groups. This includes the Baro-Akobo-Sobat that originates in Ethiopia and joins the southern Nile to form the White Nile in Sudan, continuing north to Khartoum to meet the Blue Nile (which contributes most of the sediment-laden water of the Eastern Nile). The Main Nile then continues northwards, collecting the Tekeze-Atbara-Setit that originates in Ethiopia, and flows into Egypt where the Aswan dam regulates its flow. These rivers form an important shared resource linking these countries. However, tensions over these resources continue today and have been a major constraint to economic growth and opportunities for trade and regional integration.

2. The Eastern Nile region is home to some of the poorest people in the world. Maximizing the productive uses of water and reducing the risks associated with water-related impacts and shocks are prerequisites for sustained socio-economic growth and development. Rainfall and river flows are highly variable while the infrastructure and institutions (both national and regional) to manage water are limited. This results in a region characterized by swings from severe droughts to intense flooding, which, along with massive erosion, have major economic, social and environmental impacts. The productive role of water is also currently limited in the region, with generally unreliable and inadequate access to water and energy services (e.g. access to electricity is less than 15% in Ethiopia and Sudan, only a small percentage of the irrigation and hydropower potential has been developed thus far, and crop intensity, yields, and water productivity in rainfed and irrigated systems are generally poor with a few exceptions). River

system losses (from evaporation and seepage) are also high representing 35-40% of total available water. Lastly, deforestation and land degradation are serious, contributing to low soil productivity, poor agricultural production, and increased downstream sedimentation. Substantial investments are required to improve this situation and improve the productive role of a cooperatively managed Nile system.

3. In the absence of mechanisms to cooperatively develop and manage the Eastern Nile, countries will continue on unilateral development plans. This has critical implications for meeting existing demands and facing a future with growing energy and food demands and potential climate change. The potential benefits from regional cooperation and integrated and joint basin management are significant. A vision of the Eastern Nile is characterized by multi-country coordinated and collective investments in irrigation and agriculture, environmental services, institutions and human capital, and the development of important water and energy infrastructure. Lastly, cooperation will not only improve international relations, but enable the joint management of risk of water-related impacts (in particular floods, droughts and climate change) and the joint development of productive opportunities (in particular optimization of power and irrigation development).

4. An essential element for such cooperation is the development of a shared knowledge base and appropriate analytical tools, used effectively to support decision making among multiple stakeholders. Currently, the knowledge base is fragmented and inconsistent, sharing of information is minimal, and there is a lack of shared, modern, flexible analytical tools to envision various development scenarios and analyze their implications from economic, environmental and social viewpoints. There are also no strong stakeholder forums to systematically use this information and analysis to inform the decision-making process related to investments on the Eastern Nile. This status quo is a major impediment to building consensus on cooperative investments in the basin and deciding where further studies are required.

5. Egypt, Ethiopia and Sudan have made significant strides in strengthening Eastern Nile cooperation since the launch of the Eastern Nile Subsidiary Action Program (ENSAP)1 in 1999, within the framework of the Nile Basin Initiative (NBI). In launching ENSAP, the Eastern Nile Council of Ministers (ENCOM) agreed to ensure efficient water management and optimal use of resources, target poverty alleviation, and promote economic integration through cooperative investments. The first joint institution of the three countries – the Eastern Nile Regional Technical Office (ENTRO) – was established in 2002 to over see the preparation of the EN investment program. Considerable progress is now being made in the preparation of a series of 'fast track' projects – largely nationally implemented, sectorally-focused projects agreed in a regional context – to tangibly demonstrate the benefits of cooperation. One of the "fast-track" projects identified as part of the original ENSAP investment portfolio to be critical to such cooperation is the proposed Eastern Nile Planning Model (ENPM) Project. The ENPM has been prepared within the context of the Joint Multipurpose Program or JMP (the process for which is being led by the Bank at the request of the Eastern Nile Council of Ministers) to provide the analytical underpinnings to support the next round of investment planning on the Eastern Nile. The countries have already initiated some cooperative knowledge activities (e.g. a shared "One-System Inventory" of water, environment and socio-economic aspects of the Eastern Nile) that would be enhanced by the ENPM.

6. Overall, the ENPM is intended to provide a knowledge platform for cooperation discussions on the Eastern Nile, make the best use of the available information, and be adaptable for future needs.

[1] ENSAP currently includes Egypt, Ethiopia and Sudan. Eritrea current participates in ENSAP, and the NBI, as an observer, but is expected to formally join eventually.

2. Objectives

7. The development objective of the ENPM Project is that ***countries in the Eastern Nile adopt an improved decision support modeling framework to identify water-related investments and evaluate them in a regional context.***

8. Key performance indicators for the ENPM project will include:

- Development of a shared interactive Eastern Nile Knowledge Base and dissemination of a *State of the Eastern Nile* Report
- Development of modeling tools to systematically evaluate Eastern Nile investments in a regional context, examining economic, environmental, and social aspects as allowed by available data
- Strong institutions at Regional and National levels (in Egypt, Ethiopia, and Sudan) with adequate capacity and partners (e.g. University Outreach Centers) to be a focal point for knowledge and analysis on water investments on the Eastern Nile
- Collaboration with the Nile DSS

9. The project is intended to strengthen the knowledge, modeling, and stakeholder interaction capacity of regional and national institutions to plan for water resources investments in a regional context, with appropriate regard to economic, environmental and social aspects. The project would be an essential building block to stimulate cooperative investments in the region. Not only is this project the result of cooperation, but it can help further cement this cooperation through regional projects and the consideration of national projects in a regional context. This is essential to ensure that scarce financial resources are used effectively and that the region can take advantage of transformational opportunities that Nile cooperation provides. This work on the Eastern Nile can also feed into the larger Nile context, in terms of supporting the basin-wide Nile Decision Support System (DSS) being developed under the NBI's Shared Vision Program (SVP). The development of such tools and stakeholder participation approaches could also help improve cooperation and coordination across Eastern Nile Institutions (within and across countries) in making more informed and consultative decisions on planning investments and managing the shared resource base.

3. Rationale for Bank Involvement

10. Since 1998, the World Bank has been intensively engaged with the ten countries of the Nile Basin under the NBI to promote cooperative development and management of the Nile. The aim has been to convert an underdeveloped resource that has often been a source of conflict and sorrow to one that is a catalyst for regional growth, cooperation, integration and poverty alleviation.

11. The proposed project will be a critical input to the objectives of the NBI and the work of the World Bank. This activity would also help support the objectives of the CAS/interim Strategies/Country Water Resources Assistance Strategies of the EN countries and provide a framework to analyze and prepare future cooperative investments (e.g. hydropower, irrigation, storage, watershed management, etc.) in the Eastern Nile, including work on the propose set of coordinated investments considered in a cooperative regional framework under the JMP. It will also help the Bank to tap its expertise in international river basins and in such knowledge-driven decision-support processes to assist the EN countries in realizing a higher level of cooperation. Experience in other international river basins has also indicated the need to strengthen the collation, organization, analysis, dissemination, and use of basin information to build a shared awareness of key evolving issues in the Basin, and to better inform future cooperative investments.

4. Description

12. The ENPM Project contains three components:

Component A: Knowledge Base Development

The Knowledge base developed will provide a shared, synoptic view of the Eastern Nile basins, including its opportunities and risks as viewed from an economic, environmental and social perspective. Baseline data would be organized systematically in a GIS platform with an associated web portal. Effective use will be made of modern datasets from satellite remote sensing and other global/regional datasets.

Component B: The ENPM Modeling System

The ENPM modeling system will include a suite of simulation, optimization and multi-criteria analytical tools. The models will build on a water systems #spine# using tools developed by the Nile Basin DSS to help analyze the economic, environmental and social aspects of proposed investments in a water resources systems framework and to evaluate alternative scenarios of the future. The tools developed will draw upon and contribute to the Knowledge Base developed and will be flexible to adapt to changing needs and increasing information availability.

Component C: Institutional and Human Capacity Building

The ENPM will support a structured stakeholder process to ensure that the systems developed are driven by multi-sectoral stakeholder demand and appropriate to support decision-making. It is expected that the proposed ENPM (developed in collaboration with the Nile DSS) and associated training would strengthen ENTRO as a strong knowledge-driven regional institution, as well as improve the capacity of national institutions, reducing the current disparity in national capacity for such activities. Networking with academia and other international river basins will also be pursued to improve cross-fertilization of ideas and sustainability.

13. The three components above would be phased to ensure adequate stakeholder input into the design of the knowledge base and models as well as to ensure that these, in turn, help support investment decisions (on water infrastructure such as storage, hydropower, irrigation, etc. as well as catchment management and environmental protection). The project would be implemented by ENTRO, which would have a Regional ENPM office, supported by National ENPM offices and University partners. The project would be supported technically by a competitively-recruited international ENPM Consultant.

5. Financing

Source:	($m.)
Borrower	.6
Nile Basin Initiative Trust Fund	6.5
Total	7.1

6. Implementation

14. The project is a result of a partnership in NBI and among the EN countries. The multi-donor Nile Basin Trust Fund (NBTF) has committed to financing this project. The project also seeks to promote partnerships with academia and other partners during implementation.

19. The project will be implemented by the Eastern Nile Regional Technical Office (ENTRO). ENTRO, acting on behalf of the three Eastern Nile countries, under the general auspices of the NBI, will enter into a project Grant Agreement with the World Bank for NBTF grant financing. ENTRO will be

responsible for the coordination of all activities, procurement of equipment and consultants, and management of funds. ENTRO will have final responsibility for the quality of outputs and will work in close cooperation with both the Bank team in supervising the activities and with the already identified National Planning Model Coordinators in the MoIWR (Sudan), MoWR (Ethiopia) and MWRI (Egypt). The ownership of the data and tools (and versioning of the software) developed under the ENPM effort lies with ENTRO but the countries will be able to use the tools to help decision making for water projects within each of the countries.

20. The Regional Coordination Unit is established and equipped with basic facilities (basic IT equipment, office facilities, internet connection, etc). The unit, headed by the Regional ENPM Coordinator, will have the support of full-time staff (long term consultants in the form of a Regional Planning Model Specialist, a Water Resources Planning and Management Specialist, and Information Management-GIS&Database Specialists), who will be competitively hired from the EN region, supported by short-term specialists (e.g. on economic, environmental, social aspects) and interns. Functions such as finance, procurement, and administration; formal external communication; protocols; and donor liaison; will be undertaken within the existing ENTRO organization according to existing modes of operation. The project would support ENTRO costs (including administrative, office space, procurement/financial management support, logistical, communication, and other office expenses) related to the project.

21. Activities at national level would be supported by the National Focal Point Institutions (NFPIs) in the respective Ministries of Water Affairs and will be headed by the National Planning Model Coordinator (which is part of the overall ENSAP arrangement) to facilitate interaction with other national institutions. A National ENPM office will be set up (co-located with the Nile DSS and other activities where possible) staffed with key modeling and information management professionals and interns financed by the project to implement the project at the national level. The ENPM development would be facilitated by an ENPM consulting firm who would provide support to the regional and national offices. Regional and national groups would help implementation and stakeholder interaction to guide and use the ENPM. The data sharing/logistics commitment from each country would be ensured through a letter of commitment from each country.

7. Sustainability

15. Key factors influencing the sustainability of project activities and project design responses have been examined from various viewpoints as outlined below:

- Technical Sustainability of the ENPM will depend on the appropriateness of the knowledge base and modeling tools developed. This has been supported so far by an international ENPM preparation Consultant, an international workshop to learn from other similar international experiences, interactions with regional and national groups, and technical leadership at ENTRO supported by close interaction with Bank staff. During implementation, an international consultant with extensive relevant experience is to be recruited to support the development of the tools. An international panel of experts will be recruited to provide regular independent advice to ENTRO on the ENPM. ENTRO and the EN countries are being strengthened technically under this and other projects.

- Economic and Financial Sustainability of proposed ENPM investments would require consideration of sustainability of the ENPM activities beyond the project period. The quality of the work, frequent stakeholder interaction, housing this activity in existing government institutions at national-level and existing regional institution at the regional-level, partnerships with Universities, and the importance the countries attach to this activity are expected to ensure economic and financial sustainability of the

project activities. In the longer-term, ENPM is also expected to improve the economic sustainability of investments on the Eastern Nile through improved economic analysis in a regional context.

- Institutional Sustainability of the ENPM would require careful consideration of institutional arrangements in design and implementation. This has been ensured through housing this activity at an NBI institution at regional level and logical government institutions at a national level. Structured stakeholder consultation will help a broader-based input into the design and use of the ENPM. Partnerships with universities and strategic use of internships are proposed to improve sustainability of project activities and build future human capital. Letters of commitment from the countries will help to ensure continuing cooperation in sharing of information and supporting national institutions in the development and use of the ENPM. Consideration of these activities is part of institutional strengthening of ENTRO, strong training/capacity-building activities, and synergy with the Flood Protection and Early Warning Project, the longer-term Nile Basin DSS, and the proposed EN Joint Multipurpose Program are also expected to ensure institutional sustainability of ENPM activities.

- Social and Environmental Sustainability would require adequate attention to social and environmental issues during project implementation. Although the project itself is not expected to have adverse environmental and social impacts, the projects that it will be analyzing will provide opportunities and risks in an social and environmental context that have to be considered in a sustainable development perspective. The project proposes serious integration of all the key dimensions of sustainability – environmental, social, and economic – in the design of the ENPM. This will include adequate knowledge base collation on these issues, development of appropriate indicators, as well as analysis and comparison of the impacts of various alternative investments. Structured stakeholder consultation, information dissemination, inclusion of specialists and interns on environmental and social aspects would help the systematic consideration of these issues in development. The ENPM should also greatly assist the conduct of future strategic and project-level social and environmental assessments in a regional context.

16. Adequate consultant input and a strong monitoring system should also help ensure the sustainability of the ENPM project activities and indicate areas for additional focus in terms of improved targeting and sustainability of subsequent project activities. The EN governments and ENTRO have demonstrated strong commitment to the project concepts (e.g. by indicating that this be a fast-track project) and this should further improve sustainability of the investments.

8. Lessons Learned from Past Operations in the Country/Sector

17. Some of the lessons learned from past and ongoing activities on the Nile and activities in other major international river basins that have been mainstreamed into the design of this project include:

- *Good information and analysis is essential for good investment planning.* The knowledge base and analytical capacity is often a critical impediment to identification and holistic planning of major water investments. There is often a need to better examine investment impacts in the rest of the basin, consider alternatives and evaluate them from various perspectives (including economic, environmental, and social) and support better-informed decision-making processes. This is why the ENPM begins with a data-centered approach, collating the available knowledge base, and developing tools to examine investments in a holistic systems context to the extent that the available data support. Awareness raising mechanisms, including improvement in the information available in the public domain, will also be supported by the ENPM.

- *There is a need to demonstrate country commitment to sharing information.* Often, excellent modeling tools are wasted due to poor information sharing. The ENPM has been initiated with a One-System Inventory that has demonstrated that EN countries can collaborate to share information on water, environment and socio-economic aspects and their masterplans that would have once been difficult to envision.
- *Analytical tools need to be usable and developed collaboratively.* The ENPM is designed to have simple, interactive interfaces to modern, state-of-the-art tools to ensure that it is used widely and does not require the constant presence of its development team for its effective use. Past experience on software development on the Nile indicates that it is critical that all riparians have full confidence in the analytical tools being developed by being part of its development. The ENPM has built-in an elaborate participation framework (e.g. with regional and national working groups and university partnerships) for the countries during the preparation, development, and use of the ENPM.
- *Effective project management is key to ensuring a useful product is developed.* The ENPM project, suitably housed in ENTRO, has recruited an experienced project coordinator, and has strengthened financial management and procurement capacity to be able to effectively implement this project. Key procurement documents have been prepared and key activities are underway. An international panel of experts is proposed for quality management during implementation.

9. Safeguard Policies (including public consultation)

18. This recipient-executed trust fund technical assistance project is not expected to have any adverse environmental or social impacts; in fact, the aim of the project is to build local and regional knowledge, stakeholder processes, and institutional capacity to better handle environmental and social issues in water resources planning. The project has thus been categorized as Category C.

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP 4.01)	[X]	[ ]
Natural Habitats (OP/BP 4.04)	[ ]	[X]
Pest Management (OP 4.09)	[ ]	[X]
Physical Cultural Resources (OP/BP 4.11)	[ ]	[X]
Involuntary Resettlement (OP/BP 4.12)	[ ]	[X]
Indigenous Peoples (OP/BP 4.10)	[ ]	[X]
Forests (OP/BP 4.36)	[ ]	[X]
Safety of Dams (OP/BP 4.37)	[ ]	[X]
Projects in Disputed Areas (OP/BP 7.60)*	[ ]	[X]
Projects on International Waterways (OP/BP 7.50)	[ ]	[X]

10. List of Factual Technical Documents

The Key Documents in the Project File include:

- NBI Overview
- ENSAPT Project Documents

* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

- ENPM International Workshop Presentations
- ENPM Project Concept Note
- ENPM Project Information Document
- ENPM Project Integrated Safeguards Data sheet
- ENPM Project Preparation Consultant Report
- ENPM Project Implementation Plan

11. Contact point

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