

BRIEFING NOTE 6

Cooperation in the Nile Basin: Sharing and using knowledge to improve water resource management



The countries of the Nile Basin have been working together for the past 15 years to build a program of cooperation that allows them to utilize their shared resource equitably for regional economic development. Through the Nile Basin Initiative (NBI), they have generated extensive, impartial knowledge and information about the river basin. Developing a common understanding of the river system has been crucial for building trust among the countries. Today, this knowledge is embedded in accessible information systems, informing planning, policies, and projects that are set to improve opportunities for economic growth across the region.

Through the work of the NBI on knowledge and information:

Transparent, Basin-wide knowledge and information is available to all, and is increasingly being freely shared among the Nile countries.

A range of effective analytical tools have been developed and are in use for water resources planning and regulation within the Nile Basin region.

The NBI has helped Nile countries towards integration of Basin-wide, transboundary perspectives in their national water policies.

The capacity for monitoring the Basin's hydrology and for generating useful data is much improved. Over **14,000** people have been trained.

There are higher levels of trust and cooperative working between countries on water and other sectors such as agriculture, energy, and trade.

Countries have improved knowledge and tools. They are using them in practice nationally, and to work together confidently to improve water resource management at national and regional levels.

A baseline of knowledge constraints

The Nile Basin is one of the least developed river basins in the world, with some of the Nile countries only recently more fully using the river as a source of economic growth. Developing and managing the Nile water resource holds many opportunities to drive much-needed growth. However, if done with a purely national focus, without consideration for the impacts in other areas of the Basin, it can also hold threats. The countries of the Nile Basin have recognized this, and for the past 15 years have been working together, through the NBI, to develop a more cooperative approach and to share the benefits equitably across the Basin.

"The basis for cooperation on the Nile is that it is a shared resource that offers opportunities to its populace." Dr Abdulkarim Seid, Nile-SEC.

To achieve effective, Basin-wide management of the Nile, the NBI realized that a program of cooperation would need to confront the significant constraints relating to knowledge and information sharing. Some interrelated key issues were at the heart of this challenge:

Capacity. Across the countries involved, there was very varied capacity in the water sector. Some countries had overall capacity and institutional weaknesses in the water sector, with limited technical knowledge in relation to integrated, Basin-wide water resource development

and management. Some countries had inadequate knowledge about their resource and the transboundary implications of their actions on it.

Information. There was insufficient Basin-wide information on the hydrology, meteorology, climate, ecosystems, or socio-economics of the Basin to inform planning effectively, in particular transboundary planning which demands transparency of costs and benefits. For some countries, the evidence base was incomplete, meaning that it could not be used to demonstrate development opportunities, and did not give countries an incentive to collaborate.

Trust. Because water is such a critical resource in terms of national development, even when countries did have data, historically some of them would treat it as 'classified' information at the political level, to protect their national interests. Consequently, water sector technical experts rarely shared information with their counterparts across the region.

So, the starting point was one of very limited coordination between countries on planning and management of the Basin water resource. This risked the resource being tapped for development in ways that would bring wins for some at the expense of losses to others.

A platform for collaborative planning

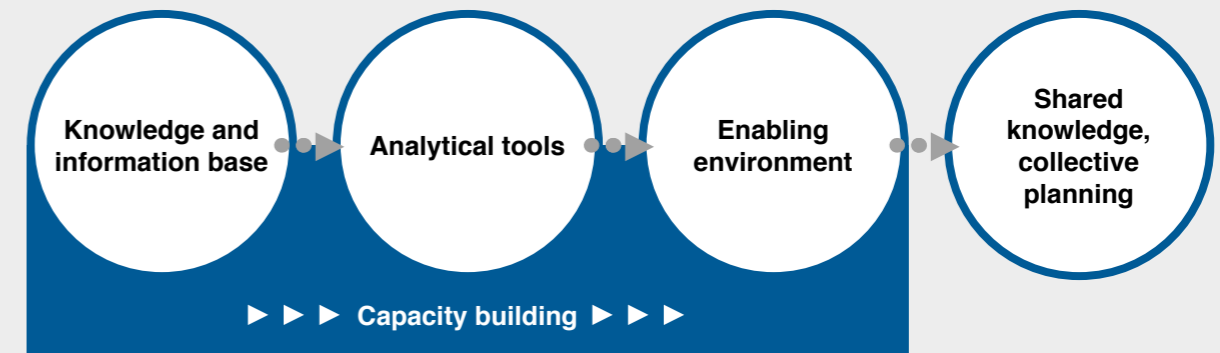
The NBI's program of cooperation on the Nile has worked through two routes. A focus on a Shared Vision Program (SVP), building trust and cooperation, and the enabling environment for collaborative water projects, has operated in parallel with two regional Subsidiary Action Programs (SAPs), to support the countries to prepare equitable transboundary projects to bring economic growth regionally.

One regional program, the Eastern Nile Technical Regional Office (ENTRO), has worked on water resource development in the eastern Nile countries of Egypt, Ethiopia, South Sudan, and Sudan, with a second program, the Nile Equatorial Lakes Subsidiary Action Program (NELSAP), operating in the Nile equatorial lakes countries of Burundi, DR Congo, Kenya, Rwanda, Tanzania, and Uganda, with the inclusion of all Nile countries. The NBI secretariat (Nile-SEC) has focused on the cooperation and water resource management aspects.

These have provided impartial institutional platforms to support improved planning processes at the regional level, avoiding independent water resource planning driven by one country or another.

Promoting collective action

Over the years, these NBI programs have delivered a number of products and services to help countries move towards collective planning and action.



A knowledge and information base. The NBI has generated extensive new knowledge for the region, including research to highlight the realities of transboundary water flows. Monitoring of the Basin's water and related resources has been enhanced through remote sensing and strengthened ground-based monitoring, helping to improve the understanding of the status of the Nile Basin. The Nile Basin Hydromet monitoring system is currently being designed to address remaining gaps.

According to a government official from the Ministry of Water in Tanzania: *"The NBI studies provided data and information that facilitated the making of decisions on transboundary interests. Tanzania and Kenya are now cooperating in conservation and management of the Mara river basin"*

Extensive sectoral and feasibility studies have been mainly carried out through the SAPs to identify, prioritize, and prepare transboundary projects for countries to invest in. They have generated massive amounts of information that were previously unavailable or out of date. This has included knowledge on hydrology, sectoral opportunities, economics, ecosystems, and social development. For example, the hydropower studies carried out in the Nile equatorial lakes (NEL) region, produced updated information that showed the benefits of three countries – Rwanda, Tanzania and Burundi – coming together to design, construct, and manage the Rusumo Falls hydropower plant, a project that had been conceptual for decades, without agreement between the countries involved.



There has been a real emphasis on improving knowledge sharing. For example, the NBI's Nile Information System (Nile-IS) is open for use by all interested parties. This web-based tool allows users to access the wealth of information generated and collected by the NBI, including data sets, articles, technical documents, maps, policies, strategies, and guidelines. The NBI published the first comprehensive State of the River Nile Basin report in 2012. It is to be revised every three years.

Analytical tools The knowledge generated and collected aims to support informed, impartial, and fair decision making about policy and practice. To support this, the NBI has also developed and applied a range of analytical tools. These have included the Nile Basin Decision Support System (DSS), Cooperative Regional Assessments (CRAs), and the Multi-Sectoral Investment Opportunity Analysis (MSIOA).

The **DSS** offers a modern, computer-based system that enables analysis of complex scenarios of Basin-wide water resource planning and management options. It has been applied by several countries to analyse the costs and benefits of different water resource management and development scenarios in relation to projects and policy. The **CRAs** have been used by ENTRO to bring together countries to recognize shared challenges, and to agree on a common understanding of potential opportunities in different technical sectors such as power, agriculture, water access. They have identified and enabled the countries to agree on projects that ENTRO has then prepared, for example a watershed management project in Tana Beles, Ethiopia, which has been implemented, and the regional Baro-Akobo-Sobat water resource development and management project currently under preparation.

Promoting collective action continued...

In collaboration with the Nile equatorial lakes member states, NELSAP developed the **MSIOA** as an analytical framework to assist countries understand trade-offs between different sectors (for example irrigation vs power vs water storage), and among environmental, social, and economic outcomes when making strategic decisions about developing the shared Nile resource. It enables multi-sectoral economic evaluation of resource development and management options, and robust analysis of different potential future scenarios from both national and Basin-wide perspectives, as well as building in potential future shifts in climate and demands for water and energy. Through solid and transparent analysis, the MSIOA provided a new foundation for coordination and cooperation on development of the Basin's potential for regional economic growth. ENTRO has adapted the MSIOA concept and similarly used the results to inform water investment strategies in the eastern Nile region.

Other tools have focused on specific sectors, for example:

The **NEL agricultural trade and productivity** project developed a suite of tools that have been applied to promote efficient and sustainable use of water resources in relation to investment in agriculture. The tools have helped develop projections on future demand and supply of agricultural commodities across the region, explored the potential role for irrigation in food security, and explored cross-sectoral impacts on the agriculture sector. The analytical work raised the profile of water in relation to agriculture, and enhanced cooperation beyond water. It brought together ministries of agriculture and trade and investment (as well as water) from across the region, and advanced cross-border trade and investments in agriculture.

NELSAP developed sub-Basin level knowledge bases and tools for identification of regionally significant **water resource management and development** investments. These tools have informed national and regional water resource investment strategies and plans. For example, the investment plan for the Aswa basin resulted in joint work between South Sudan and Uganda on the Nyimur project. The tools have also informed water allocation planning, considering changing population, urbanization, and demands for agriculture. Water allocation models and plans in three NEL sub-basins (Kagera, Mara, and Sio-Malaba-Malakisi) have facilitated cooperation among the countries through enhanced information exchange and coordination of water resource regulation.

In the **power sector**, under the comprehensive Basin-wide study of power options, a suite of spreadsheet-based tools was developed to analyze, compare, and rank options for power projects across the region. Each option is evaluated through elaborate, multi-criteria analysis. This enabled the development of a transparent, regional power development strategy that provides guidance to the member states on best-bet power generation and expansion plans. The results are a number of investment projects in both power trade (interconnection) and generation, many of which are being taken up and prepared beyond the NBI. They will contribute significantly to relieving the energy poverty that exists across much of the Nile region.

Consequently, there are ways to assess scenarios of different options for developing the water resource so that countries can consider the risks, opportunities, and benefits involved in their decisions. These include approaches to prioritize options and to determine whether projects should be undertaken at the national or regional level.

An enabling environment. To motivate cooperation between countries, the NBI has developed a collection of strategies in the form of the Nile Basin Sustainability Framework (NBSF) to guide Nile countries towards integration of Basin-wide transboundary perspectives in their water policies. The NBSF strategies cover: water related socio-economic development; water resource planning and management; water related natural resource management; and climate change adaptation and mitigation. For example, in Kenya, NBI's work has informed the development of a transboundary water policy, currently awaiting cabinet approval.

"Most studies funded by the NBI have been mainstreamed into national policies. All activities are improving the way we manage water resources through both policy and practice. The Government can now save money, avoiding further studies and getting on with implementation." Silas Mutia, Ministry of Environment, Water and Natural Resources, Kenya

Capacity development activities. In support of all of these activities, the NBI has kept a strong focus on capacity development. The SVP's Applied Training Program was important, but capacity development has also happened across all NBI's work. For example, most investment projects prepared include a component of enhancing the local capacity for implementation. The NELSAP investment programs have had a strong focus on building member state capacity on water resources monitoring, putting in place strategic water resources monitoring stations and networks in order to enhance

data availability for planning. In addition, support to government staff developing water policies and laws at the country level has been helpful in building the enabling environment for cooperation.

Across governments, the private sector, and civil society, the NBI has provided over 14,000 people with:

- Knowledge on technical issues, such as hydrology, to enable better understanding of water availability and impacts of water use.
- Skills to monitor the Basin, manage knowledge, analyze information, and use NBI tools.
- An understanding of how transboundary approaches can provide better opportunities for economic development through planning, management, and development of the resource, and shared costs, risks, and benefits.

The DSS was developed by the NBI in full collaboration with the Nile Basin countries. The countries agreed on the main potential uses and themes for the DSS: a world-class computerized system that offers an analytical framework to support complex water resource planning, including integrating environmental, social, and economic objectives.

Consultation: The DSS was developed through a process of engaging all the countries in a consultative process. For example, workshops and training have helped the countries to bring their issues into the DSS, and to train them in its use. Senior government decision makers have been briefed on its utility in policy and practice, and in assessing project opportunities.

Vision: The DSS helps model scenarios. It offers data processing, modeling, and scenario planning of different policy or project options, and cost-benefit analysis, all on the basis of multiple criteria to facilitate informed decision-making.

Practice: The DSS is available through licenses, which have been provided to government ministries, utility companies, and academic institutions for research. The NBI uses the DSS to assess the potential impacts of project proposals on other countries, through procedures for notification and evaluation of projects of Basin-wide significance. NBI countries are also using it beyond the Nile Basin. For example, Tanzania is piloting the use of DSS to model the water resource systems of the Great Ruaha catchment of the Rufiji Basin. Uganda has fully integrated the DSS into its national water planning processes, as the main tool it uses.

Shared knowledge, better planning

So what have been the main results of these activities, in relation to the challenges of 1999?

Capacity is driving cooperation. Many people believe that building a strong cadre of water professionals with a comprehensive understanding of transboundary water issues has been a key achievement. This cadre comprises professionals in governments and beyond, from across the region. They now have knowledge on technical issues, like the hydrology of the Basin, and they have the skills and capacity to continue monitoring it to improve the available data, so they better understand the downstream flows and impacts of water use. The member states understand how to go about the joint planning and management of transboundary projects. Knowledge on opportunities for economic development through shared development of the Nile resource is also providing a real reason to cooperate.

There is consensus that, through capacity development, the NBI has ensured that all countries have the skills

needed to consider transboundary issues, and it has contributed to enhanced engagement between and among countries, and stimulated the will for transboundary cooperation

"The NBI is an institution that provides dialogue, information, and promotion of cooperation. It provides countries with a structured mechanism for talking to each other. It also created a technical foundation for understanding the river – and a cadre of professionals who didn't exist before." Barbara Miller, World Bank.

Information is credible and accessible. Part of what is important about the NBI data sets is that they do not belong to any one country. They are therefore unbiased and credible. This makes them less political and more likely to be owned and used by the countries. In addition, being supported by extensive tools like the Nile-IS and DSS, the knowledge is open to all users who need it – at all levels of government, as well as in civil society. For example, the DSS has been used in the Tana-Beles project in Ethiopia

Shared knowledge, better planning continued...

to model the effects of potential future irrigation scenarios on downstream water users in Ethiopia and Sudan, helping to inform project implementation and national policy. The NBI's climate-specific portal, along with other information and tools to analyse hydrovariability, help the countries better understand the range of possible climate changes they might face and how to adapt.

Countries have now started to use the data, knowledge, and tools in their national policy and planning processes. This means that the NBI impacts are going beyond the investment projects prepared by the SAPs.

Levels of trust are greater. There is now a trend towards sharing data more freely among the Nile Basin countries through the NBI knowledge systems and tools, and

between countries in direct interactions. This is a positive step towards building trust and joint planning of programs. The NBI's interim procedures and guidelines for data and information sharing encourage member states to exchange information on water and related programs and projects with the NBI, towards a shared regional knowledge base. This impartiality and transparency of NBI's Basin-wide data is particularly valuable in building the trust necessary for the countries to work together. For example, ENTRO's Flood Preparedness and Early Warning (FPEW) project brought together Egypt, Ethiopia, and Sudan to build collective capacity in flood risk management, with a focus on forecasting and early warning systems. This has seen real results in terms of reduced impacts on hundreds of thousands of vulnerable communities – and is entirely based on data being shared openly and willingly.

Opportunities for shared benefits

The outcome is that countries can and do now cooperate over the Nile resource on the basis of reliable data and adequate capacity for interpretation of the information. This is with an openness that was not there before the NBI's program of cooperation. Countries have improved knowledge and tools, and they are using them in practice nationally, as well as to develop and implement projects of regional significance jointly. Eleven NBI facilitated projects are already being implemented by the member states, and 19 more are under preparation.

The improved knowledge base also impacts financing. Countries have been able to see that pooling resources means reduced costs to individual countries and better benefits for all. This cooperation has meant that international and government funding has been easier to attract because the project proposals are now able to articulate and quantify costs and benefits clearly.

Countries now not only understand that shared benefits are available, but they also know more precisely who will get what, and how to achieve them.

"Development is inevitable and the only way forward is cooperation, which should bring all countries peace and stability". Dr Abdulkarim Seid, Nile-SEC.

This note forms one of a series of briefing notes prepared to mark the completion of the Nile Basin Trust Fund (NBTF). The Nile Basin Trust Fund was opened in 2003 at the request of Ministers responsible for water affairs in the Nile countries, and was administered by the World Bank on behalf of ten donors.

The series of briefing notes highlight the achievements of the Nile Program, a set of projects and sub-programs that have been supported by Nile riparian countries, the Nile Basin Trust Fund and other donors in parallel to the NBTF, largely implemented by the Nile Basin Initiative (NBI).

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