Eastern Nile Basin 3D Physical and Digital Models prepared with generous Royal Government of the Netherlands funding
Building knowledge, sharing knowledge together

This issue of the Nile-Flow is dedicated to featuring what we here at ENRO have been doing during the last four years, more so in the last one year, in terms of taking stock of and husbanding our most important resource—the knowledge produced so painstakingly by engaging national experts of the three countries, fellow river basin organizations like the OMVS and international consultants—enriched by engaging the three countries’ civil society, the media and parliamentarians and academic and research communities in as much as possible.

Our important knowledge products include sectoral Cooperative Regional Assessments of the Watershed, Irrigation, and Power Trade Study projects; a major Scoping Study of the Joint Multipurpose Program, including the ongoing Identification Studies for a first Project. Flood Preparedness and Early Warning Project, which relies on generation and exchange of real time hydro-meteorological data has been advancing its various techniques.

Significant amount of data, information and knowledge on the shared Eastern Nile water resources—highlighting and quantifying potentials and constraints—has been produced. But a system to collate and assemble these products, along with a method of quick retrieval and dissemination and institutionally maintaining them is still a work in progress, now that ENTRO has dedicated an entire Unit and competent staff for this purpose. As our Regional Project Coordinators move on and leave ENTRO when projects come to close, ENTRO strives not to lose the knowledge and expertise so painstakingly accumulated. Knowledge management also means appraising the quality of information and data we are housing, filling where gaps are found and avoiding unnecessary redundancy and unnecessary of data generation, a practice if uncontrolled could be insidious waste of scarce resources.

The knowledge generated by ENTRO—hydrologic, social, environmental, technical, economic—pertaining to EN water resources is a common asset of the three countries, which requires continued investment of time and resources in order to be of use to sustainably manage the river system.

We hope you enjoy and benefit from reading this issue.

Wubalem Fekade, Ph.D.
Head, Social Development and Communication Unit

What is in a name?

We have chosen “Nile-Flow” as the name of our Newsletter.
Nile— Our great river.
Flow— the flow of our great river, running through the three sisterly Eastern Nile Subsidiary Action Program (ENSAP) Countries of Egypt, Ethiopia and the Sudan; connecting the people, their cultures, their histories and shared destinies since time immemorial.

Flow—in the psychological sense also symbolizes a feeling of energized focus, of total engagement, and success in the activity being undertaken—i.e in the ENSAP cooperation process we are all engaged in. Thus the twin message: a description of reality, on the one hand, and a statement of hope, vision and purpose on the other.

Inside this issue:

Editorial: Building knowledge, sharing knowledge together ........................................ Page 2
Topical Issue
Climate-proof ENSAP Projects ................................................................. Page 3

News and Events:
Headline News : Dr. Ahmed Khalid Eldaw, ENTRO ED, responds to EN Challenges ............................................ Page 5
World Bank Mission visited ENTRO ............................................................. Page 5

ENTRO Acquires 3D Physical and Digital Models of the Eastern Nile Sub Basin ............................................ Page 6

Eastern Nile Watershed Management Project (ENWSM) holds Capacity building workshop, October 1-3, 2011 ............................................. Page 7
National Focus Group Discussion on Environment Management Guidance ............................................. Page 8
Staff Retreat : Implementation of ENSAP Climate Proofing Plan ............................................................. Page 8
Introducing Communication and Library ............................................. Page 8

Concepts that Matter: Knowledge Management : Experience from ENTRO ................. Page 9

Conversations: Conversation with Dr Yosif Ibrahim, Water Resources Planner ............................................. Page 12
Staff News : Departing Staff : 2011 ............................................................. Page 15
BACKGROUND

The 2006-2010 Strategy of ENTRO acknowledged the need to address climate change and variability in all its projects. In August 2007, a delegation of the Joint Multipurpose Program (JMP) Regional Parliamentary Committee from Egypt, Ethiopia and Sudan undertook a study tour to Ethiopia and Sudan and made a joint statement: ‘Realizing and appreciating the concern about the growing climate change and the impact it will induce on our shared Eastern Nile resource base, we call on all stakeholders, including ENTRO, to create more awareness, plan and implement coping as well as mitigation measures.’

Accordingly ENTRO projects began to address climate change to differing degrees; for instance, the Watershed Management Cooperative Regional Assessment (CRA) considered climate change financing in its public goods financing document. These efforts, however, were carried out without the benefit of a coordinated overall climate change strategy. In order to address this important issue more systematically, ENTRO developed an Approach Paper in May 2009, with funding support from the Royal Netherlands Embassy, which outlined a comprehensive strategy to respond to the challenges and opportunities associated with climate change. Prior to finalization, ENTRO’s Climate Change Strategy underwent a series of consultations at various levels, including the countries, partners, and other NBI institutions as well as a wide dissemination process, awareness raising of ENCOM through high level presentations, regional training, and the formation of an Eastern Nile Climate Change Group to support climate change activities at ENTRO.

In 2010 ENTRO took the Strategy further and commissioned the formulation of a Climate-proofing Consolidated Action Plan, supported by funding from the Agency France Development (AFD), to identify a list of specific activities go climate-proof ENSAP projects. This Action Plan is being finalized through a review and quality assurance process.

ENTRO CLIMATE CHANGE STRATEGY

ENTRO climate change approach paper of 2009 has identified a five pillar strategy to address climate change in ENSAP. The approach paper have been developed in a consultative manner and based on solid review of climate change issues in the EN and related to ENSAP. A high level presentation to ENCOM to raise awareness of decision makers as well as a regional workshop with key stakeholders and EN climate change experts and focal institutions was conducted to finalize the strategy.

The ENTRO Climate Change Strategy of 2009 is a comprehensive, flexible, and low cost strategy with five pillars comprising prediction, adaptation, mitigation, education and opportunities, each of which is described below.

Climate-proof ENSAP Projects

**Prediction:**
Developing regional climate change models to improve information for forward planning and decision-making; and scenario-building to address worst-case ‘black swan’ events and define appropriate management strategies to deal with them.

**Adaptation:**
Developing regional capacity to conceptualize, pilot and upscale locally-relevant adaptation activities to address both high probability climate change impacts and also low-probability high-impact events.

**Mitigation:**
Investing in a range of low-regret/no regret mitigation measures to combat local issues such as anthropogenic deforestation and desertification.

**Education:**
Enhanced efforts in education, research, and outreach, not only to develop future generations of scientists, engineers, and policy makers who will deal with climate change, but also to build capacity and spread awareness among all stakeholders from community men, women, children and leaders and community-based organizations to local and national politicians, government officials and other decision makers of policies and programmes.

**Opportunities:**
Vigorous pursuit of funding and other opportunities available to support climate proofing activities at regional and national level, including the Clean Development Mechanism (CDM) of the Kyoto Protocol to get certified emission reductions (CER) for any new hydropower project on the Nile.

CLIMATE PROOFING ENSAP ACTION PLAN

Climate proofing ENSAP is a structured process building on existing knowledge on climate change and its impacts and on consultations with experts and key stakeholders including development partners to come up with a set of activities to enable climate proofing ENSAP projects. The methodology developed to climate-proof ENSAP projects asks the following three key questions:
How does the project contribute to processes driving global climate change?

What are the climate change impacts that the project is most vulnerable to?

What specific activities can minimize the identified contributions to and impacts of climate change on the project?

Based on an assessment of these questions in the context of each project, a preliminary set of initiatives have been identified (Table below). Note that while some activities will be defined at the level of each project, some cross-cutting activities will be determined at ENTRO level.

It is worth mentioning that the identified ENSAP climate proofing plan was finalized consultatively with NBI institutions and development partners.

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Primary project</th>
<th>Related projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Nile Irrigation Information System (EIIS)</td>
<td>Eastern Nile Irrigation and Drainage Project</td>
<td>Eastern Nile Planning—Information and Knowledge Development</td>
</tr>
<tr>
<td>Eastern Nile Observatory for Climate change Detection (ENOCD)</td>
<td>Eastern Nile Watershed Management Project</td>
<td>Eastern Nile Planning—Information and Knowledge Development</td>
</tr>
<tr>
<td>Eastern Nile Center for Regional Climate Prediction (ENCRC)</td>
<td>Eastern Nile Planning—Information and Knowledge Development</td>
<td>Flood Preparedness and Early Warning Project I</td>
</tr>
<tr>
<td>Baro-Akobo-Sobat Multipurpose Water Resources Development Project</td>
<td>Baro-Akobo-Sobat Multipurpose Water Resources Development Project</td>
<td>Eastern Nile Planning—Information and Knowledge Development</td>
</tr>
<tr>
<td>Baro-Akobo-Sobat Multipurpose Water Resources Development Project</td>
<td>Baro-Akobo-Sobat Multipurpose Water Resources Development Project</td>
<td>Eastern Nile Planning—Information and Knowledge Development</td>
</tr>
</tbody>
</table>

In addition to the above initiatives, an initial list of special studies has also been suggested as part of existing ENSAP projects.

<table>
<thead>
<tr>
<th>Study</th>
<th>ENSAP Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact of climate change on irrigation water requirements in the EN basin</td>
<td>ENIDP</td>
</tr>
<tr>
<td>Capacity building requirements for regional climate modeling</td>
<td>FPEW II</td>
</tr>
<tr>
<td>Options to reduce the carbon footprint of watershed project activities</td>
<td>ENWSMP</td>
</tr>
<tr>
<td>Likely scenarios of rainfall and river flows in the EN basin</td>
<td>FPEW II</td>
</tr>
<tr>
<td>Addressing regional climate system changes in regional water resources planning</td>
<td>ENJMP</td>
</tr>
<tr>
<td>Assessing the impact of the new EN regional energy market on clean energy sources</td>
<td>ENPT &amp; E-STIP</td>
</tr>
</tbody>
</table>

Finally, the most recent Climate Change Retreat and Expert Meeting on the Implementation of ENSAP Climate Proofing Plan (Sep 2011) has utilized the expertise of ENTRO and climate change experts to prepare the concept notes of the plan components and to exchange views on implementation processes.

Mohamed Elmuntasir (PhD)
Environmental Management Specialist
ENTRO has always been cognizant of the fact that it is only one among several actors that have stake in what is happening in and to the Nile Basin and its shared water resources. Hence ENTRO keeps at its forefront critical stakeholders with which it constantly needs to interact and collaborate. These include: the governments of Egypt, Ethiopia and Sudan - basically the owners; sub-national governments and basin communities – our primary stakeholders - who will ultimately be most impacted by what others are doing in the basin; the remaining Nile Basin Initiative member countries; development partners, academic and research institutions, national, regional and international civil society and non-governmental organizations that advance critical societal issues, including in the water sector; the media, etc. ENTRO’s relationship with these stakeholders – internal and external – is dynamic and evolving.

ENTRO’s 2006-2010 Strategic Plan adequately addressed potential opportunities as well as challenges associated with the engagement of primary stakeholders including its owners i.e. the governments of Egypt, Ethiopia and Sudan. The Strategic Plan had already identified potential threats that could ensue from ongoing negotiations and affect ENTRO, and devised mitigation strategies, which included proactive intensification of engagement with ENCOM/ENSA P governance and senior decision makers in the EN countries, inclusive of face-to-face information sharing and consultations, and briefing visits. Accordingly, in addition to this channels, ENTRO has also striven to make best use of other NBI venues and events (NBTF C, Nile COM, Nile TAC, etc.) to engage NBI authorities in persuasive and constructive dialogue, which proved an excellent medium to underscore the inevitability, desirability and win-win nature of pursuing cooperation under ENSAP.

ENTRO Management has been and is keen to ensure that Members of ENCOM and ENSAPT are well informed on developments in ENSAP projects. This has been mainly accomplished through visits to the countries preceded by comprehensive letters, status reports and concept notes. The ED’s communication has not been limited to reporting project implementation status, but more importantly, also alerted the respective authorities of challenges and likely adverse outcomes to the goal of sustaining Eastern Nile cooperation.

All indications indeed point to the sustainability of EN cooperation. In this respect ENTRO has noted with satisfaction recent pronouncements of officials from the EN countries at various levels, which call for strengthening cooperation, joint action and partnership.

Further, it is also encouraging to note positive remarks on Nile Basin cooperation by Their Excellencies Nile Council of Ministers (Nile COM) in their 19th meeting held in Nairobi, Kenya, July 28th 2011 in which they agreed to hold Nile COM Extraordinary meeting before the end of 2011 to address pending issues.

**World Bank Missions visit to ENTRO**

The World Bank is managing NBTF and it has field it a various missions to ENTRO relation to the NBTF funded projects namely JMP, ISP and ENPM.

**JMP Mission:**

The World Bank Implementation Support and Review Mission visited Ethiopia (June 15-17 and 23-29, 2011), Egypt (June 18-20, 2011), and Sudan (June 20-22, 2011). The purposes of the mission were: to assess the extent to which the Joint Multipurpose Program Identification Studies Project (JMP 1 ID) is achieving its development objectives; to gauge overall implementation progress; and to evaluate ENTRO’s earlier request to the Bank to consider a fifteen-month extension of the project. The Mission held meetings with ENTRO during the first two days to discuss the project extension request and to prepare for the World Bank’s upcoming country visits. The Mission also met with the governments of the three Eastern Nile countries and consulted over modalities of proceeding with the JMP1 ID studies. Concluding the visit to the three Eastern Nile countries, the mission returned to ENTRO to discuss next steps for completion of the Strategic Social and Environmental Assessment – Phase I (SSEA-I) of the JMP-I ID Study.

During visits to the three Eastern Nile countries, the mission met with: H.E. Mr. Alemayehu Tegenu, Minister of Water and Energy of Ethiopia; H.E. Dr. Hussein El-Atfy, Minister of Water Resources and Irrigation of Egypt; and H.E. Dr. Salah Yousif, State Minister of Irrigation and Water Resources of Sudan. The mission team also met with ENSAPT leaders/members and JMP technical Committee Members in the three countries. In relation to ENTRO/ENSAP activities, the mission further briefed the World Bank country office in Ethiopia and met with the government of Norway embassy in Ethiopia and was updated on the Site Specific Studies.

In its last leg, the Mission had a wrap up meeting with the Executive Director of ENTRO, Dr. Ahmed Khalid Eldaw.
ENPM Mission:

In a related development, a second World Bank mission visited EN- TRO from June 27-July 8, 2011 to conduct a Mid-Term Review (MTR) for the Eastern Nile Planning Model (ENPM). The purpose of this first phase mission was to work with ENTRO and NBI counterparts in conceptualizing the scope of the ENPM project.

The second mission worked with ENTRO to identify a pragmatic way ahead to realize the ENPM project goals within modified implementation mechanism given (i) remaining project time period; (ii) the status of ENTRO’s regional governance; (iii) significantly changed scope of work relating to development of shared regional platforms; (iv) demonstration of ENTRO’s internal capacity to undertake much of the planned work under ENPM; and (v) efforts from other NBI activities such as the NileDSS, Nile Institutional Strengthening Project, and bilateral support that are undertaking many of the originally envisaged ENPM activities.

A number of knowledge and analysis products and services were identified that could be realistically delivered by project closing. The mission also worked with the ENTRO team to identify implementation arrangements to successfully deliver these products and services. Some of these products include: (i) Eastern Nile Atlas; (ii) Eastern Nile State of the Basin Report; (iii) EN One System Inventory; (iv) EN Climate Risk Management Report and; (v) Factsheets on various topics.

In conclusion the second mission indicated that the ENPM Project is at a critical stage and hence implementation activities need to be conducted to move ahead rapidly on a number of knowledge and analysis activities. This will be keeping in mind the use of the ENPM project to strengthen ENTRO’s knowledge and analysis capacities as well as the realism of what ENTRO can achieve in the remaining project period.

ISP MTR Mission:

The NBI Institutional Strengthening Project (ISP) is an integrated package of institutional strengthening, capacity enhancement and harmonization of corporate management executed by the three NBI Centers (ENTRO, Nile-SEC and NELSAP-CU).

News and Events

It was launched in October 2008 with grants from NBTF and GIZ. ISP Mid-Term Review was conducted between December 2010 and April 2011, with a participatory process involving NBI staff, NBI’s governance from member countries, representatives from GIZ and CIDA (Canada) and the World Bank.

In a process approach, the MTR reviewed progress to date, agreed actions to improve delivery and performance, and agreed areas for restructuring the project to improve effectiveness and efficiency. An important achievement of the MTR was greater clarity of NBIs core functions which helped to articulate clearly what ISP is aiming to achieve and the key deliverables at the end of the project. This clarity then fed into the revision of the logical framework and project components, and enabled prioritization of plans and budgets. The NBI senior management team considered the MTR itself was institutional strengthening, leading staff in a thorough process of critical reflection and constructive forward thinking, and resulting in greater ownership of the ISP.

♦ Million Gebreyes, Social Development and Stakeholder Consultation Specialist
♦ Mamdouh Antar (PhD), ENPM RPC
♦ Salah Shazali (PhD), Senior Operation Officer

Abbay-Blue Nile Gorge
As part of its public outreach and education effort, ENTRO, thanks to a generous Royal Government of the Netherlands funding support, has commissioned the preparation of complimentary 3-D physical Landscape and Virtual Models. Landscape scale models are ideal medium for showing three-dimensional representations of geographical information.

In short, the Models are expected to, among others:

- Educate and increase awareness about the geography of the Nile Basin countries in general and more so of Egypt, Ethiopia and Sudan and how they are linked by the Nile river system.
- Highlight Nile Basin and EN problems such as flood and drought areas, land degradation, soil erosion and siltation and access to energy.
- Demonstrate the holistic, integrated nature of the Nile river system, creating awareness about the upstream-downstream inextricable linkages thus intimating the need for cooperative management
- Increase awareness about NBI/ENSAP, ENSAP project locations and benefits

The models, including the physical (on the left hand side of the photo above) and digital (on the right side with a 40” LCD Screen), have already been placed at ENTRO’s library and the Ministries of Water Resources of Ethiopia and Sudan. The models may later be placed, as needed, in other public areas to further engage the public. The target audience includes among others, school children, university students, researchers, contracting firms – including consultancies, NGO’s, local communities, CSO’s and CBO’s visiting ENTRO and the Ministries of Water Resources in the three sisterly countries.

ENTRO has strong conviction that the models will be good tools to educate stakeholders, chief among which are students, about the Nile and its resources - and the need for regional cooperation to sustain it for future generations.

---

**Eastern Nile Watershed Management Project (ENWSM) holds Capacity building workshop, October 1-3, 2011**

The Fast Track Watershed projects are under implementation in the three EN countries. ENTRO Watershed implementation phase regional component is to support the implementation of this projects and to build capacity and provide a good practice to EN countries.

As part of the regional support to the ongoing national watershed implementation programs in the three EN countries, ENTRO organized a two-day training and deliberation workshop at the Project Coordination Office in Khartoum. Participants were drawn from the watersheds where projects are being implemented namely Lower Atbara, Ingasena, Dinder National Park and Lau watersheds of Eastern Nile. The workshop was dedicated to addressing conflict management issues related to project implementation. Dr. Wubalem Fekade, ENTRO SDCU head, made a conceptual presentation of conflict management, in which he introduced basic concepts and methods of integrating conflict prevention into project planning and implementation and to used projects as local level peace building tools.

Dr. Salah Shazali, also of ENTRO, Senior Operation Officer, outlined the pastoralist background and history of the project areas. Prof. Omar of Khartoum university presented field cases from Sudan which demonstrated the benefit of being adaptive, learning by doing and being flexible, when implementing projects in conflict or post-conflict situations. Project coordinators from the three watershed implementation sites also enriched the discussion and finally the workshop was concluded by Dr. Solomon ENTRO, RPC of the Project, by summarizing take-home lessons. Participants expressed satisfaction in the training workshop and requested more of the same for the future.
National Focus Group Discussion on Environment Management Guidance

ENTRO has conducted three national Focus Group Discussions in Sudan, Ethiopia and Egypt as part of its plan to develop the Eastern Nile Subsidiary Action Program Environment Management Guidance (ENSAP-EMG). The discussions included experts on environment and social issues from government offices as well as universities and NGOs. Nile-SEC and NEL-CU staff have been included in the consultations to increase coordination between the three NBI centers in developing environment and social guidance as well as the overall NBI environment and social policies. The consultations served as a discussion forum on key issues to be considered in developing the EMG and have contributed to increased buy in and to operational aspects of the EMG. The EMG, of which a draft is submitted, is expected to be finalized during Oct 2011.

Staff Retreat : Implementation of ENSAP Climate Proofing Plan

On its way to climate proof ENSAP, ENTRO has organized its second Expert Meeting and Climate Change Retreat on Implementation of ENSAP Climate Proofing Plan. The retreat has been facilitated by international experts and attended by ENTRO project and technical staff.

During the two day retreat, discussions on the following climate change related issues have taken place:

♦ Adaptation options and experiences from similar river basins in mainstreaming climate change adaptation
♦ Climate change and Watersheds: Approaches to enhance watershed resilience to climate change
♦ Climate Change financing: Carbon Trade and Adaptation Funding
♦ Climate change impacts modeling: Global and Regional Climate models
♦ Climate Change mainstreaming in the Baro Akobo Sobat waer resources development

The retreat has contributed to increased knowledge and capacity to address climate change in ENSAP and finalized concept notes of ENSAP climate proofing plan.

♦ Mohamed Elmuntasir (PhD)
Environmental Management Specialist

Introducing Communication and Library

As part of mainstreaming and promoting the knowledge management within the organization, ENTRO is now producing different communication materials on transboundary cooperation and other related issues. The materials include the quarterly News Letter, Nile Flow, write-ups on thematic issues, timely briefs/profiles on ENSAP projects, calendars, posters, etc.

Communication Materials

The newly reorganized library at ENTRO’s premises has the following resources and services at its disposals:

♦ 201 reference books mainly on water resources, environmental protection and socio-economic issues.
♦ 102 ENTRO–commissioned project studies
♦ Subscribed periodicals (newspapers and magazines.)
♦ Scientific journal-Hydro-environment Research
♦ Circulation service
♦ Classification and cataloguing: (catalogue is accessible to all internal users through the intranet).
♦ Newspaper clipping (also uploading news update to the intranet.)
♦ Registered access to Scientific Journals from ENTRO through IP sensitive subscription.
♦ Computerized book borrowing and follow-up service

Newly Reorganized Library

♦ Tirsit Endeshaw, Librarian
Knowledge management is an aspect of organizational resource management. For an institution like ENTRO that aspires to and must thrive on the quality and quantity of stock of knowledge it possesses, how well it manages this particular type of resource in the final analysis determines its long term sustainability and viability. It would not be an exaggeration if we claim that good, scientifically managed knowledge resource is as much, if not more important, than say financial or human resources for a trans-boundary institution like ENTRO. What, then, does Knowledge management mean? What are its facets? What are the hallmarks of good knowledge management? How does ENTRO’s emerging experience look like in this regard? Albeit in a very cursory fashion, this section attempts to answer these questions.

**Knowledge Management: concept, significance**

Knowledge Management is continually discovering and documenting what an organization knows, including system behavior, strategies and best practices. Well organized, timely, relevant, and easily accessible data/information/knowledge resources are crucial for informed decision, planning, implementation and management of resources. In general, knowledge creation consists of several steps: generation and collection of basic data; data validation and storage; data analysis and dissemination; and utilization of data. In the case of ENTRO equally important is the tacit knowledge residing within each ENSAP expert — embodying the totality of his/her experiences, skills, competencies, ideas, intuitions, commitments and motivations.

**The data—information—knowledge—wisdom continuum**

**Data:** We refer to data when we mean stand-alone, raw, unprocessed unit of information. In and of itself data is meaningless.

**Information:** Information is processed data able to provide meaning through relating one group of data to another set of data. Information is inherently relational, while data are not. (Note that being relational does not necessarily imply being meaningful.

**Knowledge and understanding:** Knowledge is purposefully, intentionally collected information for use to do things better, or to solve problems. There is no knowledge that has not been sought, so to speak. Knowledge acquisition is a process that always, at least implicitly, denotes predetermination, i.e. intention to use. Second, compared to information, knowledge represents more robust, well-connected complex patterns of relationships, providing the owners of such knowledge enhanced – not infallible - power to predict the what or when of an event or process.

**Knowledge management** is an audit of “intellectual assets” within an organization drawing attention to unique sources, critical functions and potential bottlenecks which hinder knowledge flows to the point of use.

**Knowledge Base Development and Documentation**

The results of the studies (i.e. knowledge generated) had to be repackaged and assembled in a format that is accessible to the needs and capabilities of stakeholders. To this end, workshops at national and regional and international levels have been organized to engage international, regional and national technical experts. Also, civil society groups and their respective communication outlets have also been engaged for wider dissemination.

EN water resources related data, information and knowledge so far generated under ENSAP have all been undertaken cooperatively i.e. the planning and implementation has been organized, led, coordinated and supervised by Regional Coordinators from the three member countries. The creative process and the product (knowledge) have served twin purposes: building riparian technical capacity, on the one hand, and building confidence and fostering trust in their own capabilities and in ENSAP’s long term viability and growing appreciation of each other’s needs.

Diverse sets of data and information are being collected using different techniques including census, rainfall and stream flow data and satellite imagery/remote sensing. GIS information systems are used to identify potential development opportunities by processing data acquired from remote sensing, ground-truthing data and through other means.

The knowledge base has been developed by jointly identifying key EN water related challenges and potential opportunities for development. These knowledge products include single sector CRAs – Cooperative Regional Assessments – basically studies that, in a transboundary context, identify potentials and constraints and assess likely trends of what happens to a resource base, in this case of Eastern Nile. Examples of CRAs include: Cooperative Regional Assessments in the areas of socio-economic, environment and natural resources such as EN Watershed Management (ENWS), EN Power Trade Studies (ENPTS), and EN Irrigation and Drainage Studies. Another set of EN knowledge products includes the results of the Fast-Track Project studies (e.g. Watershed, Flood Protection and Early Warning; Eastern Nile Planning Model; Ethio-Sudan Transmission Interconnection; Irrigation and Drainage projects).

**Knowledge Management at ENTRO**

The water resources planning unit is responsible for Knowledge management. This includes collecting and organizing knowledge produced from IDEN projects and the joint multipurpose projects program. The Various studies and interventions on different sectors such as irrigation, energy production, and watershed management have been undertaken on different scales. The results of such single sector studies have been fed into the decision making processes at various levels on an ongoing basis. The experience of producing single sector knowledge products however has helped the gradual emergence of basin-wide, “multiple countries one river system” perspective leading toward envisioning joint, multi-sector and large scale investment programs.

Hydrologic, social and environmental data, information and accumulated knowledge on the environmental, social, hydrologic dimensions of Eastern Nile sub basins from the three countries have been pooled together to result in a combined inventory that provides a high level overview of the system. This inventory is now maintained under a Documentation Center established for the purpose at ENTRO and is accessible to the member countries.

**Knowledge Base Development and Documentation**

The results of the studies (i.e. knowledge generated) had to be repackaged and assembled in a format that is accessible to the needs and capabilities of stakeholders. To this end, workshops at national and regional and international levels have been organized to engage international, regional and national technical experts. Also, civil society groups and their respective communication outlets have also been engaged for wider dissemination.

**Knowledge Management: Experience from ENTRO**

We refer to data when we mean stand-alone, raw, unprocessed unit of information. In and of itself data is meaningless.

Information: Information is processed data able to provide meaning through relating one group of data to another set of data. Information is inherently relational, while data are not. (Note that being relational does not necessarily imply being meaningful.

Knowledge and understanding: Knowledge is purposefully, intentionally collected information for use to do things better, or to solve problems. There is no knowledge that has not been sought, so to speak. Knowledge acquisition is a process that always, at least implicitly, denotes predetermination, i.e. intention to use. Second, compared to information, knowledge represents more robust, well-connected complex patterns of relationships, providing the owners of such knowledge enhanced – not infallible - power to predict the what or when of an event or process.

Knowledge management is an audit of “intellectual assets” within an organization drawing attention to unique sources, critical functions and potential bottlenecks which hinder knowledge flows to the point of use.
Most key datasets/information/knowledge resources have been collected and maintained by ENTRO through various fast-track as well as Joint multipurpose project studies. These resources include, inter alia, spatial and non-spatial datasets, study reports, terms of references, guidelines, rainfall and flood forecasting tools, etc collected by the different projects using software tools recently procured by ENTRO. The following are the main activities ENTRO has undertaken to enhance its knowledge management efforts:

Configuration of Map Server and Other Software :- This task focuses on describing and documenting ENTRO’s rainfall forecasting using Eta Model (Numerical Weather Prediction Model); and configuration of software (database server, map server, image analysis and GIS software). ENTRO procured different software tools for the management of geographic as well as non-geographic/tabular data that also enable sharing of knowledge resources with users inside the institution and outside across the web. These software include ArcGIS Server which allows GIS resources such as maps, Geodatabases and tools to share by hosting them on Servers and letting client tools/applications to consume/use and interact with the resources; ArcGIS desktop which is an integrated suite of professional GIS applications; ERDAS Imagine Professional for satellite image processing and analysis; and SQL Server for data and document repository.

Development of Geodatabase and Metadata :- Development of the Geo-database focuses on creating spatial database using enterprise database management system hosted on ENTRO servers. All geographic data layers and their related attribute/tabular data along with metadata for each layer were properly organized into multi-user Geodatabase. The Geodatabase can be easily accessed across the local area network as well as across the web if published to be shared with outside of ENTRO.

Development of Web Interface to Documents and Maps :- To navigate through the knowledge base documentation, published online maps, and to physical location of the resources, simple web interface has been developed. From one interface, users can access HTML version of the documentation, web maps published on ENTRO Intranet, and navigate through the directory structures stored on ENTRO network storage device. A snapshot of the web interface is provided below.

Flood early warning and preparedness
The Flood Preparedness and Early Warning (FPEW I) Project includes practical activities that focused on regional coordination; pilot flood preparedness and emergency response; and flood forecasting, communication and warning system. The primary aim of the regional coordination was to put in place an institutional mechanism for enhancing regional coordination for the flood project. Under the pilot flood preparedness and emergency response component of the project, at-risk communities including the extent of flooding and the location of high risk areas were identified and mapped that were used as basic input to flood preparedness and response planning at community level.

Document Organization and Documentation to flood management were compiled and documented. The meta-document (document about document) produced provides complete documentation and reference to FPEW knowledge base that presents the structure of knowledge resources which are organized into directory structures; brief description of documents and document containing folders; Geodatabase and metadata.

Irrigation and Drainage
Irrigation Toolkit:--Captures and summarizes the studies made under the ENIDS project which are the cooperative regional assessment; options for transboundary irrigation investments; guidelines for activities at different levels of detail at successive stages of planning process i.e. design and costing analysis and multicriteria analysis for selection of projects along with the projects studied and a schematic view of the water resources of the basin, summarized information on stream flows, water demand data at different nodes and reservoir characteristics.

Other Ongoing Activities:
There is upcoming work to organize documents and build geodatabase from the Eastern Nile power trade investment study and the Watershed Management Project in the near future in addition to the already started web based communication platform. Web based communication platform is effective solution to the challenge of data and information sharing as it allows cross linkage and networking of the different groups and agencies participating in the production and dissemination of knowledge.

A web based platform enables active dialogue and two-way communications between the different stakeholders involved in a project allowing for integration of GIS technology such as ArcGIS server which helps for querying map services online and on-demand geoprocessing services. As well as, helping make dissemination of knowledge in the form of training materials available to the wider public.

Way Forward
EN decision making takes place at various levels and scopes, engaging a wide spectrum of stakeholders, with diverse decision making powers, technical expertise and legislative powers. Thus the studies (knowledge) have been made available to inform decision making and deliberation by the most pertinent ministerial bodies (ENCOM, EN Power, Environment, and Finance ministries), legislative bodies (EN JMP Regional Parliamentary Committee), technical working groups (EN JMP Regional Working Group), broader civil society and diverse stakeholders (media, academia as represented in the National Reference Groups).

The Eastern Nile Planning Model Project (ENPMP) is a part of ENSAP and seeks to provide a mutually agreed upon planning framework to assist in the development of the Eastern Nile Waters, by developing and implementing a mutually acceptable water resources modeling system in the region that would be a key tool for informed investment decision-making, enabling regional officials to make informed decisions about needed investments along the Eastern Nile.
The Easter Nile Planning/Information and Knowledge development tools are anticipated to be an important common analysis tool and element in the overall planning framework for water resources development in the Eastern Nile basin as it provides a common analytical basis for identifying and assessing options, quantifying benefits and impacts, evaluating tradeoffs, and analyzing and managing information. The overall goal is to ensure efficient management of EN water resources based on cooperation and joint action seeking mutual benefits for all parties on a win-win basis.

The activities consist of three major components: (i) the Modeling System (ii) Knowledge Base System, and (iii) Institutional and Human Capacity Strengthening. All three major components will be closely linked. The activities in the three project components will produce system that can be used to simulate the Nile Basin hydrologic conditions and evaluate economic, environmental, and social impacts of proposed water resources investments, generating important knowledge on the benefit and impact of intervention and scenario analysis of future hydrological system behavior such as climate change.

At the heart of these activities is 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 activities will directly contribute to this improved investment planning climate and will directly address multiple issues/questions regarding improved EN water resources development, including: (i) what are the potential benefits/impacts of alternative development scenarios, (ii) how will the various stakeholders be affected, (iii) how much water is available for use in the Eastern Nile and how can it best be utilized, (iv) what are the tradeoffs among various water uses, (v) what is the current status of the river basin system, and (vi) how would future demands affect current management options? All of these issues/questions can be scientifically examined and addressed by the modeling system’s ability to provide the riparian countries with tools for informed decision-making.

*ENTRO: Knowledge Management Team*
Q. To start our conversation, I would like to invite you to tell me a bit about yourself. Which country are you from? Are you married? Do you have children? Which schools did you attend? What are your qualifications? Previous work experience?

A. My name is Yosif A. Ibrahim. I am, Sudanese, married with 3 kids (2 sons and daughter). As regards my education I hold a Bachelor degree in Civil Engineering 1989, University of Khartoum; M.Sc. and a PhD in Water Resources Engineering, University of Dar es Salaam, Tanzania.

As regards my previous work experience, I started my career as Assistant Research Engineer at the Hydraulic Research Station in Wad Medani, Sudan in 1990. After completion of post graduate studies, I moved to the Republic of South Africa, where I worked as head of Water Section in one of the Consultancy firms in Cape Town. During that period I participated in the National Reconstruction and Development Program of Post-Apartheid South Africa through the Community Water Supply and Sanitation Program. We did everything - from needs assessment, to business plan, to conceptual and final design, to selection of contractors and then monitoring implementation of water and sanitation schemes. If you asked me one thing in my professional career I'm proud of is this project, as it offered me opportunity to make a difference in people’s lives, especially when it comes to previously marginalized communities in South Africa.

In 2000 I moved to the United States of America where I started work with one of the Consulting Firms in Virginia (Baker Corp. Engineering). The firm is contracted by the Federal Emergency Management Agency (FEMA) to manage the Flood Insurance Program and Floodplain studies in four main regions of the United States. Through this engagement I have gained in depth experience in floodplain regulation and flood insurance program in the US. Still in the US, in July 2001, I joined the Fairfax County (Virginia State) Department of Public Work and Environmental Services as a Storm water Specialist. This position allowed me to have good experience in the Construction Industry in Northern Virginia and the design of Storm water management facilities. We worked together with Virginia State Department of Environmental Management in enforcing environmental regulation on land development industry in North Virginia. This include administering the floodplain regulation, Zoning Ordinance, Chesapeake Bay Preservation Ordinance, Wetland Ordinance and providing incentive for adopting best management practices in new developments. I have also been member in a number of technical committees and took part in preparing letters to Industry and drafting amendments and changes to the Fairfax county public facilities manual and regulation. I spent over six years working for Fairfax County.

Q. This is great. I see you have built a significant portfolio of wide-ranging experience both in the industrialized and developing countries. I trust ENTRO is leveraging your expertise. Please do tell me about your experiences here at ENTRO: What does it mean working at ENTRO? How different is this exposure – both professionally and personally; what does it mean to live and work in Addis?

A. Working at ENTRO means a lot for me. When ENTRO announced the JMP-1 (Joint Multi-purpose Program-1) I dreamed to be part of this historic process in Eastern Nile. As you know, the Nile is transboundary river basin with so many challenges and untapped potential for development. No single country or National office can manage to address the water resources development and management challenges of the Nile. There is no way we can manage the resources of this basin without having a regional entity for cooperation. Being part of an emerging regional office, such as this one, means having better exposure and also the opportunity to observe the direct impact of what you do on daily basis for the benefits of our governance and the three EN countries.

Living and working in Addis is a pleasure where I feel I am at home. The people are extremely pleasant, even the physical environment. In Sudan, we are used to a saying of Ethiopia: “Greenish and watery land, a land of beautiful and smiling faces”. Addis has proven for me this imagery to be true and real!

Q. Now, let us come to your work. What is your unit entrusted with? What is the value addition the Unit, the Water Resources Planning Unit (WRPU), you are heading bringing to ENSAP cooperation?
A. The core functions of the WRPU are to support ENTRO in identifying new round of investment projects in the Eastern Nile (EN) and to establish an integrated knowledge management system for the EN. This includes capturing knowledge produced by different ENSAP projects and to create an environment and promote the culture of knowledge sharing within the organization. In addition, the unit is tasked with mainstreaming the knowledge products and sustaining the activities of the completed phases of the IDEN (Integrated Development of Eastern Nile) project such as the EN Flood preparedness and Early Warning Project and the EN Irrigation and Drainage Study. The EN Flood Season Monitoring, the Environment function, the Knowledge Management (KM) function including the Library and the EN Planning/Information and Knowledge Development (EN PIKD) are now part of the Water Resources Planning Unit at ENTRO.

Let me illustrate the regional benefits, the value addition to use your phrase, we bring forth to the three countries. The value addition we bring forth from the flood season monitoring is to initiate a regional program to enable data sharing among the three countries and to set up a regional platform to address transboundary management of flood i.e. avoiding, if not mitigating flood disasters. The goal of the EN PIKD is establishing an agreed decision making tool of the three EN countries- Egypt, Ethiopia and Sudan - for identification and evaluation of water resources investment projects in the EN. The value addition we bring from the environment function is to preserve the ecology and environment of the EN and to ensure that the investment project would not cause any harm or adverse impact though adopting best practices during project preparation and implementation. Establishing knowledge base and knowledge management system at ENTRO supports the integrated water Resources planning and Management functions which is one of the core functions behind ISP and NBI wide cooperation mechanism.

Q. You say interesting things which are useful to understand. I know, in this issue, we are devoting an entire section to explain what you are doing in the area of KM – Knowledge Management. Without, going too in-depth, can you tell me what this KM is about all? I know management – as in business management, or asset management . . . Managing knowledge? This is not a usual thing. How do you do that? What does it mean? Tell me more! Also, say a few words about what you mean by agreed tools?

4. Knowledge or know how is one of the organization assets. Managing knowledge means managing the organization resources. This includes the explicit knowledge produced (those which you can keep in writing, maps, reports, project documents, etc.) which is easy to capture (store, update, retrieve, disseminate) and the tacit knowledge which is hard to manage as it is part of people’s mind and personal experiences. Here at ENTRO what we are trying to do in terms of explicit knowledge is to capture, integrate, consolidate and mainstream the data, information and knowledge produced from the different ENSAP project and to use and avail such knowledge for ENTRO future needs and to a wide spectrum of stakeholders, including the EN governments. In terms of tacit knowledge we are trying to promote the culture of knowledge sharing and experience and rather than allowing such knowledge being an attribute to a person working for ENTRO as an organization it become a property of the organization.

More recently, all the most prominent large corporations of the world that make sudden jumps in their financial gains and stock market profits are the ones they put more emphasis on investing in knowledge management as one of their core assets. One thinks of IBM, Apple, Google, BMW, Star-Bucks, etc., etc.

Q. What knowledge gap does your work fill? What is its significance?

A. Significant amount of data, information and knowledge were produced from the ENSAP project. This includes the JMP1 One system Inventory, the Cooperative Regional Assessments (CRA’s) from watershed, irrigation and power trade Projects. However, these products are fragmented, dispersed in a number of reports and other products. There is a need for integrating them into one system. There is a need to establish project baseline information and geo-database. ENTRO senior staff, particularly the Regional Project Coordinators, are associated with specific project and soon when these projects get completed and close, these staffs leave the organization together with his or (tacit) knowledge and experience gained during their entire stay. This, over long period, creates significant loss and knowledge attrition for the organization, especially for an emerging one like ENTRO. There is no adequate mechanism of capturing the tacit knowledge. Hence there is a need to have a KM strategy and action plan to promote knowledge sharing culture among experts within the same organization in ENTRO and experts supporting the organization from the EN region and international consultants/staff who support ENTRO in project preparation studies. These include the National Focal point i.e. those experts in each EN countries, Panel of experts and advisors for the different ENSAP projects. There is need to do more networking with other relevant institutions and organizations engaged in research activity and water resources networks within the Nile Basin. Examples include Nile Basin Capacity Building Network (NBCBN), Nile Friend, Cap-Net and IWMI East Africa, among others.

Q. What is that the Eastern Nile/Nile Basin lacks – compared to other basins, from the perspective of your Unit’s tasks: hydrological-metological information, data, and knowledge? How do these gaps affect river basin planning? What are the key elements you consider in your planning – to ensure sustainability of the Nile for future generations, for your children and grand children?

A. Here I will be focusing on ENTRO as one of the NBI centers rather than the whole NBI. I think ENTRO with its current governance (ENSAPT) need to be further entrusted with advisory role to the three EN countries.
We Work for the Shared Benefits of Cooperation

Conversations

For example, from a purely technical and analytic perspective, ENTRO should be able to ignore the political boundaries within the EN region and on the basis of a holistic, one-river-basin-vantage, inform our governors on the best investment plans for eradicating poverty in the EN through improving water productivity and arresting land degradation, alleviating water stresses by promoting efficient water use and best management practices, converting the region into energy self sufficiency through promoting hydropower trade as renewable and climate proof source of energy etc.

Q. Now let me take you onto something else: Have you had any experience with the Nile before you joined ENTRO? (E.g. working in National Offices, consultancy, etc.)

A. Yes I did some consultancy work for ENTRO taking part in the preparation of flood risk mapping and flood forecasting tools for the Blue Nile River Systems. I was also part of the Friend of Nile Project Stochastic Analysis Cluster and part of the River Nile Morphology Cluster for NBCBN. I also took part in UNESCO-CWR Sudan which is partner with IWMI in the CP-19 Challenging Program Upstream-Downstream project which focused on water simulation model for the Abbay/Blue Nile and Watershed modeling for upper watershed of the Abbay/Blue Nile River System.

Q. What is that – from the way ENSAP/NBI is organized and instituted that facilitates (and also impedes) your work? Ideally, how would you have liked it to be?

A. I would like ENTRO to have more role on being knowledge provider and help desk for ENSAP and to EN. In terms of NBI I would like to see strong links between the three NBI centers but according to mandates each center should be autonomous and should have adequate capacity to carry its operation in effective and efficient manner.

Q. From the vantage of your professional experience, what is your take on Nile cooperation?

A. The Nile cooperation is the way forward, there are good lessons from other transboundary river basins to learn from for a win-win benefit sharing of the EN water resource development and management.

Q. Let me be the provocative: What are the added values to NBI/ENTRO?

A. We need each other, and no one country can have can address the challenges of transboundary water resources alone, collective and joint action will benefit the countries. Take for example, the challenge of climate change the problems of sedimentation, soil erosion and environmental degradation.

Q. How does your work contribute to motivate, better inform and awaken national policy makers to meet the challenges shared TB waters i.e. the Nile is posing to them? In other words, what is that you need for policy makers to internalize and respond to all the messages embedded in your findings (bulletins, trend prognosis on water quality, rainfall, the threat of climate change etc.)?

A. NBI including the Shared Vision Programs (SVP) have spent tremendous resources on building trust among the Nile Basin Riparian countries and I strongly believe we need more of that. We need to do more outreach and we need to work at different levels, not only with policy makers but we need to reach and deliver our message to the public. We need to network with all stakeholders interested in the Nile. We need to have strong communication and get our message to the media more vigorously.

Thank you so much for this enlightening conversation. I hope our readers will benefit from this a lot.

♦ Wubalem Fekade, Ph.D.
Head, Social Development and Communication Unit
Departing …

Dr. Sherif M. El-Sayed, Senior Regional Project Coordinator, Jackson Elisoma, Regional Coordinator for Baro- Akobo-Sobat Multi-purpose Water Resources Development Study Project, Hisham Abdel Rahman, Development Communication Officer, and Ms. Kelemework Agafare, librarian, have left ENTRO after years of dedicated service to ENTRO.

In a ceremony held to bid farewell, the departing staff members expressed their deep feelings towards NBI/ENTRO that enabled them to gain experiences on a range of transboundary river development issues and challenges. They strongly indicated their indebtedness to the good working environment they had been enjoying with ENTRO staff and all stressed that their attachment with ENTRO/NBI will continue wherever they are placed. ENTRO ED on his part indicated that the organization had benefited a lot from the services of the departing staff members and warmly extended his best wishes in all their future endeavors.
ENTRO’s Core Values Are **RIGHT:**

**Regional Orientation, Focus on People & Environment**
We are committed to regional cooperation in all our activities and relationships among ourselves and with our partners. We are committed to work for the benefit of the people and the environment of the EN countries.

**Initiative, Dynamism and Creativity**
As a team and as individuals, we take initiative and embrace new ideas for the enhancement of both our performance and our working environment. We strive for creativity to set the example and pace for others.

**Gender Balance, Equity and Respect Diversity**
In all our work and interactions, we give equal opportunities for both genders and seek gender balance. We also do not discriminate any individuals because of their beliefs or physical appearance. We emphasize mutual respect for individuals, recognition of their contributions, and their rights to equity in benefit sharing.

**Honesty, Excellence and Professionalism**
We perform all our duties in a spirit of trust, transparency and honesty. We are committed to excellence and professionalism in all our work. We do not compromise on quality and accountability.

**Teamwork, Participation and Partnership**

---

**The NBI Shared Vision:**
“To achieve sustainable socio-economic development through the equitable utilization of, and benefit from, the common Nile Basin water resources”

---

**Editorial Committee:**
Wubalem Fekade (PhD)  
Million Gebreyes  
Selamawit Haile

**Design and layout:** Jemal Dagnew

**Contacts**
Eastern Nile Technical Regional Office  
Dessie Road  
P.O.Box 27173-1000  
Addis Ababa,-Ethiopia  
Tel: 251- 011-646-1130/32  
Fax: 251 - 011- 645-9407  
Email: entro@nilebasin.org  
Website: http://ensap.nilebasin.org

---

**Disclaimer:** The views expressed in this newsletter do not necessarily represent those of NBI, its