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PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED NILE BASIN TRUST FUND GRANT

IN THE AMOUNT OF US$ 6.50 MILLION
TO THE

EASTERN NILE TECHNICAL REGIONAL OFFICE (ENTRO)

FOR A

EASTERN NILE PLANNING MODEL PROJECT

July 31, 2009

CURRENCY EQUIVALENTS

(Exchange Rate Effective {Date})

Currency Unit	=	
	=	US$1
US$	=	1

FISCAL YEAR

July 1 – June 30

ABBREVIATIONS AND ACRONYMS

CAS	Country Assistance Strategy
EN	Eastern Nile
ENPM	Eastern Nile Planning Model
ENSAP	Eastern Nile Subsidiary Action Program
ENTRO	Eastern Nile Technical Regional Office
ENSAPT	Eastern Nile Subsidiary Action Program Team
ENCOM	Eastern Nile Council of Ministers
FPEW	Flood Preparedness and Early Warning
JMP	Joint Multi-purpose Program
MOIWR	Ministry of Irrigation and Water Resources (Sudan)
MOWR	Ministry of Water Resources (Ethiopia)
MWRI	Ministry of Water Resources and Irrigation (Egypt)
NBI	Nile Basin Initiative
NBTF	Nile Basin Trust Fund
NFPIs	National Focal Point Institutions
NIs	National Institutions
RWG	Regional Working Group

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EASTERN AFRICA
Eastern Nile Planning Model

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I. STRATEGIC CONTEXT AND RATIONALE

A. Country and sector issues

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 as indicated in the Map. 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 no strong stakeholder forums to use this information and analysis to systematically inform investment decisions 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 oversee the preparation of the EN investment program. Considerable progress is now being made in the preparation of a series of 'fast track' projects – largely sectorally-focused, nationally implemented projects agreed in a regional context – to demonstrate the tangible 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 this 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 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.

B. Rationale for Bank involvement

7. 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 to one that is a catalyst for regional growth, cooperation, integration and poverty alleviation.

8. 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 a Joint Multipurpose Program (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.

C. Higher level objectives to which the project contributes

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

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

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 will also feed into the larger Nile context, in terms of synergizing with 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.

II. PROJECT DESCRIPTION

A. Lending instrument

10. The project is financed through a grant of US$6.50 million from the multi-donor Nile Basin Trust Fund (NBTF) administered by the World Bank.

B. Project development objective and key indicators

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

12. 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

C. Project components

13. The ENPM Project contains three components:

(i) **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.

(ii) **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.

(iii) **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.

14. 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.

15. The work will build upon the Eastern Nile One System Inventory and collaboration with other NBI activities, including the Eastern Nile Joint Multipurpose Project (Preparation Phase), Shared Vision Planning activities, and Nile Institutional Strengthening Project. In particular, the project will work closely with the Nile Basin Decision Support System being developed under the NBI's Water Resources Management and Planning Shared Vision Program for the ten Nile riparians. The data sharing protocols and data architecture, GIS/Remote Sensing data, and basic "water spine" modeling developed under the Nile DSS will be used for the ENPM, which will focus on application of the models developed for Eastern Nile investment and resource planning. In addition, offices will be co-located in the overlapping countries to promote synergy.

D. Lessons learned and reflected in the project design

16. 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. International experience has also shown that it is important to consider upfront key environmental, social, and economic considerations in water resources investment decision making.
- *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 an Eastern Nile 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. This is in line with lessons from other international basins such as the Mekong, where data sharing was the first step to analytical work and riparian cooperation.

- *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. Given experiences of cases like the Mekong where actual decisions based on the modeling lag far behind model development, it is important that stakeholder frameworks involve all critical decision makers and that the use of the ENPM is demonstrated early to build credibility and a culture of using such tools in decision making.
- *Effective project management is key to ensuring that 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.

E. Alternatives considered and reasons for rejection

17. The key alternatives considered for developing such a system for the Eastern Nile include:

No-Project Option: Given the current lack of an adequate shared knowledge base, analytical tools, and stakeholder processes to help examine the regional environmental, social, and economic implications of water investments on the Eastern Nile, there is considerable risk of unilateral actions and discord among the riparians. However, the ENCOM has realized the need to move beyond the *status quo* to develop and use the ENPM as an instrument of cooperation and as a key approach to strengthen the capacity of ENTRO, and hence this option has been rejected. An associated alternative was to not have this as a separate project, but merge it with the Eastern Nile JMP1 Identification Project also being concurrently prepared. However, this option was discarded as the JMP1 Identification Project is a two-year project that is part of a journey primarily to identify, and subsequently prepare, a first regional anchor project in the Blue Nile basin and associated ancillary investments. In contrast, the ENPM was focused on developing a shared knowledge base and analytical tools that could be used more generally for water-related investment planning and resource planning at regional and national levels in the entire Eastern Nile region. However, it is expected that both these projects would help build ENTRO's analytical capacity in the water sector and work synergistically.

Development of Complex Tools: Any one part of the Eastern Nile System could involve modeling over several years in a continuing quest to "get it just right". However, there is a sense of urgency to at least initiate the process of systematic shared information collation and analysis to support decisions that are being made on a continual basis. The tools should also reflect the reality of the existing knowledge base and institutional capacity. Hence, there is a need to balance simplicity and comprehensiveness. To effectively support investment decision-making, it is crucial that the ENPM design is simple enough to be implementable in the proposed timeframe and institutional capacity, as well as comprehensive enough to reflect the basic economic, environmental and social considerations around a good water systems "spine". This balance required is expected to evolve during development, based on the information that starts becoming available, the structured stakeholder group discussions, the tools developed, and with the growing capacity of ENTRO, the EN Countries and Consultant input. The time and financial resources reflect the urgency of the riparian needs for such a system to support investment decisions and further consolidate

cooperation, as well as the financing needs for developing an adequate system in this timeframe. The ENPM has taken a conscious decision to build on ongoing efforts such as the Nile Basin Decision Support System that is expected to provide the basic modeling tools for applications and extensions envisaged in the ENPM.

Focus on Regional or National perspectives: An issue that was discussed in detail during preparation meetings was whether such a system would help support regional or national investment decision-making. The emerging consensus is to have the ENPM initially support cooperative regional projects as well as national projects considered in a regional systems context. The primary versioning of the tools is to be maintained by ENTRO, but the countries would be free to use the information base, tools, and stakeholder frameworks to help further explore their national investments.

III. IMPLEMENTATION

A. Partnership arrangements (if applicable)

18. 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.

B. Institutional and implementation arrangements

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. The Eastern Nile Council of Ministers (ENCOM) and the Eastern Nile Subsidiary Action Program Team (ENSAPT) will provide overall guidance for the ENPM Project. The governance of the project would also include ENTRO management oversight, an ENPM Synergy group (to improve coordination with the Nile DSS and other NBI and ENTRO activities), an ENPM Regional Working Group (to provide regional oversight and inputs), and a technical Panel of Experts (to provide international technical advice to improve the quality of ENPM activities). The World Bank ENPM project team will also undertake regular supervision of the project activities and facilitate synergy with other activities.

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 (also see Annex 6).

C. Monitoring and evaluation of outcomes/results

22. Overall monitoring and coordination of project activities will be undertaken by ENTRO. Following the NBI-Secretariat's introduction of result based planning for the NBI, ENTRO has initiated the introduction of this system in the preparation of its work plans and reports. In order to spearhead M&E activities, ENTRO has engaged an M&E Officer to support M&E activities for all ENSAP/ENTRO projects including the ENPM. ENTRO will consider further strengthening its monitoring and evaluation operations depending on how future projects unfold. The monitoring and evaluation framework for the ENPM project as included in Annex 3 will be the basis on which the M&E framework will be developed by this M&E officer. In addition, the Bank will carry out the normal review procedures for procurement and conduct regular supervision missions. Supervision will also include the review of the quarterly Interim Un-audited Financial Reports quarterly reports provided by ENTRO, independent annual financial audits of the project and financial statements of ENTRO. The Bank will also carry out a mid-term review and ICR mission.

D. Sustainability

23. 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 (e.g. University Outreach Centers) and strategic use of internships are proposed to improve sustainability of project activities and build future human capital. Letters of commitment received 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.

24. 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 and this should further improve sustainability of the investments.

E. Critical risks and possible controversial aspects

25. Key risks/controversial aspects, their significance, and mitigation measures put in place in the project are summarized in the table below:

Key Risks	Description & Mitigation Measures	Significance after Mitigation
Breakdown of Nile Basin Cooperation	Although there has been steadily increasing commitment to the cooperation process on the Nile, there still remains a risk of periodic tensions surfacing with the sensitive ongoing Nile Basin process. This project should help further cement EN cooperation and help the countries in their efforts to move the focus of the dialogue from perceptions to facts, and explore cooperative water investments.	S
Information required for	ENTRO, with Bank facilitation, has initiated a shared "one-system inventory", breaking from a history of not sharing even basic information, to compile and	M

ENPM not adequately shared	successfully share detailed information on water, environment and socio-economic aspects of the Eastern Nile. In addition, Letters of Commitment have been obtained expressing country commitment to the ENPM and sharing of relevant information.	
Tools developed do not support investment decisions	During preparation, ENTRO, assisted by the Bank, has organized a conference to learn from modern international modeling experience, recruited an international consulting firm to prepare the ENPM framework, appointed a qualified coordinator at ENTRO to lead preparation and oversee implementation, and has facilitated meetings of a regional working group (from EN riparian representatives) to help ensure that the ENPM is designed to support investment decision-making. Environmental, social and economic issues have been integrated right from the concept of these tools. During implementation, an international consulting firm (competitively recruited with appropriate experience) will support the ENPM development, the structured stakeholder participation will help guide and use the analytical developments, and an international Panel of Experts will provide ENTRO support to continually draw upon international experiences. Effective use of the Internet, workshops, and partnerships with academia and potential data sources (including relevant global dataset providers) and users will also be made to improve effective ENPM use and sustainability. In addition, synergy is being built with other programs (such as the Flood Preparedness and Early Warning Project, the Joint Multipurpose Program, and the longer-term Shared Vision Programs, especially on Nile Basin DSS, Environment, and Socio-Economic Development and Benefit Sharing) to improve effective use of the ENPM.	M
ENTRO's fluctuating procurement capacity	The risk with fluctuating procurement performance at ENTRO may be partly mitigated through (i) additional procurement staff; (ii) training, and (iii) the use of consultants, where capacity gaps exist. The roles and responsibilities of the existing procurement staff need to be more clearly defined and their work carefully monitored and facilitated by ENTRO management.	**M**
Overall	The team feels that the risks outlined above can be effectively managed and steps have already been initiated to facilitate this process and ensure the timely development of a useful ENPM that the three EN riparians have indicated strong commitment to develop.	**M**

H-High, S-Substantial, M-Moderate, N-Negligible

F. Grant conditions and covenants

26. The following are conditions for Approval of Grant Signing to ensure smooth implementation:

- ENPM staff will be in place, including a transitional staffing arrangement, in line with the detailed staffing plan agreed upon at Appraisal with the World Bank.
- ENTRO will advertise the General Procurement Notice (GPN) for the project.
- ENTRO will submit to the Bank draft request for expression of interest for the primary ENPM Consultancy.

IV. APPRAISAL SUMMARY

A. Economic and financial analyses

27. The Project will contribute to the overall success of the ENSAP by generating the necessary shared knowledge base and modeling tools and frameworks. While the Project will generate benefits (e.g. information base, capacity building and training of ENTRO, EN Countries and associated staff, analytical tools, stakeholder involvement), the economic valuation of these are difficult to quantify. However, the true benefits of the Project will result from the actual use of the knowledge base and analytical tools, as well as the associated process of building these frameworks (e.g. stakeholder

involvement), and most importantly, the identification, evaluation (including cost-benefit analysis, sensitivity analysis, investment scenario comparison), and prioritization of water-related investments within the regional context. The ENPM costs compare favorably to the initial phases of similar decision support systems in other parts of the world and are expected to be well worth the investment given its impact on designing and selecting investment scenarios that are expected to cost billions of USD. It is expected that the benefits arising from the early identification of "win-win" investment strategies (analyzed at regional level through the ENPM) and strengthening regional interaction would far outweigh the cost of the ENPM project.

B. Technical

28. To facilitate cooperation on the Eastern Nile, there is a need for a systematic information base, tools that can consider water investments in a systems context, and involvement and capacity-building of stakeholders. The ENPM will consist of a state-of-the-art knowledge base, which would include a GIS system to collate spatial information and tools such as a modern website to organize other material. Given that one model will be inadequate to examine the breadth of relationships to be analyzed for investment planning, a suite a tools will be developed (common in many similar basin decision support systems) to help simulate and optimize various aspects of EN basin investments and a multicriteria analytical tool to visualize scenario comparisons.

29. Given that effective decision making on selecting investments is seldom made on hydrology alone, a concerted effort is being made to use the available information to its best extent in providing economic, environmental and social perspectives on investment scenarios. Building on modern decision theory approaches, structured stakeholder participation is proposed for a variety of stakeholders to effectively input into the design, development and use of the ENPM. There is a need for close coordination and synergy between the development of the knowledge base, building demo and full versions of the models, institutional development and stakeholder consultation. This includes close coordination between the Nile Basin DSS work and the ENPM to ensure synergy and effective use of resources. The coordination at preparation is expected to continue effectively into implementation.

C. Fiduciary

30. ***Financial Management:*** The overall responsibility for the financial management aspects of the Project rests with ENTRO. ENTRO is now managed by strong management team and has good experience in implementation of Bank financed projects. Some of the projects that are implemented or being implemented by ENTRO includes Policy and Human resource Development (PHRD), Watershed Management, Joint Multipurpose Project (JMP), Institutional Strengthening support, Africa Land and Water Initiative, and Eastern Nile Flood Prevention and Early Warning. The Finance and Administration Department (FAD) has experienced and qualified staff to handle the financial management of the Grant. ENTRO uses Microsoft Dynamic Solomon accounting software which has adequate capacity to produce financial statement of the project. The project activities are recorded according to its computerized accounting systems by setting separate ledger books so as to report the project activities. The annual audited financial statements, along with the management letter, will be submitted to IDA not later than six months after the end of the ENTRO fiscal year. The external auditors are expected to issue a single audit opinion on the consolidated financial statements of ENTRO, including financial transactions of this Project. ENTRO will submit IFRs 45 days after the end of each calendar Quarter. ENTRO will open a Designated Account (DA) in US dollars in a

commercial Bank on terms and conditions that are satisfactory to the Bank. The DA will be managed by ENTRO.

31. ***Procurement:*** Procurement for the Project would be managed by the ENTRO Procurement Unit. The Unit has a detailed procurement manual produced in March 2007 containing details on procurement objectives, policy, organization, and procedures. A draft harmonized procurement manual is being prepared which when finalized will replace the ENTRO procurement manual and will be used by all NBI projects. Two procurement professionals in ENTRO are currently in place: a Senior Procurement Specialist and a Junior Procurement Specialist. The procurement staff has demonstrated reasonable capacity to manage procurement activities under the project, based on their past performance and participation in project preparation. The ENPM project has one main consultancy contract of US$2.5 million to be procured using the Quality Based Selection (QBS) method and a number of smaller consultancy contracts and goods contracts. Other financing will be for training and workshops and operating expenses. All the procurements are to be carried out by ENTRO following the Bank procurement and consultants' guidelines as per the detailed project procurement arrangements in Annex 8.

D. Social

32. The project is not expected to have any significant adverse social impacts. The social knowledge base on the Eastern Nile is not well established or organized. The ENPM would seek to collate available social information, including what is known about the social impacts of proposed projects. Water resources modeling tools often neglect social issues. At a request of the ENPM regional working group, the ENPM knowledge base and tools will be designed to try to best capture social issues in evaluating and comparing scenarios. This is difficult and much of the initial effort in the ENPM will be in examining the depth of the available knowledge base (e.g. people that need to be resettled for particular projects depends on whether pre/feasibility studies or other relevant surveys have been conducted) and outlining social impact indicators and relationships that can be modeled effectively (e.g. jobs per ha of irrigated area developed in different locations) with the available information. Broad stakeholder awareness and participation is limited in many such modeling efforts. The ENPM has already initiated stakeholder participation through a multi-sectoral regional working group that has guided the ENPM preparation. It is expected that a major role of the ENPM is to improve stakeholder awareness and interaction in order to develop a shared understanding of potential water investments in a regional context and guide the development of the knowledge base and analytical tools. Social capital is being built through project staffing (social development experts and interns), training, information dissemination, meetings, university partnerships and just working together across sectors and countries to better understand how the significant potential of the Eastern Nile can be harnessed to improve livelihoods and reduce vulnerability, especially of the poor.

E. Environment

33. There are expected to be no significant adverse environmental impacts of the ENPM project. The project seeks to improve the systematic management of the growing environmental knowledge base of the region, collating information on the climate, water resources, land, and known environmental impacts of investments. The modeling to be supported intends to try and capture the often neglected but critical environmental impacts of proposed investments. As in the social case, the comprehensiveness of this difficult task will depend on the state of the knowledge base and relationships to be modeled with the available information. The institutional capacity to better

manage environmental issues will be strengthened through staffing (environmental experts and interns), training, university partnerships, and awareness-building efforts.

F. Safeguard policies

34. 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]

35. A 'Strategy for Addressing Environmental and Social Safeguards' was developed under the NBI Institutional Strengthening Project in 2008. This document is applicable to all technical assistance projects that fall under NBI, including this ENPM project. The ongoing NBI Institutional Strengthening Project will also support the development of a Nile safeguards framework that will set the ground rules for investment operations in the Nile Basin.

G. Policy Exceptions and Readiness

36. No Bank policy exceptions requested.

37. The implementation readiness of the project has been assessed and determined to be appropriate. A pre-appraisal carried out in February, 2007, and subsequent missions/discussions have assisted with evaluating and facilitating readiness for appraisal. ENTRO and the EN countries have already initiated collation of a shared knowledge base through a One-System Inventory. Regional Working Groups for the ENPM Project have input into the work of the Preparation Consultant to improve design of the project. NBTF financing has been designated for this project. The initial technical capacity of ENTRO and EN countries is appropriate for being supported by the ENPM consultant during implementation. Procurement and financial management arrangements are appropriate to initiate implementation.

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

Annex 1: Country and Sector or Program Background

EASTERN AFRICA: Eastern Nile Planning Model

Eastern Nile Water Resources Overview

1. The Eastern Nile basin (1.8m Km^2) accounts for much of the Nile basin area (3.1m Km^2) and covers substantial portions of Ethiopia, Sudan, Egypt and a minor part of Eritrea. It accounts for the Baro-Akobo-Sobat that joins the southern Nile to form the White Nile which is then joined by the Blue Nile at Khartoum to form the Main Nile that is joined by the Tekeze-Setit-Atbara further downstream. The rainfall in the EN is concentrated in the highlands of Ethiopia (as high as annual 2270 mm in parts of the Blue Nile and Baro-Akobo basins). Rainfall in the lower parts of the basin can be less than 100 mm a year. In the upper course of the EN where the altitude is predominantly above 1000 masl, mean annual daily temperature is observed to be in the range of 17^{o}C to 24^{o}C. However, mean temperatures are highest in Sudan (in between Khartoum and the Aswan reservoir) at around 30-32^{o}C, leading to almost a factor of ten variation in evaporation rates between Masha in Ethiopia (785mm/yr) and Dongla in Sudan (7530 mm/yr).

2. The Baro-Akobo-Sobat sub-basin (covering about 180,000 km^2) consists of the Baro river (and its tributaries such as the Birbir) and the Akobo river (with its main tributary, the Pibor). After the confluence of the Baro and Akobo, the river is called Sobat in Sudan. The river makes its way from an altitude of over 3000 masl in the Ethiopian hills to about 400 masl when the Sobat crosses into Sudan, while interacting with the Machar/Sobat marshes, on the way to its junction with the outflow from the Sudd wetlands that buffer the outflows from the Nile Equatorial Region. The resulting White Nile (with its basin covering about 280,000 km^2) flows north to Khartoum where it joins the Blue Nile. About 13 million people live in the sub-basin (80% in Sudan and 65% rural), with densities ranging from a sparse 5 people/km2 in upstream Jongli to almost 1000 people/km2 near Khartoum. The Jebel-al Aulia dam regulates the White Nile at its confluence with the Blue Nile and has a reservoir that is over 600 km long.

3. The Blue Nile (or Abbay as it is known in Ethiopia) has a basin of over 310,000 km^2 and has its origins in the Ethiopian highlands. It begins its long journey from Laka Tana (area 3,000 km2) that is fed by the Gilgil Abbay (the little Abbay, believed to be the start of the Blue Nile system), Megech, Ribb and Gumera rivers. The river flows through a deep gorge dropping from 4000 masl to 400 masl on its journey to Khartoum.

4. The Tekeze-Setit-Atbara sub-basin (covering about 230,000 km^2) consists of the Tekeze river (known as the Setit in Sudan), and its tributaries, the Goang (Atbara in Sudan) and Angereb, all of which originate in the north central highland plateau of Ethiopia. As the river makes its 1325 km journey, it falls from a height of about 3000 masl near its origin to about 500 masl when it joins the main Nile in Sudan, about 285 km downstream of Khartoum. It is home to about 6 million people in Ethiopia and about 2 million in Sudan, all primarily rural. About 75% of the basin area is grassland, shrub land or bare land and 15% of the basin area is covered by rainfed crops.

5. Under the NBI, the countries of the Nile are working together to improve cooperation for resource management and investments with international donor support under World Bank facilitation. Under this broad framework, the EN countries have been working together to explore opportunities for cooperation in the Eastern Nile. ENTRO has helped coordinate a number of cooperative activities, including Cooperative Regional Assessments (e.g. on watershed management, power trade, irrigation), knowledge base development (e.g. the EN One System Inventory), and other analysis. There is general agreement that it is essential for the countries to

improve the shared knowledge base and analytical capacity to analyze investment and resource management options to better realize opportunities (e.g. hydropower, agriculture) and manage risks (e.g. climate change, losses, salinity, etc.) in the Eastern Nile.

6. There is a critical need to consider investments in a regional context to understand inter-relationships and maximize the benefits for the basin. A basin-wide consideration of evolving risks is also essential. Losses dominate the Eastern Nile system and it is critical to better understand the water accounting in the basin and analyze measures to improve efficient use of water. Climate change has many implications on the Eastern Nile system in terms of changes in rainfall, temperature, and runoff; increased reservoir evaporation, evapo-transpiraton and crop water requirements; carbon fertilization; and sea-level rise. Future planning should be robust to a number of climate change scenarios.

7. The sections below describe the country backgrounds for the main riparian countries of the Eastern Nile.

Ethiopia

8. **Macro-economic context:** Ethiopia, with a population of 78,254,090 as of July 2008, is the second most populous country in Sub-Saharan Africa. With a GNI per capita of USD 110 in 2004 Ethiopia is also one of the world's poorest countries. In 2000, a national household survey found that 44 percent of people fall below the basic needs poverty line. Recovering from the 2002-03 droughts, economic growth in Ethiopia has rebounded strongly with 11.5 percent growth in 2003/04 and 9 percent growth (est.) in 2004/05. On the strength of agriculture, exports of goods and services grew 24.5 percent in 2004/05.

9. **Sovereign debt:** On April 2, 2004, Ethiopia reached its Completion Point under the Enhanced HIPC initiative. In addition to the net present value (NPV) of US$1,275 million in HIPC debt relief announced at Decision Point, the Executive Boards also approved a topping-up of debt relief by an additional US$707 million in NPV terms. To ensure prudent borrowing in the future, the government has developed a debt management strategy with a forward looking set of aid and debt management policies. Ethiopia is one of 18 countries immediately eligible to benefit from the G-8 proposal to cancel 100 percent of debt owed to IDA, the IMF, and the AfDB.

10. **CAS:** The 2008-2011 CAS is providing support to Ethiopia's Plan for Accelerated and Sustained Development to End Poverty (PASDEP), and thereby assisting the country's program to reduce poverty and achieve the MDGs. Firstly the Bank seeks to foster continued economic growth by sustaining high levels of investment in key areas, both in terms of physical and human capital, and in terms of institutional capacity building, which will be critical underpinnings of the Bank's Assistance Strategy. Secondly the Bank's strategy will support improvements in the access to, and quality of, basic service delivery, to encourage an emerging 'take-off' in service delivery. Reducing Ethiopia's vulnerability is the third main element for achieving CAS objectives to improve the prospects for sustainability. Last but not least, the Bank's Strategy will foster improved governance to empower citizens and support progress made to date under the 2006 Interim Country Assistance Strategy. The performance based allocation under IDA-15 arrangements still needs to be finalized. Under the previous IDA-13 arrangements there was USD 1.5 billion, with 50% grants and 50% credit[2]. The 2008-2011 Country Assistance Strategy seeks to build upon possible opportunities for change embedded in the PASDEP's strategic direction.

[2] Under IDA 14 (2005-2008) an indicative amount of USD 1,722 million has been allocated. This allocation is only indicative and may change, e.g. due to G8 debt relief. Currently the allocation is mixed credit and grant terms, but this is subject to review after completion of G8 debt relief and may result in 100% credit terms.

11. **Private sector:** Growth is being increasingly driven by private consumption contrary to the pattern of the 1990s, where growth in public consumption tended to play the leading role. Other indicators of private sector activity, such as the ratio of private investment to GDP, and the volume of credit extended to the private sector, have also shown strong gains. Despite these positive developments, the emerging private sector in Ethiopia still faces a lack of skills, lack of capital, a weak (though improving) investment climate, and structural constraints such as market size and geography.

12. **Partnerships:** The Bank, government, and donor partners have made significant progress in the harmonization process. The World Bank has taken a lead role in developing a diversified but focused set of instruments to reduce transactions costs, align support with the country's decentralized model, and enhance the predictability of aid. Eight donors—including the World Bank, African Development Bank, Canada, the United Kingdom, the European Union, Germany, Ireland, and Sweden—are providing budget support to Ethiopia. These partners have agreed on a common policy matrix as the basis for approving budget support.

13. **Water Sector:** The Ethiopian highlands are the source of most of the flow of the Eastern Nile basin and is the upstream contributor to the Blue Nile, Baro-Akobo-Sobat, and the Tekeze-Setit-Atbara. A large number of the rural poor live in the Ethiopian Highlands and are dependent largely on rainfed agriculture. Watershed degradation and high erosion threaten their livelihoods. There is poor access to water-related services including reliable water supply, sanitation, power, and health.

Sudan

14. **Macro-economic context:** Sudan is rich in resource potential, but has been severely impacted by the effects of a civil war, and it remains one of the poorest countries in the world, with widespread poverty and a weak and uneven economic and infrastructure base. Recent performance of Sudan's economy at a macro level has been impressive. GDP growth since 1995 has averaged above 5 percent, reaching GNI per capita in 2007 of USD 960[3]. This is largely due to the Government's strong economic reform package; the commencement of oil production; as well as high agricultural output. However, while high growth rates have increased Government revenues, inequality appears to have risen in terms of widespread poverty, highly skewed income distribution, and inadequate delivery of social services. Unrealized oil revenue projections and continued fiscal expansion have also resulted in high fiscal deficits, reaching an estimated 3.5 percent of GDP in 2007.

15. **Sovereign Debt:** Sudan is a heavily indebted poor country (HIPC) that has struggled with a high and rising external debt burden since the late 1970s. By the end of 2006 the stock of debt was ca. USD 25.7[4] billion, most of it in arrears (including the World Bank). Subsequently access to external financing for capital intensive projects is limited (IDA financial support is not possible because of these arrears). Given the size of the debt, a comprehensive and phased approach, including multi-donor support, is essential. Even after debt rescheduling, Sudan will still have difficulties financing all its development and reconstruction needs. Sudan will be expected to put measures in place to improve public resource management.

16. **JAM:** The Joint Assessment Mission (JAM) has led to a Framework for Sustained Peace, Development and Poverty Eradication, which will be supported by domestic efforts and

[3] According to World Bank country data: Sudan – Atlas method in current USD.
[4] According to World Bank country data: Sudan – Total external debt + Short term debt outstanding

resources, as well as development partners. The JAM provides Sudan an assessment of rehabilitation and transitional recovery needs focused on the next two years, and outlines a framework for reconstruction and recovery through 2010, including consolidating peace, improving governance, expanding access to basic services, establishing institutions, developing physical infrastructure, strengthening agriculture and promoting private sector participation. The Government of Sudan has begun the process of preparing an Interim Poverty Reduction Strategy Paper, with technical assistance from the World Bank and the United Nations Development Program (UNDP). [5] Since 2005 the Bank has administered two large Multi-Donor Trust Funds (MDTFs), and provided support through a variety of other facilities, in order to try to build Sudan's capacity to sustain peace and reduce conflict.

17. **Private sector:** One of the Government's four cornerstones in promoting growth is limiting the role of the state in business, e.g. by privatizing state owned enterprises (SOEs) and opening up all sectors of the economy to private sector participation. The development of the oil industry has attracted foreign investment and supported growth, but while much of Sudan's recent economic growth has been due to increasing oil production, sustained growth over the longer term requires that other sources of growth can take the lead – particularly the private sector. Telecom and food processing have gained from foreign direct investment through the privatization process. Investment in the power sector is also badly needed, but until recently investors have been hesitant because of the large risks. Although progress is slow, the reforms have reduced the budget deficit and the risks of contingent liabilities. Subsidy claims and loan guarantees to the state-owned enterprises have declined, and receipts from the sale of SOEs have raised government revenues. The Bank is also finalizing an Investment Climate Assessment (ICA) which focuses on private sector development (PSD) and the constraints faced by micro and small businesses.

18. **Partnerships:** The Bank is the administrator of the two Multi-Donor Trust Funds (established respectively for North and South). The estimated financing needed to implement the primarily humanitarian aid focused Phase I (2005-2007) of the JAM program was USD 7.9 billion. Preliminary estimates for the more development oriented Phase II (2008-2011) suggest a cost of ca. USD 1.5 billion a year. Donors committed a total of USD 4.5 billion to Phase I. The biggest donors are the Netherlands, Norway, the UK and the EU. The gap will be funded by the NG and GOSS. A Sudan Consortium brings the international donor community together on a regular basis.

19. **Water Sector:** Sudan is in between Ethiopia and Egypt as the Eastern Nile rivers join the Nile mainstem. Sediment management from upstream erosion is a major problem in its reservoirs and large irrigation systems such as the Gezira. It has substantial lands available for irrigation, but irrigation requirements are high in the North due to high temperatures. The southern region is also home to large wetland areas and many ethnic groups that depend on the wetland areas for their livelihood. Access to reliable water, sanitation, and power is poor, especially in the rural areas. The Merowe Dam has just been completed on the Nile mainstem upstream of the Aswan Dam in Egypt.

Egypt

20. **Macro-economic context:** Egypt has made considerably progress in economic development during the last two decades. After rapid growth during 1976 to 1986 plummeting oil prices led to lower growth rates, but reform polices and heavy borrowing, as well as prudent stabilization

[5] The Bank prepared a Country Economic Memorandum for Sudan in 2003.

efforts and structural reforms, have reversed the trend and the fiscal balance, foreign reserves, and external debt have improved. The first half of 2005 registered GDP growth rates above 5 percent. In 2007 GNI per capita was USD 1,580[6], placing Egypt as a middle-income country. The recovery has mainly been fuelled by the tourism industry, significant natural gas findings and exports, and an increase in exports. As a result of economic growth some rating agencies have upgraded Egypt's credit rating to BB+ (Standard & Poor's), which is still, however, below investment grade. The effects of the ongoing global financial crisis on Egypt are still not fully known.

21. **Sovereign debt:** Fiscal deficit and public debt remain an area of concern. The consolidated fiscal deficit is projected at 3.1 percent of GDP which is higher than the FY04 level of 2.7 percent. Net consolidated public debt, largely domestic, reached 88 percent of GDP which would be a source of concern if annual deficits are not contained. Foreign debt is actively contained at around 40 percent of GDP. Reduction of the fiscal deficit to more sustainable levels will require new measures related to better targeting of implicit and explicit subsidies, strengthened tax administration and tighter expenditure controls.

22. **CAS:** The Government of Egypt spelled out a long term vision of development which includes the twin goals of achieving high and sustainable growth and the alleviation of poverty and income disparity. In response to these national goals, the current CAS (FY06-FY09) is aimed at supporting three key development objectives — facilitating private sector development, enhancing the provision of public services, and promoting equity. To achieve these objectives, the strategy proposes a results-based financial assistance program in the range of about $2-2.8 billion dollars in support of enhancements in infrastructure, education, poverty alleviation, financial sector reforms, combined with the Bank's non-lending technical assistance, analytical and advisory services underpinning the reform program.

23. **Private sector:** The strategic challenge for the Government of Egypt is to facilitate an increase in private investment and attract foreign investment through improving the business climate and undertaking complementary public investments. It has begun to consider ways to increase and improve public infrastructure through new public investments and through facilitating private investment in relevant areas. There are five inter-linked themes in Egypt's vision for the private sector: (i) Improving the business environment; (ii) Integration in the global and regional economies; (iii) Privatization; (iv) Strengthening partnership between private and public sectors; and(v) Supporting development of Small and Medium Enterprises. Overlaying these themes is the need to reform the financial sector and improve infrastructure services.

24. **Partnerships:** Frequent consultations by the Bank with donor representatives have been critical to ensure effective collaboration and mobilizing financial support to Bank projects. USAID and the EC are the main donors. USAID is increasingly supporting efforts in the education, governance, and financial sector domains as compared to ongoing programs in the water, environment and infrastructure. EC assistance for Egypt is expected to support efforts in the water, governance, and innovation and R&D domains. Additional EC resources, possibly twice as large as those currently available, are expected to be negotiated under the aegis of the new European Neighborhood Policy. More recently, the AfDB announced that it plans to significantly enhance its support to Egypt with emphasis on power generation, financial reforms and transport.

25. **Water Sector:** Egypt is the most downstream country on the Nile system. The construction of the Aswan Dam has facilitated large uses for water for irrigation, hydropower, and navigation, while reducing vulnerability to floods and droughts for the country. Water quality problems are becoming increasingly important in the Nile system in Egypt.

[6] According to World Bank country data: Egypt – Atlas method in current USD

Annex 2: Major Related Projects Financed by the Bank and/or other Agencies

EASTERN AFRICA: Eastern Nile Planning Model

Project/AAA	Sector Issues Addressed	Latest Supervision (ISR) Ratings	
		Implementation Progress (IP)	Development Objective (DO)
Bank-financed			
Egypt: West Delta Water Conservation and Irrigation Rehabilitation	Groundwater Management and Irrigation Modernization	MU	MU
Egypt: Integrated Irrigation Improvement and Management	Irrigation and drainage management	MU	S
Ethiopia: Tana & Beles Integrated Water Resources Development	Lake/river basin management	MS	S
Ethiopia: Irrigation and Drainage Project	Water/Agriculture Productivity Improvement	S	S
Ethiopia: Productive Safety Net APL I & II	Watershed development	S	S
Other Development Agencies			
Sudan: Gezira Irrigated Agriculture Reforms	Rural policies and institutions, water resources management	Completed	
Sudan: Reforming Irrigated Agriculture	Irrigation Management reform	Completed	
NBTF: SVP Water Resources Planning & Management	Water resources planning and management	On-going	
NBTF: NBI Institutional Strengthening Project	Capacity-building for river-basin management	On-going	
NBTF: EN Flood Prevention and Early Warning Project: Phase 1	Capacity-building for flood management in three EN countries	On-going	
AfDB: Eastern Nile Regional Power Trade Study-Phase I	Power trade	Completed	
NBTF: EN Cooperative Regional Assessment (CRA) for Watershed Management	Watershed management	Completed	
NBTF: EN Cooperative Regional Assessment (CRA) for Irrigation Management	Irrigation Management	Completed	
Norway: Pre-Feasibility Study for Karadobi Multipurpose Dam	Multipurpose water resources development	Completed	

Annex 3: Results Framework and Monitoring

EASTERN AFRICA: Eastern Nile Planning Model

Results Framework

PDO	Outcome Indicators	Use of Outcome Information
Countries in the Eastern Nile operationalize an improved decision support modeling framework to identify water-related investments and evaluate them in a regional context.	**Investment Planning Facilitation** • Number of projects in Eastern Nile for which Investment Strategies are based on ENPM analysis **Strengthened Institutions** • Number of regional and national meetings facilitated by ENPM outputs • Number of senior professionals in regional/national institutions using ENPM	Need for and design of additional phases of the ENPM and its integration into the Nile DSS.
Intermediate Results	**Results Indicators for Each Component**	**Use of Monitoring Results**
Component One: Information Management Systems Development		
Operational Database Management System	(i) Comprehensive knowledge base developed for ENPM • Database architecture developed to facilitate interfacing with the Nile DSS being developed under Nile Basin Initiative Shared Vision Project • Centralized database (on projects, climate, hydrology, hydraulics, economic, social, environmental aspects, etc.) developed, collated, and organized; State of the Eastern Nile Report produced (ii) Data management and analysis interfaces developed • Data Management Interfaces developed for model inputs and outputs • User-friendly interfaces developed for access to and analysis (statistical, graphical and spatial) of knowledge base and model inputs and outputs	• Identification of knowledge gaps • Additional studies that need to be conducted to address these gaps • Demand for publications such as a State of the Eastern Nile report
Intermediate Results	**Results Indicators for Each Component**	**Use of Monitoring Results**
Component Two: Modeling Systems Development		
Calibrated and Validated Eastern Nile Planning Modeling System	(i) Fully-Functional ENPM Model developed • ENPM Model developed, tested, reviewed and accepted (including hydrologic/hydraulic, economic, environmental and social modules) (ii) ENPM Model used to evaluate investment options for sustainable planning and management of the Eastern Nile • Number of Regional and National Projects (including storage, hydropower, irrigation, navigation, flood management, fisheries, etc.) in the Eastern Nile evaluated using ENPM under future scenarios	• Need for additional modeling tools • Need for additional knowledge to effectively model economic, environmental, and social issues
Intermediate Results	**Results Indicators for Each Component**	**Use of Monitoring Results**
Component Three: Institutional Capacity Strengthening		
Acceptance of ENPM as a shared analytical framework to analyze EN investments	**Regional & National ENPM institutions created and operationalized** • ENPM Office (at ENTRO) established and fully-staffed and equipped • Model Coordinating Unit (MCU) at National Focal Point Institutional established and fully-staffed and equipped • Regional Working Group/ National Groups/ University Outreach Center mtgs./other structured stakeholder forums organized regularly and effectively **Adequate Capacity-building and Training activities undertaken** • Number of persons trained at decision making, senior professionals and analytical support levels • Number of workshops, study tours and training programs organized • User Manuals, Workbooks, and other relevant system documentation developed for Knowledge Base and Models • Improved data availability, accessibility and quality	• Information flow needs • Designing improved stakeholder forums • Institutional strengthening needs

Arrangements for results monitoring

1. Overall monitoring and coordination of project activities will be undertaken by ENTRO, both by the ENPM Project team as well as by ENTRO's M&E Officer who would oversee monitoring for all ENTRO activities. In addition, financial management and procurement for the project would be monitored by specialized ENTRO officers. Regional and National working groups and National University Centers are expected to contribute substantial constructive feedback for the ENPM knowledge base and tools being developed. Training courses and meetings organized will also collect participant feedback. ENTRO will also use questionnaires (including web-based surveys) to obtain regular feedback on the ENPM development and use.

2. In addition, the Bank will carry out the normal review procedures for procurement and conduct regular supervision missions. Supervision will also include the review of Interim Un-audited Financial Reports quarterly reports provided by ENTRO, independent annual financial audits of the project and financial statements of ENTRO. The Bank will also carry out a mid-term review and ICR mission.

3. The project would also recruit an experienced international panel of experts to provide guidance and quality management for the project activities, particularly in evaluating Consultant outputs. The costs of all these monitoring, evaluation, and adaptive management approaches have been fully factored into the project costs.

Arrangements for results monitoring

Outcome/Results Indicators	Baseline	Year 1	Year 3	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Investment Planning Facilitation • Number of projects in Eastern Nile for which Investment Strategies are based on ENPM analysis	None	None	Key EN projects analyzed (at least one major joint multi-purpose and national investment projects)	ENTRO project progress reports (annual) Investment Strategy Analysis Report (Yr 2)	Surveys, ENTRO/ Country assessments	ENTRO (with input from National MCUs)
Strengthened Institutions • Number of regional and national meetings facilitated by ENPM outputs	None	None	At least one (regional) and one each (national)			
• Number of senior professionals in Regional and National Institutions using ENPM	None	At least two (regional-level) and one each (national-level)	At least four (regional-level) and two each (national-level)			
Component One: Information Management Systems Development						
(i) Comprehensive knowledge base developed for ENPM • Database architecture developed to facilitate interfacing with the Nile DSS being developed under Nile Basin Initiative Shared Vision Project	None	Data sharing, exchange and quality management protocols developed and accepted	Protocols fully implemented	ENTRO Project Progress Reports (6 monthly)	Consultant Reports (monthly) Regional and National Meeting minutes	ENTRO
• Centralized database designed and data (on projects, climate, hydrology, hydraulics, economic, social, environmental aspects, etc.) collated and organized	Scattered databases with national agencies with limited accessibility; Limited one-system inventory with ENTRO	Centralized database design completed Basic data (on projects, climate, hydrology, hydraulics, economic, social, environmental aspects, etc.) collated and organized	Centralized database fully operational; additional data collated based on analysis and user feedback State of Eastern Nile Report			
(ii) Data management and analysis interfaces developed • Data Management Interfaces developed for model inputs and outputs	None	DMIs designed and demonstrated based on model requirements and user input	DMIs developed and fully operational for model inputs and outputs	ENTRO Project Progress Reports (6 monthly)	Consultant Reports (monthly); User Feedback	ENTRO

Outcome/Results Indicators	Baseline	Year 1	Year 3	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
• User-friendly interfaces developed for access to and analysis (statistical, graphical and spatial) of knowledge base and model inputs and outputs	None	User-friendly interfaces designed and demonstrated based on model requirements and user input	Interfaces fully operational			
Component Two: Modeling Systems Development (i) Fully-Functional ENPM Model developed • ENPM Model developed, tested, reviewed and accepted (including hydrologic/hydraulic, economic, environmental and social modules) (ii) ENPM Model used to evaluate investment options for sustainable planning and management of the Eastern Nile • Number of Regional and National Projects in the Eastern Nile (including storage, hydropower, irrigation, navigation, flood management, fisheries, etc.) evaluated using ENPM	Nile DSS modules under development None	ENPM Modules designed Acceptable demo version developed, discussed at RWG Key Regional and National Projects identified along with salient features	Full-scale ENPM Model developed and tested Investment options analysed using ENPM At least three projects tested	ENTRO Project Progress Reports (6 monthly)	Consultant Reports (monthly); Regional and National Meeting minutes	ENTRO
	ENPM Manager at ENTRO in-place ENPM Coordinators in-place (in Ethiopia, Sudan & Egypt) Meeting as needed	ENPM ENTRO Office established, fully-staffed and equipped MCUs established, full-staffed and equipped Meet Quarterly	ENPM Office strengthened as required MCUs strengthened as required Meet quarterly	ENTRO Project Progress Reports (6 monthly)	ENTRO assessments; Meetings (incl. tele/ video conference) minutes; ENTRO assessments	ENTRO

Outcome/Results Indicators	Baseline	Year 1	Year 3	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
• National Networks and University Centers constituted and functioning	Not constituted	Univ Centers/National Networks constituted and meet Quarterly	Networks meet quarterly			
Adequate Capacity-building and Training activities undertaken • Number of persons trained at decision making, senior professionals and analytical support levels	None	30 (over all levels)	50 (over all levels)	ENTRO Project Progress Reports (6 monthly)	Consultant Reports (monthly); User Feedback	ENTRO
• Number of workshops, study tours and training programs organized	None	1 workshop 1 training program	2 workshops 1 study tour 5 training programs			
• User Manuals, Workbooks, and other relevant system documentation developed for Information Management Systems (including metadata) and Models developed	None	Requirements outlined	Draft user manuals, workbooks and other documentation developed			
	Scattered databases Limited one-system inventory	Information sharing protocols finalized; basic databases developed	Information systems fully operational and shared among EN countries			
	TOR/RFP drafted	Consultant Recruited	Consultants continue functioning	ENTRO Project Progress Reports (6 monthly)	Consultant reports (monthly); ENTRO assessments	ENTRO
	None	Basic procurement completed	Any additional procurements completed as required			
	ENTRO coordination	ENTRO, MCUs, RWGs actively facilitating ENPM implementation	ENTRO, MCUs, RWGs actively facilitating ENPM implementation			
	None	Regular reporting and adaptive management	Regular reporting and adaptive management			

Annex 4: Detailed Project Description

EASTERN AFRICA: Eastern Nile Planning Model

1. The ENPM Project seeks to better inform decision making on water-resources investments in the Eastern Nile through a better assessment of their regional implications. The project contains three major components:

   Component A: Knowledge Base Development,
   Component B: Modeling System Development, and
   Component C: Institutional and Human Capacity Building.

2. The key activities to be undertaken under these components are detailed below:

Component	Outcome	Outputs	Activities
1. Knowledge Base Development	*Operational Database Management System*	1. Design and Develop Centralized Database	1.1 Review Existing Data & Determine Data Needs
			1.2 Review and Fine-tune Database Structure (based on NB DSS)
			1.3 Adapt Information Sharing Protocols (based on NB DSS)
			1.4 Populate Database (incl. GIS database for Eastern Nile)
			1.5 Coordinate closely with WRPMP DSS
		2. Design and Develop Data Management Interface (DMI)	2.1 Review and Fine-tune user-friendly and flexible model DMIs
			2.2 Review and Fine-tune user-friendly and flexible output DMIs
		3. Develop Data Analysis Tools	3.1 Review and Fine-tune statistical analyses tools
			3.2 Review and Fine-tune graphical analyses tools
		4. Establish Quality Control Procedures	4.1 Establish Quality Control Procedures
			4.2 Recommend future enhancements (e.g. strategy to address significant knowledge gaps, training/outreach plan, interface and use improvement)
		5. Training & Outreach	5.1 Conduct Training and Produce Documentation (incl. metadata, training manuals, annotated bibliography)
			5.2 Develop fully-functional Website
			5.3 Develop State of the Eastern Nile Report, interactive CD-ROM & Video
2. Modeling System Development	*Calibrated and Validated Eastern Nile Planning Model*	1. Identify Decision Support System Framework	1.1 Establish planning framework for the ENPM
			1.2 Assess modeling requirements and conceptual frameworks (simulation, optimization, multi-criteria analytical tools)
			1.3 Assess data and feedback requirements and links to knowledge base and structured stakeholder interaction
		2. Fine-Tune & Apply Basin Simulation System (based on NBI DSS tools)	2.1 Review, fine-tune, calibrate, and validate modeling system
			2.2 Undertake Simulation runs (with appropriate knowledge base links) and discuss with potential users
			2.3 Test and Apply the Basin Simulation Models
			2.4 Conduct Training and Produce/Enhance Documentation (reports, manuals, tutorials, initial set of simulation results)
		3. Develop and Implement Basin Optimization System	3.1 Formulate the optimization problems (with appropriate objectives, constraints and decision variables)
			3.2 Develop Optimization demos (with appropriate knowledge base links) and discuss with potential users
			3.3 Develop Basin Optimization System (building on NB DSS tools)
			3.4 Conduct Training and Produce Documentation (reports, manuals, initial set of optimization results)

Component	Outcome	Outputs	Activities
		4. Develop Multicriteria Analytical Tools	4.1 Develop multiple criteria and indicators to compare scenarios (e.g. across economic, environmental and social dimensions)
			4.2 Develop/Refine multi-criteria analytical tool Demos to compare scenarios across criteria and present the results visually
			4.3 Apply multi-criteria analytical tools to compare scenarios across criteria and present the results visually
		5. Define and Develop Standard System Output	5.1 Define and develop output products/interfaces
			5.2 Develop Public Domain Analytical Tools
			5.3 Develop Sample Investment Plans using the ENPM system
3. Institutional and Human Capacity Strengthening	*Acceptance of ENPM as a shared analytical framework to analyze EN investments*	1. Facilitate Structured Stakeholder Interaction	1.1 Identify key stakeholder groups for ENPM interaction
			1.2 Design a structured stakeholder interaction framework for the ENPM
			1.3 Faciltiate interactions according to the framework and evolving needs
		2. Establish and Develop ENPM Institutional Setting/ Structures	2.1 Establish and maintain ENPM Modeling Office
			2.2 Establish and develop Focal Point Institutions and Model Coordinating Units in each EN country
			2.3 Develop and maintain National Model Support Networks
			2.4 Develop protocols (rules) for ENPM Institutional Structures/Settings
			2.5 Develop strategic partnerships (including internships, partnerships with academia) to improve ENPM effectiveness
			2.5 Coordinate with other NBI Projects and Activities
		3. Strengthen Institutional and Human Capacity	3.1 Develop and implement robust training program on development and use of ENPM Modeling System
			3.2 Develop and institutionalize procedures/processes for encouraging an enabling environment for model development and use (incl. regular ENPM newsletters)
			3.3 Develop framework for institutional incentives for retention of trained staff
			3.4 Develop framework for sustainable financial resources
			3.5 Develop and implement a practical ENPM monitoring and evaluation system
		4. Strengthen Data Availability, Accessibility, and Quality	4.1 Establish common guidelines for enhancing data availability, accessibility, and quality
			4.2 Improve data availability, accessibility, and quality activities.
			4.3 Capacity building for data collection and interpretation.

3. The initial ENPM system will be somewhat rudimentary, at the pre-feasibility/reconnaissance level of sophistication. The system should initially have the capability to better inform decisions and avoid major problems. The key features of the ENPM system are described next.

Component A: Knowledge Base Development

4. The heart of ENPM will be an integrated database system that will organize available data related to the Eastern Nile network, current infrastructure (e.g. storage, major diversions, uses including irrigation, municipal, hydropower, environment, etc.) and current operations, climate, flows, basin land use/land cover, soils, erosion/siltation, satellite imagery, potential investment options and their characteristics, etc. The knowledge base will draw as much as possible on available information (e.g. One-System Inventories at ENTRO, Master plans, reports, etc.). The knowledge base will be designed to be used both in a stand-alone model (e.g. for pre-customized and interactive queries on the database and to visualize the results in tabular, graphical, schematic or map-based formats) as well as in conjunction with various simulation and optimization models (to provide information for the model runs and to store results). 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. The development of this knowledge base will involve:
   - Reviewing existing data and data needs assessment
   - Designing database structure (to house relevant spatial and non-spatial information)
   - Synergizing information sharing protocols and database arrangements with the Nile DSS
   - Populating and quality checking the database (including the development of a synoptic GIS database with available information from the one-system inventory, global/regional datasets on topography, soils, precipitation, satellite imagery, etc., and other information to be computerized as part of this effort) as indicated in the following table. Special focus will be paid to water systems information and characteristics of existing and proposed projects (to the extent known)
   - Developing user-friendly data management interfaces (for query & models) and data analysis tools
   - Establishing strategies to address knowledge gaps and manage quality
   - Documenting, Training and improving Awareness (including development of a website/CDs/DVDs, State of the Eastern Nile Report, pilots using handheld computers, etc.)

5. The functional specifications for the ENPM knowledge base should include:

Functional Specifications of the Knowledge Base

The Knowledge Base should have:

- ③ Spatial data that is GIS-based (exportable to other GIS systems and PDAs with GIS capability)
- ③ Interactive queries; Well-designed reports
- ③ Extensive use of graphics (e.g. charts, schematics, maps) in presenting knowledge base information
- ③ Export/Import from common formats (e.g. spreadsheets, images, text, etc.) and to interface with models being developed and other dissemination tools (e.g. free GIS, Google Earth or equivalent, etc.)
- ③ Ability to display time-series and spatial information at location with stored information (e.g. climate, hydrology, infrastructure, reservoir data, etc.)
- ③ Ability to delineate watershed/basin at any point on the EN rivers
- ③ Ability to delineate inundated area for any height of reservoir at any location
- ③ Ability to flag potentially erroneous data; Methodologies to fill data gaps
- ③ Ability to combine information from, and output information to, various temporal and spatial scales

6. It is expected that the knowledge base itself will be a useful tool for decision-support and stakeholder awareness and interaction. It is expected that the ENPM would gradually become the focal point for water-related data and information on the Eastern Nile, with data collected by various national and regional agencies being collated in the ENPM knowledge base. In addition to the queries/analysis, the information and maps would be used to generate products such as the State of the Eastern Nile report to be supported under the ENPM. These would build on the existing EN One System Inventory and other

ongoing activities, such as the Joint Multipurpose Project related activities. Information in the public domain is also expected to improve with ENPM support.

Indicative Spatial Database (building on the One-System Inventory that has already collated much of this information)

Type	Spatial Reference (at 1:50,000 scale or better wherever possible)	Attributes
Administrative	• Administrative units • Cities/Towns • Villages • Universities/ Schools/ Research Centers/NGOs/Water User Associations	• Census data (including time series on population, tribes, literacy, employment/ socio-economic/ labour characteristics, etc.) • Poverty characteristics • Current service levels (e.g. electricity, water supply, sanitation) • Type (public/private; specialization); # students, # faculty • Major activities related to EN waters
Climate & Hydrology	• Isohyets/Isotherms by month and annual avg. for all years of record available • Basin, Subbasin/catchment boundaries • River/stream network • Rainguage/Climate stations • Flood hazard mapping • Drought-affected areas • Climate change grids – for scenarios and implications (e.g. on precipitation, temperature, runoff)	• Rainfall, temperature, evaporation, climate change scenarios • Runoff, infiltration, evapotranspiration, consumptive use estimation • Flows (time series, monthly averages, monthly flows at 25%, 50%, 75% and 90% reliability, daily flows for last year and one dry, one wet and one normal year in period of record) • Groundwater characteristics (depth to groundwater, sustainable yields, current extraction, well type and distribution, etc.) • Characteristics of monitoring stations (period of record, time series of parameters measured) • Basin/Sub-basin runoff characteristics • Spatial water balance estimation (inflows, uses, losses, recycled water, etc.) • Floodplain map contours for various return periods • Other natural disaster vulnerability (floods, droughts) • Lonitudinal sections/Cross Sections of rivers
Water-related Structures	• Dams/Barrages/Other storage • Canal network (including minor level) • Irrigation/Drainage networks • Data collection networks • Canal command areas • Cropped areas • Existing and proposed reservoirs • Functional irrigation, flood control and multipurpose irrigation schemes • Hydropower schemes (incl. Run of river schemes) – existing and proposed • Lift irrigation/pump canal schemes • Drip/Sprinker irrigation system pilots • Water supply intake structures • Watershed management program investments	• Characteristics of structures (including yr of construction, cost, safety, condition as available) • Data from data collection networks • Time series of flows (monthly averages, monthly flows at 25%, 50%, 75% and 90% reliability, daily flows for last year and one dry, one wet and one normal year in period of record) • Storage characteristics (primary purpose, capacity - live/dead storage, area-storage, depth-storage curves, sedimentation rate, operating rules, historical monthly inflows, levels, and releases; fisheries data) • Hydropower characteristics (installed capacity, head, discharge, generation, price, load factor, factor of utilization) • Irrigation application efficiencies, conveyance efficiencies estimation • Water intake estimates • Area of different types of watershed investments (afforestation, field bunds, check dams, gully plugs, etc.) – unit costs/employment/livelihood

		changes, erosion/sedimentation changes due to investments
Other Infrastructure	• Transport (airports, rail, roads, ports, navigation) • Power transmission/ interconnection • Non-hydro power plants (including other renewable energy systems) • Information/Communication	• Type of transport infrastructure (e.g. highway, rural road, etc.) • Transmission capacity, age, losses, status • Power trade • Installed Capacity (MW), Power generation (MWh) • Mobile/Land Phone & Internet connectivity • Fibre optics connectivity
Economy	• Administrative boundary • Tourist areas	• GDP (trends, composition, growth) • Trade (domestic, EN regional, other) • Major exports/ imports / services (and trends) • Investments (e.g. Foreign Direct Investment, EN regional, etc.) • Public spending in different sectors (and trends) • Access to credit • Investment climate indicators • Tourist flows (local, EN regional, and other) • Consumption/Savings indicators • Remittances from abroad • Prices/Tariff structures (e.g. for water supply, irrigation, etc.)
Land-related	• Landcover/landuse patterns (incl. Urban, peri-urban, agricultural, irrigated, forested, wetland, waterlogged, sodic, saline, and other areas) – using existing maps and through remote sensing • Soil type • Topography/Elevation (Contours/DEM) • Potential areas for watershed/infiltration management for siltation/recharge	• Areas (current and trends where available) • Soil characteristics • Elevations • Watershed Audit • Deforestation/ afforestation • Erosion/sedimentation rates • Geologic types/characteristics • Any national-level data • Avg. soil moisture levels (monthly) • Spatial evaporation estimates
Agriculture (region-wide with detailed data for each basin/command area as available)	• Irrigated areas (commercial and subsistence; pump & gravity) • Rainfed areas • Recession agriculture • Cropping patterns • Fertilizer/Pesticide/other agrochemical use	• Cropped areas by season and source of irrigation – current and historical trends • Crop yields/ Crop water requirements • Major agriculture markets/ Avg. Market Prices • Organic agriculture • Distribution of indigenous and medicinal crops • Agriculture value-added • Fertilizer/pesticide use, prices, trends • Integrated pest management/ integrated nutrient management use • Crop suitability (e.g. based on interpretation of soil, climate, land data) • Spatially distributed farm budget component estimation (by season, crop

		and type of irrigation)
Environment and other water uses (using secondary data from various departments/ env assessments) – each basin	• Ecologically sensitive areas • Protected areas • Biodiversity • Industrial location (for all major industries and block-level summaries for other industries) • Water quality monitoring sites • In-stream and recreation use – key locations • Wetlands (water-spread areas with seasonal variations)	• Biodiversity and fisheries indicators • Industry type and classification • Industrial/power water use (from records or estimated by proxy indicators) and return flows • Industrial water pollution estimates • Industrial pollution control cost estimates • Industrial value-added estimates • Water quality for key parameters – current status and trends (e.g. dissolved oxygen, BOD, COD, temperature, pH, dissolved solids, suspended matter, nitrogen/nitrates, heavy metals, pesticides, toxics, total and fecal coliforms, oils, floating wastes, etc.) • In-stream water use requirements estimation (e.g. for ecological/wetland, community use, washing requirements, fish production, navigation, recreation, etc.) • Persistent organic pollutant use
Groundwater (by aquifer/basin)	• Groundwater aquifer details and existing fence diagrams, lithology, depth to water contours (for all available data for the last 10 years) • Public & Private Tubewells • Groundwater Block classification • Groundwater quality measurement structures	• Key aquifer areas, Uses, Sustainable yields • Pump type (diesel/electric; deep/shallow, private/public, HP) • Estimation of actual extraction rates, commanded area, avg area irrigated • GW classification history, Depth to groundwater, Ground elevation • Water quality parameters (also incl. hardness, fluoride, etc.) • Pump test results
Social Development	• Administrative boundaries • Tribal distribution • Boundaries of Social Institutions (e.g. User Associations, Civil Society Organizations, Local Governments) • Households	• Key stakeholders and characteristics • Access to safe water, Access to adequate sanitation • Per capita water availability (although this needs to be used carefully) • Poverty levels and trends, Income distribution, empowerment indicators • Life expectancy, Public health • Socio-economic and demographic characteristics • Overall economy, Equity, GINI Coefficients, etc. • Decentralization (incl. fiscal decentralization) • Livelihoods, occupations, employment/ unemployment • Literacy/ education levels, Age distribution • Resettlement/Rehabilitation associated with projects • Consultation notes, Local priorities, Local governance indicators • Self-help groups, women's groups, user associations • Tribal populations, Cultural heritage, cultural property
Documentation/Other	• Focus of Documents	• Electronic archives of photographs, reports, workshop/conference proceedings, trainings, etc. • Linkages with international datasets/libraries/weblinks, etc.

Component B: Modeling System Development

7. The ENPM Modeling System will include a suite of hydrologic and evaluative models and analytical tools. The Models would build upon prior modeling efforts such as the Nile-DST, RAPSO, GAMS models and other tools, and will draw heavily on the knowledge base and tools developed under the Nile Basin DSS under development.

8. Initially, a ***Strategic Planning Framework*** will be developed for the Eastern Nile. This includes developing a *vision* of the future, identification of a structure to outline *objectives* (to evaluate alternative investment scenarios), *issues* (to identify opportunities and constraints), *options* (to explore investment possibilities), *scenarios* (future perspectives and option groupings), and key *questions* to be considered – customized for each of the Plans. It is crucial that this planning framework is based both on expert/analytical and stakeholder inputs. It is also important that this framework is customized for each of the sub-basins of the Eastern Nile. This planning framework is expected to help provide the analytical basis for future analysis, consultation, and plan development on the EN. Specifically, this will include the following activities:

- **Outline Future Vision:** Given the history and current status and trends in the sub-basins, outline future visions for each of these sub-basins. This envisioning exercise needs to be carried out with the help of structured consultations at the initial stage of the Consultancy. It would be useful to outline an optimistic and pessimistic vision of the systems reflecting good and poor planning. This envisioning exercise would be the basis of the development of Plans to get from where the system is today to the vision(s) outlined.

- **Structure Planning Objectives:** Identify key goals, criteria, and possible indicators that need to examined in the evaluation of alternative planning scenarios for each of the three Plans. An initial indication is given below, to be refined by the Consultant in stakeholder discussions and customized for each of the Plans, ensuring that these refer to final *ends/goals* and not be focused on *schemes/means* (the indicators should be both comprehensive across parameters to be considered in decision-making, as well as limited in number to enable meaningful interaction later when the consequences of various alternative plans are to be evaluated against these indicators):

Objective	Criteria	Indicator (+ =more is better; - = less is better)
Improve Economy	Agricultural Net Benefits	+ Agricultural Net Benefits ($ annualized or Present Value of Net Benefits)
	Power Net Benefits	+ Power Net Benefits ($)
	Flood Damages	- Flood Damages ($ annualized)
Improve Social Well-Being	Public Health	- Cases of water-related diseases (million DALYs)
	Resettlement	- No. of people relocated
	Food Security	+ Percent of pop with cereal needs met
	Navigation	+ Navigable river reaches (km-months)
	Employment	+ No. of Full-time Jobs
	Low Income Effect	+ No. of people above "poverty" threshold
	Adequate access to Safe Drinking Water	+ # people with access to safe drinking water supply
Protect and Enhance Environment and Cultural Resources	Cultural Sites	- Cultural sites impacted (number)
	Forest Cover/Vegetative Cover	+ Forest/Vegetative cover (km2)
	Water Quality/Environmental Flows	+ Water Quality / Minimum Flow Index
	Greenhouse Gas Emissions	+ GHG Offset (tons/yr)
	Saline Water Intrusion	+ Flow to Mediterranean Sea (MCM/yr)
	Aquatic Habitat/Wetland/ Biodiversity	+ Area of wetland/aquatic habitat

Increase Regional Cooperation & Integration	Growth Pole Potential	+ Potential economic growth pole centers (number)
	Regional Interdependence	+ Joint ownership/mgmt of assets (Scale)
	Regional Trade	+ Bilateral trade ($/yr)
	Preserve Future Options / Enhance Negotiation Space	- Overall system losses (MCM/yr)
Improve Implementability	Financing	- Financing risk scale (function of total financing requirements, rate of return, institutional arrangements, attractiveness to governments, private sector and other donors, etc.)
	Political Instability	- Conflict Potential Scale (function of location of investments and potential for conflicts)
	Technical Complexity/ Timing	- Technical Complexity Scale (function of factors that govern risk of delay, cost escalation, or safe operation)

- **Scope Key Issues (opportunities and constraints) to be addressed in each Sub-Basin:** Identify special issues (and their approximate prioritization) to be considered in each of the Sub-basin, including issues such as preexisting conditions, potential impacts of development, socio-economic development, surface and groundwater resource availability, water supply/power/irrigation/environmental needs, storage options, water quality/environmental health, sensitive ecosystems, security, gender issues, erosion/sedimentation, land quality, institutional and policy aspects, possible partnerships, information availability, stakeholder awareness, etc. Also identify key knowledge gaps and brief strategies to address them.

- **Outline Key Investment Options:** Identify the broad range of water resources development/management options to be considered in each of the sub-basins. These may include:

- Water Use options (proposed projects for bulk water supply, irrigation expansion, hydropower generation, etc.)
- Water Storage options (including small, medium, and large reservoirs) and coordinated operation
- Water Demand management options (including cropping patterns, water delivery and use efficiency, deficit management/allocation)
- Potential water transfers

- **Identify Key Planning Scenarios:** Identify broad Scenarios that would be used to help develop the plans. These include scenarios on investment strategies such as:

- Storage Strategies (e.g. reliance on large storages, medium storages, no dams)
- Sectoral Strategies – e.g. Agriculture Development Strategies (e.g. hi-value agriculture, paddy expansion)
- Demand Side Management Strategies (high/medium/low effort at efficiency improvements)
- Climate Change/Variability Scenarios (e.g. historical & future scenarios)
- Financial/Budget Constraints (e.g..Low/Medium/High availability)
- Sensitivity Analysis on key parameters – including scenarios of scheduling of major investments, streamflows, etc.

- **Outline Key Questions:** Identify key questions that need to be answered by the knowledge base and modeling systems to be developed. These may include questions at each of the different planning levels such as (to be refined as the Consultancy progresses in discussion with ENTRO):

Illustrative List of Questions to be Addressed with ENPM Assistance

Spatial Distribution Maps

1 In the Eastern Nile, what is the distribution of:
- ③ Poverty (using various poverty mapping indicators)
- ③ Access to services (e.g. water supply, electricity)
- ③ Rainfed and Irrigated Agriculture (indicating major crops)
- ③ Population distribution
- ③ Environmental assets
- ③ Water Balance – including inflows and losses/uses in the system (current and under 2 possible future scenarios)

Implications of Masterplan Developments

2 What are the regional economic, social, and environmental implications of implementing the current country Masterplan projects on the
- o Tekeze-Setit-Atbara
- o Blue Nile
- o Baro-Akobo-Sobat

Alternative Paradigms of Development

3 What are regional economic, environmental and social trade-offs among the following scenarios on the Blue Nile:
- o Large dams on the Mainstem (e.g. Karadobi, Mabil, Mendaya, Border)
- o Tributary Dams (e.g. on the Didessa, Guder, …)
- o Extensive Watershed Development (with microdams)

4 What are the implications of the following development paradigms on Ethiopian agriculture (w. illustrative projects)
- o Expansion of Hi-Value Irrigation
- o Expansion of Subsistence Irrigation
- o Modernization of rainfed agriculture

5 Evaluate alternative cropping patterns (with improved lean-season flow in the Blue Nile) for Gezira from regional economic, environmental and social perspectives

6 What are the implications of different sequencing of investments for the mainstem of the Blue Nile (including Karadobi, Mabil, Mendaya, Border)

Implications of Looming Challenges

7 Using available IPCC climate change scenarios, examine implications of climate change on:
- o Rainfall patterns (spatial and temporal)
- o Temperature patterns (spatial and temporal)
- o Evapo-transpiration implications (including from current and major planned EN reservoirs)
- o Runoff
- o Sea-level rise inundation (under various scenarios)
- o Water quality

8 Evaluate approximate salinity implications in Egypt in a scenario with:
- o Reduced spills from Aswan
- o Rising sea levels in the Mediterranean
- o Subsidence of delta land

Coordinating Operation

9 How can water resources infrastructure (under two scenarios of development) be synergistically operated to maximize benefits across multiple purposes (hydropower, irrigation, navigation, etc.) while minimizing risks (deficits/HP losses during drought and flood risk mitigation)

Resource Management Strategies

10 What are the implications on sedimentation at Roseires in the Blue Nile of:
- o Watershed management to different extents in the Blue Nile Watershed
- o Development of a major mainstem storage on the Blue Nile
- o Development of tributary storages on the Blue Nile

11 What is the approximate impacts of low-flows on surface and ground water interactions

12 What are the implications of the following land-use change scenarios when viewed in a regional context:
- Watershed development (including afforestation, check dams)
- Continued watershed degradation
- Urbanization

9. The ENPM Modeling System (drawn from Nile Basin DSS toolkit) will be capable of:

(i) simulating existing hydrologic conditions within the Eastern Nile basins given current and potential investments (with a water "spine" model) and analyzing broad economic (e.g. costs and benefits from various investments), environmental and social dimensions of potential development scenarios in the Eastern Nile,

(ii) optimizing the benefits of the Eastern Nile system under various investments to better understand the system boundaries and to evaluate alternative system infrastructure operating rules, and

(iii) comparison of scenarios based on various criteria and use to facilitate stakeholder discussions for investment planning decisions .

10. In order to serve as a tool for evaluating alternative development scenarios, the ENPM Modeling System will be sufficiently flexible so that the baseline scenario can be easily changed. Thus the user will be able to modify the physical elements of the model or any of the data components in the system. The modeling system also will present analyses and results of the multiple scenario model runs. The final system design should include the capability for the system to generate maps, statistical tables, and graphs using a variety of data types. The tools used will need to be developed to modern standards of design and utility. The functional specifications expected are summarized below:

Functional Specifications of the Simulation and Optimization Models

11. The Simulation and Optimization Models should have:

- Ability to answer the questions posed in Box 1 with models indicated in table in this box.
- Ability to Drag-and-drop objects (sub-basins/watersheds, dam, regional transmission systems, confluence, irrigation systems, hydro-meteorological stations, connections, return flows) to define the water system and interactively add attributes/operating rules, choose scenario options, undertake sensitivity analyses, etc. and visualize and further analyze outputs
- Ability to select/deselect individual proposed projects in defining scenarios
- Ability to estimate water supply under various scenarios (including climate variability/change) and demands (by location, sector and future scenarios)
- Ability to generate hydrograph and flow time-series at user-defined location
- Ability to estimate/optimize impacts of various operating rules for existing and proposed infrastructure
- Tools to assist with water resources analysis (e.g. time series analysis, synthetic streamflows/data generation)
- Tools to assist with economic analysis of various types of investments (e.g. using streams of costs and multi-purpose benefits to generate net benefits, IRRs)
- Tools to assist with environmental analysis of various types of investments (e.g. inundation of forest areas under large storage development scenarios, erosion reduction through different watershed management measures)
- Tools to assist with social analysis of various types of investments (e.g. resettlement, employment generation for different investments based on input data)
- Tools to estimate impacts of uncertainty of various parameters on selected outputs (e.g. monte-carlo simulation)

- Inclusion of all software required for ENPM with licensing (unlimited duration with upgrading potential) required to support use at least at in ENTRO (7 licenses on desktop/laptop), and the three Country ENPM Center locations (3 per location x 3 locations = 9 licenses on desktop/laptop), and the three University Outreach Centers (3 per location x 3 locations = 9 licenses on desktop/laptop) for a total of 25 licenses – this allows flexibility to develop customized tools or customize off-the-shelf models as appropriate.
- Specific delineation of geographical scope of ENPM and the spatial and temporal (e.g daily/monthly) resolution required for various modules
- Further elaboration of the spatial analysis (and use of GIS/remote sensing, including the use of accessible global, regional and national spatial datasets)
- Types of processes to be modeled in this 3-year period (e.g. rainfall-runoff, missing flow estimation, erosion, sediment transport, water quality, groundwater/conjunctive use management, reservoir operations, etc.) for both the simulation and optimization modeling proposed (based on outputs required)

	Type of Modeling	Description
Primary	**Rainfall-runoff modeling**	• Estimation of relationships in each watershed (rainfall, runoff, evaporation, losses) • Ability to incorporate climate change rainfall/temperature scenarios
	Water Systems modeling/Hydrologic routing (the Water "Spine")	• Impacts of system storages and abstractions, return flows, losses, inter-basin diversions • Assimilation (for error optimization)
	River-reach/Hydraulic routing	• Levels, inundated areas
	Reservoir operations	• Reservoir management
Supporting (initial versions based on available data)	Agricultural modeling (rainfed, irrigated, flood irrigation, pump schemes)	• Crop water requirements, return flows, efficiency, overall water demands, etc.
	Groundwater model	• Application to selected aquifers - expandable
	Economic optimization (reservoir)	• Reservoir operation to maximize multipurpose benefits
	Economic optimization (systems)	• Overall systems optimziation
	Salinity modeling	• Approx salinity computation based on flows, sea-level rise, land subsidence in Egypt delta
Water quality and sedimentation aspects of river basin planning modeling will be considered, but may not be modeled in detail for this project. The Consultant will assist ENTRO in locating suitable existing models for these elements.		

- Using an appropriate cost allocation methodology (e.g. Seperable Cost Remaining Benefit or SCRB), allocate costs for major proposed dams (e.g. Karadobi, Mabil, Mendaya, and Border on Blue Nile mainstem) considering major benefits (e.g. hydropower, irrigation, flood/drought management, navigation, fisheries) by country
- Development of appropriate user interfaces/workspaces/access at different levels (basic user, advanced user, administrator)
- Ability to interlink with other modeling systems (being developed under DSS and FPEW)
- Appropriate model calibration and validation
- Provision of online help and tutorials; Security arrangements; Logfile for scenario run management
- Ability to store results of different scenarios for comparison
- Conformity with ISO codes for software development and documentation

Functional Specifications of the Multicriteria Analytical Tools

12. Decisions on investments are seldom made on hydrologic considerations alone, but on a range of objectives, criteria, and indicators and their intersection with the political economy. The ENPM seeks to better inform decisions by choosing a few focused criteria and indicators to compare various scenarios. Hence, the multi-criteria analytical tools developed should have the ability to compare various scenarios from different perspectives (economic, social and environmental)

using both quantitative and qualitative indicators as discussed in the Planning Objectives section earlier. The tools developed should have easy to use visual, interactive tools for selecting scenarios, criteria, comparison and saving/retrieval.

13. Many of these indicators will need to be assessed not only at an overall level, but at country (and possibly sub-regional) level. Not all these indicators (that are representative of the types of considerations in investment decision making) will be computable using the ENPM. However, they do give an idea about the kinds of outputs that will be expected from the ENPM. The initial set of indicators developed by the ENPM preparation Consultant will need to be refined during implementation as part of user consultation and feedback. The user interaction will then help refine the relationships to be modeled and any additional data inputs required.

Structure of the ENPM Modeling System

14. The ENPM Modeling System will use a data centered approach, which supports a variety of uses including data viewing, analysis, and modeling. The data-centered approach allows modular development to occur yet ensures that all applications use the same, consistent information. In addition, this approach enhances data integrity, and minimizes data redundancy. Because the database is the center of the system, the individual software components around the database may be rebuilt or replaced without replacing or modifying the data structures on which the rest of the system depend.

15. The data centered system proposed for the ENPM modeling system consists of the knowledge base and the following modeling tools:

Basin Simulation Models: This will allow for the simulation of the current hydrology and hydraulics of the basin and any potential scenarios that the users will investigate for water resources investment planning purposes. Within the models the river basin will be represented as a network of nodes and reaches, with the nodes representing physical aspects of the river, i.e. reservoirs, diversion points, inflow points, stream confluences, etc., and the reaches representing river reaches through which flows must be routed, accounting for translation time and volume attenuation. The network representation of the basin will easily be modified to characterize the addition of proposed basin impacts. The hydrologic modeling of the basin to determine flows under various scenarios will be an initial part of this modeling. In addition, appropriate economic, social, and environmental implications of the simulated scenarios will be computed, based on information from the database and hydrological modeling outputs. The outputs will include a comparison of the hydrologic, economic, social, and environmental criteria (measured with appropriate indicators) of various investment scenarios. Associated tools for output visualization (e.g. using graphical, tabular, schematic, and map-based formats) and statistical analysis, sensitivity analysis, economic and financial analysis (e.g. analyzing net present value of streams of benefits and costs associated with each scenario), and scenario comparison and visualization (across environmental, social and economic criteria) will be developed.

Basin Optimization Models: This will allow for the use of optimization tools to maximize the net benefits of water resources development and management in the Eastern Nile Basin, subject to a variety of constraints (e.g. resource, technology, policy, budget, etc.). The network used in the simulation model will now be analyzed to indicate the optimal combination of investments under various development scenarios. The optimization models would be developed to better understand the system

limits and narrow down potential investment choices to simulate in detail. In addition, alternative optimal operation rules to efficiently operate system infrastructure will also be outlined using such tools. The optimization will consider economic, environmental, and social parameters (e.g. as objectives, decision variables or constraints) in scenario analysis to make best use of available information and better aid stakeholder discussions on investment decisions. In this case also, appropriate tools would be developed to visualize, analyze and compare outputs across scenarios.

Multi-Criteria Analytical Tools: The Multi-Criteria Analytical tools will be able to compare various scenarios (e.g. with any combination of contemplated investments or changed management in the basin) according to economic, environmental and social consequences, and estimates of the Present Value of Net Benefits (PVNB) for the anticipated planning period.

The user will interact with and control the modeling system (and the knowledge base) through a Graphical User Interface (GUI). The database developed with the ENPM will be designed to be fully compatible and coordinated with the Nile Basin Decision Support System (DSS).

Component C: Institutional and Human Capacity Building

16. A unique focus of the ENPM is not only to develop the knowledge base and modeling systems, but to also support the enabling environment to get stakeholder input into the design and use of these systems. In particular, this component would support:

- **Strengthening ENPM Institutions**
  - Assist ENTRO and EN countries to setup ENPM Modeling Offices to be "knowledge centers" on the water resources of the Eastern Nile
  - Develop business processes and information flow for effective ENPM implementation
  - Develop strategic partnerships (including internships, partnerships with academia) to improve ENPM effectiveness and provision of public domain information
  - Coordinate ENPM development with other NBI Projects and Activities (especially the Nile DSS)
  - Develop and implement robust structured training program on development and use of ENPM Modeling System to make investment plans (including development of ENPM modules-at-a-glance guides, user manuals, operational manual, technical manual, workbooks) - in synergy with the Applied Training Program SVP.
  - Develop Maintenance and Enhancement Strategy (maintenance/security manuals, additional technical development, institutionalize procedures/processes for encouraging an enabling environment for model development and use, institutional incentives for retention of trained staff, financial support, etc.)
  - Strengthen Data Availability, Accessibility, and Quality (establish common guidelines for enhancing data availability, accessibility, and quality; improve data availability, accessibility, and quality activities; capacity building for data collection and interpretation)
  - Develop and implement a practical ENPM monitoring and evaluation system

- **Design a structured stakeholder interaction framework for the ENPM**
  - Interact with key stakeholder groups; outline the key areas in which ENPM can assist different stakeholder groups – technical staff, ENSAPT members, Regional and National groups, ministers, general public
  - Outline processes to best facilitate stakeholder interaction with the ENPM
  - Undertake structured workshops to help input into ENPM design and to use the system to facilitate decision support

17. It is expected that this structured stakeholder interaction, capacity-building at ENTRO and National ENPM centers, and awareness raising activities would help generate interest for the ENPM, improve the knowledge base coverage and quality, assist in design of the tools to help

answer demand-driven questions, and better inform decision making and generation of broad-based consensus on investments. In particular, it is expected that interaction with the ENPM would help stakeholders develop a regional perspective on Eastern Nile investments, as well as a more holistic appreciation of the implications of various development scenario.

Annex 5: Project Costs

EASTERN AFRICA: Eastern Nile Planning Model

Project Cost By Component and/or Activity	**Total** US $million
Project Support Consultants (to develop knowledge base, modeling tools and facilitate stakeholder meetings)	4.65
ENTRO Offices Operational Support Costs	0.83
Computers and other equipment	0.30
Training	0.46
Total Baseline Cost	6.24
Physical and Price Contingencies	0.26
Counterpart financing[7]	0.60
Total Project Costs[1]	**7.10**
Total Financing Required	**6.50**

Justification for Contingencies:

In the project costs, costs for physical and price contingencies account for 4.2 % of the base costs which is considered appropriate for a short implementation period of three years as compared to 6.7 to 9.6% adopted for similar projects funded in Ethiopia with longer duration of five years as in the case of Pastoral Community Development Project and Rural Capacity Building Project.

Detailed Project Cost by Type

Type	Total US $million
(i) Goods and Equipments	0.30
(ii) Consultancy	4.48
(iii) Workshop/Training	0.46
(iv) Incremental operation and maintenance cost	1.00
(vi) Unallocated contingency/Country/ENTRO support	0.86
Total Project Costs[1]	7.10
Total Financing Required	6.50

These types are notional. In keeping with Bank project simplification objectives, the Grant Agreement has a single disbursement category for the entire project (other than a small unallocated category). A

[7] Includes office space, government staff, logistics, and other facilities provided by Ethiopia, Sudan, and Egypt to support activities related to the ENPM Project.

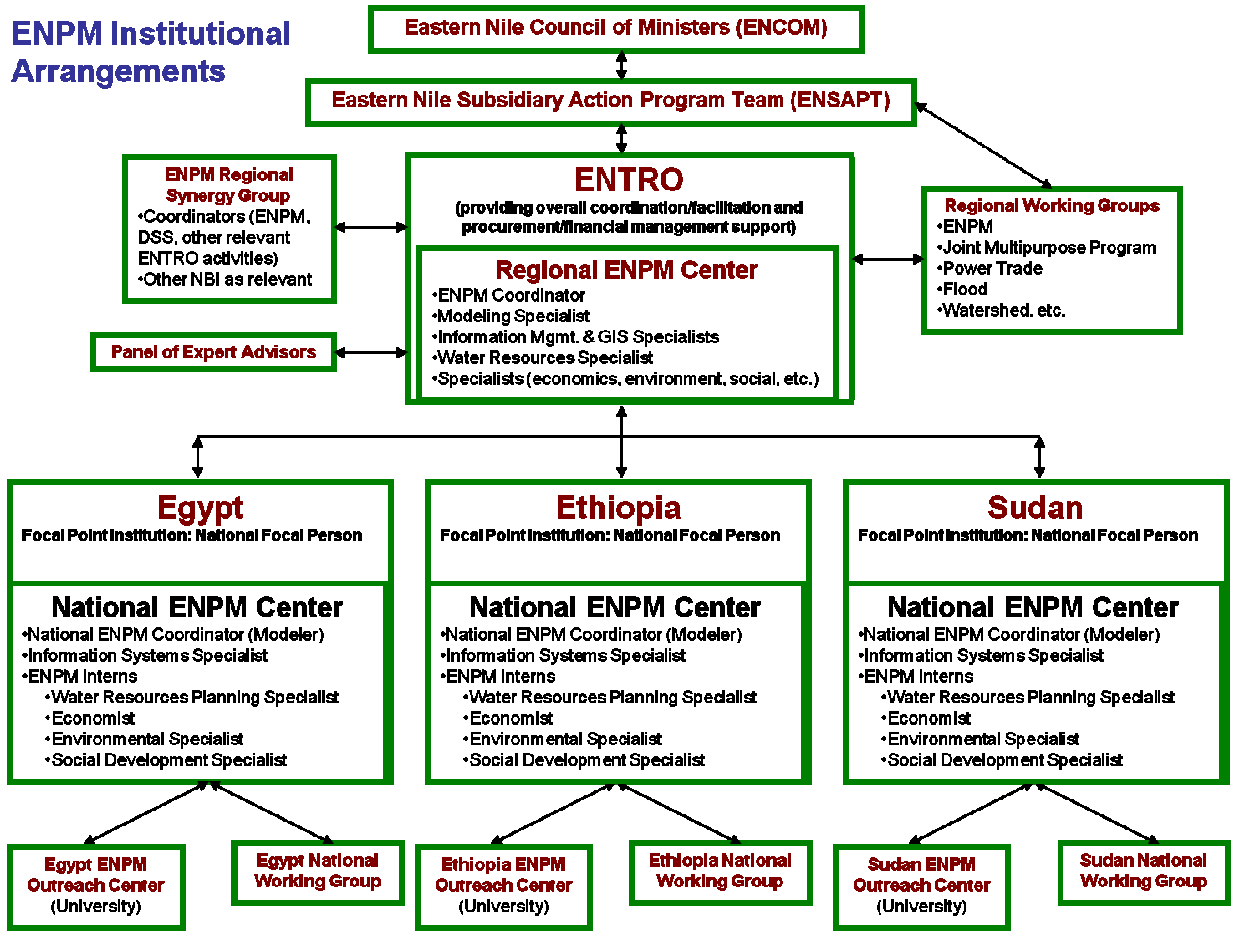
more detailed breakup of the estimated costs for this project has been prepared and agreed during Negotiations.

Annex 6: Implementation Arrangements

EASTERN AFRICA: Eastern Nile Planning Model

1. The Eastern Nile Technical Regional Office (ENTRO) is the primary implementing agency for this project. ENTRO is established in Addis Ababa under a Headquarters Agreement with the Government of Ethiopia, which awards to ENTRO the legal personality, privileges and immunities of a regional organization. The ENCOM approved legal status of ENTRO (December 2002) and invested ENTRO with the legal personality to perform the functions entrusted to it, including the power to receive and administer grant funding, in the territories of all three EN countries. ENTRO has been designed as an NBI institution by Nile-COM (Extraordinary Nile-COM Meeting, Addis Ababa, Ethiopia, September 12, 2003). At the October 2008 Eastern Nile Council of Ministers (ENCOM) Meeting, it was agreed that the ENPM would be implemented at ENTRO's headquarters in Addis Ababa.

2. ENTRO will sign a Grant Agreement with the World Bank and thus 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's Nile Team in supervising the activities and with the already identified National ENPM Coordinators in the MOIWR (Sudan), MOWR (Ethiopia) and MOWRI (Egypt).



3. The Regional ENPM Center will be established and equipped with basic facilities (basic IT equipment, office facilities, dedicated line for internet connection, etc). The unit will be headed by the Regional ENPM Coordinator with support provided by 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. environmental, social, and economic specialists) 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. The Eastern Nile Council of Ministers (ENCOM) and the Eastern Nile Subsidiary Action Program Team (ENSAPT) will provide overall guidance for the ENPM Project. The governance of the project would also include ENTRO management oversight, an ENPM Synergy group (to improve coordination with the Nile DSS and other NBI and ENTRO activities), an ENPM Regional Working Group (to provide regional oversight and inputs), and a technical Panel of Experts (to provide international technical advice to improve the quality of ENPM activities). The World Bank ENPM project team will also undertake regular supervision of the project activities and facilitate synergy with other activities.

4. Activities at national level would be supported by the National ENPM Centers in the respective Ministries of Water Affairs and will be headed by the National ENPM Coordinator (which is part of the overall ENSAP arrangement). The National ENPM Centers will suitably interact with other national level institutions (through committees/working groups) to implement the project at country levels. The data sharing/logistics commitment from each country would be ensured through a formal commitment by each country. Countries will provide counterpart staff to support project activities within their territories, as agreed in letters of commitment that have been received from Ethiopia, Sudan, and Egypt.

5. Partnerships are to be established with a relevant University in each of the three countries to set up ENPM Outreach Centers. These Universities, designated by the countries in discussion with ENTRO) include:

    - Egypt: University of Cairo
    - Ethiopia: University of Addis Ababa
    - Sudan: University of Khartoum

    The Universities would designate a space for the ENPM Outreach Centers, and the project would finance computer hardware, ENPM-related software, internships, faculty oversight, and meeting/workshop costs associated with the ENPM.

Annex 7: Financial Management and Disbursement Arrangements

EASTERN AFRICA: Eastern Nile Planning Model

Financial Management

1. The financial management assessment was carried out in accordance with the Financial Management Practices Manual issued by the Financial Management Board on 3 November 2005. The objective of the assessment was to determine whether the implementing entities have acceptable financial management arrangements, which will ensure: (1) the funds are used only for the intended purposes in an efficient and economical way, (2) allow for the preparation of accurate, reliable and timely periodic financial reports, (3) safeguard the entities' assets; and the existing capacity of ENTRO is capable of handling the Project's financial transactions. The Financial management assessment was conducted in December 2008 and was updated in June 2009 at Eastern Nile Technical Regional Office (ENTRO) in Addis Ababa. ENTRO has good experience in implementation of Bank financed projects. Some of the projects that are implemented or being implemented by ENTRO includes Policy and Human resource Development (PHRD), Watershed Management, Joint Multipurpose Project (JMP), Institutional Strengthening Project, Africa Land and Water Initiative and the Eastern Nile Flood Prevention and Early Warning Project.

In conclusion, the proposed financial management arrangements for this project are adequate and meet the Bank's requirements as per OP/BP10.02.

Country Issues

2. The Head Office of ENTRO is located in Addis Ababa, the capital of Ethiopia and the main financial management activities are done in the Head Office.

3. The recently completed Joint budget and Aid review (JBAR) and the Fiduciary Assessment (FA) show that Ethiopia has made significant progress in strengthening public financial management in recent years. As part of the JBAR, the Bank in collaboration with the JBS donors, conducted a Public Financial Management (PFM) status review using the PEFA framework. Out of the sixteen indictors covered under this review, fourteen of them covered the government's systems for public expenditure planning, budgeting, and, reporting. The remaining two indicators are meant to assess donor performance. Ethiopia met 7 of the fourteen indictors related to the planning, budgeting and reporting systems. Generally Ethiopia scores high in macroeconomic management, including aggregate fiscal discipline and minimizing fiscal risks. Satisfactory progress was also noted in budgeting and accounting reform, though the adequacy and quality of budget reporting leaves room for improvement and remains a key concern. .

4. The Fiduciary Assessment(FA) completed in early 2005, notes that considerable progress has been made in implementing FM reforms in both federal and regional level administrations. The areas of improvements include budget processes, internal controls and cash management. Also, some steps have been taken in reforming internal and external audits. Nevertheless, there are some weak areas that require attention. These include delays in financial reporting (both in-year and annual), inadequate capacity of the auditors-general to discharge their responsibility; and weakness in legislative scrutiny of audited financial reports. At Regional level the situation varies between regions. SNNP and Tigray regions have been the beneficiaries of investment and local initiatives to support PFM reform, and in both cases improvement in the overall public finance function and a consequential reduction in Fiduciary Risk are apparent. Other Regions are at an earlier stage of investment or have not yet commenced their plans and therefore demonstrated less progress in enhancing PFM. However, even in the progressive regions the coverage is not complete and there continues to be capacity and staffing issues in areas such as audit. An additional

concern is that while there is some improvement in the financial discipline associated with government funds the increasing use of other funding routes such as Food Security Program, is increasing Fiduciary Risk by requiring additional workload in areas where capacity is already stretched

5. Ethiopia's public financial management reforms have been managed by the Expenditure Management and Control sub-Program (EMCP) of the government's civil services reform program. EMCP has developed a revised strategic plan to implement the nine components of the sub-program Mobilization behind the EMCP (in terms of financial *and* human resources), as a key component of the Public Sector Capacity Building Program (PSCAP), is now a priority.

Risk Assessment and Mitigation

6. The table below outlines respective perceived risks to the program and requisite mitigating measures:

Risk description	Risk Rating	Risk Mitigating Measures incorporated into the Project Design	Conditions of Negotiations, Board or Effectiveness (Yes or No)	Residual Risk	Remarks
Inherent Risk					
Country level- Lack of trained manpower in the area of accounting and auditing and low pay scales to attract qualified people. There is no national professional association and accounting and auditing standards.	S	These are being addressed by the government Civil Service Reform Program outside this project supported by PSCAP.	N	M	
Entity Level-project is implemented in three different countries FM documents are transmitted using courier services but may delay dependent on each country situation. There is possibility of documents getting lost.	M	Simplification in design, ensuring key fiduciary staff are present, and close supervision during implementation	N	L	The grant has some activities to be implemented by the three countries (Ethiopia, Sudan and Egypt) and ENTRO
Overall inherent Risk	S			M	
Control Risk					
Budgeting-weak budgeting and monitoring process	M	ENTRO prepares a five-year strategic plan, which is the basis for annual budget.	N	L	

Accounting-The Financial management manual has not yet been updated.	M	Continued training of staff and close supervision	N	L	NBI FM and Admin manual is under preparation under NBI-ISP. Expected to be finalized and approved by TAC by November 2009
Internal Control-Non existence of Internal audit unit and low capacity in the internal audit profession.	M	Annual audits will help check on the extent of internal control in the respective implementing agencies	N	L	Currently, there is no internal audit section in ENTRO. ENTRO should consider the establishment of an internal audit unit
Financial Reporting-Non regular reports being submitted	M	ENTRO is familiar with the reporting formats and is supposed to submit the reports timely.	N	L	
Auditing-low capacity in the auditing profession	M	Standard ENTRO auditing arrangements in place	N	L	
Overall control Risk	L			L	
Overall Risk Assessment	M			L	

7. In view of the above risk assessment, the overall residual financial management risk rating for ENTRO is **low**.

Strengths and Weaknesses

8. ENTRO is now managed by a strong management team. The Finance and Administration Department (FAD) has well experienced and qualified staff. The Finance Unit has three staff, excluding the Head of FAD. ENTRO has now recruited Head of Finance and Administration starting May 1, 2009. ENTRO uses Microsoft Dynamic Solomon accounting software which has adequate capacity to produce financial statement of the project The project activities are recorded according to its computerized accounting systems by setting separate ledger books so as to report the project activities. The existing system is capable of timely recoding and reporting of transitions on a timely manner. The existing financial management manual needs updating and this is planned to be done under the standardization and harmonization initiative of the NBI institutional strengthening project.

9. One of the means to strengthen the internal control system is to establish a strong Internal Audit Unit. NBI is mandating the establishment of an Internal Audit unit throughout all NBI Institutions including ENTRO. The Financial Management and Admin Manual which is being developed under NBI Institutional Strengthening project (also funded by the Nile Basin Trust Fund) will address this issue and provide a strategy for the NBI Internal Audit. The Manual is expected to be finalized and approved by November 2009.

Staffing

11. ENTRO has adequate accounting staff. At present the accounting department has three accounting staff of which two have degrees in accounting and one has diploma in accounting. This staffs are responsible for undertaking the financial transactions of the program as a whole. ENTRO has employed a qualified accountant as head of Finance and Administration Department. The Head of the Finance and Administration is responsible for the overall financial management of ENTRO. All of the existing finance staff has a long period of relevant experience and adequate qualifications.

Budgeting

12. ENTRO prepares a five-year strategic plan, which is the basis for its annual budget. ENTRO has adequate internal budgeting procedures and these will be applicable to the project. In the budget procedure each year, budget is initiated by each department and is submitted to the budget committee. Each department defends its budget with the budget committee. Subsequently the budget is presented to Eastern Nile Subsidiary Action Plan Team (ENSAPT) and reviewed by its members before it is sent to Eastern Nile Council of Ministers (ENCOM) for approval. Budget execution analysis will explain any exceptions and overruns. Variance analysis and comparison of budget with actual are done on monthly basis and actions are taken based on these analysis.

Accounting

13. ENTRO uses double entry accounting system based on cash basis of accounting. All revenue and expenditures are accounted for on cash basis of accounting. Cost of fixed assets and stock are expensed at the time of purchase, but memorandum records are maintained to control the assets and stock. ENTRO has a Finance manual which is used as a reference guide for the staff working in the Finance Unit. This manual will be replaced by a new financial and administrative manual which is being developed under NBI Institutional Strengthening project. The Manual is expected to be finalized and approved by November 2009. ENTRO uses Microsoft Dynamic Solomon accounting software which has adequate capacity to produce financial statements of the project. The project activities are recorded according to its computerized accounting systems by setting separate ledger books so as to report on the project activities. The existing system is capable of timely recoding and reporting of transitions on a timely manner. ENTRO produces financial statements on monthly basis after five days of the end of the month. The monthly financial statements are produced from the accounting system .ENTRO moved towards modified cash basis of accounting from cash basis accounting system starting 1 July 2008.

Internal Control

14. Internal control comprises the entire system of control, financial or otherwise, established by management in order to (a) carry out the project activities in an orderly and efficient manner, (b) ensure adherence to policies and procedures; and (c) safeguard and the assets of the project and secure as far as possible the completeness and accuracy of the financial and other records.

15. The financial management system for the project has sufficient controls to minimize the possible misuse of funds. The authorization and approval procedures are in place. There is sufficient separation of duties in the payments approval cycle. As noted earlier, ENTRO has a finance manual. Considering the number of projects implemented by ENTRO and in order to further strengthen its internal control system, ENTRO will establish an Internal Audit Unit to help enhance the internal control system.

Fund Flows and Disbursement Arrangements

Funds flow

16. ENTRO will open a Designated Account (DA) in US dollars in a commercial Bank on terms and conditions that are satisfactory to the Bank for the receipt of grant proceeds and will communicate banking details to the World Bank. The DA will be managed by ENTRO. The agreed ceiling for the DA has been determined during negotiation.

17. From the DA, ENTRO will advance a reasonable amount (depending on their projected work program and request made to each of the three countries planning model coordinators as a revolving fund to cover operating costs. The revolving fund will be replenished on submission of utilization report and original supporting documents. ENTRO will issue a one page guideline on how to manage the revolving fund. Any other payment, which cannot be made from the revolving fund, will be paid from the DA. ENTRO will maintain original supporting documents at its Headquarters for purposes of audit of the project.

Disbursement Methods

18. The disbursement methods the project will employ are: Designated Account, Direct Payments, reimbursements and Special Commitment. At the beginning of the project, the designated account will be replenished on the basis of statements of expenditures. It is possible to use the interim unaudited financial reports for the replenishment of the DA after the Bank is satisfied with the adequacy of the financial arrangements, i.e. (a) sustain satisfactory financial management rating during the project's supervision; (b) submit Interim Financial Reports consistent with the agreed form and content within 45 days of the end of each reporting period, and (c) submit Audit Reports by the due date.

Minimum Value of Applications

19. The minimum value for Direct Payment and Special Commitment has been determined during negotiation of the project.

Reporting on Use of Grant Proceeds

20. The supporting documentation for reporting eligible expenditures paid from the designated account should be a summary report of the Statements of Expenditure (SOEs) and records evidencing eligible expenditures for payments against contracts valued above USD 100,000 for goods, USD 200,000 for consulting firms and USD 100,000 for individual consultants.

21. The supporting documentation for direct payment should be records evidencing eligible expenditures (copies of receipt, supplier's invoices, etc).

22. The project will submit a bank statement and a reconciliation of the designated account together with the withdrawal application at least on quarterly basis.

23. All supporting documentation for SOEs will be retained at ENTRO and must be made available for review by periodic World Bank review missions and external auditors.

24. The format of the interim un-audited financial report is attached at the end of this Annex.

Counterpart Funding

25. ENTRO and the three beneficiary countries will provide contribution in-kind amounting to USD 600,000. In-kind contribution will include office space, staff time, etc.

Table C: Allocation of Credit proceeds

Category	Amount ($ million)	Financing Percentages
Works, Goods, Consultant Services, Training/Workshop, and Incremental Operating Costs	6.50	100%

Reporting and Monitoring

26. According to the financial manual of ENTRO, quarterly and annual financial statements will be produced. The statements mainly include statement of cash receipts and payments, budget utilization and trial balance. These statements are presented to management of ENTRO and to the external auditors for review. ENTRO produces regular financial reports on timely basis to be used by various stakeholders, including the Bank.

27. For the grant, ENTRO will produce interim unaudited Financial Reports (IFRs) and will submit the IFRs to the Bank 45 days after the end of each quarter. At a minimum, the financial reports must include the sources and uses of funds, expenditures by main expenditure classifications, beginning and ending cash balances and other supporting schedules. The formats of the IFRs are attached.

28. The financial year of ENTRO is now changed from 1 January to 31 December to 1 July to 30 June. This change was applicable starting 1 July 2008.

External Audit

29. In order to enhance the credibility of the financial statements, the annual financial statements are subject to external audit. The annual financial statements of ENTRO have been audited by an independent audit firm. Currently, there are no outstanding reports. The audit of the project will be carried out in accordance with international standards issued by the International Federation of Accountants (IFAC). The terms of reference for the external audit had been cleared by the Bank for other TFs and that will be applicable for this Project as well. The annual audited financial statements, along with the management letter, will be submitted to IDA not later than six months after the end of the ENTRO fiscal year. According to the audit policy of the Bank, external auditors are expected to issue a single audit opinion on the consolidated financial statements of ENTRO, including financial transactions of the Project along with management letter if ENTRO will integrate the project financial statements within its financial statements. .

Financial covenants

31. ENTRO shall submit audited project financial statements including management letter no later than six months after the close of each fiscal year. ENTRO will submit IFRs 45 days after the end of each calendar quarter.

Supervision plan

32. Considering the nature of the project and its risk, the Bank's supervision mission should be as regular as possible-mainly once a year. The supervision will review the Project's financial management systems and capacity, in accordance with the FM Manual, including but not limited to the operation of Designated Account, evaluating quality of budgets, financial reports, assessing relevance of FM Manual, statement of expenditures, internal controls, reporting and follow up of audit and mission findings. Special attention to review of soft expenditures to check whether they are spent on authentic activities will also be undertaken. Intensity of supervision will be reassessed after the first year of implementation

Annex 8: Procurement Arrangements

EASTERN AFRICA: Eastern Nile Planning Model

A. General

1. Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated May 2004 revised October 2006; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004 revised October 2006, and the provisions stipulated in the Legal Agreement. The various items under different expenditure categories are described in general below. For each contract to be financed by the Loan/Credit, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

2. **Procurement of Works**: No works are expected to be procured under this project.

3. **Procurement of Goods:** Goods procured under this project would include computer hardware, software, data, networking/communications, office equipment and consumables. The procurement will be done using the Bank's SBD for all ICB and shopping as agreed with or satisfactory to the Bank.

4. **Procurement of non-consulting services:** None expected.

5. **Selection of Consultants:** The project is expected to finance a number of consultancies including the main assignment for the development of ENPM, a number of individual consultants to be hired on a long and short term basis (including an international panel of experts, key ENPM development personnel, and interns). Consulting services estimated to cost USD 200,000 or more per contract will be procured through Quality and Cost Based Selection (QCBS). Consulting services for the development of the ENPM is a highly specialized assignment with a high downstream impact and will require having the best experts. The contract for this assignment will therefore be procured through the QBS method using the two envelope system in accordance with paragraphs 3.2 and 3.3 of the Consultants Guidelines. A few long-term individual consultants are proposed to be hired competitively to support ENPM implementation at ENTRO (to be advertised in the Eastern Nile region) and the National Offices (to be advertised in the country). Some of the activities completed under this grant will be undertaken through short term consultancies (individuals or firms) as well as workshops and possible study visits. Small Consultants' Services with an estimated value of less than US$100,000 equivalent for firms may be selected on the basis of Consultants' Qualifications (CQS). Individual consultants will be selected on competitive basis (ICS), and under exceptional circumstances on a Sole Source basis. Short lists of consultants for services estimated to cost less than $200,000 equivalent per contract may be composed entirely of consultants who are nationals of the Eastern Nile (EN) countries in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines. Exceptionally, where the services of government-owned universities in the EN countries are of unique and exceptional nature, and their partnerships critical to project implementation, ENTRO will formally propose for Bank's consideration the hiring of the University of Cairo in Egypt, University of Khartoum in Sudan and University of Addis Ababa in Ethiopia on a case-by-case basis in accordance with paragraph 1.11 (c) of the Consultants Guidelines.

6. **Operating Costs:** The project would contribute about $445,000, approximately 6% of project costs to finance operating costs including administrative, office space, procurement/financial management support, logistical, communication, travel, and other office expenses of ENTRO headquarters. In

addition, the project would finance office expenses and travel in at the National ENPM offices and support for the conduct of training and workshops. ENTRO administrative procedures which have been found acceptable to the Bank will be used for operating expenditure.

7. **Others**: The project would finance internships (e.g. on water resources modeling, environment, economics, and social development issues relating to water) and partnerships with Universities. The grant will fund regional workshops, training exercises and study visits to centers and sites that provide relevant learning opportunities for technical specialists and senior managers. The recipient shall carry out the workshops, training activities and study visits on the basis of programs, which shall have been approved by the Bank and which shall, inter alia, identify the:

(a) Workshop/training/study visit program envisaged;
(b) Personnel to attend the workshop/training/study visits;
(c) Selection method of institutions conduction such workshops/training/study visits;
(d) Duration of the workshop/training/study visit; and
(e) Estimated detailed cost of the workshop/training/study visit.

8. The procurement procedures and SBDs to be used for each procurement method, as well as model contracts for works and goods procured, are presented in the Borrower's harmonized Procurement Manual currently under preparation.

B. Assessment of the agency's capacity to implement procurement

9. Procurement activities will be carried out by the Eastern Nile Technical Regional Office (ENTRO). The agency is staffed by an Executive Director; Senior Regional Project Coordinator, and Coordinators, for Social Development, Irrigation and Drainage, Watershed, ENPM and FPEW projects; Communications Specialist; Regional Financeand Administration Head; Senior Operations Officer: etc., and the procurement function is staffed by two procurement professionals.

10. An assessment of the capacity of ENTRO, to implement procurement actions for the project has been carried out by the procurement specialist from the World Bank Ethiopia Country Office in November/December 2008. The assessment reviewed the organizational structure for implementing the project and the interaction between the project's staff responsible for procurement and ENTRO's Finance and Administration Unit.

11. The key issues and risks concerning procurement for implementation of the project have been identified along with corrective measures which have been agreed. Recommendations of the assessment and the issues remaining to be addressed by ENTRO are reflected in the table below. Procurement actions under the grant are well within the type and size generally managed by ENTRO. ENTRO's key technical staff, the Procurement Officer (PO) and assistant PO, and financial management staff has attended Bank procurement Clinics in Addis Ababa. ENTRO is receiving advice and support on procurement actions through the World Bank's Country Office as and when needed and has been managing several other NBTF and donor funded projects. The agreed actions to address the identified issues are listed in the table below.

No.	Expected outcome / Activity Description	Status	Target Date	Comments
1.	Creation of a tender committee at ENTRO	In process	Aug 15, 2009	The Committee needs to be headed by a senior project staff with members from EN countries and ENTRO's project team
2.	Organizing training on Proposal evaluation	Under preparation	Proposal submission deadline for ENPM primary Consultant	Evaluation committee members need to attend training before deadline of proposal submission for the main study consultancy
3.	Training needs to be assessed and conducted as required	Recurrent	To be determined	Procurement training will be a part of ENTRO training needs currently being assessed. Procurement Officer and assistant PO will get additional refreshment training.
4.	ENTRO to review its internal processes to make them more efficient	Recurrent	To be determined	ENTRO undertakes some unnecessary steps in its procurement processes due to its set up and reporting requirements e.g. 17 typical steps to recruit an Individual Consultant (see below). The harmonized NBI procurement manual will address this and once adopted will be implemented by ENTRO

12. Typical steps followed by ENTRO in the recruitment of an Individual Consultant that need to be streamlined to avoid delays in getting consultants on board:

> 1. Position identified; 2. TOR Prepared; 3. Request for EOI drafted; 4. TOR and Request for EOI approved; 5. Advertisement placed in 3 or 9 member countries; 6. Applications opened in a formal meeting; 7. Long list prepared; 8. Short List prepared; 9. Short List approved; 10. Interviews conducted; 11. Interview Report; 12. Interview Report approved; 13. Contract Negotiated; 14. Contract drafted and Initialed; 15. Draft Contract approved; 16. Contract Awarded; 17. Contract signed.

13. The overall project risk for procurement to the ENPM project is **HIGH** and the thresholds for prior review, for International Competitive Bidding (ICB) including the maximum contract value for which the short list of consultants may comprise exclusively national firms in the selection of consultants are presented in the table below: The contracts whose values are below the prior review threshold but which will be subject to prior review are indicated in the procurement plan.

Table of Thresholds

CATEGORY	PRIOR REVIEW THRESHOLD ($)	ICB THRESHOLD ($)	NATIONAL SHORT LIST MAX VALUE ($)
Goods	>500,000	>500,000	NA
Consultants (Firms)	>200,000	NA	<200,000
Consultants (Individuals)	>100,000	NA	NA

C. Procurement Plan

14. The Borrower, at appraisal, developed a procurement plan for project implementation which provides the basis for the procurement methods. This plan has been agreed between the Borrower and the Bank Team on June 19, 2009 is attached at the end of this Annex and is available at the ENTRO office in Addis Ababa. It will also be available in the project's database and in the Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

D. Frequency of Procurement Supervision

15. In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agency has recommended emi-annual supervision missions to visit the field to carry out post review of procurement actions.

E. Details of the Procurement Arrangements - Procurement Plan

1. Goods, Works, and Non Consulting Services

(a) List of contract packages to be procured following ICB and direct contracting:
None expected.

(b) All ICB and contracts estimated to cost above $500,000 per contract and all direct contracting will be subject to prior review by the Bank. The first two contracts for goods procured through the methods other than ICB will be subject to prior review by the Bank.

1	2	3	4	5	6	7	8	9
Ref. No.	**Contract (Description)**	**Estimated Cost ($)**	**Procurement Method**	**Pre-qualification (yes/no)**	**Domestic Preference (yes/no)**	**Review by Bank (Prior / Post)**	**Expected Bid-Opening Date**	**Comments**
I	**Goods**							
1	Procurement of IT/Office Equipment and soft ware for ENTRO HQ	75,000 (split into packages)	Shopping	NO	NO	Prior	2nd quarter of 2010	In lots as appropriate
2	Procurement of Datasets/ Satellite Imagery	75,000 (split into packages)	Shopping	NO	NO	Prior	2nd quarter of 2010	Several Contracts
3	Procurement of IT/Office Equipment and soft ware for Ethiopia ENPM Office & University Outreach Center	50,000	Shopping	NO	NO	POST	2nd quarter of 2010	1 contract
3	Procurement of IT/Office Equipment and soft ware for Egypt ENPM Office & University Outreach Center	50,000	Shopping	NO	NO	POST	2nd quarter of 2010	1 contract
4	Procurement of IT/Office Equipment and soft ware for Sudan ENPM Office & University Outreach Center	50,000	Shopping	NO	NO	POST	2nd quarter of 2010	1 contract

2. Consulting Services

(a) Consultancy services estimated to cost US$200,000 or more per contract for firms and assignments estimated to cost above $100,000 for individuals and all single source selection of consultants will be subject to prior review by the Bank.

(b) Short lists composed entirely of consultants who are nationals of the EN member countries: Short lists of consultants for services estimated to cost less than $200,000 equivalent per contract may be composed entirely of consultants who are nationals of the EN member countries in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

1	2	3	4	5	6	7
Ref. No.	**Description of Assignment**	**Estimated Cost**	**Selection Method**	**Review by Bank (Prior / Post)**	**Expected Proposals Submission Date**	**Comments**
I	**Consulting Firm**					
1	Consultancy Service for ENPM	2,500,000	QBS	Prior	Nov. 2009	30 months
II	**Individual Consultants – ENTRO HQ**					
2	ENPM Regional Program Coordinator	252,000			Aug. 2009	36 months
4	Regional Modeling Specialist	216,000	IC	Prior	Sep. 2009	36 months
5	Regional Information Management Specialist	216,000	IC	Prior	Sep. 2009	36 months
7	Regional ENPM Water resources Planning Specialist	50,000	IC	Prior	Sep. 2009	10 months
8	Regional ENPM Environmental Specialist	50,000	IC	Post	Sep. 2009	10 months
9	Regional ENPM Economist	50,000	IC	Post	Sep. 2009	10 months
10	Regional Social Development/Communication Specialist	50,000	IC	Post	Sep. 2009	10 months
11	Expert Panel - Water Resource Modeling Specialist	60,000	IC	Post	Dec. 2009	3 months
12	Expert Panel - Multi-criteria Project Appraisal Specialist	60,000	IC	Post	Dec. 2010	3 months
13	Expert Panel - Information Systems Specialist	60,000	IC	Post	Dec. 2009	3 months
14	Special Studies	100,000	IC	Post	Apr. 2010	Multiple
15	Additional Staff at ENTRO (FM/ Procurement/ team support)	100,000	IC	Post	Sep. 2009	As required
III	**Individual Consultants – ENPM Offices in Egypt/ Sudan/ Ethiopia**					
16	Technical Modeling Officer Ethiopia	126,000	IC	Prior	Oct. 2009	36 months
17	Information	72,000	IC	POST	Oct. 2009	36 months

	management Officer Ethiopia					
18	Technical Modeling Officer Sudan	126,000	IC	Prior	Oct. 2009	36 months
19	Information management Officer Sudan	72, 000	IC	POST	Oct. 2009	36 months
20	Technical Modeling Officer Egypt	126,000	IC	Prior	Oct. 2009	36 months
21	Information management Officer Egypt	72,000	IC	POST	Oct. 2009	36 months
IV	**Training and Work Shops**					
22	ENTRO Training and Workshops	200,000		Post		Multiple
23	Ethiopia Training and Workshops	20,000		Post		Multiple
24	Sudan Training and Workshops	20,000		Post		Multiple
25	Egypt Training and Workshops	20,000		Post		Multiple
1V	**Operating Expenses**					
26	ENTRO Operating Expenses (Travel, internships, web hosting and office expenses)	445,000				Multiple
27	Ethiopia ENPM Office Operating Expenses	186,000				Multiple
28	Sudan ENPM Office Operating Expenses	186,000				Multiple
29	Egypt ENPM Office Operating Expenses	186,000				Multiple

Annex 9: Economic and Financial Analysis

EASTERN AFRICA: Eastern Nile Planning Model

1. The Project will contribute to the overall success of the ENSAP by generating the necessary shared knowledge base and modeling tools and frameworks. While the Project will generate direct economic benefits (e.g. information base, capacity building and training of ENTRO, EN countries, and associated staff, analytical tools, stakeholder involvement), the economic benefits of these are difficult to quantify.

2. However, the true benefits of the Project will result from the actual use of the knowledge base and analytical tools, as well as the associated process of building these frameworks (e.g. stakeholder involvement), and most importantly, the identification, evaluation (including cost-benefit analysis, sensitivity analysis, investment scenario comparison), and prioritization of water-related investments within the regional context.

3. The ENPM costs compare favorably to the initial phases of similar decision support systems in other parts of the world and are expected to be well worth the investment given its impact on designing and selecting investment scenarios that are expected to cost billions of USD. It is expected that the benefits arising from the early identification of "win-win" investment strategies (analyzed at regional level through the ENPM) and strengthening regional interaction would far outweigh the cost of the ENPM project.

Annex 10: Safeguard Policy Issues

EASTERN AFRICA: Eastern Nile Planning Model

1. 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.

2. **Environment:** There are expected to be no significant adverse environmental impacts of the ENPM project. The project seeks to improve the systematic management of the growing environmental knowledge base of the region, collating information on the climate, water resources, land, and known environmental impacts of investments. The modeling to be supported intends to try and capture the often neglected but critical environmental impacts of proposed investments. As in the social case, the comprehensiveness of this difficult task will depend on the state of the knowledge base and relationships to be modeled with the available information. The institutional capacity to better manage environmental issues will be strengthened through staffing (environmental experts and interns), training, university partnerships, and awareness-building efforts.

3. OP 7.50 (Project on International Waterways) does not apply to the project since there are no investments of the type contemplated in paragraph 2 of OP 7.50. The project, which involves neither physical water resources investments nor detailed design and engineering studies, seeks to assist in the development of modeling tools to identify water-related investments and evaluate them in a regional context. Furthermore, as no water resources surveys or feasibility studies on the Nile River are to be undertaken under the project, the issue of the exception to the notification, and the requirement for a memorandum to the RVP for that purpose does not arise either. The Eastern Nile Council of Ministers (ENCOM) has approved the ENPM project and the Council of Ministers of Water Affairs of the Nile Basin Countries (NILECOM) of the Nile Basin Initiative (NBI) has taken note of it while discussing the Eastern Nile Subsidiary Action Program All three current members of the Eastern Nile Technical Regional Organisation (Egypt, Ethiopia, and Sudan) have provided letters of commitment to support its implementation. Eritrea is located in the Nile basin and has observer status in NBI. Should Eritrea join NBI as a full member, all efforts will be made to restructure the project to include it upon request of the NBI.

4. **Social:** The project is not expected to have any significant adverse social impacts. The social knowledge base on the Eastern Nile is not well established or organized. The ENPM would seek to collate available social information, including what is known about the social impacts of proposed projects. The modeling tools, that often neglect social issues, are being designed at the request of the ENPM regional working group to try to best capture social issues in evaluating and comparing scenarios. This is difficult and much of the initial effort in the ENPM will be in examining the depth of the available knowledge base (e.g. people that need to be resettled for particular projects depends on whether pre/feasibility studies or other relevant surveys have been conducted) and outlining social impact indicators and relationships that can be modeled effectively (e.g. jobs per ha of irrigated area developed in different locations) with the available information. Broad stakeholder awareness and participation is limited in many such modeling efforts. The ENPM has already initiated stakeholder participation through a multi-sectoral regional working group that has guided the ENPM preparation. It is expected that a major role of the ENPM is to improve stakeholder awareness and interaction in order to develop a shared understanding of potential water investments in a regional context and guide the development of the knowledge base and analytical tools. Social capital is being built through project staffing (social development experts and interns), training, information dissemination, meetings, university partnerships and just working together across sectors and countries to better understand

how the significant potential of the Eastern Nile can be harnessed to improve livelihoods and reduce vulnerability, especially of the poor.

5. Furthermore, a ‘Strategy for Addressing Environmental and Social Safeguards’ was developed under the NBI Institutional Strengthening Project in 2008. This document is applicable to all technical assistance projects that fall under NBI. The ongoing NBI Institutional Strengthening Project will support the development of a Nile safeguards framework that will set the ground rules for investment operations in the Nile Basin.

Annex 11: Project Preparation and Supervision

EASTERN AFRICA: Eastern Nile Planning Model

	Planned	Actual
PCN review	-	December 5, 2006
Initial PID to PIC		May 2, 2006
Initial ISDS to PIC		July 26, 2006
Appraisal		July 29, 2009
Negotiations		July 29-31, 2009
Board/RVP approval (Grant Agreement)	August 15, 2009	
Planned date of effectiveness	August 15, 2009	
Planned date of mid-term review	March 31, 2011	
Planned closing date	October 30, 2012	

Key institutions responsible for preparation of the project:

(i) The Eastern Nile Technical Regional Office, Addis Ababa, Ethiopia
(ii) The Federal Ministry of Water Resources, Government of Ethiopia
(iii) The Ministry of Irrigation and Water Resources, Government of Sudan
(iv) The Ministry of Water Resources and Irrigation, Government of Egypt
(v) Eastern Nile Planning Model Regional Working Group (drawn from all three countries)
(vi) ENPM Project Preparation Consultants (Riverside Technology, Inc., USA)

Bank staff and consultants who worked on the project included:

Name	Title	Unit
N. Harshadeep	Senior Environmental Specialist (TTL)	SASDI
E.V. Jagannathan	Senior Water Resources Engineer (Co-TTL)	AFTWR
Barbara Miller	Lead Water Resources Specialist (Cluster Leader)	AFTWR
Winston Yu	Water Resources Specialist	SASDA
Roxanne Hakim	Senior Anthropologist	AFTS2
Tafesse Freminatos Abrham	Senior Financial Management Specialist	AFTFM
Richard Olowo	Senior Procurement Specialist	AFTPC
Evarist Baimu	Counsel	LEGAF
Daryl Fields	Senior Hydropower Specialist	ETWWA
Astrid Hillers	Senior Environmental Specialist	ENV
Zaure Schwade	Operations Analyst	AFTWR
Duncan Burrell	Operations Analyst	OPCFC
Mikael A Ketsela	Operations Analyst	AFTWR
Eileen Burke	Operations Analyst	AFTWR
Thembi Kumapley	Team Assistant	AFTWR
Lakech Tsegaye	Team Assistant	AFCE3

Peer Reviewers: Don Blackmore (former CEO of the Murray-Darling Basin Authority, Australia), Walter Garvey (former Regional Water Advisor, SAR), Rita Cestti (Sr. Rural Development Specialist, OPCQC), and Vahid Alavian (then Water Advisor, ARD; now Advisor, AFTEG)

	Bank Budget	Nile Basin Trust Fund
Preparation up to Grant Agreement signing	$10,000	$80,000
Supervision (annual budget)	$30,000	$80,000

Annex 12: Documents in the Project File

EASTERN AFRICA: Eastern Nile Planning Model

The key ENPM Project Documents in the Project File include:

- 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

Other Related Documents

- NBI Overview
- ENSAPT Project Documents
- Eastern Nile One-System Inventory (hydrologic, environmental and socio-economic data)
- Scoping Study of Opportunities for Cooperative Development of the Eastern Nile (2008).
- Comments on the Scoping Study of the JMP (Egypt, Aug 2008)
- Joint Multipurpose Program (JMP) Reports
- A Report on Institutional and Legal Considerations Associated with Achieving a JMP
- EN Watershed Management Cooperative Regional Assessment (CRA) Report
- Reports of EN Regional Power Trade Study Phase 1, including pre-feasibility studies of Mendaya, Border and Dal multipurpose dams
- EN Irrigation and Drainage Cooperative Regional Assessment (CRA) Report
- A Report on the Implications of Climate Change on Potential Multipurpose Storage on the Abbay/Blue Nile

Annex 13: Statement of Loans and Credits

EASTERN AFRICA: Eastern Nile Planning Model

Project ID	FY	Purpose	Original Amount in US$ Millions						Difference between expected and actual disbursements	
			IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
		Total:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

EASTERN AFRICA
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

		Committed				Disbursed			
		IFC				IFC			
FY Approval	Company	Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
	Total portfolio:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
	Total pending commitment:	0.00	0.00	0.00	0.00

EGYPT, ARAB REPUBLIC OF: Eastern Nile Planning Model

			Original Amount in US$ Millions						Difference between expected and actual disbursements	
Project ID	FY	Purpose	IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
P101103	2009	EGYPT-RAILWAYS RESTRUCTURING	270.00	0.00	0.00	0.00	0.00	270.00	0.00	0.00
P100047	2009	EG-Ain Sokhna Power	600.00	0.00	0.00	0.00	0.00	600.00	0.00	0.00
P095392	2008	EG-NATURAL GAS CONNECTIONS	75.00	0.00	0.00	0.00	0.00	75.00	0.00	0.00
P094311	2008	EG INTEGRATED SANITATION & SEWERAGE INFR	120.00	0.00	0.00	0.00	0.00	120.00	1.00	0.00
P087970	2007	West Delta Water Conserv. & Irrig. Rehab	145.00	0.00	0.00	0.00	0.00	145.00	90.00	0.00
P093470	2007	EG-MORTGAGE FINANCE	37.10	0.00	0.00	0.00	0.00	12.27	-3.57	0.00
P091945	2006	EG-EL TEBBIN POWER	259.60	0.00	0.00	0.00	0.00	159.46	58.26	32.08
P090073	2006	EG-Second Pollution Abatement	20.00	0.00	0.00	0.00	0.00	16.74	10.74	10.74
P082952	2005	EG-Early Childhood Education Enhancement	20.00	0.00	0.00	0.00	0.00	16.05	12.48	0.00
P073977	2005	EG-INTEGRATED IRRIGATION IMPR. & MGT	120.00	0.00	0.00	0.00	0.00	111.57	36.57	2.83
P082914	2004	EG-AIRPORTS DEVELOPMENT PROJECT	375.00	0.00	0.00	0.00	0.00	40.24	0.24	21.63
P049702	2004	EG-SKILLS DEVELOPMENT	5.50	0.00	0.00	0.00	0.00	1.69	1.69	-0.53
P045499	2000	EG-NATIONAL DRAINAGE II	50.00	0.00	0.00	0.00	0.00	0.63	0.63	0.65
P050484	1999	EG Secondary Education Enhancement Proj	0.00	50.00	0.00	0.00	0.00	19.92	16.89	2.54
P049166	1998	EG East Delta Ag. Serv.	0.00	15.00	0.00	0.00	0.62	3.30	2.28	2.02
		Total:	2,097.20	65.00	0.00	0.00	0.62	1,591.87	227.21	71.96

EGYPT, ARAB REPUBLIC OF
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

		Committed				Disbursed			
		IFC				IFC			
FY Approval	Company	Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
1996	ANSDK	1.33	0.00	0.00	0.00	0.56	0.00	0.00	0.00
2004	Alexandria Fiber	8.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00
2001	Amreya	4.69	0.00	0.00	0.00	4.69	0.00	0.00	0.00
2006	CIB LLC	0.00	0.72	0.00	0.00	0.00	0.48	0.00	0.00
1999	CIL	0.00	0.74	0.00	0.00	0.00	0.74	0.00	0.00
2004	CIL	0.00	0.15	0.00	0.00	0.00	0.15	0.00	0.00
1992	Carbon Black-EGT	0.00	1.48	0.00	0.00	0.00	1.48	0.00	0.00
1997	Carbon Black-EGT	0.00	1.48	0.00	0.00	0.00	1.48	0.00	0.00
1998	Carbon Black-EGT	4.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
2000	Carbon Black-EGT	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	Ceramica Al-Amir	3.33	0.00	0.00	0.00	3.33	0.00	0.00	0.00
2006	Cmrcl Intl Bank	0.00	23.28	0.00	0.00	0.00	23.03	0.00	0.00
2006	EFG Hermes	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2004	EHF	0.00	1.70	0.00	0.00	0.00	1.70	0.00	0.00
2005	Egypt Factors	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00
2006	Gippsland	0.00	4.61	0.00	0.00	0.00	2.03	0.00	0.00
2001	IT Worx	0.00	2.00	0.00	0.00	0.00	2.00	0.00	0.00
2004	Lecico Egypt	8.94	0.00	0.00	0.00	8.94	0.00	0.00	0.00
1986	Meleiha Oil	0.00	8.62	0.00	0.00	0.00	0.00	0.00	0.00
1988	Meleiha Oil	0.00	9.20	0.00	0.00	0.00	0.00	0.00	0.00
1992	Meleiha Oil	0.00	13.00	0.00	0.00	0.00	0.94	0.00	0.00
2005	Merlon Egypt	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2002	Metro	10.50	0.00	0.00	0.00	10.50	0.00	0.00	0.00
1992	Misr Compressor	9.70	0.00	0.00	0.00	9.70	0.00	0.00	0.00
	Orix Leasing EGT	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1996	Orix Leasing EGT	0.00	0.53	0.00	0.00	0.00	0.53	0.00	0.00
2001	Orix Leasing EGT	1.09	0.00	0.00	0.00	1.09	0.00	0.00	0.00
2001	Port Said	41.07	0.00	0.00	132.53	41.07	0.00	0.00	132.53
2002	SEKEM	4.18	0.00	0.00	0.00	4.18	0.00	0.00	0.00
2006	SONUT	10.00	0.00	4.00	0.00	0.00	0.00	0.00	0.00
2004	SPDC	18.40	0.00	0.00	0.00	18.40	0.00	0.00	0.00
2001	SUEZ GULF	40.40	0.00	0.00	129.07	40.40	0.00	0.00	129.07
1997	UNI	2.05	0.00	0.00	0.00	2.05	0.00	0.00	0.00
2001	UNI	2.06	0.00	0.00	0.00	2.06	0.00	0.00	0.00
2005	Wadi Group	15.00	0.00	0.00	0.00	7.50	0.00	0.00	0.00
	Total portfolio:	214.74	70.51	4.00	261.60	165.47	34.56	0.00	261.60

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
2004	ACB Acrylic	0.00	0.00	0.00	0.00
2004	Merlon Egypt	0.00	0.00	0.00	0.02
2000	ACB Expansn III	0.00	0.00	0.00	0.00
2006	Rally Energy	0.01	0.00	0.00	0.00
	Total pending commitment:	0.01	0.00	0.00	0.02

ETHIOPIA: Eastern Nile Planning Model

			Original Amount in US$ Millions						Difference between expected and actual disbursements	
Project ID	FY	Purpose	IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
P113156	2009	ETHIOPIA GLOBAL FOOD CRISIS RESPONSE PRO	0.00	250.00	0.00	0.00	0.00	9.41	-9.00	0.00
P106855	2009	ET-General Educ Quality Improv. (FY09)	0.00	50.00	0.00	0.00	0.00	51.60	0.00	0.00
P096323	2008	ET-Tana &Beles Int. Wat Res Dev Project	0.00	45.00	0.00	0.00	0.00	37.91	-3.00	0.00
P101474	2008	ET-Urban Local Govt Development (FY08)	0.00	150.00	0.00	0.00	0.00	122.67	-5.31	0.00
P101556	2008	ET-Elect. Access Rural II SIL (FY07)	0.00	130.00	0.00	0.00	0.00	132.72	43.19	0.00
P074011	2008	ET/Nile Basin Initiative:ET-SU Interconn	0.00	41.05	0.00	0.00	0.00	36.16	4.85	0.00
P106228	2008	ET- Ethiopia Nutrition SIL (FY08)	0.00	30.00	0.00	0.00	0.00	26.69	-3.00	0.00
P107139	2008	ET-Sustainable Land Mngt SIL (FY08)	0.00	20.00	0.00	0.00	0.00	18.10	-0.50	0.00
P108932	2008	ET-Pastoral Community Develpt II (FY08)	0.00	80.00	0.00	0.00	0.00	63.52	1.00	0.00
P101473	2007	ET-Urban WSS SIL FY07)	0.00	100.00	0.00	0.00	0.00	87.29	8.66	0.00
P098031	2007	ET-Multi-Sectoral HIV/AIDS II (FY07)	0.00	30.00	0.00	0.00	0.00	17.63	17.37	0.00
P092353	2007	ET-Irrigation & Drainage SIL (FY07)	0.00	100.00	0.00	0.00	10.00	77.03	33.73	0.00
P091077	2007	ET-APL3-RSDP Stage III Proj (FY07)	0.00	225.00	0.00	0.00	0.00	200.50	25.97	0.00
P079275	2006	ET- Cap. Building for Agric. Serv (FY06)	0.00	54.00	0.00	0.00	13.00	27.44	5.52	-1.80
P094704	2006	ET-Financial Sector Cap Bldg. Project	0.00	15.00	0.00	0.00	0.00	12.51	7.04	0.00
P097271	2006	ET-Electricity Access (Rural) Expansion	0.00	133.40	0.00	0.00	0.00	111.34	95.85	0.00
P074015	2006	ET-Protection of Basic Services (FY06)	0.00	430.00	0.00	0.00	0.00	20.21	-209.88	0.00
P082998	2005	ET-Road Sec Dev Prgm Ph 2 Supl 2 (FY05)	0.00	248.20	0.00	0.00	0.00	137.35	22.57	-6.87
P078692	2005	ET-Post Secondary Education SIL (FY05)	0.00	40.00	0.00	0.00	15.00	7.70	20.58	0.00
P078458	2005	ET-ICT Assisted Dev SIM (FY05)	0.00	25.00	0.00	0.00	0.00	15.31	13.63	6.22
P050272	2005	ET-Priv Sec Dev CB (FY05)	0.00	24.00	0.00	0.00	7.00	10.30	8.85	2.71
P074020	2004	ET-Pub Sec Cap Bldg Prj (FY04)	0.00	100.00	0.00	0.00	20.00	15.00	29.05	0.00
P076735	2004	ET-Water Sply & Sanitation SIL (FY04)	0.00	100.00	0.00	0.00	13.00	44.86	39.97	0.00
P049395	2003	ET-Energy Access SIL (FY03)	0.00	132.70	0.00	0.00	0.00	96.92	71.88	69.35
P044613	2003	ET-RSDP APL1 (FY03)	0.00	126.80	0.00	0.00	0.00	19.45	4.74	0.00
P050383	2002	ET-Food Security SIL (FY02)	0.00	85.00	0.00	0.00	35.00	2.06	17.15	-13.87
		Total:	0.00	2,765.15	0.00	0.00	113.00	1,401.68	240.91	55.74

ETHIOPIA
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

		Committed				Disbursed			
		IFC				IFC			
FY Approval	Company	Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
	Total portfolio:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
	Total pending commitment:	0.00	0.00	0.00	0.00

SUDAN: Eastern Nile Planning Model

Project ID	FY	Purpose	Original Amount in US$ Millions						Difference between expected and actual disbursements	
			IBRD	IDA	SF	GEF	Cancel.	Undisb.	Orig.	Frm. Rev'd
		Total:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

SUDAN
STATEMENT OF IFC's
Held and Disbursed Portfolio
In Millions of US Dollars

		Committed				Disbursed			
		IFC				IFC			
FY Approval	Company	Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
	Total portfolio:	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		Approvals Pending Commitment			
FY Approval	Company	Loan	Equity	Quasi	Partic.
	Total pending commitment:	0.00	0.00	0.00	0.00

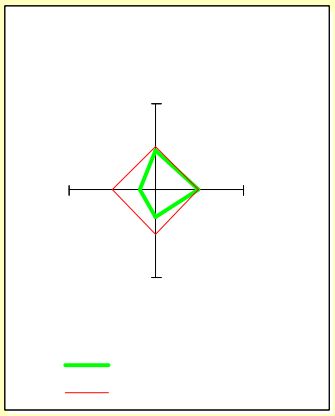
Annex 14: Country at a Glance

EASTERN AFRICA: Eastern Nile Planning Model

Ethiopia at a glance

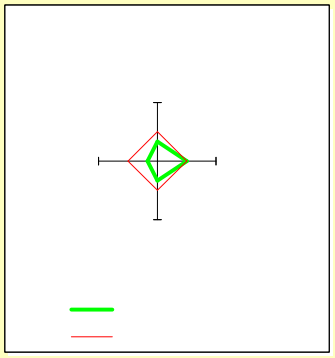
9/24/08

POVERTY and SOCIAL	Ethiopia	Sub-Saharan Africa	Low-income
2007			
Population, mid-year *(millions)*	79.1	800	1,296
GNI per capita *(Atlas method, US$)*	220	952	578
GNI *(Atlas method, US$ billions)*	17.6	762	749
Average annual growth, 2001-07			
Population *(%)*	2.6	2.5	2.2
Labor force *(%)*	2.9	2.6	2.7
Most recent estimate (latest year available, 2001-07)			
Poverty *(% of population below national poverty line)*	..	..	..
Urban population *(% of total population)*	17	36	32
Life expectancy at birth *(years)*	52	51	57
Infant mortality *(per 1,000 live births)*	77	94	85
Child malnutrition *(% of children under 5)*	35	27	29
Access to an improved water source *(% of population)*	42	58	68
Literacy *(% of population age 15+)*	36	59	61
Gross primary enrollment *(% of school-age population)*	91	94	94
Male	97	99	100
Female	85	88	89

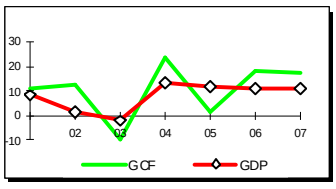


KEY ECONOMIC RATIOS and LONG-TERM TRENDS	1987	1997	2006	2007
GDP *(US$ billions)*	10.4	8.9	15.2	19.4
Gross capital formation/GDP	16.1	19.8	24.2	25.0
Exports of goods and services/GDP	6.0	11.4	13.8	12.8
Gross domestic savings/GDP	10.5	13.2	1.5	5.5
Gross national savings/GDP	11.9	17.8	15.1	20.7
Current account balance/GDP	-4.2	-2.2	-9.1	-4.5
Interest payments/GDP	0.6	0.5	0.4	..
Total debt/GDP	70.5	113.3	15.3	..
Total debt service/exports	38.3	9.5	7.1	..
Present value of debt/GDP	..	..	5.9	..
Present value of debt/exports	..	..	38.7	..

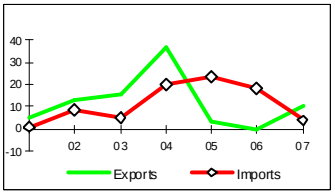
	1987-97	1997-07	2006	2007	2007-11
(average annual growth)					
GDP	2.0	6.2	10.9	11.1	..
GDP per capita	-1.3	3.3	8.0	8.4	..
Exports of goods and services	1.2	12.8	-0.2	10.2	..



STRUCTURE of the ECONOMY	1987	1997	2006	2007
(% of GDP)				
Agriculture	54.3	57.6	47.9	46.3
Industry	13.3	10.7	12.7	13.4
Manufacturing	5.5	5.0	4.5	5.1
Services	32.5	31.7	39.4	40.3
Household final consumption expenditure	79.0	78.8	86.4	83.9
General gov't final consumption expenditure	10.6	8.0	12.1	10.6
Imports of goods and services	11.7	17.9	36.5	32.2



	1987-97	1997-07	2006	2007
(average annual growth)				
Agriculture	3.1	4.3	10.9	9.4
Industry	-1.5	7.8	10.2	11.0
Manufacturing	-2.8	5.7	10.6	10.5
Services	1.5	7.7	12.9	13.9
Household final consumption expenditure	3.1	6.4	14.3	8.9
General gov't final consumption expenditure	-2.9	6.4	8.1	-3.8
Gross capital formation	-0.8	6.6	18.5	17.4
Imports of goods and services	0.7	10.4	18.0	3.8



Note: 2007 data are preliminary estimates.

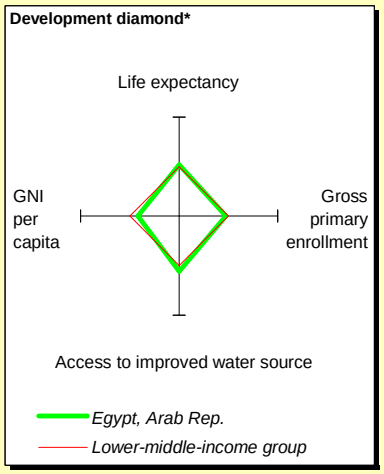
This table was produced from the Development Economics LDB database.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

Egypt, Arab Rep. at a glance

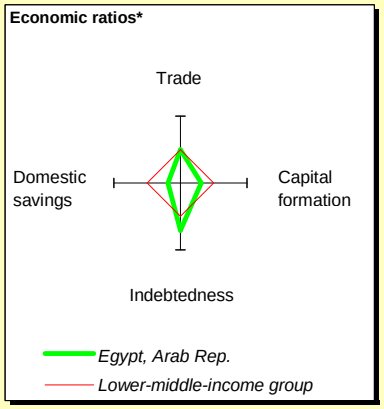
9/24/08

POVERTY and SOCIAL	Egypt	M. East & North Africa	Lower-middle-income
2007			
Population, mid-year *(millions)*	75.5	313	3,437
GNI per capita *(Atlas method, US$)*	1,580	2,794	1,887
GNI *(Atlas method, US$ billions)*	119.4	876	6,485
Average annual growth, 2001-07			
Population *(%)*	1.8	1.8	1.1
Labor force *(%)*	2.8	3.6	1.5
Most recent estimate (latest year available, 2001-07)			
Poverty *(% of population below national poverty line)*	..	..	..
Urban population *(% of total population)*	43	57	42
Life expectancy at birth *(years)*	71	70	69
Infant mortality *(per 1,000 live births)*	29	34	41
Child malnutrition *(% of children under 5)*	5	..	25
Access to an improved water source *(% of population)*	98	89	88
Literacy *(% of population age 15+)*	71	73	89
Gross primary enrollment *(% of school-age population)*	105	105	111
Male	107	108	112
Female	102	103	109

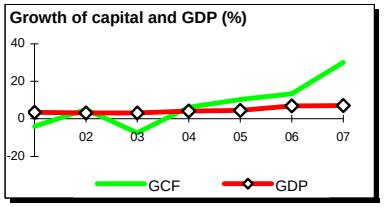


KEY ECONOMIC RATIOS and LONG-TERM TRENDS	1987	1997	2006	2007
GDP *(US$ billions)*	40.5	78.4	107.5	128.1
Gross capital formation/GDP	26.1	17.6	18.7	21.9
Exports of goods and services/GDP	12.6	18.8	29.9	31.3
Gross domestic savings/GDP	15.9	11.5	17.1	14.0
Gross national savings/GDP	19.1	17.3	22.0	24.3
Current account balance/GDP	-2.3	0.2	1.6	2.1
Interest payments/GDP	1.2	1.0	0.6	..
Total debt/GDP	109.0	38.4	27.3	..
Total debt service/exports	17.9	10.0	5.4	..
Present value of debt/GDP	..	..	24.0	..
Present value of debt/exports	..	..	63.1	..

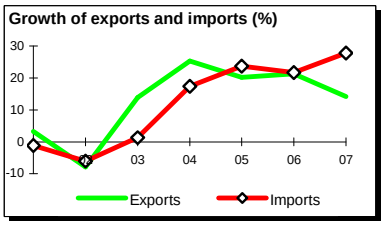
	1987-97	1997-07	2006	2007	2007-11
(average annual growth)					
GDP	4.1	4.5	6.8	7.1	6.8
GDP per capita	2.0	2.6	4.9	5.2	5.7
Exports of goods and services	6.3	9.5	21.3	14.2	19.6



STRUCTURE of the ECONOMY	1987	1997	2006	2007
(% of GDP)				
Agriculture	20.5	17.0	14.1	13.0
Industry	27.1	31.2	38.4	35.5
Manufacturing	16.5	17.6	16.6	15.8
Services	52.4	51.8	47.5	51.5
Household final consumption expenditure	69.9	77.2	70.6	74.8
General gov't final consumption expenditure	14.3	11.3	12.3	11.2
Imports of goods and services	22.8	24.9	31.6	39.2



	1987-97	1997-07	2006	2007
(average annual growth)				
Agriculture	2.8	3.4	3.2	3.7
Industry	6.3	4.3	9.8	8.0
Manufacturing	5.3	4.9	5.9	7.6
Services	2.7	4.8	6.1	5.3
Household final consumption expenditure	4.7	3.4	5.2	6.5
General gov't final consumption expenditure	2.3	4.1	3.1	20.0
Gross capital formation	-1.2	4.7	13.3	30.1
Imports of goods and services	2.5	6.7	21.8	27.8



Note: 2007 data are preliminary estimates.

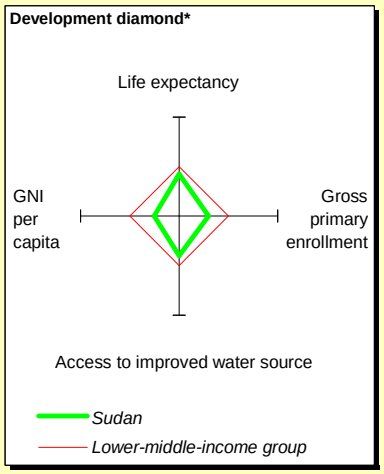
This table was produced from the Development Economics LDB database.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

Sudan at a glance

9/24/08

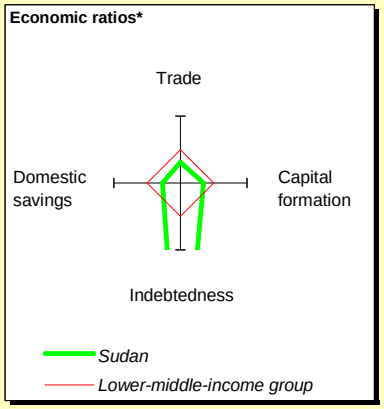
POVERTY and SOCIAL	Sudan	Sub-Saharan Africa	Lower-middle-income
2007			
Population, mid-year *(millions)*	38.6	800	3,437
GNI per capita *(Atlas method, US$)*	950	952	1,887
GNI *(Atlas method, US$ billions)*	36.7	762	6,485
Average annual growth, 2001-07			
Population *(%)*	2.1	2.5	1.1
Labor force *(%)*	2.7	2.6	1.5
Most recent estimate (latest year available, 2001-07)			
Poverty *(% of population below national poverty line)*	..	..	..
Urban population *(% of total population)*	43	36	42
Life expectancy at birth *(years)*	58	51	69
Infant mortality *(per 1,000 live births)*	61	94	41
Child malnutrition *(% of children under 5)*	..	27	25
Access to an improved water source *(% of population)*	70	58	88
Literacy *(% of population age 15+)*	..	59	89
Gross primary enrollment *(% of school-age population)*	66	94	111
Male	71	99	112
Female	61	88	109



KEY ECONOMIC RATIOS and LONG-TERM TRENDS

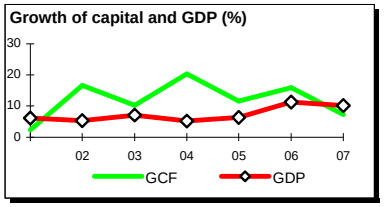
	1987	1997	2006	2007
GDP *(US$ billions)*	20.6	11.7	36.4	46.2
Gross capital formation/GDP	15.1	15.8	24.8	24.2
Exports of goods and services/GDP	5.5	5.3	16.5	20.1
Gross domestic savings/GDP	9.5	8.6	13.9	20.5
Gross national savings/GDP	12.0	9.5	9.7	11.9
Current account balance/GDP	-2.1	-6.3	-15.1	-12.4
Interest payments/GDP	0.1	0.0	0.1	..
Total debt/GDP	54.5	139.8	52.6	..
Total debt service/exports	12.0	9.0	4.8	..
Present value of debt/GDP	..	..	56.4	..
Present value of debt/exports	..	..	336.4	..

	1987-97	1997-07	2006	2007	2007-11
(average annual growth)					
GDP	4.2	6.6	11.3	10.2	8.8
GDP per capita	1.7	4.3	8.9	7.7	7.3
Exports of goods and services	-1.2	21.7	0.4	33.6	..

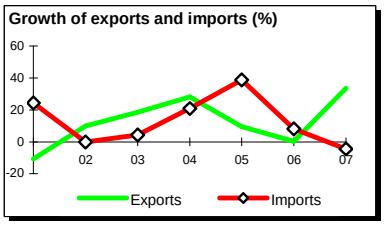


STRUCTURE of the ECONOMY

	1987	1997	2006	2007
(% of GDP)				
Agriculture	32.8	46.8	30.1	28.3
Industry	16.3	14.6	29.2	30.7
Manufacturing	8.8	8.8	6.3	6.1
Services	50.9	38.6	40.8	41.0
Household final consumption expenditure	77.8	86.0	69.4	64.8
General gov't final consumption expenditure	12.8	5.4	16.7	14.8
Imports of goods and services	11.1	12.5	27.5	23.9



	1987-97	1997-07	2006	2007
(average annual growth)				
Agriculture	4.7	2.0	4.4	3.1
Industry	4.8	12.5	16.4	20.0
Manufacturing	4.5	3.4	1.5	6.0
Services	3.0	8.2	14.1	10.0
Household final consumption expenditure	3.6	4.7	11.4	1.4
General gov't final consumption expenditure	1.3	11.4	11.7	-3.0
Gross capital formation	10.5	11.7	15.9	7.4
Imports of goods and services	3.4	14.6	8.2	-4.4



Note: 2007 data are preliminary estimates.

This table was produced from the Development Economics LDB database.

* The diamonds show four key indicators in the country (in bold) compared with its income-group average. If data are missing, the diamond will be incomplete.

Annex 15: Maps

EASTERN AFRICA: Eastern Nile Planning Model