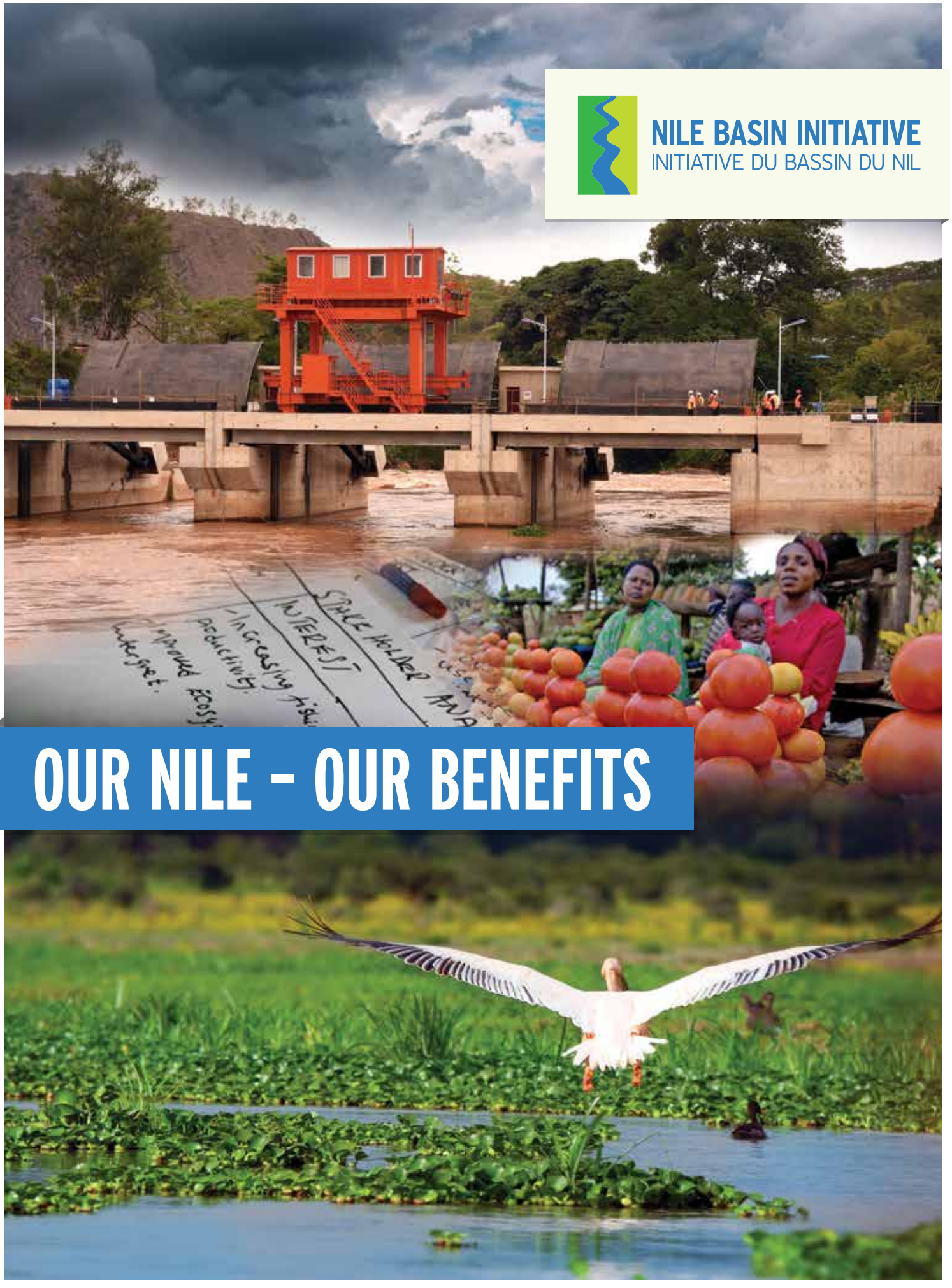

NILE BASIN INITIATIVE
INITIATIVE DU BASSIN DU NIL

OUR NILE – OUR BENEFITS

NILE BASIN INITIATIVE
INITIATIVE DU BASSIN DU NIL

The NBI logo can be interpreted as the spirit of unity in the Nile Basin, showing the Nile winding between a field of green on the left, symbolising the lush vegetation of the upstream countries, with a field of light green on the right, symbolising the more arid lands of the downstream countries. Underneath, on a field of blue, is the Nile Basin Initiative's name in both English and French, the two dominant languages of the region.

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CONTENTS

Photo: NBI

ABBREVIATIONS AND ACRONYMS

CFA	Cooperative Framework Agreement
CRA	Cooperative Regional Assessment
EAC	East African Community
ENCOM	Eastern Nile Council of Water Ministers
ENIDS	Eastern Nile Irrigation and Drainage Studies
ENMSIO	Eastern Nile Multi-Sector Investment Opportunity Analyses
ENPT	Eastern Nile Power Trade
ENSAP	Eastern Nile Subsidiary Action Programme
ENTRO	Eastern Nile Technical Regional Office
ENWM	Eastern Nile Watershed Management
EUWAP	Efficient Use of Water for Agricultural Productivity
FAO	Food and Agriculture Organisation
FPEW	Flood Protection and Early Warning
GCM	Global Circulation Models
GDP	Gross Domestic Product
GIS	Geographical Information Systems
HA	Hectares
ICOLD	International Commission on Large Dams
IDEN	Integrated Development of Eastern Nile
IGAD	Inter-Governmental Agency on Drought and Development
IWRM	Integrated Water Resources Management
IWSM	Integrated Watershed Management
JMP	Joint Multipurpose Project
KM	Kilometre
KV	Kilo volts
LADP	Local Area Development Project
LEAF	Lake Edward and Albert Fisheries
LVBC	Lake Victoria Basin Commission
MSIOA	Multi-Sector Investment Opportunity Analyses
MW	Mega watt
NB DSS	Nile Basin Decision Support System
NBDF	Nile Basin Development Forum
NBI	Nile Basin Initiative
NBSF	Nile Basin Sustainable Framework
NDC	Nationally Determined Contributions
NELCOM	Nile Equatorial Council of Water Ministers
NELMSIOA	Nile Equatorial Lakes Multi-Sector Investment Opportunity Analyses
NELSAP	Nile Equatorial Lakes Subsidiary Action Programme
NELSAP-CU	Nile Equatorial Lakes Subsidiary Action Programme Coordination Unit
Nile-COM	Nile Council of Ministers
Nile-SEC	Nile Basin Initiative Secretariat
Nile-TAC	Nile Technical Advisory Committee
NTEAP	Nile Transboundary Environment Action Project
OHTL	Overhead Transmission Line
RNBC	River Nile Basin Commission
SAP	Subsidiary Action Programme
SOB	State of the Basin
SSEA	Strategic Social and Environmental Assessment
SSEC	South Sudan Electricity Company
SVP	Shared Vision Programme
TECCONILE	Technical Cooperation Committee for the Promotion of Development and Environmental Protection of the Basin
TEEB	The Economic Evaluation of Diversity
USD	United States Dollar

FOREWORD

Dear Nile Basin Citizens and Friends of the Nile,

A key concern for every Nile Basin State is economic growth, more so meeting the ever-increasing demand for food, water and energy for its citizens.

All 11 Nile Basin States consider, to varying degrees, the mighty River Nile a key source of water to meet the needs of the rising population. This means that the economic transformation of most Nile Basin States relies heavily on the opportunities presented by the common River Nile, such as the huge and still untapped potential for hydropower generation, increased food production through intra-basin trade in agriculture, navigation, among others.

In spite of the opportunities, Nile Basin States are faced with numerous common challenges and risks that pose a threat to the health of the people, the river and the Basin as a whole. These include hydrologic variability, multiple impacts of climate change leading to less predictable River Nile flows and extreme events such as droughts and floods, environmental degradation and loss of biodiversity, as well as an ever-growing demand for water due to urbanisation and population growth. This is in addition to the well-known political challenges.

It is evident that none of our countries has the requisite capacity to meet these challenges alone. Hence, our adaptive responses need to be jointly and cooperatively planned as well as executed and aligned with each other. In other words, the transboundary nature of our Nile requires transboundary interventions and an all-inclusive cooperation.

It was in recognition of the above, coupled with the limitations of prior cooperation attempts (evidenced by their thematic limitation, coverage not being Basin-wide and non-inclusion of some countries), that spurred our countries to establish the Nile Basin Initiative (NBI) on 22 February 1999. The Shared Vision Objective agreed by the Member States is: **To achieve sustainable socio-economic development through equitable utilisation of, and benefit from, the common Nile Basin water resources.**

Over the last two decades, Member States have made progress worth celebrating, particularly given the unfavourable baseline from which we started. It is therefore not surprising that today, all NBI Member States concur that Nile Basin cooperation is not an option but a must choice to

« Over the last two decades, Member States have made progress worth celebrating, particularly given the unfavourable baseline from which we started. It is therefore not surprising that today, all NBI Member States concur that Nile Basin cooperation is not an option but a must choice to ensure optimal utilisation of the common Nile Basin water resources for win-win benefits. »

ensure optimal utilisation of the common Nile Basin water resources for win-win benefits.

This publication highlights the laudable achievements registered by NBI and what it means for individual Member States and for the region as a whole. These have been possible, thanks to the commitment of Member States, which I urge our countries to sustain and deepen. The achievements would not be possible were it not for the continued support from our development partners for which we are profoundly grateful.

The achievements notwithstanding, there are still hurdles to jump including the political impediments. More than two decades later, we are yet to realise the establishment of an all-inclusive permanent legal institution, the River Nile Basin Commission (RNBC). The RNBC is awaiting the ratification of the Cooperative Framework Agreement (CFA) by six NBI Member States. So far, Ethiopia, Rwanda, Tanzania and Uganda have ratified the CFA.

However, Nile Basin countries have to work hard and exert their utmost effort to ensure inclusivity as this is the surest path to the realisation of an effective RNBC in the future.

I call upon all our readers to use this publication as an instrument to promote the remarkable achievements thus far. I also invite you to propose workable solutions to address the identified institutional challenges. No doubt we are stronger together and our joint actions can help make the Nile Basin region a better place for everyone, as clearly demonstrated by the last 21 years of our cooperation.

It is clear that our countries are interlinked and interdependent. We must remain together as the contrary option presents disastrous consequences to both the current and future generations.

Sicily K. Kariuki (Mrs) EGH
Chairperson, Nile Council of Ministers (Nov 2019 - Nov 2020)
Cabinet Secretary, Ministry of Water & Sanitation and Irrigation
Republic of Kenya

MESSAGE FROM THE EXECUTIVE DIRECTOR

Photo: NBI

Dear Reader,

I am excited to present this second edition that highlights the consolidated benefits of Nile cooperation, after our inaugural issue published in 2016. This publication captures the benefits Member States are deriving from working together as countries that share the world's longest river, the Nile, under the auspices of the Nile Basin Initiative (NBI) for the last 21 years.

First of all, bringing Nile Basin countries together on a regular basis to discuss how to jointly plan, manage and develop the common Nile Basin water resources and to sustain Nile cooperation is quite laudable. This is not to mention NBI's contribution to the culture of dialogue and mutual trust and confidence, all of which are key ingredients for regional cooperation and economic integration.

The engagement has been expanded to include critical Nile stakeholders – Basin communities, scientists and academia, civil society, media, parliamentarians, women and the international community. The Basin population is more aware about Nile issues than before, though a lot remains to be done.

NBI has generated a wealth of scientific knowledge and data, thus offering all countries insights into the resource and the potential opportunities. The capacity of individuals and institutions has been enhanced, thus closing the knowledge gap on water resources management and development among Member States. State-of-the-art analytical tools such as the Nile Basin Decision Support System (NB DSS) as well as guidelines, strategies and policies have been developed to guide the cooperative and sustainable management and use of the common Nile Basin water resources.

Member States have also been assisted to prepare joint bankable investment projects worth more than USD 6.5 billion contributing to food, energy and water security as well as poverty alleviation in the region. Implementation of some of these projects by the Member States has been completed, demonstrating to riparian communities the feasibility of Nile cooperation.

Despite the many achievements that the umbrella body has registered, there are some challenges that the organisation is grappling with. First is the delay by Member States to remit their annual

BASIC INFORMATION ABOUT THE NILE BASIN

LONGEST RIVER
The Nile. From Neilos – the Greek name for the River God of Ancient Egypt

TOTAL RIVER LENGTH
6,695 km

NAVIGABLE LENGTH
4,149 km

BASIN AREA
3,176,541 km²

LOCATION
East Africa and North Africa (Lake Victoria to Mediterranean Sea)

RIPARIAN COUNTRIES
Burundi, DR Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, The Sudan, Tanzania, Uganda

MAIN TRIBUTARIES
Lake Albert, Lake Victoria, Victoria Nile, Bahr el Jebel, Bahr el Ghazal, Baro-Akobo-Sobat, Blue Nile, Tekeze-Atbara, White Nile, Main Nile

MAJOR CITIES IN BASIN
Addis Ababa (partly inside Basin), Aswan, Cairo, Jinja, Juba, Kigali, Kampala, Khartoum, Kisumu, Luxor, Mwanza, Wad Medani

LAND USE
Bare areas (31%); shrublands (29%); cultivated land (23%); forest (7%); grassland (6%)

precipitation
Mean max: 2,163 mm/yr (Gore, Ethiopia]
Mean min: 1.2 mm/yr (Aswan, Egypt)

population
Total population of Nile Basin countries: **556 million** (2020)
Population within Basin: **291 million** (2020)

Major dams
Kiira, Nalubale, Jebel Aulia, Roseires, Sennar, Khasm el Girba, Merowe, Aswan High, Grand-Ethiopian-Renaissance-Dam (under construction)

Water-use
Main consumptive water-use sector is agriculture, more than 80%

financial contributions. This curtails most of the core activities that NBI is mandated to deliver on.

There is also the challenge of low uptake of investment projects due to the dynamics of investment planning in the different countries, and the low visibility of and engagement on NBI's work within the Member States.

I hope you will find this publication inspiring and that it unequivocally conveys the message that Nile cooperation promises us even much more than what has been sampled in these pages.

Let me also point out that while the publication showcases Basin wide benefits for all as well as those specific to Member States, it does not capture benefits specific to Egypt. The latter suspended its participation in most of NBI's activities in 2010, following the decision taken by some Member States to sign the Cooperative Framework Agreement (CFA). Egypt however continues to participate in the annual Nile Council of Ministers meeting, annual Regional Nile Day event, annual Strategic Dialogue and the triennial Nile Basin Development Forum.

Prof Seifeldin Hamad Abdalla

EXECUTIVE SUMMARY

Photo: Shutterstock

Nile Basin countries, with the establishment of the Nile Basin Initiative (NBI) in 1999, recognised the importance of working together in the management and development of their shared water and related resources so as to achieve sustainable socio-economic development.

This publication seeks to provide an overview of these benefits, both in order to transparently communicate the value derived from 21 years of commitment and contribution by the NBI, but also to reinvigorate that same commitment by offering a clear depiction of how the NBI delivers on its mandate and serves Member States and their citizens.

Chapter 1 describes the basin-wide achievements – the benefits that have to date been generated at a regional scale, and for all Member States collectively. For one, the NBI provides an institutional mechanism to manage the common Nile Basin water resources. The NBI still is the first and only basin-wide, Member State owned, governed and mandated organisation to facilitate dialogue and cooperative water resources planning, management and development on the Nile. By offering a collaborative governance structure for the common water resources of the region, the impact of this institution has been the building of confidence among Member States and the promotion of regional peace and security. As a platform for stakeholder engagement and participation, NBI has facilitated numerous

« Nile Basin countries, with the establishment of the Nile Basin Initiative (NBI) in 1999, recognised the importance of working together in the management and development of their shared water and related resources so as to achieve sustainable socio-economic development. »

dialogue formats, as well as generated communication and visibility surrounding Nile Basin issues. Regular regional events, such as the annual Nile Day commemoration and the triennial Nile Basin Development Forum have over the past two decades fostered exchange and dialogue on the key issues concerning Nile Basin cooperation. NBI has also continuously engaged with the media to encourage accurate and constructive reporting.

Secondly, NBI has delivered a wide range of benefits to the region's water resource planning and management. It has established a shared data, information and knowledge base (e.g. through the Integrated Knowledge Portal); provided analytical and decision making tools for policy makers and water resources planners (e.g. the Nile Basin Decision Support System), along with training and capacity building for hundreds of water resources planners drawn from all Member States.

Work on the collection and sharing of real-time hydro-meteorological data (Box 7 on page 26) has been spearheaded to provide a foundation for transparent and trusted information exchange in the Basin. Work on the coordinated operation of dam cascades, joint flood monitoring and response, and the piloting of various catchment/watershed management approaches laid the foundation for concrete, coordinated management of water resources on the ground.

NBI has also been at the forefront of identifying strategic issues to inform Basin planning priorities (including the Strategic Water Resources Analysis and the River Nile State of Basin Report). It has led the formulation of more than 30 actionable policies to guide countries in managing their water resources with transboundary impacts (Nile Basin Sustainability Framework), and setting out Basin priorities in its 10-Year Strategy (2017-2027). Ultimately, these efforts seek to enable the regionally optimised development and utilisation of the common Nile Basin water resources.

Thirdly, NBI's Subsidiary Action Programmes (SAPs), the Nile Equatorial Lakes Subsidiary Action Programme (NELSAP) and the Eastern Nile Subsidiary Action Programme (ENSAP) have significantly contributed to water resources development and investments, with the aim of enhancing water, food and energy security in the region.

The SAPs have provided a platform for collaborative water resources investment project planning and implementation, and as such have contributed to a process of on-the-ground collaboration across the region. At least 30 investment projects have been prepared to date. The implementation of some of these has been completed (such as the Ethiopia-Sudan Power Transmission

and Power Trade Project), while many are currently being implemented. Altogether, these projects hold the potential to benefit up to 30 million inhabitants of the Nile Basin.

One flagship project of sub-basin investment cooperation is the 80MW Regional Rusumo Falls Hydroelectric Project, jointly owned and financed by Burundi, Rwanda and Tanzania. It is a prime example of countries cooperating throughout the entire project cycle – from joint project identification and preparation, through financing and implementation, to management and sharing in the benefits of the project.

Chapter 2 lays out country-specific benefits in the areas of water resources development/ investments, water resources planning and management, and basin cooperation. It breaks down precisely how many people are set to directly benefit from the prepared and/or implemented investment projects.


Photo: Shutterstock

In Burundi, for example, 1,461,640 people stand to directly benefit from existing and planned investments, while DR Congo could see up to 757.7 KM of transmission lines added to its national grid infrastructure to enable cross-border power trade, as well as energy distribution to its citizens. Ethiopia has seen 300 MW of electricity exported to Sudan, yielding the country about USD 10-15 million in revenue annually.

The chapter also explores the ways in which NBI has directly supported water resources planning and management in each of the Member States, through data, tools and training. Often, there are cases of NBI supporting countries on specific analyses, such as supporting the modelling of the Muvumba catchment in Rwanda; input to the National Water Resources Assessment and the National Water Resources Strategy in Uganda; or assessing pastoralism, wildlife, and environmental integrity for the Tana Delta Ecosystem in Kenya.

The chapter quantifies the number of people engaged and trained on Nile Basin issues, as well as each country's input to governance meetings,

« The SAPs have provided a platform for collaborative water resources investment project planning and implementation, and as such have contributed to a process of on-the-ground collaboration across the region. At least 30 investment projects have been prepared to date. These projects hold the potential to benefit up to 30 million inhabitants of the Nile Basin. »

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regional expert working groups, project steering committees, consultations and academic fora. For instance, since its coming into existence, roughly 500 professionals from South Sudan have been trained on water resource management and planning. In aiming to foster the next generation of highly skilled water resources practitioners, 49 young Sudanese professionals have to date taken part in the ENTRO internship programme. These and many more examples and figures can be found in the country overview section.

The chapter however does not capture benefits specific to Egypt. The latter suspended its participation in most of NBI's activities in 2010, following the decision taken by some Member States to sign the Cooperative Framework Agreement (CFA). Egypt however continues to participate in the annual Nile Council of Ministers meetings, annual Regional Nile Day event, annual Strategic Dialogue and the triennial Nile Basin Development Forum. Finally, chapter 3 provides an insight into the path.

Chapter 3 provides an insight into the path that lies ahead. With all that has been achieved in the first 21 years of the NBI, an awareness of the advantages of cooperation over non-cooperation is steadily taking hold in the Basin. As such, an important foundation has been built to generate even more tangible benefits over years to come.

With the strategic water resources analysis, countries have gained a better understanding of the current and future water demands, and are able to enter into a joint basin planning process, setting common development priorities and standards, managing shared risks effectively and implementing collective adaptation measures. Cooperation on the common Nile Basin water resources has today become the norm, and with that the opportunities for the future are promising.

With its 10-Year Strategy (2017-2027), the NBI is responding to these opportunities. The Strategy identifies six Basin priorities for the period: water security; energy security; food security; climate change adaptation; environmental sustainability as well as transboundary water governance. Underpinning all the strategic priorities is the increase in cooperation between Member States and dialogue with NBI's broader stakeholders and regional actors. This will include deepening awareness across the Basin on a wide range of risks and challenges, and seeking to align national interests and development priorities around common basin-wide goals, as well as establishing and strengthening strategic partnerships.

Achieving the NBI Shared Vision Objective - **to achieve sustainable socio-economic development through equitable utilisation of, and benefit from, the common Nile Basin water resources** - will be a realisable ambition provided the Member States achieve their goal of establishing a permanent river basin organisation. Such an organisation will provide a more stable and predictable operating environment with all riparian countries of the Nile actively participating.

NILE BASIN COOPERATION
The journey to an inclusive platform

Photo: NBI

Heads of State of the Nile Basin countries or their representatives, during the first Nile Basin Heads of State Summit held in Entebbe, in 2017

About two decades ago, Ministers responsible for Water Affairs from nine Nile Basin countries formed the Nile Basin Initiative (NBI). It was created to provide a platform to deliberate on the challenges and opportunities in managing and developing the Nile, the longest river in the world for win-win outcomes and to sustain the River Nile, which is an essential fountain for life of Nile Basin citizens. These countries are Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda. The umbrella body welcomed a 10th member on 5 July, 2012 after South Sudan seceded from The Sudan. Eritrea participates as an observer.

Until 22 February, 1999 when the NBI was established, in Dar es Salaam, Tanzania, prior efforts to cooperate on the Nile, starting as far back as the 1960s, had failed to bring all the Nile Basin countries together. These efforts narrowly focused on a few technical areas and did not anchor cooperation within the ambit of a Shared Vision. Above all, they lacked a comprehensive institutional setting in which to engage.

One of the early regional projects was the Hydromet established in 1967 to conduct joint hydro-meteorological surveys on the Nile in the wake of flooding disasters earlier in the decade. It brought together Burundi, Egypt,

CHALLENGES AND OPPORTUNITIES IN THE NILE BASIN

Compared to the population size and the demands, the Nile Basin is a water-scarce region. The Basin also hosts some of the poorest nations. The population is growing, urbanisation is increasing and economies are starting to grow. All these contribute to the growing demands and pressures on the common River Nile water resources, resulting in declining per capita water availability. This is further complicated by the potential impacts of climate change.

Despite the challenges, the Nile offers numerous opportunities to Member States, including huge and still untapped potential for clean energy (hydropower) generation and power trade, food production, navigation and intra-basin trade in agriculture. Other opportunities are flood and drought mitigation, watershed management, navigation and tourism development as well as promotion of regional integration, peace and security.

The Nile Basin cooperation process has been undertaken on two parallel but related tracks – the political track which started during TECCONILE programme and NBI technical programme. The political track is pursued by the Member States outside the framework of the NBI, undertaken by Country Negotiating Teams. This track aimed at concluding and ratifying the CFA, which would eventually pave way for transitioning NBI into a permanent river basin organisation known as the Nile River Basin Commission. The CFA would enter into force on the sixtieth day following the date of deposit of the sixth instrument of ratification or accession with the African Union. To date, Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda have signed the CFA. As of October 2020, Ethiopia, Rwanda, Tanzania and Uganda had ratified the CFA.

Kenya, Rwanda, Sudan, Tanzania and Uganda; while DR Congo and Ethiopia were observers. In 1983, Egypt spearheaded Undugu (meaning 'brotherhood' in Kiswahili), which brought several Nile Basin countries together namely Burundi, DR Congo, Egypt, Rwanda, Sudan and Uganda; with Ethiopia and Kenya as observers, to consider regional economic development.

The next attempt was the Technical Cooperation Committee for the Promotion of Development and Environmental Protection of the Basin (TECCONILE), which ran from 1993 to 1999. One of its objectives was to promote the development, conservation and use of the Nile Basin water resources in an integrated and sustainable manner, through basin-wide cooperation for the benefit of all. TECCONILE brought together six of the riparian countries of the Nile namely; DR Congo, Sudan, Rwanda, Tanzania, Uganda, and Egypt. It identified 22 projects for technical assistance and capacity building as part of a Basin-wide action plan for development and use of the Nile waters.

Harmonising the approach to cooperation

With the emergence of NBI, the Nile Basin countries, for the first time, agreed to a Shared Vision Objective: To achieve sustainable socio-economic development through equitable utilisation of, and benefit from, the common Nile Basin water resources.

The NBI was established as a transitional mechanism, providing Member States with the first inclusive and impartial platform for multi-stakeholder dialogue, alongside parallel efforts towards a formal Cooperative Framework Agreement (CFA) to create a permanent and legally mandated institution.

To translate the Shared Vision Objective into action, the Member States developed a Strategic Action Programme with two complementary programmes:

- The Basin-wide Shared Vision Programme (see annex3) to create an enabling environment for cooperative action through building trust and skill; and
- The Subsidiary Action Programmes (SAPs) to plan and implement investments and activities on the ground at the lowest appropriate level, taking into account the benefits from, and impact of these activities, in all riparian countries.

Managing cooperation among Member States

The NBI maintains a Secretariat (Nile-SEC), which is located in Entebbe – Uganda. Besides providing secretariat services to the governance, Nile-SEC serves as the executive arm of NBI, routinely preparing and implementing Basin-wide programmes and projects under the supervision of the governance bodies. The Eastern Nile Technical Regional Office (ENTRO) based in Addis Ababa - Ethiopia, facilitates the process of cooperative development for the Eastern Nile Subsidiary Action Programme (ENSAP). The Nile

ORGANISATION OF ACTIVITIES

The NBI organises its activities around three core functions:

FACILITATING BASIN COOPERATION

This function provides a common platform for countries to engage, consult and deliberate with each other and other Nile stakeholders on a regular basis. It aims to build broad political and civic support for transboundary water cooperation in the Basin.

WATER RESOURCES MANAGEMENT

This function provides critical services in building basin-wide technical competencies and capabilities and supporting science - and knowledge-based decision making towards joint planning, monitoring, protecting and sustaining the Nile water resources.

WATER RESOURCES DEVELOPMENT

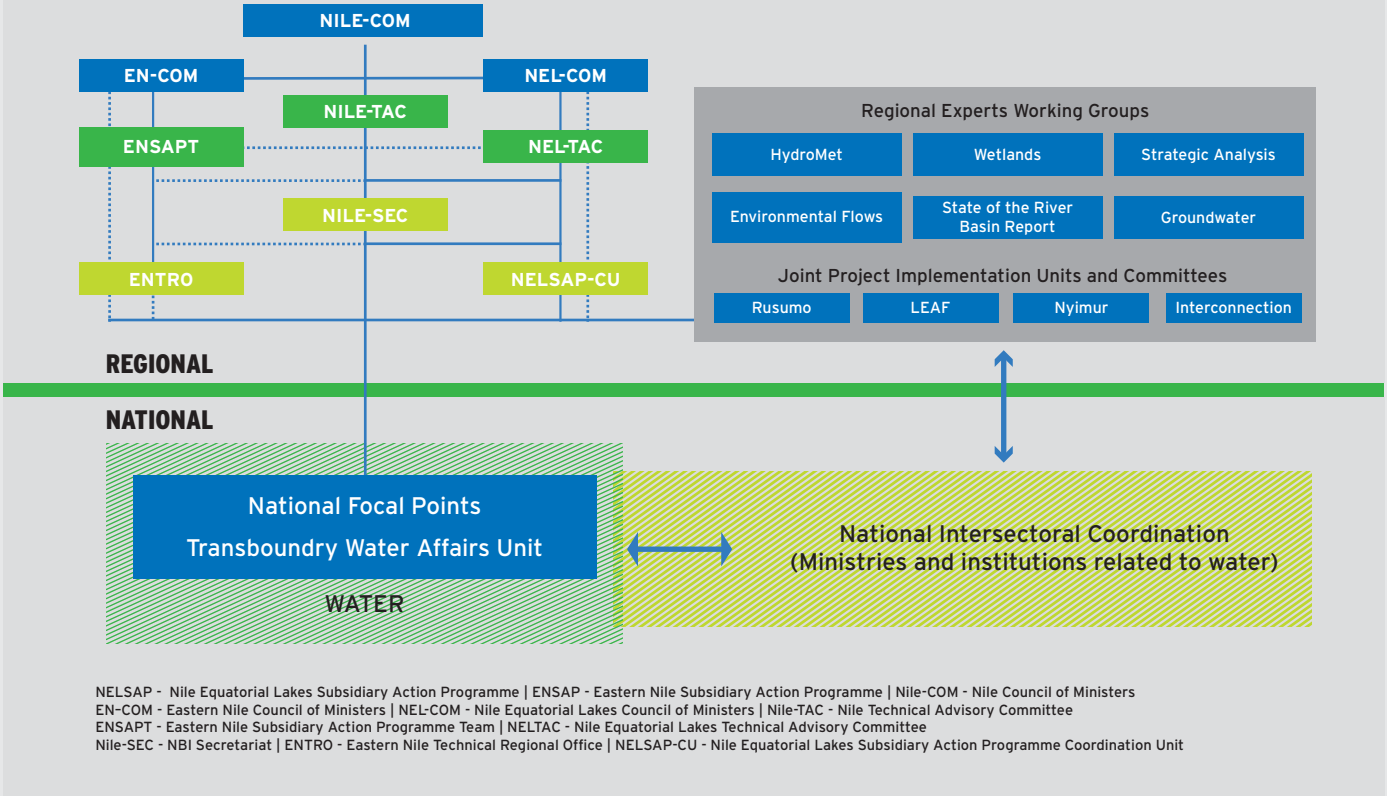
This function focuses on identification and preparation of cooperative water resources investments that demonstrate to the Basin population the benefits of cooperation.

Equatorial Lakes Subsidiary Action Programme Coordination Unit (NELSAP-CU) based in Kigali - Rwanda, does the same function for the Nile Equatorial Lakes Subsidiary Action Programme (NELSAP).

Meanwhile, NBI's presence within each Member State is maintained through the NBI National Office, headed by the Nile Technical Advisory Committee (Nile-TAC) members.

The NBI has since supported Member States to pursue cooperative utilisation and management of the common Nile Basin water resources based on sovereign equality, territorial integrity, mutual benefit and good faith. This is accomplished with technical input from Member States through the Technical Advisory Committees (TACs), Regional Expert Working Groups as well as technical and financial support from development partners.

NBI STRUCTURE



NELSAP - Nile Equatorial Lakes Subsidiary Action Programme | ENSAP - Eastern Nile Subsidiary Action Programme | Nile-COM - Nile Council of Ministers
EN-COM - Eastern Nile Council of Ministers | NEL-COM - Nile Equatorial Lakes Council of Ministers | Nile-TAC - Nile Technical Advisory Committee
ENSAPT - Eastern Nile Subsidiary Action Programme Team | NELTAC - Nile Equatorial Lakes Technical Advisory Committee
Nile-SEC - NBI Secretariat | ENTRO - Eastern Nile Technical Regional Office | NELSAP-CU - Nile Equatorial Lakes Subsidiary Action Programme Coordination Unit

CHAPTER 1: BASIN-WIDE BENEFITS FOR ALL

More than two decades of Nile Basin cooperation has yielded results from which, all riparian countries will continue deriving benefits. The nature of the results is foundational. Nile Basin cooperation is primarily about the governance of a common pool resource. This demands collective action to enable optimal utilisation of the River Nile water and related resources for the benefit of all and to avert the disaster of the "tragedy of the commons," i.e. the irreversible destruction of the common Nile Basin water and related resources. This chapter summarises the Basin-wide benefits that the region has so far gained from inter-riparian cooperation.

Photo: Shutterstock; Top left and Bottom right: NBI

A Common Platform for Institutionalised Cooperation

Prior to the NBI, riparian countries never had a common, all-inclusive platform for consultations, much less for undertaking cooperative water resources management and development across the Basin. The NBI has been the first and only basin-wide, Member State-owned, governed and mandated organisation that engages the international community, other river basin organisations, multilateral and bilateral development agencies, as well as financing institutions representing NBI Member States.

Thus far, Member States have jointly incurred over USD 142 million to cover the operating costs of the NBI. Of the total, more than USD 17 million is in cash and more than USD 124 million has been in-kind contribution between 2000 and June 2020.

For more than two decades now, Nile Basin countries have been promoting basin-wide cooperation through the NBI, a common transitional institutional mechanism. The transitional status derives from the fact that

even though NBI is, for all practical intents and purposes, delivering the functions of a fully-fledged river basin organisation, it lacks one critical element: a legal base to which all Member States subscribe.

Nonetheless, through the NBI, Member States have already laid the technical, scientific knowledge, managerial and institutional foundations for the establishment of a thriving, inclusive and permanent Nile River Basin Commission as it will be eventually known. The water resources management and investment/development functions have been clearly distinguished and separated. The requisite scientific knowledge base has been established.

« NBI has done a lot to bring countries together so that they can talk on a common ground. First of all, people didn't know each other... You'd find Ugandans seated alone, Kenyans seated alone. But over the years, the interaction among teams increased. »

DR CALLIST TINDIMUGAYA, Commissioner for Water Resources Planning and Regulation in the Ministry of Water and Environment, Uganda on the occasion of NBI's 20th anniversary (February 2019).

The NBI has over the years invested heavily in human resource development. As of 2020, at least 21,382 Nile Basin water resources professionals and related stakeholders had undergone a range of NBI-facilitated training including PhD programmes and a wide range of subject matter: water resources, sediment, water balance, climate change modelling, media relations, communication, decision support systems (DSS), geographic information systems (GIS), hydrometry, hydro informatics, integrated water resources management (IWRM), integrated watershed management (IWSM), Basin database management, project planning and management, strategic social and environmental assessment (SSEA), international water law, water diplomacy, and conflict resolution. There have also been exchange visits with other river basin organisations.

River basin management experience has been garnered. The values, perceptions and attitudes of

TABLE 1: ANNUAL NILE DAY EVENTS

YEAR	HOST COUNTRY/LOCATION	THEME
2007	Rwanda/Kigali	Enhanced Cooperation on the Nile for Peace and Prosperity
2008	Ethiopia/Addis Ababa	Cooperation on the Nile – Sustaining Our Life, Our Future
2009	Burundi/Bujumbura	United in Diversity by the River Nile – Our Heritage, Source for Regional Cooperation
2010	Uganda/Kabale	Nurturing 10 Years of Cooperation and Progress
2011	DR Congo/Goma	All Together for Better Cooperation
2012	Uganda/Jinja	Water, Energy, Food – Importance of Nile Basin cooperation
2013	Ethiopia/Bahir Dar	Land Degradation and Climate Change: Address Shared Threats, Sustain Nile Basin cooperation
2014	Uganda/Kampala	Water and Energy: National challenges, Transboundary Solutions
2015	Sudan/Khartoum	Water and Improved Livelihoods – Opportunities in Nile Basin cooperation
2016	Kenya/Vihiga	Nile Basin cooperation: Gateway to Regional Integration
2017	Tanzania/Dar es Salaam	Our Shared Nile – Source of Energy, Food and Water for All
2018	Ethiopia/Addis Ababa	The Nile: Shared River Collective Action
2019	Rwanda/Kigali	NBI@20: Stronger Together
2020	Sudan/Khartoum	Joint Investments on the Nile for Regional Transformation

« What I also like is the culture of rotating the key positions of chairperson of the Nile Council of Ministers and that of the Nile Technical Advisory Committee as well as Executive Director of the NBI Secretariat. This too promotes cooperation among Member States. Also the joint investment projects enable interaction among the citizens of the different countries and at all levels. » Ms Kayitesi Odette former member of the Nile Council of Ministers, Burundi (2006). She was speaking at the occasion of NBI's 20th anniversary (January 2020).

BOX 1: MEMBER STATES HAVE BEEN HOLDING REGULAR DELIBERATIVE MEETINGS

The NBI's highest governing, decision and policy making body is the Nile Council of Ministers (Nile-COM), which since establishment has held uninterrupted 28 annual meetings. Similarly, for ENSAP the Eastern Nile Council of Water Ministers (ENCOM) and for NELSAP the Nile Equatorial Lakes Council of Ministers (NELCOM) are the corresponding sub-basin governance bodies, which have held 32 and 22 governance meetings, respectively. These meetings have brought the Nile riparian countries together on a regular basis for more than 20 years – a first in the history of the Basin. These meetings are establishing norms and practices and a culture of joint deliberation and decision making as pertains to the management and development of the common Nile Basin water resources.

DIRECTEURS EXÉCUTIFS DE L'IBN DEPUIS SON ÉTABLISSEMENT EN 1999

Mr Meraji Msuya
Tanzanie | 1999 - 2004

Eng Patrick Kahangire
Ouganda | 2004 – 2006

Mr Audace Ndayizeye
Burundi | 2006 – 2008

Ms Henriette Ndombe (RIP)
RD Congo | 2008 – 2010

Dr Wael Khairy
Egypte | 2010 – 2012

Eng Teferra Beyene
Ethiopie | 2012 – 2014

Dr John Rao Nyaoro
Kenya | 2014 – 2016

Eng Innocent Ntabana
Rwanda | 2016 – 2019

Prof Seifeldin Hamad Abdalla
Le Soudan | 2019 - 2021

policy and decision makers and water resources professionals at national and basin levels are showing demonstrable changes – emphasising negotiation, dialogue, collaboration and joint decision making. Increasing information at various levels and scales is flowing across the Nile Basin. As a result there is now more mutual recognition, appreciation and acknowledgment of upstream, midstream and downstream countries' interests and concerns.

From a non-technical institution building perspective, Member States have been leveraging the NBI to intermediate disagreements and differences and to sustain basin cooperation. This has been evident particularly after the disagreements on the CFA emerged in 2010. Such challenges notwithstanding, all Nile Basin countries have been sustaining the spirit of cooperation and dialogue through the NBI. The unconditional return of Sudan to the NBI in 2012 was appreciated by all Nile Basin countries and a similar outcome is still being pursued as regards Egypt.

Nile Basin stakeholders including local communities, civil society, women, media, academia, the private sector, parliamentarians and the international community as well as other interest groups, have been engaged on a continued and regular basis.

Engagement of local communities has been particularly significant in the identification, planning and implementation of cooperative water resources investment projects. To facilitate this, appropriate policies, strategies and guidelines have been formulated (See Table 3 on page 23).

To engage other stakeholders of the Nile, commensurate forums and platforms were established such as the triennial Nile Basin Development Forum (NBDF). This is a platform through which regional and international stakeholders of the Nile, including governments, scientific groups, civil society, academic and research institutions, and development partners interact with the NBI. Five of these events have so far been held.

TABLE 2: MEMBER STATES' CONTRIBUTIONS: 2000 - 2020

COUNTRY	CASH CONTRIBUTION (USD)	IN-KIND CONTRIBUTION* (USD EQUIVALENT)
Burundi	843,161	9,477,679
DR Congo	479,985	6,092,480
Egypt**	858,000	7,585,152
Ethiopia	4,126,145	30,025,226
Kenya	2,135,697	7,969,191
Rwanda	1,844,397	30,385,082
South Sudan	266,818	819,274
Sudan	3,376,955	6,444,474
Tanzania	1,426,525	12,734,204
Uganda	1,718,063	12,664,102
TOTAL	**17,075,746**	**124,196,864**
TOTAL CASH AND IN-KIND	**141,272,610**	

*In-kind contribution consists of prime land and/or office premises for NBI activities, and staff time in terms of supervision and technical guidance through country representation on the Technical Advisory Committees (Nile-TAC, ENSAPT and NEL-TAC) as well as the various Regional Expert Working Groups. This is in addition to the time of the entire staff of the NBI National Office as well as participation of government officials in specialised meetings on NBI issues.

In-kind contribution also includes hosting incoming NBI missions as well as hosting and financially contributing to regional events such as the annual Nile Day, triennial NBDF, annual Council of Ministers' meetings as well as TAC meetings.

**Egypt stopped contributing in 2011, following the decision to freeze participation in NBI activities in 2010.

BOX 2: NBI HAD A DEDICATED TRUST AND CONFIDENCE BUILDING PROJECT

Photo: NBI

One of the foundational seven projects of the Shared Vision Programme was dedicated to Confidence Building and Stakeholder Involvement (July 2004 - December 2009). The project did a significant amount of work canvassing key stakeholders of the Nile including parliamentarians, women's groups, the media, cultural groups, the private sector, and a network of more than 500 civil society organisations linked under the Nile Basin Discourse – a partner of the NBI.

Photo: NBI

Winners of the 2017 Nile Media Awards held in Kigali - Rwanda

Media organisations have been engaged to enhance awareness and visibility of Nile Basin and Nile Basin cooperation issues. In a bid to promote accurate, fact-based information and coverage that does justice to the complexities of Nile Basin cooperation, media professionals have been trained periodically. This has contributed to mitigating the biases of conflict-focused international media that has failed to provide coverage of positive achievements of Nile Basin cooperation.

Project specific information to enable informed participation of stakeholders, particularly local communities, and advocacy communication materials to highlight key themes of regional and global importance have been produced and disseminated through an integrated knowledge web portal providing online access to a wealth of NBI data and information to stakeholders from within and outside the Basin.

The Annual Nile Day event that takes place in rotation among the Member States has made it possible to reach thousands of Basin inhabitants and enhance the visibility of Nile Basin cooperation. So far 14 such events have taken place, in commemoration of the establishment of NBI.

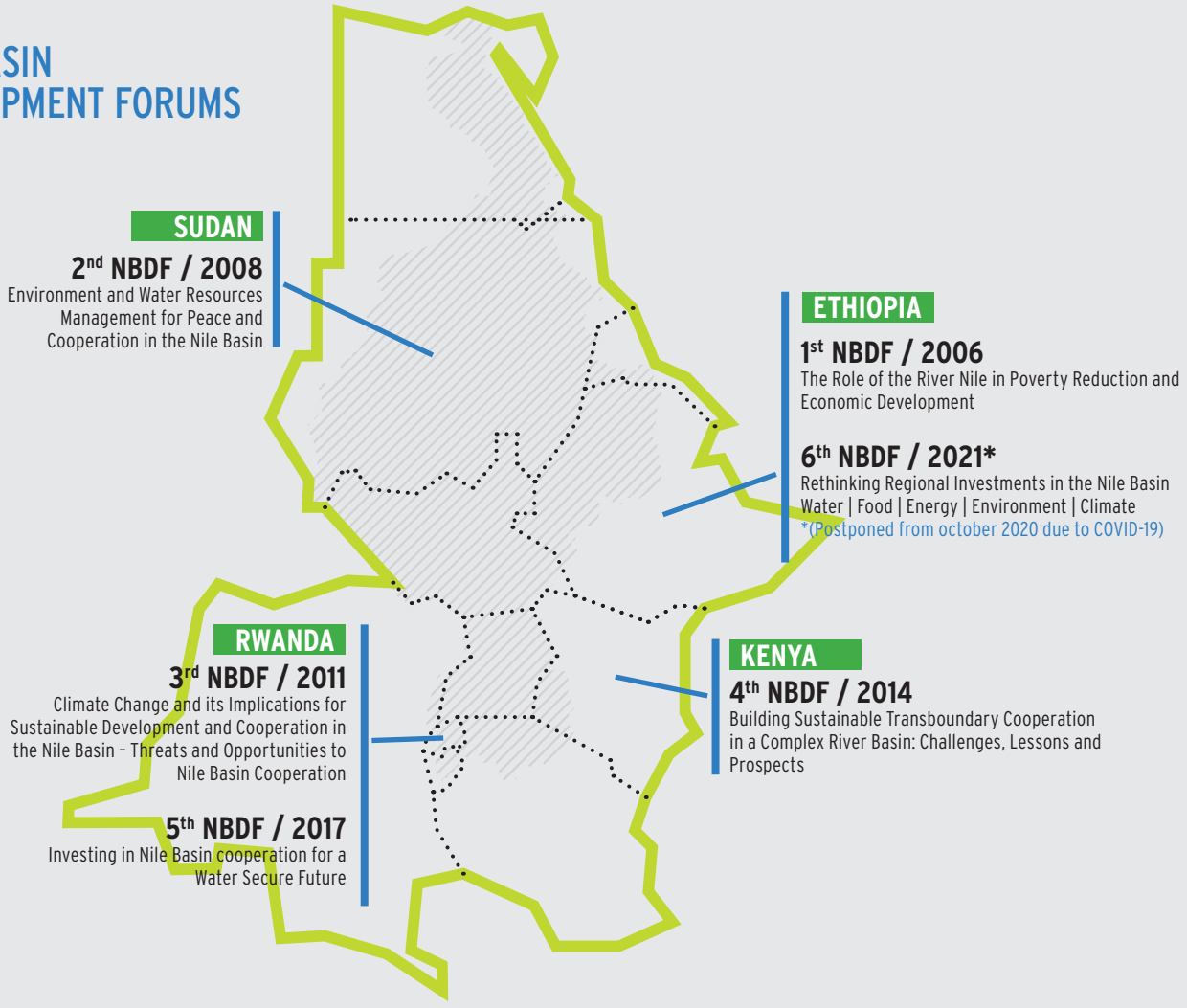
Sustained engagement of stakeholders has

BOX 3: NBI ENGAGES THE BASIN'S YOUNG WATER RESOURCE PROFESSIONALS

Photo: NBI

Yet another powerful specialised forum has been the NBI Internship and Young Professionals Programme, which has yielded significant achievements particularly in the Eastern Nile. Nearly 200 young water resources professionals from Egypt, Ethiopia, South Sudan and Sudan have taken part in 13 cycles and 20% of these are female. In addition to their material contribution (e.g. water resources models, analytic toolkits, studies) and their own knowledge acquisition notwithstanding, the interns and young professionals have also contributed to ownership of Nile Basin cooperation by the future leaders of the sector in the region. An epistemic community has been established.

NILE BASIN DEVELOPMENT FORUMS (NBDF)

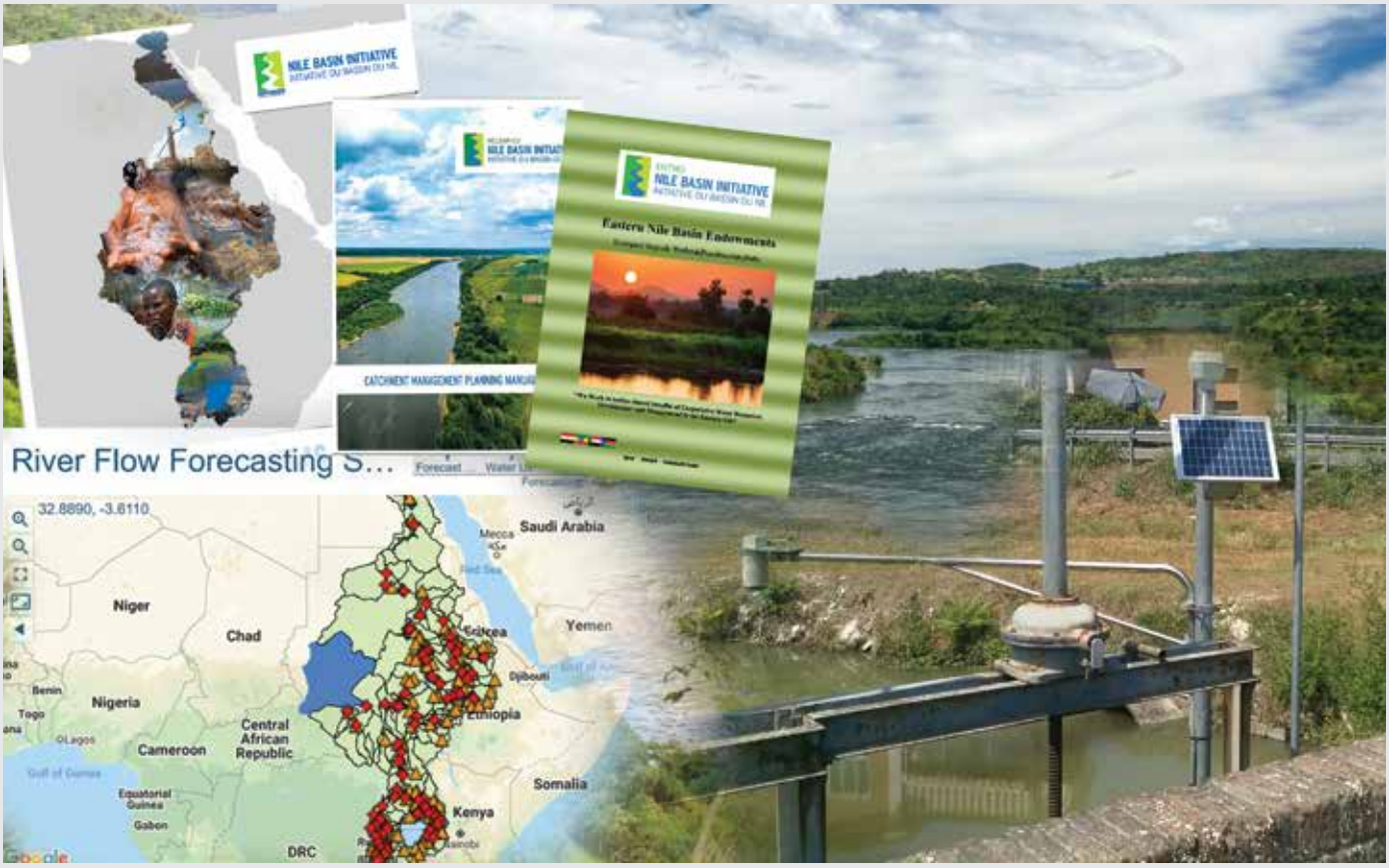


generated support for and buy-in into the Nile Basin cooperation agenda within and outside the basin. This in turn is increasingly contributing to the creation of an enabling environment for national leaders to make bold and visionary decisions that result in win-win sustainable outcomes that benefit all countries.

The cumulative positive impact over two decades of institutionalised Basin cooperation is noticeable on many levels. The transboundary perspective is gradually informing and orienting national water resources management and development plans.

There is now more recognition of: the interconnectedness of riparian countries and communities; the upstream-downstream linkages and mutuality; commonly shared basin-wide threats and risks such as climate change impacts and biodiversity loss; the need to sustain the integrity and functioning of the Nile from source to terminus as one hydrologic unit; and the importance of a culture of dialogue and consultation to foster Nile Basin cooperation as critical for the entire peoples and countries of the region.

Above all else, besides the evident socio-economic and environmental returns Nile Basin cooperation has yielded over two decades, its impact on promotion of regional integration, peace and security is equally relevant. In the absence of sustainable regional peace and security, no meaningful water resources development is feasible at any scale.



Some of the knowledge generated and tools developed by NBI

Cooperative Water Resource Planning and Management: Generating and Sharing Knowledge

Two decades of Nile Basin cooperation have laid the foundations for effective cooperative water resources planning and management at Basin and sub-basin scales. Riparian countries, thanks to their sustained effort to put in place a cooperative water resources planning and management regime, now understand and appreciate the potentials, threats and limitations of the River Nile system better than they did 20 years ago. There are now better prospects and capabilities for the sustainable transboundary management of the common Nile Basin water resources.

The ultimate goal is to ensure the sustainability of the River Nile and associated ecosystem functions as well as environmental services while guiding judicious, regionally optimised development and utilisation. Toward this end, NBI has been: (a) generating or otherwise providing hydro-meteorological data and information; (b) building the requisite central data, information and knowledge base and availing these in accessible formats to Member States through the Integrated Knowledge Portal; (c) organising and guiding studies towards establishing on the ground a system for real-time collection and sharing of hydro-meteorological data by and among Member States (i.e. HydroMet Project). In order to facilitate the smooth flow of data and information among countries, NBI has formulated the NBI Interim Data and Information Exchange Protocols.

In a bid to enable effective Basin planning and management, a state-of-the-art tool, the Nile Basin Decision Support System (NB DSS) was

developed and availed to the countries along with training and capacity building for hundreds of water resource planners, drawn from all Member States. The NB DSS, a flagship product maintained by staff of NBI, has proven invaluable in undertaking critical water resources planning work such as modelling, scenario generation and options analyses.

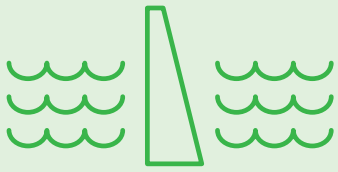
Studies towards identification of strategic options necessary to inform basin planning priorities have been undertaken. This exercise was initiated soon after the NBI took off. The earliest studies were the Cooperative Regional Assessments (CRAs) in Power Trade, Watershed Management, Irrigation and Drainage, the Joint Multipurpose and the Baro-Akobo-Multipurpose Study Programmes of the Integrated Development of Eastern Nile (IDEN) in the Eastern Nile and catchment studies in Nile Equatorial Lakes. Both studies took the two sub-basins as their planning space and were instrumental in the earliest no-borders sub-basin level assessment of the resource base. More important, these studies produced jointly validated data and information. They also pioneered norms of collaboration among Nile Basin countries' water resource professionals and decision makers.

Recent Basin-wide studies include:

- Assessing the balance between aggregate demand and supply of Nile waters given current and planned utilisation/abstractions under different climate change scenarios and options for maintaining balance through influencing both demand and supply drivers (i.e. NBI Strategic Water Resources Analysis);
- Assessing the Environmental flow (e-flow) requirements needed to sustain critical ecosystems at varying degrees of functioning and integrity in selected stretches of the Nile (i.e. e-flow studies);
- Assessing the functioning of Nile Basin wetlands, their ecosystem and environmental services and the desired level of conservation (wetlands studies);
- Assessing what global average temperature rises of 1.5 and 2 degrees mean for each of the 10 NBI Member States for rainfall and temperature (i.e. climate projections bulletins);
- Assessing projected hydrological flows over the Nile Basin by using different bias corrected Regional Climate Models scenarios (i.e. projected hydrological scenarios);
- Preparation of climate change projections datasets for impact studies for the Nile Basin under climate change scenarios and determination of modalities of preparedness,

« These strategically oriented studies and analyses have significantly improved current understanding of major risks and threats the Nile Basin is facing now and is likely to face in the future. As such, they have grounded advocacy for the necessity of basin-wide cooperation in compelling data-driven evidence. »

BOX 4: PROMOTING DAM SAFETY IN THE EASTERN NILE



The Eastern Nile sub basin hosts the highest number of cascade of large dams within the entire Nile Basin. No wonder dam safety is a priority focus area for ENTRO. Accordingly, ENTRO has developed the Eastern Nile Dam Safety Guidelines (for small and large dams). Of these, the Eastern Nile Dam Safety Reference Guideline, which was recognised by International Commission on Large Dams (ICOLD), is a reference source for more than 30 countries worldwide.

Furthermore, eight dams in Ethiopia and Sudan have been chosen as training venues for national experts to demonstrate dam safety assessment in practice.

ENTRO has also conducted 12 training activities involving 350 participants in dam safety (canvassing planning, design construction and operation phases). Participants who included dam operators, dam owners, regulators and contractors were drawn from within and outside of the Nile Basin. Other participants included academia, journalists, Members of Parliament and civil society.

All this effort has culminated in the establishment of National Dam Safety Units within the water ministries of Ethiopia, South Sudan, and Sudan, in addition to furthering trust and confidence among these riparians.

« ENTRO has developed the Eastern Nile Dam Safety Guidelines (for small and large dams). Of these, the Eastern Nile Dam Safety Reference Guideline, which was recognised by International Commission on Large Dams (ICOLD) is a reference source for more than 30 countries worldwide. »

including downscaling of Global Circulation Models (GCMs) to the Nile Basin, bias correction for the Regional Climate Models and Global Circulation Models under different scenarios and ranking the GCMs based on their performance over each large sub-basin (i.e. climate change studies);

- The first version of the Nile Basin River Flow Forecasting System for the entire Nile Basin for adaptive water resources management (vis. http://13.80.108.118/);
- First version of drought monitoring bulletin and interactive web page was also developed (https://www.flooddroughtmonitor.com/home);
- Studies on necessary technical, institutional and legal requirements for effective dam safety and coordination of cascade of dams located on sub-basins (i.e. dam safety and cascade coordination studies).

These strategically oriented studies and analyses have significantly improved current understanding of major risks and threats the Nile Basin is facing now and is likely to face in the future. As such, they have grounded advocacy for the necessity of basin-wide cooperation in compelling data-driven evidence. The regular State of the River Nile Basin Report (SoB) helps to flag key issues for the attention of decision makers, while the Nile Basin Water Resources Atlas describes the Basin in a format easily accessible both for decision makers and the general public.

Nile Basin countries have also been leading the formulation of actionable policies, derived from

BOX 5: ENVIRONMENTAL RESOURCE ARGUMENTS FOR NILE BASIN COOPERATION

One of the most compelling arguments in support of Nile Basin cooperation is the imperative of putting in place cooperative governance to ensure common pool resource security. Sustaining the water ecosystems and environmental services of the Nile Basin by protecting them from over-utilisation or adverse impacts of development cannot be accomplished by any one riparian country alone. The Nile Basin is home to the last remaining biodiversity assets of global significance. The largest mammalian migration routes of the world are in the Nile Basin and are fed by tributaries of the Nile, both in the Eastern Nile and Nile Equatorial Lakes regions.

The Nile Basin also hosts the largest wetland of the world, the Sudd Wetlands, an important migratory and endemic bird habitat. The Nile Basin is also home to the second largest freshwater Lake of the World, Lake Victoria. The Basin's upper catchments, both in the Nile Equatorial Lakes and Eastern Nile sub-basins, are home to threatened endemic plant and animal species (e.g. the mountain gorillas of the Ruvuma Mountains in the Nile Equatorial Lakes and the Walia Ibex in Eastern Nile). These habitats, in addition to hosting biodiversity, provide critical ecosystem functions (e.g. green infrastructure) as well environmental services on which the livelihoods of local populations are dependent.

Ensuring the sustainability of these Nile water-dependent environmental resources has been one of the main objectives of Nile Basin cooperation. Towards this end, the NBI early during its start dedicated one Shared Vision Porgramme project – the Nile Transboundary Environmental Action Project (NTEAP) – to extensive inventorying of and awareness creation about these environmental assets.

NTEAP's work has been further advanced by the ongoing Nile Basin Wetlands Study which, among other things, is undertaking the The Economic Evaluation of Biodiversity (TEEB) for the Sudd Wetlands and Machar Marshes and the Watershed Management Studies in the Eastern Nile, particularly the Cooperative Regional Assessments and piloted management interventions.

TABLE 3: NBI POLICIES, STRATEGIES AND GUIDELINES	
POLICY / STRATEGY / GUIDELINE	YEAR OF PUBLICATION
NBI-WRPMP Water Policy Guidelines and Compendium of Good Practice	2006
NBI Water Quality Strategy	2007
NBI Public Consultation Framework	2008
Project Information Disclosure Procedure	2009
ENSAP Climate Change Strategy	2009
ENSAP Environmental Management Guidelines	2010
ENSAP Social Management Guidelines	2010
Monitoring Strategy for the Nile River Basin	2010
NBI Resource Mobilisation Strategy	2010
ENSAP Climate-Proofing Consolidation Action Plan	2010
The Nile Basin Sustainability Framework	2011
ENSAP Environmental Management Guidelines	2011
The Nile Basin Interim Procedures for Data and Information Sharing and Exchange	2011
NEL Multi Sector Indicative Strategy and Action Plan	2012
NBI Results Based System Policy	2012
NBI Gender Mainstreaming Policy and Strategy	2012
NELSAP Environmental and Social Management Guidelines	2012
NBI Result Based Strategy	2012
NELSAP Climate Proofing Guidelines and Tools	2012
NBI Information Disclosure Policy	2013
NBI Environmental and Social Policy	2013
NBI Climate Change Strategy	2013
NBI Wetlands Management Strategy	2013
NBI Anti-Corruption policy	2014
ENSAP Dam Safety Guidelines	2014
NELSAP Gender Mainstreaming Guidelines and Checklists	2014
NELSAP Project Finance Manual	2014
NELSAP Public / Stakeholder Participation Guidelines	2014
The Nile Basin Environmental Flow Management Strategy	2016
NBI 10-year Strategy (2017-2027)	2017
NBI Financing Strategy (2017-2022)	2017
NBI Communication and Stakeholder Engagement Strategy (2018 - 2023)	2018

an overarching framework, the NBSF (Nile Basin Sustainability Framework), which are expected to guide action toward synergistically improving basin resilience and sustainability. Even though national uptake of these policies and policy harmonisation is work in progress, these are nevertheless the right steps in the direction of establishing standardised Nile Basin norms of planning and management practice, eventually cascading to national levels.

Both in the Eastern Nile and Nile Equatorial Lakes sub-basins, extensive novel catchment/watershed management approaches have been introduced. These piloted important technical innovations and management approaches that redefined watershed restoration as a livelihood and poverty alleviation function. In the Eastern Nile, upstream Strategic Social and Environmental Assessments were undertaken. These enabled the identification of potential impacts and threats, thus helping to redefine and resize planned water resource investments to accommodate environmental

BOX 6: CLIMATE CHANGE ARGUMENTS FOR NILE BASIN COOPERATION

Climate change is poised to have serious impacts on the Nile Basin. Global Climate Circulation Models seem to agree that surface temperatures in the Nile Basin will rise. This will translate, for example, into more evapotranspiration and thus into more crop water requirements. The impact on rainfall and thus on river flow remains uncertain. What is certain is that extreme events such as floods and droughts might recur more frequently and might be more intense and of longer duration.

Photo: shutterstock

Women standing in a flooded place

Nile Basin countries have been cognisant of this threat and are striving to improve the Basin's resilience to anticipated climate change impacts. A Nile Basin Climate Change Strategy was formulated in 2010 towards addressing climate change uncertainties through building the requisite knowledge base, competencies and policies to make basin-wide adaptation and mitigation possible. Climate adapatation is one of the six pillars of NBI's 10-year Strategy (2017-2027).

The NBI Strategic Water Resources Analysis and options generated thereof have been derived factoring in varying levels of climate change impact scenarios. In the Eastern Nile, the Flood Protection and Early Warning Project (FPEW) has done flood hazard and inundation maps of flood-prone areas and devised structural and non-structural protection methods including community level flood hazard communication and mobilisation/evacuation routes. Building on this, the Flood Season Monitoring with real-time flood bulletins (with 72-hour lag) has been issued to flood-prone communities in the Lake Tana, Blue Nile and Gambella plains of the Eastern Nile.

In 2009 the Eastern Nile Climate Change Strategy identified five pillars on which to build adaptation and mitigation policies and programmes. Sustainable basin-wide hydro-meteorological data generation and exchange is a fundamental pre-requisite for climate change adaptation in the Nile Basin. NBI is currently undertaking investment activities to set up new and rehabilitate old meteorological stations and river gauges with telemetry capabilities.

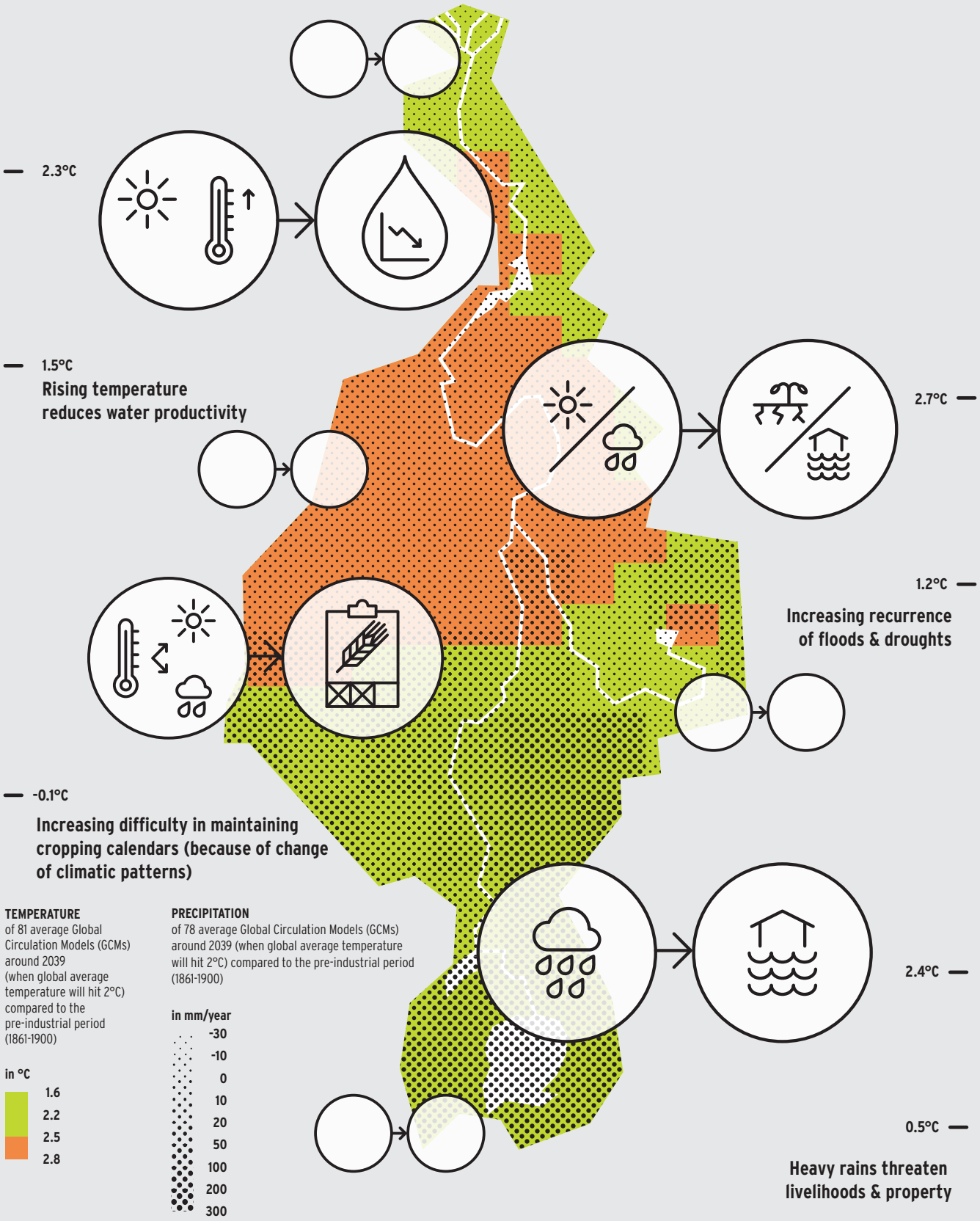
goals of protecting and, as needed, preserving environmental resources.

Earlier, a Nile Basin Wetlands Strategy which was derived and developed on the basis of the Nile Basin Sustainability Framework was formulated and adopted. More recently, wetlands studies have, among others things, included undertaking the economic evaluation of biodiversity and ecosystems. Environmental flow studies in selected critical stretches of the Nile will inform decision making towards preserving critical ecosystem functions. Yet another dimension of environmental management is water quality assessment.

It is also increasingly being realised that the sustainability of the Nile environment requires cross-institutional cooperation with entities such as the Lake Victoria Basin Commission (LVBC), the Inter-Governmental Agency on Drought and Development (IGAD) and the East African Community (EAC).

It is worth noting that the processes of producing the knowledge products (tools, policies, strategies, guidelines, studies) that guide and inform the cooperative management and development of the common Nile water resources at Basin scale are as important as the products themselves. These processes involve regular

PREPARING FOR CLIMATE CHANGE IMPACTS IN THE NILE BASIN



BOX 7: HYDROMET DATA AND INFORMATION SHARING AS BACK BONE FOR NILE BASIN COOPERATION

Photo: NBI

Implementation of the Nile Basin Regional HydroMet project, which will establish the Nile Basin Regional HydroMet System, was launched in November 2019 and Member States agreed on the implementation approach in February 2020. The first of its kind, the System will inform national planning and evidence-based decision making by enabling Burundi, DR Congo, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania and Uganda to share reliable data and information and knowledge for better monitoring of the Nile's water resources. It will provide more reliable data and information for water resources management including flood disaster preparedness, coordinated management of water storage dams, navigation and improved adaptation to climate change. Although each country will get its own stations, it will receive data and information from the entire regional network with a total of 73 stations. (See Annex 2 on page 81)

consultations and working group meetings and collaborations among relevant Member States water resources professionals and decision makers. It is during these processes that invaluable knowledge exchange and common understanding of salient Basin issues is arrived at and consensus built about the way forward. This has benefited all countries.

The culmination of cooperation intended to put in place a Nile Basin water resources planning and management regime has been the NBI 10-Year Strategy (2017-2027). The Strategy identifies six basin-wide priorities for the period i.e.: water security, energy security, food security, climate change adaptation, environmental sustainability, and transboundary water governance. The Secretariat, ENTRO and NELSAP CU are implementing the Strategy in two successive five year plans.

Photo: Shutterstock

Photo: NBI

The 80 MW Regional Rusumo Falls Hydroelectric Project, jointly owned and financed by Burundi, Rwanda and Tanzania

Water Resources Development: Investing in Water, Food and Energy Security

Basin-wide water resources data, information, studies, analyses and policies (knowledge base) are informing forward-looking cooperative investment preparation at Basin and sub-Basin levels. NBI polices and strategies adopted by Member States have reduced environmental, political, social and reputational risks associated with these investments. This has in turn contributed to their economic and financial viability. The reduction of these risks has also made it possible for Member States to attract funding, not only from international funders but also from national budgets for NBI facilitated projects.

The justification for Nile Basin cooperation, and hence for NBI's existence, in addition to its being the "custodian" of the Nile, is the commitment to bring about tangible contributions to the alleviation of poverty and improvement of the living standards of Basin inhabitants. Six of the 10 Member States are among the poorest in the world by key measures, including the Human Development Index (HDI). In other words, ensuring the water, food and energy security of the Basin on a sustainable basis is a primary focus.

Irrigated agriculture takes up approximately 80% of the River Nile waters, making it the highest consumer. In all Nile Basin countries except Egypt, food production is almost entirely dependent on rain-fed agriculture. This makes production increasingly vulnerable to climate variability and hence uncertainty of rainfall. In most of these countries, the overall health of the

Photo: World Trade Organisation

« Already we can see great harmony across borders as nations initiate and implement joint investments that will lead to enhanced livelihoods, market integration and trade, movement of labor and preservation and protection of ecosystems. » H.E. William Samoei Ruto, Kenyan Deputy President, speaking during Regonal Nile Day 2016.

economies is tied to rainfall.
Access to potable water and to electricity is very uneven and far below world standards in all Nile Basin countries, except Egypt. There is escalating demand for Nile waters – driven by a growing population that doubles almost every 25 years and rapid economic growth rates. Nile Basin countries are under increasing pressure to deliver, yet the waters of the Nile are finite. In addition, compared to the major rivers of the world, the Nile is a water-scarce river.

The Subsidiary Action Programmes (ENSAP and NELSAP) were established to promote more collaborative and cooperative water resources development or investment. Cooperation was envisaged to yield more rational and optimal use of the Nile waters by increasing efficiency and reducing waste. The process of collaboration and joint investment preparation has been valued as much as the investments themselves. For it is during such inter-riparian collaboration grounded in appreciation and understanding of each other's needs that priorities are determined and agreed. Such joint investment preparation provides opportunities (i) to quantify the costs and benefits of alternative investment options and tradeoffs; (ii) to put in place common procedures for validating data thus reducing the resistance to sharing data; and (iii) to work towards establishing standards and parameters for joint investment planning.

Member States have worked together to negotiate, agree, prepare and in some cases, implement investment projects with shared regional benefits and the potential to ultimately benefit millions of inhabitants. The investment projects, which are more than 84, are worth more than USD 6.5 billion. The sectors covered include: hydropower development; power transmission interconnection and trade; irrigation and drainage; lake/lake environment management;

BOX 8: REGIONAL OPTIMISATION AND STRATEGIC SOCIAL AND ENVIRONMENTAL ASSESSMENT (SSEA) AS BEST INVESTMENT PLANNING PRACTICES

Having built the initial trust through collaborative investment preparations and Cooperative Regional Assessment studies, the Eastern Nile countries (Egypt, Ethiopia and Sudan) envisaged moving from single-sector, single-country, single-purpose and simpler projects, to ambitious multi-country, multi-purpose, multi-sector and complex large-scale projects. These are transformational cooperative investments referred to as the Joint Multipurpose Project (JMP). This, however, did not materialise as the JMP was caught up in the post-CFA signature freeze.

All the same, the experience yielded invaluable understanding of what it takes to plan large - scale cooperative water resources investments in a water-scarce sub-basin such as the Nile, the requisite technical, financing and institutional modalities, and in general the political economy of such initiatives.

One of the offshoots of the JMP was the Strategic Social and Environmental Assessment (SSEA), which identified nine potential major sub-basin-wide environmental and social risks that can be triggered by large-scale water infrastructure development. From this was born dam safety and coordinated operation of cascade dams – a line of work that has been pursued by ENTRO since then. These results are, in one way or the other, benefiting all three countries, not least their professionals who built a significant repertoire of knowledge and experience by collaborating in the designing and management of the studies over an extended period of time through numerous review and validation workshops.

integrated sub-basin/catchment/watershed management; fisheries; water resources development; flood protection and early warning; multi-sector investment opportunity studies; and inland waterway transport.

In the Eastern Nile under the Integrated Development of Eastern Nile (IDEN), several projects were jointly prepared by Egypt, Ethiopia and Sudan and implemented on the ground. These were firsts in the sub-basin. These included: the Eastern Nile Watershed Management Project implemented in the three countries; the Eastern Nile Irrigation Project; the Ethiopia-Sudan Power Transmission and Power Trade Project; the Flood Protection and Early Warning Project; as well as the Eastern Nile Planning Model Project. These relatively short-term, fast-track, small-scale projects focused on meeting immediate priority needs of individual countries and as such were not derived from jointly conducted upstream, strategic regional optimisation studies.

These fast-track projects were complemented by larger studies, commonly referred to as the Cooperative Regional Assessments (CRAs), conducted for power trade, irrigation and watershed management. The CRA studies yielded invaluable insights into the resource base for the first time ever from a regional, no-borders perspective. These CRAs also quantified the costs and benefits of cooperative management and development.

« The justification for Nile Basin cooperation and hence for NBI's existence, in addition to its being the "custodian" of the Nile, is the commitment to bring about tangible contributions to the alleviation of poverty and improvement of the living standards of Basin inhabitants. »

Most recently, both in the Eastern Nile and Nile Equatorial Lake sub-basins, Multi-Sector Investment Opportunity Analyses have been undertaken (ENMSIOA – 2018 and NEL-MSIOA - 2017). These analyses were conducted on the basis of complex regional optimisation exercises. In these exercises, all planned water resources investments in a sub-Basin - hydropower, irrigation, and other uses - of each country were pooled together and subjected to multi-criteria analyses and hydro-economic modelling to identify the most viable options and trade-offs. It is envisaged that a number of cooperative investment projects will be drawn from the Multi-Sector Investment Opportunity Analyses both in the Nile Equatorial Lakes and Eastern Nile sub-Basins.

Photo: NBI

Children performing during the official opening ceremony of the 5th Nile Basin Development Forum held in in Kigali, Rwanda in 2017

Another, more recent flagship of sub-Basin investment cooperation is the 80 MW Regional Rusumo Falls Hydroelectric Project, jointly owned and financed by Burundi, Rwanda and Tanzania. This investment project, which had been on the drawing board since the 1970s, covers the full spectrum of sub-basin cooperation from joint planning, financing and management to benefit sharing.

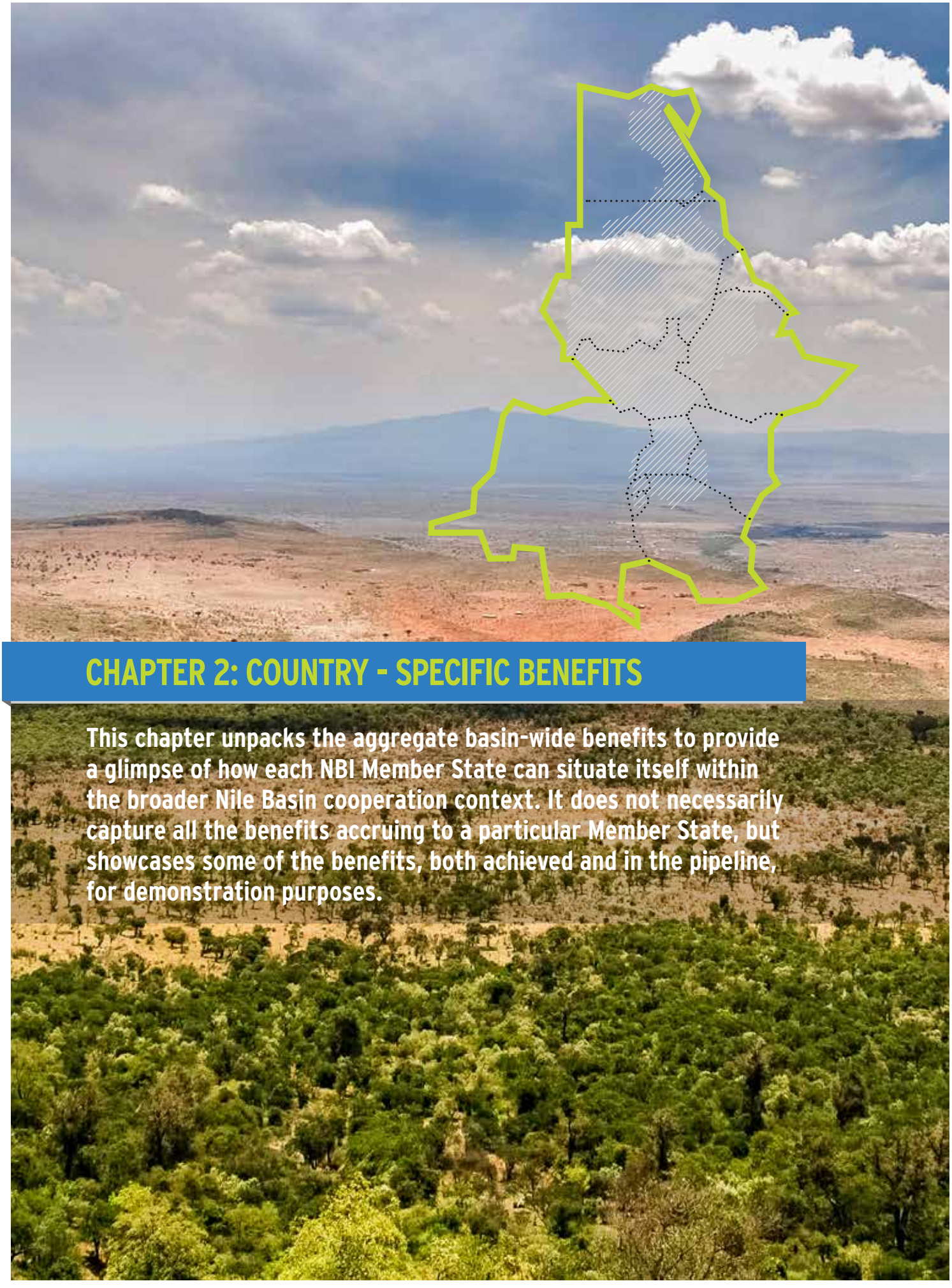
« Other projects under implementation in the Nile Equatorial Lakes region include: Lakes Edward and Albert Fisheries Project (LEAF) between DR Congo and Uganda; interconnection of the electric grids of Burundi, DR Congo, Kenya, Rwanda and Uganda; and Nyimur/Limur Multipurpose Water Resources Development Project between South Sudan and Uganda »

Other projects under implementation in the Nile Equatorial Lakes region include: Lakes Edward and Albert Fisheries Project (LEAF) between DR Congo and Uganda; interconnection of the electric grids of Burundi, DR Congo, Kenya, Rwanda and Uganda; and Nyimur/Limur Multipurpose Water Resources Development Project between South Sudan and Uganda.

The Nile Basin is extremely varied in topographical, temperature, rainfall and ecosystem/eco-region terms. It encompasses eco-regions ranging from temperate/cold mountain forests to the Sahara Desert as well as then the Nile Delta. Planning cooperative investment in such a highly varied eco-scape, landscape and water-scape, not to speak of political set-ups, cultures and histories, is possible only on the basis of sub-basin organisation, hence the value of the Subsidiary Action Programme arrangement and the subsidiarity principle. The experience of cooperative, multi-country investment planning, which has been piloted promises benefits thanks to Nile Basin cooperation facilitated by the NBI. However, more scaling up of regionally optimised investments, as the Multi-Sector Investment Opportunity Analyses have identified, remains to be undertaken.

Photo: NBI

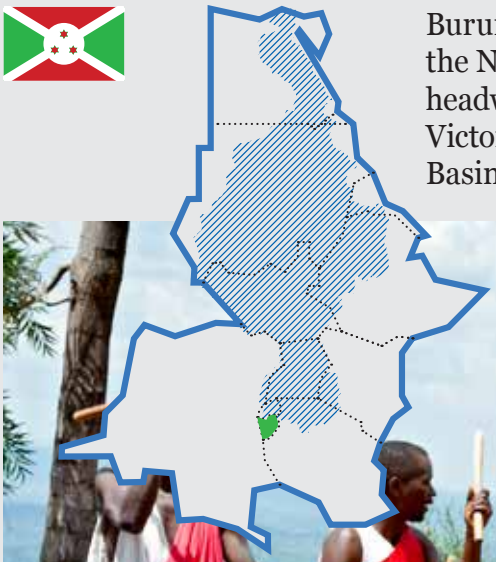
Fisheries Officers Office and Administration block at Rwenshama landing site in Uganda, constructed under LEAF II project



CHAPTER 2: COUNTRY - SPECIFIC BENEFITS

This chapter unpacks the aggregate basin-wide benefits to provide a glimpse of how each NBI Member State can situate itself within the broader Nile Basin cooperation context. It does not necessarily capture all the benefits accruing to a particular Member State, but showcases some of the benefits, both achieved and in the pipeline, for demonstration purposes.

BURUNDI



Burundi is a landlocked country, positioned at the southern-most tip of the Nile. As the ultimate upstream country, Burundi has the farthest headwaters of the Nile, the Ruvyironza River, which flows into Lake Victoria through the Ruvubu and Kagera rivers. 0.5% of the total Nile Basin area is located in Burundi.

Photo: istock

Traditional dancers from Burundi

Background

Burundi has been part of efforts towards Nile Basin cooperation since 1967, with the establishment of the Hydromet project, to conduct joint hydro-meteorological surveys on the Nile in the wake of flooding. The country joined Undugu (meaning 'brotherhood' in Kiswahili), which was established in 1983 to consider regional economic development. Burundi did not join the next attempt, the Technical Cooperation Committee for the Promotion of Development and Environmental Protection of the Basin (TECCONILE), which ran from 1993 to 1999, whose objective, among others, was to promote the development, conservation and use of the Nile Basin water resources in an integrated and sustainable manner, through basin-wide cooperation for the benefit of all.

Burundi and the Nile Basin Initiative - Highlights
Founding member of NBI on 22 February 1999
Total country contribution to NBI, from 2000-June 2020: USD 10,320,840 (USD 843,161 in-cash; equivalent USD 9,477,679 in-kind)
Hosted the Regional Agricultural Trade and Productivity Project Management Unit (April 2008-April 2012)
Hosted the launch of the Year of the Nile Basin in January 2019 in Bujumbura and Rutovu
Hosted the Regional Nile Day event of 2009 in Bujumbura
Signed the Cooperative Framework Agreement (CFA) on 28 February 2011; yet to ratify it

Benefits from Nile Basin Cooperation

Investments for improved livelihoods

Burundi is participating in the joint implementation of 12 investment projects of transboundary significance prepared by the NBI. The projects are at various stages of development

and operation. Upon completion, these projects will contribute to water, energy and food security as well as environmental sustainability in the country, and to national as well as regional development and integration.

Cases in point are the interconnection and power generation projects. These will increase Burundians' access to reliable and affordable energy as a result of cross-border power trade, reduced operational costs and improved planning of energy infrastructure.

A project such as the Akanyaru Multipurpose Water Resources will irrigate an additional 7,705 ha while at the same time enabling communities to access clean and safe water supply for domestic use and livestock.

Investments in watershed and wetlands are key to maintaining vital ecosystem goods and services such as water supply, unique biodiversity habitat, flood control, drought buffering and livelihood support through tourism, fishing and livestock keeping, among others. The restoration and conservation of these ecosystems is critical in integrated water resources management and in building climate change resilience in the Nile Basin.

The table below summaries the investment projects in Burundi and the benefits derived from their successful implementation.

Current and Future Investment Benefits in Numbers - Highlights

1,461,640
Direct project beneficiaries

599 million m³
Water supplied

65.1 MW
Power generated

401 KM
Transmission lines

3 sub-stations constructed
(Bujumbura, Ngozi, Gitega)

43,923 HA
Irrigated area

765 HA
Restored watersheds

INVESTMENT PROJECT BENEFITS	BENEFICIARIES	STATUS
Integrated Management of Transboundary Water Resources of Lakes Cyohoha, Rweru and Akanyaru Marshland (2010 – 2012)		
Two operational hydrometeorological stations	Population of the sub-basin 21,000 farmers (irrigation component) 4,500 in fishing	Completed / Operational
Kagera River Basin Management		
» 5 automatic weather stations » 6 river gauge stations installed » 5 rain gauge stations » Butihinda Water Supply System » Implemented agro-forestry projects as follows: Kabarole and Busoni Districts in Burundi » Facilitated LVEMP II preparatory activities for Burundi » Supported Burundi in updating its national water policies » Design reports for multi-purpose water infrastructure projects at Buyongwe	Population of the Kagera River Basin in Burundi Buyongwe irrigation-4,900 people	Completed
Burundi (Bujumbura) – DR Congo (Kamanyola) 220 kV Transmission Line Interconnection of Electric Grids of the Nile Equatorial Lakes Countries		
» 78 km overhead transmission lines strengthening the interconnections between NEL region countries » Construction of Bujumbura sub-station	Population of Burundi	Under implementation 20% complete
Burundi (Gitega) - Rwanda (Kigoma) 110 kV Transmission Line Interconnection of Electric Grids of the Nile Equatorial Lakes Countries		
» 143 km overhead transmission lines strengthening the interconnections between NEL region countries » Construction of power sub-stations in Gitega and Ngozi	Population of Burundi	Under Implementation

Burundi – Tanzania (Jiji – Murembwe – Kigoma): 220 KV Overhead Transmission Line Under the Interconnection of Electric Grids of the Nile Equatorial Lakes Countries		
» 180 km overhead transmission lines strengthening the interconnections between NEL region countries	Population of Burundi	Pipeline
Burundi (Border) - Rwanda (Kigoma) Interconnection of Electric Grids of the Nile Equatorial Lakes Countries		
» Strengthening the interconnections between NEL region countries	Population of Burundi	Under Implementation
Regional Rusumo Falls Hydroelectric		
» 80 MW hydropower project of which Burundi will get 26 MW » USD 5 million Local Area Development Project (LADP) for Burundi created job opportunities	Population of Burundi	Under Implementation
Akanyaru Water Resources Development		
» Irrigation 12,474 ha in Burundi » Dam with 333 million cubic metres capacity » 14.5MW hydropower	Water for 600,000 people. 20,000 farmers through irrigation Power to population of Burundi	Prepared
Ruvyironza Water Resources Development		
» Irrigation of 14,674 ha in Burundi » Dam with 266 million cubic metres capacity » 22 MW hydropower	Food to 124,740 people Power to Population of Burundi	Prepared
Bugesera Integrated Water and irrigation		
» Irrigation of 4,200 ha » Restoration of 765 ha of banks and lake shores » 5.5 million trees » 4 community hatcheries	42,000 farmers 50,000 fisher people 4,500 households	Identified.
Upper Ruvubu Multipurpose Water Resources Development		
» 8,000 ha irrigation development » 3.6 MW hydropower » Water supply	154,000 people receive water supply	Identified
Nyamuswaga Valley Irrigation and Water Supply Deployment in Ngozi District		
» 3,644 ha irrigation	Population of Nyamuswaga Valley	Identified
Ndurumu Valley Irrigation and Water Supply Deployment in Karuzi District		
» 4,900 ha irrigation, water supply and flood control	Population of Ndurumu Valley	Identified

Water Resources Planning and Management

Benefits to Burundi include capacity building in Integrated Water Resources Management (IWRM). This was intended to close the water resources knowledge gap among countries, thus leveraging the capacity of Burundians to jointly manage and develop shared water resources in a more sustainable manner and with a transboundary orientation. These issues are addressed through exchange visits, workshops, appreciation seminars, short courses, post-graduate training as well as research and studies at regional and national levels.

Burundi also benefits from an array of impartial and scientific knowledge products, policies, strategies and guidelines as well as analyses and tools that support informed decision-making for optimal joint utilisation and sustainable management of the common Nile Basin water and related natural resources.

Among the tools, Burundi has used the Nile Basin Decision Support System (NB-DSS) to address specific national water resources issues and challenges, such as water resources development for hydropower in the Kagunuzi sub-basin and assessment of water resources management and development opportunities in the Ruvubu sub-basin. Furthermore, several national development needs are being studied

using the NB-DSS, such as the assessment of water balance and sediment transportation in the north of Lake Tanganyika on River Ntahangwa catchment; undertaking a feasibility study of the development of new hydropower schemes in the upper part of River Ruvyironza (Nyamabuye site) under the framework of the SONGA Project; and assessment of climate change impacts on Burundi's North Lakes ("Lac aux oiseaux").

The earlier implemented Shared Vision Programme (2003 - 2009) directly addressed the consequences of soil erosion resulting from traditional agriculture and the country's mountainous topography. It did this through education and practical community-level micro-grant projects. A case in point is the Nile Transboundary Environment Action Project (NTEAP), implemented from October 2003 – December 2009. This project focused on addressing the major environmental threats faced in each of the NBI Member States. In Burundi, NTEAP funded a project to promote the use of efficient cooking stoves so that people would not have to cut as many trees for fuel. Another micro-grant project promoted modern integrated farming techniques to improve soil fertility.

Water Resources Planning-Management Benefits - Highlights

- At least **32** Regional policies that support national level policy, planning and practice
- **2** Hydrological stations integrated in the Nile Basin Regional HydroMet Network

Under the Integrated Management of Transboundary Water Resources of Lakes Rweru, Cyohoha and the Akanyaru marshland project, 12 water monitoring stations were established including bathymetric analysis of the two lakes. In addition, 765 ha of river banks and lake shores were restored (265 ha around Lake Cyohaha, 200 ha around Lake Rweru and 300 ha around Akanyaru). In addition, six community-based wetland management plans were developed and implemented; and 2,500,000 agro-forestry and fruit trees were planted, including 300,000 indigenous and bamboo trees in lakes and river catchments areas (0-100m).

Furthermore, 12 catchment management plans were prepared, a basin hydrological and water resources database was established, and 1,400 wood-saving stoves and 310 biogas digesters were distributed to households. Other benefits include

Photo: NBI

The 80 MW Regional Rusumo Falls Hydroelectric project will provide an additional 27 MW of renewable hydroelectric power to Burundi.

« I am happy to note that Burundi stands to gain by working together with the rest of the Nile Basin countries and already we are seeing the fruits of this cooperation. A case in point is the 80 MW Regional Rusumo Falls Hydroelectric project, which will provide an additional 27 MW of renewable hydroelectric power to Burundi... This will increase the access rates by 5.4% (520,000 people). » Hon. Deo Guide Rurema, Burundi's Minister of Environment, Agriculture and Livestock, addressing the media ahead of the 26th Nile-COM meeting held in Bujumbura (August 2018).

potable water supply for at least 635,000 people, improved income from tourism and recreation, watershed restoration, and recreation in the created reservoirs.

Burundi has also benefited in terms of technical support provided by NBI to review its Water Policy including transboundary dimensions. The support was through review of the national water policies conducted as part of the Water Resources Planning and Management Project. This was followed by capacity development for relevant staff in transboundary water policy, and on development of tools to support policy formulation and implementation. Enhancement of basin-wide capabilities and the convergence of the legal, regulatory and policy frameworks of NBI countries on transboundary issues has been realised.

Some two hydrological stations, namely Ruvubu at Gitega and Ruvubu at Muyinga, will be upgraded to state of the art technology under the Nile Basin Regional HydroMet project (July 2018 – July 2021). The project will establish the Nile Basin Regional HydroMet System, the very first in the region. The System lays the foundation for information exchange. As such, it forms a cornerstone for Nile cooperation, building trust for joint water resources management and planning in the Basin.

Furthermore, The Economics of Ecosystems and Biodiversity (TEEB) studies for Rweru-Bugesera Transboundary Wetlands (Burundi and Rwanda) generated knowledge on the value of wetlands ecosystem services and will enable mainstreaming of wetlands ecosystems and associated biodiversity in sectoral planning.

On the other hand, information from a pioneering study on peatlands, which are habitats for high carbon sequestration and storage crucial for climate change mitigation of the Nile Basin region, will help Burundi in her efforts towards climate change mitigation and adaptation. The country can tap into this information and investment towards meeting its obligation under the Climate Change Paris Agreement, the Nationally Determined Contributions (NDCs), and other multilateral environmental agreements.

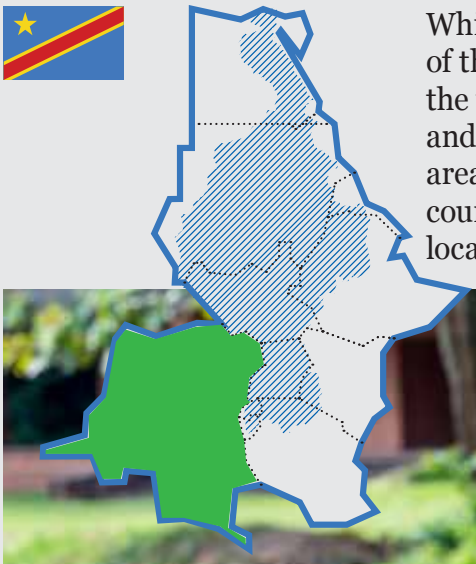
Basin Cooperation

Burundi, like the rest of the Member States, uses the platform provided by NBI to engage, consult and deliberate with other countries on how to collectively take care of and use the shared Nile Basin water resources to build a common ground for win-win benefits. This is possible through the various fora such as regular governance meetings, Project Steering Committees, Regional Expert Working Groups, annual Nile Day, triennial Nile Basin Development Forum, multi-sector national level consultations and media training.

Estimated 2,231 Burundians
Trained on topics ranging from IWRM, e-flows, NB DSS, Hydro diplomacy, small and large scale irrigation, to advocacy and more.

Estimated 9,431 Burundians
Have taken part in NBI organised events

DR CONGO



While DR Congo is dominated by the Congo Basin, it is also forms part of the Nile Basin to the east. The Eastern region of the country feeds the waters of the River Nile through Lake Edward, the Semliki River and Lake Albert, which are shared with Uganda. Although only a small area lies within the Nile Basin, the Nile plays an important role in the country's ecology and economy. 0.8% of the total Nile Basin area is located in DR Congo.

Photo: istock

Background

DR Congo first joined efforts towards Nile Basin cooperation in 1983, under Undugu (meaning 'brotherhood' in Kiswahili) and was part of the next attempt, the Technical Cooperation Committee for the Promotion of Development and Environmental Protection of the Basin (TECCONILE), which ran from 1993 to 1999. One of the objectives of TECCONILE was to promote the development, conservation and use of the Nile Basin water resources in an integrated and sustainable manner, through Basin-wide cooperation for the benefit of all. TECCONILE identified 22 projects for technical assistance and capacity building as part of a Basin-wide action plan for development and use of the Nile waters. The country remained as an observer under the Hydromet project which had been established earlier in 1967.

DR Congo and the Nile Basin Initiative - Highlights
Founding member of NBI on 22 February 1999
Total country contribution to NBI, from 2000-June 2020: USD 6,572,465 (USD 479,985 in-cash; equivalent USD 6,092,480 in-kind)
Hosted the Regional Nile Day event of 2011 in Goma
Cooperative Framework Agreement (CFA) not yet signed

Benefits from Nile Basin Cooperation

Investments for improved livelihoods

NBI has facilitated the preparation of nine investment projects of transboundary significance in DR Congo. The projects are at various stages of development. The transboundary projects benefit upstream and downstream countries as the country is located midstream. The projects upon completion will contribute to DR Congo's water,

Current and Future Investment Benefits in Numbers - Highlights

1,051,300
project beneficiaries

757.7 KM
of transmission lines

136 MW
Added to the national grid

5,664 HA
of Irrigated area

9 sub-stations constructed
(Beni, Bunia, Butembo, Goma, Buhandahanda, Kamanyola)

energy and food security, as well as environmental sustainability. This will ultimately make a tangible difference in the lives of the people while contributing to national and regional development.

The interconnection and power generation projects will increase access to reliable and affordable energy owing to cross-border power trade, reduced operational costs and improved planning of energy infrastructure. Another case in point, the Lake Edward and Albert Fisheries (LEAF) project, jointly implemented with Uganda, will contribute to poverty reduction and sustainable livelihoods for men and women in the local fishing communities.

The table below summaries the investment projects and the benefits derived from their successful implementation.

INVESTMENT PROJECT BENEFITS	BENEFICIARIES	STATUS
Integrated fisheries and water resources management of Lakes Edward and Albert (LEAF) II		
» Harmonized fisheries policies » Cooperative framework for joint management of the lakes » Improved beach management Institutional framework for basin management » 4 surveillance boats delivered » A mobile laboratory delivered » Cooperative agreement for joint management signed	400,000 people (Shared) (Source: PPR)	Under implementation
» Surveillance of Lakes Edward and Albert by DR Congo and Uganda through supply of equipped patrol boats, deployment and training	Population in the Edward and Albert basin	Completed
» Water quality monitoring in Lakes Edward and Albert through supply of mobile water quality vans and construction of water quality research stations and water laboratories in DR Congo and Uganda	Population in the Edward and Albert basin	Completed
» Fish handling and processing by construction of 9 fish landing sites on Lakes Edward and Albert	Population in the Edward and Albert basin	» 5 landing sites completed » Construction of 4 others at 90%
DR Congo Buhandanda- Goma - Rwanda (Gisenyi-Kibuye-Shango) – power interconnection		
» 293 km overhead transmission line (OHTL) at 110 kV	Citizens of DR Congo receive improved energy access and affordable cross-border energy, reduced tariffs	Completed and in operation for three years
» Construction of Goma sub-station	Citizens of DR Congo receive reliable and cost-effective power supply particularly in Goma	Construction ongoing, 35% complete
DR Congo (Buhandahanda – Goma) - Rwanda (Gisenyi – Kibuye - Shango) Power Transmission Line		
» The transmission line is composed of the 95-km-long, 220 kV Goma-Bukavu line and Buhandahanda sub-station in the DR Congo; the completed 12 km 220 kV Goma-Gisenyi line (this is an extension of the original completed Goma- Gisenyi line) Ease the unmet electricity demand of 115 MW in North Kivu and South Kivu	Ease the unmet electricity demand of 115 MW in North Kivu and South Kivu	Construction ongoing
Burundi-DRC-Rwanda Interconnection		
» 200km overhead transmission line (OHTL)	Reliable and cost-effective power supply for the districts of Musanze, Nyabihu and Rubavu with 40,000 people, 2 tea factories (Nyabihu and Pfunda), schools and health centres	Construction ongoing

« NELSAP, through the LEAF II project has provided funds for construction of many infrastructures such as fish landing sites, fishing and patrol boats and mobile laboratories that we in the DR Congo did not have before and we are very grateful for that. NELSAP has also provided a great platform for experts from DR Congo and Uganda to have deep discussions on proper planning and management of resources of Lakes Edward and Albert for the benefit of the 12 million people living in the basin and this will provide the needed peace and security to allow for trade, agriculture and industrial fisheries to thrive. » MR GEORGES KOSHI, Permanent Secretary, Ministry of Rural Development, DR Congo, and Member of LEAF II Project Steering Committee during the joint Regional Project Steering Committee meeting between DR Congo and Uganda in Gisenyi, Rwanda. (4 April 2019).

DR Congo (Kamanyola) – Burundi (Bunjumbura) Power Interconnection		
» 78.8 km overhead transmission line (OHTL) at 220 KV	Citizens of DR Congo and Burundi receive improved energy access and cheap cross-border energy, reduced tariffs	Construction ongoing, 20% completed
Uganda –DRC (Nkenda)–Beni–Butembo–Bunia)		
» 352.2 km overhead transmission line (OHTL) at 220 KV of which the DR Congo portion of the interconnector line will be 279.7 km	Reliable and cost-effective power supply for North Eastern DR Congo in the Beni, Bunia and Butembo regions of the A total of 838,000 inhabitants in the three towns of Beni (100,000), Bunia (366,000) and Butembo (218,000) will benefit from the Uganda (Nkenda)-DRC (Beni-Butembo-Bunia) 396 km high-voltage Power Transmission Line and associated substations.	Full feasibility ongoing
Goma-Buhandahanda Power Interconnection within DR Congo		
» 95 km overhead transmission line (OHTL) at 220 kV within DR Congo and interconnects with Ruzizi III (Kamanyola-Buhandahanda line)	Reliable and cost-effective power supply for North Eastern DR Congo in the Beni, Bunia and Butembo regions At least 154,000 others will benefit from rural electrification	Ongoing, 20% completed
Kitoba-Lubango Water Resources Projects in Goma District, North Kivu Province		
» Irrigation of 5,664 ha in the Lubera territory of Goma District	Population of Lubera territory, Goma District	Identified
Semuliki Hydropower Project in North-Eastern DR Congo; 72 MW shared with Uganda		
» 36 MW of electricity into the power grids of DR Congo and Uganda each	Population of DR Congo and Uganda	Identified
Mugomba Hydropower Project (100 MW)		
» 100 MW of electricity into the power grids of DR Congo	Reliable and cost-effective power supply particularly in North-Eastern DR Congo	Identified

Water Resources Planning and Management

Benefits to DR Congo include capacity building in Integrated Water Resources Management (IWRM). This is intended to close the water resources knowledge gap among countries, thus leveraging the capacity of DR Congo to jointly manage and develop shared water resources in a more sustainable manner and with a transboundary orientation. These issues are addressed through exchange visits, workshops, appreciation seminars, short courses, post-graduate training as well as research and studies at regional and national levels. The country also benefits from an array of

scientific knowledge products, policies, strategies and guidelines as well as analyses and tools. These support informed decision making for optimal joint utilisation and sustainable management of the common Nile Basin water and related natural resources.

Among the tools, DR Congo has applied the Nile Basin Decision Support System (NB DSS) on three cases to address specific national water resources issues and challenges. These are: (a) Integrating hydrological and hydrodynamic models for improved understanding and predictability of water resources systems in the Congo River Basin; (b) Physiographic and hydrodynamic constraints analysis for a deep sea port set up at the Congo River estuary in DR Congo; and (c) Solving the issues of sediments transport in River Congo.

Water Resources Planning-Management Benefits - Highlights

At least **32** Regional policies that support national level policy, planning and practice

1 Hydrological station integrated in the Nile Basin Regional HydroMet Network

One new hydrological station, Ishango at Ferry Crossing, will be newly installed under the Nile Basin Regional HydroMet project (July 2018 – July 2021). The project will establish the Nile Basin Regional HydroMet System, the very first in the region, which lays the foundation for information exchange. The system forms a cornerstone for Nile cooperation, building trust for joint water resources management and planning in the Basin.

DR Congo was supported to develop the Semliki Transboundary Wetland Management Plan shared with Uganda. This will feed into a basin-wide process to better understand the role and value of wetlands for the river system and the people that depend on it.

In addition to The Economics of Ecosystems and Biodiversity (TEEB) study for Semliki (DR Congo and Uganda), the Transboundary Wetland Management Plan generated knowledge on the value of wetlands ecosystem services and will enable mainstreaming of wetlands ecosystems and associated biodiversity in sectoral planning.

On the other hand, information from a pioneering study on peatlands, which are habitats for high carbon sequestration and storage crucial for climate change mitigation of the Nile Basin region, will help DR Congo in her efforts towards climate change mitigation and adaptation. The country can tap into this information and investment towards meeting its obligation under the Climate Change Paris Agreement, Nationally Determined Contributions (NDCs), and other multilateral environmental agreements.

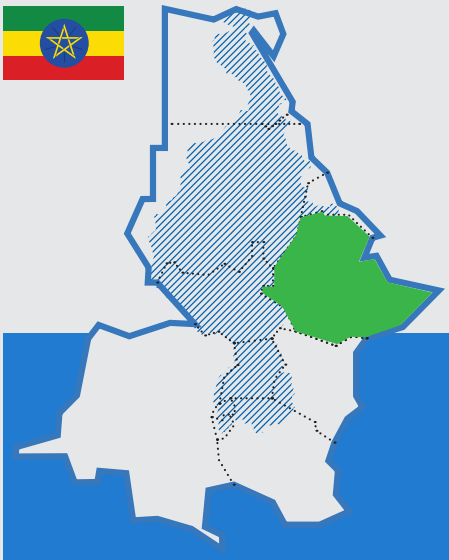
Basin Cooperation

Like the rest of the NBI Member States, DR Congo uses the platform provided by NBI to engage, consult and deliberate with its fellow Nile Basin countries on how to collectively take care of and use the shared Nile Basin water resources so as to build a common ground for win-win benefits. This is possible through the various fora, which include regular governance meetings, Project Steering Committees, Regional Expert Working Groups, annual Nile Day, triennial Nile Basin Development Forum, multi-sector national level consultations and media training.

Estimated 2,038 Congolese
Trained on topics ranging from IWRM, e-flows, NB DSS, Hydro diplomacy, small and large scale irrigation, to advocacy and more.

Estimated 8,615 Congolese
Have taken part in NBI organised events

ETHIOPIA



Ethiopia is the source of the Blue Nile (Abbay), by far the largest tributary, contributing 57% of the total flow of the River Nile. Flowing from Ethiopia's Lake Tana, the Blue Nile joins the White Nile at Khartoum in Sudan, together with the Baro-Akobo Sobat and the Tekeze-Seitit tributaries. The life of the country is attached to the River Nile culturally, politically, and economically. 11.5% of the total Nile Basin area is located in Ethiopia. Approximately 86% of the flow of the River Nile is generated from the Ethiopian highlands.

Photo: istock

Background

Ethiopia remained as an observer under the Hydromet, one of the early regional projects towards Nile Basin cooperation that was established in 1967 to conduct joint hydro-meteorological surveys on the Nile in the wake of flooding disasters. The country was also an observer under Undugu (meaning 'brotherhood' in Kiswahili), which was established in 1983 to consider regional economic development.

Benefits from Nile Basin Cooperation

Investments for improved livelihoods

ENERGY SECURITY

Fully commissioned at the end of 2013, the Ethiopia-Sudan Power Transmission Interconnector (515 km transmission interconnection between Bahr Dar and Shehedi-Metema in Ethiopia) has enabled 300 MW of power trade between the two countries. Ethiopia obtains USD 10-15 million in electricity sales revenue annually. Nearly

Ethiopia and the Nile Basin Initiative - Highlights
Founding Member of NBI on 22 February 1999
Total country contribution to NBI from 2000-2020: USD 34,151,371 (USD 4,126,145 in cash; equivalent of USD 30,025,226 in-kind)
Hosts the Eastern Nile Technical Regional Office (ENTRO) headquarters of ENSAP in Addis Ababa (2002 – to date)
Hosted the Water Resources Planning and Management Project under the Shared Vision Programme, in Addis Ababa (February 2005 – December 2012)
Hosted the 1st Nile Basin Development Forum (NBDF) in 2006
Hosted three Regional Nile Day events (2018 in Addis Ababa, 2013 in Bahir Dar and in 2008 in Addis Ababa)
Signed the Cooperative Framework Agreement (CFA) on 14 May 2010; ratified it on 13 June 2013

Current and Future Investment Benefits in Numbers - Highlights

510km
Ethiopia and Sudan Power grids interconnected through 510km transmission line from Ethiopia to Sudan (Gedaref). System complementarity secured

300 MW
USD 10-15 million electricity exported to Sudan yielding revenue annually

7,500 HA
of 20,000 jointly agreed upon (among Egypt, Ethiopia and The Sudan) irrigation project, benefiting 57,000 persons

1,400,000 households
Additional in Ethiopia (and Sudan) got access to electricity through the Ethiopia-Sudan Power Transmission Interconnector

Over 240,000 persons
beneffting from Integrated Watershed Management implemented on 85,000 ha

680 safe water points
(springs) constructed

1.4 million households (in both Ethiopia and Sudan) are able to access affordable and reliable electricity. The predominantly hydro system in Ethiopia complements the power system in Sudan. The significant thermal generation has the potential to provide security in periods of low hydropower production.

Other key benefits for Ethiopia are the ability to better integrate reserve capacities, and in the process improve reliability of supply on the interconnected system while saving capital and operating costs. In addition, more reliable and secure supplies have secondary benefits through lighting of schools and homes, better access to social services, and greater opportunities for business development. Small- and medium-sized industries particularly flour mills, rural water supply installations, tanneries, and coffee processing plants are then better able to create employment and contribute to poverty alleviation.

Ethiopia participated in the landmark Eastern Nile Joint Multi-Purpose (JMP) Study. The JMP identified the Abbay/Blue Nile sub-basin as most suitable for cooperation among Egypt, Ethiopia and Sudan on joint large-scale transformational multipurpose sub-basin cooperation in infrastructure development from which each country could derive benefits. Even though the JMP did not result in implementable projects as initially envisaged, the study nevertheless yielded two useful working papers: Paper 1 Environmental and Social Perspectives on Blue Nile Multipurpose Development and Paper 2 Strategic Options Assessment for Blue Nile Multipurpose Development.

Building on these studies, ENTRO has been advancing preparation for Eastern Nile Basin cooperation from which Ethiopia is benefitting. This pertains to studies on dam safety and coordinated operation of dam cascades in the Eastern Nile. These studies are critical for ensuring the safe and optimal operation of large dams (> than 15 meters height or >3 million cubic meters storage capacity) located across stretches of the Eastern Nile in the three countries.

Ethiopia will also benefit from the completed Baro-Akobo-Sobat Multipurpose Study Project which identified short-, medium- and long-term projects including hydropower generation for implementation in South Sudan and Ethiopia.

The Eastern Nile Power Trade Studies proposed the Eastern Nile Regional Transmission Line, connecting the grids across Ethiopia, Sudan and Egypt has the potential to enable the country to generate up to USD 600 million per year from electricity exports. A feasibility study has been completed for the Ethiopia-Sudan 1,200 MW or 9,200 MWh/yr and Ethiopia-Egypt 2,000 MW or 7,700 MWh/yr interconnections.

FOOD SECURITY

Ethiopia will develop 20,000 ha of irrigated land from the first-ever jointly agreed upon (among Egypt, Ethiopia and Sudan) ENSAP irrigation development project. Of this, 7,500 ha have already been developed and are operational and benefitting 57,000 people. When implemented, another 92,000 people will eventually benefit from the 7,500 ha Dinger Bereha irrigation scheme identified through ENSAP under the

Eastern Nile Irrigation and Drainage Project.

Another ENSAP project, the Eastern Nile Watershed Management Project, has also prepared the first jointly agreed upon Integrated Watershed Management Project in the upper catchments of Lake Tana. Prepared from both bio-physical and livelihood improvement perspectives, and implemented on 85,000 ha, the project has resulted in improvements in soil and water conservation, agricultural practices, access to extension services and increases in land productivity.

The project established 35 farmer training centres with about 700 farmers trained in improved cereal cropping, fruit tree cultivation as well as vegetable gardening and marketing. The project also established 13 animal health posts, supplied 735 modern beehives as well as 163 pieces of bee-keeping equipment. With the introduction of area closure and end of free livestock grazing, degraded watersheds have been enabled to rehabilitate.

Introduction of improved fodder has resulted in significant increase of livestock productivity. The project has benefitted 240,000 people. Furthermore, a total of 205,000 people in Chemoga and another 160,000 in Fincha are set to benefit from the 600,000 ha watershed management projects prepared under the Eastern Nile Watershed Management programme.

A new round of investment projects for small-scale farmers and pastoralists in the Baro-Akobo-Sobat sub-basin will benefit from implementation of the short-, medium- and long-term (e.g. Akobo-Gambella, Kinyeti, Majang) Baro-Akobo-Sobat multi-purpose water resources development study project identified. These projects have been identified on the basis of a Strategic Social and Environmental Assessment, which will balance conservation of the relatively pristine environment of the sub-basin with the effort to address poverty and deprivation.

Photo: NBI

Rehabilitated Watersheds: Tana-Beles Integrated Management Project, Ethiopia

WATER SECURITY

Water security here obtains from improved rainwater management. The Tana-Beles Integrated Water Resources Development Project in the Upper Blue Nile has carried out a number of physical and biological soil and water conservation measures on 46,276 ha of cultivated land by employing a combination of technologies.

In piloted areas, reduction in rainwater run-off has led to increases in groundwater recharge, river/stream bed-flow rates, as well as water flows and volumes over time in the system. Since 2009 when work started, 163 community watershed development plans have been implemented through a range of activities, namely: treatment of 821 ha of gully; rehabilitation of 16,000 ha of degraded hillside; and development of 4,000 ha of community woodlot forestry. In addition, 680 safe water points have been constructed that provide access to potable water for at least 75,000 people.

This integrated approach to watershed management has reduced the loss of top soil. These advances are expected to bring about more benefits further downstream, such as better water quality and less silting of the Nile waters in Sudan and Egypt.

Water Resources Planning and Management

Phase 1 of the Eastern Nile Flood Preparedness and Early Warning Project established the National Flood Forecasting Centre and has completed flood risk mapping for an area of about 1,750 km². At least 50,000 people benefit directly and another 500,000 indirectly from these project interventions, including people from 107 flood-prone communities.

Phase II of the project focused on capacity development in flood risk management and national level technical and institutional strengthening, including through provision of equipment and training, as well as covering new areas such as in the Tekeze-Seitit sub-basin. For more than seven years now, a 72-hour time lag flood bulletin has been issued to national centres and relevant authorities, including in Ethiopia, during the three-month flood season forecasting and early warning, thus enhancing preparedness.

Under the Nile Basin Regional HydroMet project (July 2018 – July 2021) , 14 hydrological stations will be upgraded to state of the art technology while one will be newly installed (See Annex 2 on page 81). The HydroMet project will establish the Nile Basin Regional HydroMet System, the very first in the region, which lays the foundation for information exchange. The system forms a cornerstone for Nile cooperation, building trust for joint water resources management and planning in the basin.

Ethiopian experts have utilised the NB DSS applying it in tasks associated with operational flood forecasting in the Baro-Akobo-Sobat and

INVESTMENT PROJECT BENEFITS	STATUS
IDEN Projects	
Eastern Nile Irrigation and Drainage Studies (ENIDs)	Feasibility study completed for Ethiopia and Sudan
Eastern Nile Watershed Management Project (ENWM)	Study completed and operational
Eastern Nile Power Trade Project (ENPT)	Study completed
Ethio-Sudan Interconnection	Operational
Baro Akobo Sobat Multipurpose Water Resource Development Study (BASMWRDS)	Study completed (3 short-term projects prepared; 9 medium- and long term projects identified for preparation)
Post-IDEN Investment projects	
Chemoga-Yeda Integrated Watershed Management	Project preparation completed
Fincha Integrated Watershed Management	Project preparation completed

INVESTMENT PROJECTS AT IDENTIFICATION STAGE
Energy Sharing Arrangements in the Eastern Nile Basin
Coordinated Operations of Water Infrastructure
Promoting Efficient Irrigated Agriculture
Watershed Management for Climate Resilience
Environmental and Social Assessments and Safeguards
Water Re-Use and Salinity Management
Water Quality and Sediment Management
Improved Groundwater Use, Monitoring and Management
Enhanced Climate Change Adaptation Capability
Coordination and Phasing of win-win ENB Development Packages

Abbay/Upper Blue Nile sub-basins, in reservoir water allocation exercises in the Awash Basin, in watershed management and development in Shebelle and in simulation exercises on GERD.

Ethiopia will also benefit from implementing the dam safety guidelines and the recommendations from the Eastern Nile Coordinated Operation of Dams Cascade Study. This study is critical for safe, efficient and synergised management of water infrastructure in Ethiopia and across Sudan and Egypt. The country will also benefit from domesticating the wide range of NBI policies and guidelines, particularly those with transboundary implications. Ethiopia has too benefitted from capacity building of dam operators provided under the auspices of ENTRO.

Furthermore, information from a pioneering study on peatlands, which are habitats for high carbon sequestration and storage crucial for climate change mitigation of the Nile Basin region, will help Ethiopia in her efforts towards climate change mitigation and adaptation. The country can tap into this information and investment towards meeting its obligation under the Climate Change Paris Agreement, the Nationally Determined Contributions (NDCs), and other multilateral environmental agreements.

Basin Cooperation

Ethiopia supports and benefits from the platforms that the Nile Basin cooperation offers for Member States. These platforms comprise of both consultative, governance, project steering (stakeholder engagement) and technical training (skills capacity building) dimensions.

The first dimension consists of governance meetings (Nile-COM/Nile-TAC, EN-COM/ ENSAPT, NEL-COM/NEL-TAC), project steering/oversight and technical working group meetings, the triennial Nile Basin Development Forums, and the annual Regional/National Nile Day commemorations.

The second dimension comprises capacity building of nationals through scholarships, internships, media training, negotiations training, project planning and management, Integrated Water Resources Management (IWRM), Decision Support Systems (DSS), expert working group consultations on ongoing studies (SOB, wetlands studies, cascade coordination, watershed management, SSEA/environmental and social safeguards, policies, and upstream investment studies such as MSIOAs), and knowledge-exchange study visits to other river basin organisations.

At least 10,000 Ethiopians have been engaged and participated through the various stakeholder platforms provided by the NBI since its establishment. In terms of capacity building, more than 2,500 Ethiopians have benefitted from numerous training opportunities including dam operations, IWRM, e-flows, NB DSS, hydro diplomacy, small- and large-scale irrigation and advocacy.

Water Resources Planning-Management Benefits - Highlights

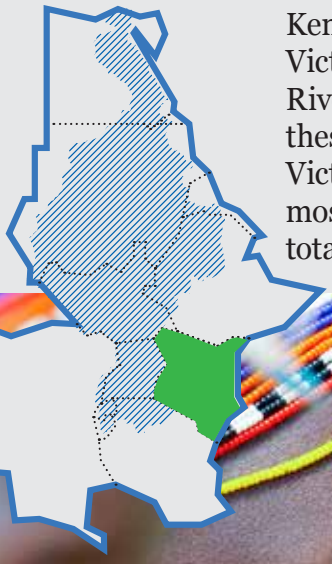
- At least **32** of transboundary significance and support to national level planning and practice
- **15** Hydrological stations integrated in the Nile Basin Regional HydroMet Network
- **Coordinated Operation** of Cascade Dams and Dam Safety studies will increase synergy, efficiency and safety within Ethiopia and across Sudan and Egypt

Estimated 2,500 Ethiopians
Trained on topics ranging from IWRM, e-flows, NB DSS, Hydro diplomacy, small and large scale irrigation, to advocacy and more.

Estimated 10,000 Ethiopians
Have taken part in NBI organised events.

Estimated 67 Ethiopians
Benefitted from ENTRO's internship programme

KENYA



Kenya is an upstream country of the Nile Basin, which borders Lake Victoria in the country's west. Major rivers that contribute to the River Nile flow are the Nzoia, Yala, Nyando, Migori and Mara. All these rivers provide a substantial percentage of the inflow into Lake Victoria, which eventually flows out into Victoria Nile, contributing most of the flow of the White Nile further downstream. 1.8% of the total Nile Basin area is located in Kenya.

Photo: istock

Background

Kenya joined one of the early regional projects, the Hydromet, which was established in 1967 to conduct joint hydro-meteorological surveys on the Nile in the wake of flooding disasters earlier in the decade. Kenya participated as an observer under Undugu (meaning 'brotherhood' in Kiswahili), which was established in 1983 to consider regional economic development. The country was not part of the Technical Cooperation Committee for the Promotion of Development and Environmental Protection of the Basin (TECCONILE) that ran from 1993 to 1999.

Kenya and the Nile Basin Initiative - Highlights
Founding member of NBI on 22 February 1999
Total country contribution to NBI, from 2000-June 2020: USD 10,104,888 (USD 2,135,697 in-cash; equivalent USD 7,969,191 in-kind)
Hosts Sio-Malaba-Malakisi River Basin Management Project office (2006 – to date)
Hosted Efficient Use of Water for Agricultural Productivity (EUWAP) Project Management Unit (July 2005 - June 2009)
Hosted the Regional Nile Day event of 2016 in Vihiga
Hosted the 4th Nile Basin Development Forum (NBDF) in 2015 in Nairobi
Signed the Cooperative Framework Agreement (CFA) on 19 May 2010; yet to ratify the CFA

Benefits from Nile Basin Cooperation

Investments for improved livelihoods

Twenty-three investment projects prepared under the NBI will, upon completion, contribute to Kenya's water, food and energy security as well

as environmental sustainability. They will at the same time create employment opportunities and drive national development.

Projects prepared are at different stages of implementation, with some completed. These include interconnection and power generation projects that will increase cross-border power trade and Kenyans' access to reliable, affordable energy and reduced operational costs, improved planning of energy infrastructure and better regional integration. Irrigation schemes and multi-purpose dams will lower Kenya's reliance on rain-fed agriculture and help build more robust food production systems. Kenyans also gain access to clean and safe water supply for domestic use and livestock. Investments in watersheds and wetlands help maintain vital ecosystems while providing services to communities and economies.

The table below summaries the investment projects and benefits derived from their successful implementation.

Current and Future Investment Benefits in Numbers - Highlights

4,509,660
Poject beneficiaries

21.774 million m³
Water supplied

125.475 MW
added to national grid

224
Transmission lines

2 sub-stations constructed
(Lessos, Isinya)

48,515 HA
Irrigated area

INVESTMENT PROJECT BENEFITS	BENEFICIARIES	STATUS
Angurai Water Supply		
10,000 cubic litres composite filtration unit per hour of clean water	10,000 people in Angurai Division	Completed / Operational
Augmentation of Bomet Water Supply, Sewerage Disposal and Treatment		
» Two 25,000 m³ composite filtration units (CFU) built for clean water supply	20,000 people in Bomet Municipality	Completed / Operational
Malaba Solid Waste Management Project		
» Hydraulic trailer for solid waste management and 100 litre waste dustbins	500,000 people	Completed / Operational
Sitabicha Suswo Irrigation		
» 2,120 km water transmission lines	2,000 people (400 families)	Completed / Operational
Interconnection of the electric grids of the NEL countries (Benefits to Kenya)		
» 256 km transmission line in Kenya (Lessos - Tororo-Bujagali) » Extension of Lessos sub-station (Kenya) » Line will facilitate exchange of power; Kenya portion will be 128 km	Population of Kenya	Implementation ongoing
Kenya component of the Kenya – Tanzania interconnection		
» 510 km of overhead transmission lines Kenya (Isinya) -Tanzania (Arusha-Singida)		Implementation ongoing
Kocholia Dam / Amagoro-Amoni Irrigation Development and Watershed Management Project		
» Irrigation of 4,000 ha » Hydropower Potential 1.09MW	3,100 farmers	Implementation ongoing
Bunyunyu Multipurpose Water Resources Development		
» Water security 55,910 m³ per day » Irrigation of 3,000 ha, Hydropower 2.0MW	1,100,000 people	Feasibility, detailed design and partial implementation done
Sio-Sango Water Resource Multipurpose Project		
» Water supply and irrigation of 1,790 ha	20,000 people	Prepared

Maira/Lower Sio Multi-Purpose Water		
» Dam capacity 6.2 million cubic metres » 2000 ha of irrigation area » Water supply Electricity 1.05 MW	12,000 people	Prepared
Bungoma and Cross- Border (Busia, Malaba, Lwakhakha) Pollution Control		
» Improved water supply	20,000	Prepared
Shared Angololo Irrigation and Watershed Management Project (total of 3,300 ha shared among 127,300 people)		
» Water supply Irrigation of 1,180 ha Hydropower 1.75 MW	63,650 people in Kenya	Prepared
Gogo Falls Multi-Purpose Water Resources Development		
» 155 million m^3 water reservoir » 20 MW hydropower Irrigation of 30,000 ha and 86,400 M3 per day water supply	1.152 million people	Prepared
Amala-Norera Multi-Purpose Storage Reservoir		
» Water Supply, Irrigate 2,500 ha » Hydropower 1.0 MW	34,000 people	Prepared, Project Included in National Water Master plan 2030
Integrated Transmara and Maasai Mau Forest Management Programme		
» Water security	162,000 people	Prepared
Shared Soono Multi-Purpose Water Resources Development		
» Hydropower 1.9 MW » Water security	10,000 people	Prepared
Busia Cross-Border Pollution Control		
» Water supply » Solid waste management » Storm water drainage	87,987 people	Prepared
Titsi Irrigation Development and Watershed		
» Irrigation of 1,345 ha Water security	3,100 people	Detailed design stage
Keben Multi-Purpose Water Resources Development		
» Water security » 2,000 m^3 per day of water » Irrigation of 2,000 ha » Hydropower 1.5 MW	45,000 people	Pre-feasibility done
Moi University Multi-Purpose Water Resources Development		
» Water security » 12,000 m^3 per day of water » Irrigation of 700 ha, Hydropower 1.8MW	60,000 people	Pre-feasibility done
Nandi Forest Multi-Purpose Water Resources Development		
» Water security » 43,000 m^3 per day of water » Irrigation of 7,000 ha » Hydropower 50 MW	372,123 people	Pre-feasibility completed
Mushangubo Multi-Purpose Water Resources Development		
» Water security » 43,000 m^3per day of water » Irrigation of 4,000 ha Hydropower 42 MW	360,000 people	Pre-feasibility completed
Ol-Ngobor Multi-Purpose Water Resources Development		
» Water security » 36,000 m^3 per day of water » Irrigation of 21,800 ha Hydropower 10MW	750,000 people	Pre-feasibility completed

Photo: NBI

Kenya-Uganda Transmission Line

Water Resources Planning and Management

Kenya's benefits range from formal training in Integrated Water Resources Management (IWRM) as well as an array of basin-wide training. These issues are addressed through exchange visits, workshops, appreciation seminars, short courses, post-graduate training as well as research and studies at regional and national levels. Others are scientific knowledge products generated, a suite of policies, strategies and guidelines, as well as analyses and tools that support informed decision making for optimal joint utilisation and sustainable management of the shared water and related natural resources.

Cases in point specific to Kenya include the use of the Nile Basin Decision Support System (NB DSS) in 14 studies. Among others, the tool has been applied in the Ewaso Ng'iro North multi-purpose dams assessment, the Nandi-Kano multi-purpose water transfer assessments, the Isiolo urban water demand and water supply assessment, and Upper Tana Basin assessment of water resources. The NB DSS has also been used in considering hydropower from Masinga, Kamburu, Gitaru, Kindaruma and Kiambere dams, developing irrigation schemes (Mwea) and the water supply source for the City of Nairobi, as well as assessing pastoralism, wildlife, and environmental integrity for the Tana Delta ecosystem.

NBI further provided Kenya with technical support to review its water policy and include trans-boundary dimensions.

Kenya has also benefitted from the rehabilitation and installation of five hydro-meteorological stations in Mara and Sio Malab Malakisi.

In addition, six hydrological stations will be upgraded to state of the art technology under the Nile Basin Regional HydroMet Project (July 2018 – July 2021) (see Annex 2 on page 81). The project will establish the Nile Basin Regional HydroMet System, the very first in the region, which lays the foundation for information

Water Resources Planning-Management Benefits - Highlights

- At least **32** Regional Policies, strategies and guidelines that support national level policy, planning and practice
- **6** Hydrological stations integrated in the Nile Basin Regional HydroMet Network

Photo: NBI

Angurai Water Supply, provided under the Sio-Malaba-Malakisi River Basin Management project

exchange. As such, the system forms a cornerstone for Nile Basin cooperation, building trust for joint water resources management and planning in the Basin.

Kenya has been supported to develop the transboundary wetland management plan for the Sio-Siteko sub-basin shared with Uganda. This will feed into a basin-wide process to better understand the role and value of wetlands for the river system and the people that depend on it.

On the other hand, information from a pioneering study on peatlands, which are habitats for high carbon sequestration and storage crucial for climate change mitigation of the Nile Basin region, will help Kenya in her efforts towards climate change mitigation and adaptation.

The country can tap into this information and investment towards meeting its obligation under the Climate Change Paris Agreement, Nationally Determined Contributions (NDCs), and other multilateral environmental agreements.

Basin Cooperation

Kenya uses the platform provided by the NBI to engage, consult and deliberate with its fellow Nile Basin countries on how to collectively take care of and use the shared Nile Basin water resources so as to build a common ground for win-win benefits. This is possible through the various fora, which include regular governance meetings, project steering committees, regional expert working groups, annual Nile Day events, Nile Basin Development Forum, multi-sector national level consultations, and media training.

Estimated 2,467 Kenyans
Trained on topics ranging from IWRM, e-flows, NB DSS, hydro diplomacy, small- and large- scale irrigation, advocacy, etc

Estimated 10,428 Kenyans
Have taken part in NBI organised events

RWANDA

Rwanda is positioned in the far south-west of the Nile Basin. Within the Nile Basin section, rivers Nyabarongo and Akanyaru together with their many tributaries form the River Kagera that flows into Lake Victoria. 0.7% of the total Nile Basin area is located in Rwanda.

Photo: istock

Background

Rwanda was part of the Hydromet project established in 1967 to conduct joint hydro-meteorological surveys on the Nile in the wake of flooding disasters earlier in the decade. It later joined Undugu (meaning 'brotherhood' in Kiswahili), established in 1983 to consider regional economic development. The country participated in the next attempt, the Technical Cooperation Committee for the Promotion of Development and Environmental Protection of the Basin (TECCONILE), which ran from 1993 to 1999. One of its objectives was to promote the development, conservation and use of the Nile Basin water resources in an integrated and sustainable manner through basin-wide cooperation for the benefit of all. TECCONILE identified 22 projects for technical assistance and capacity building as part of a Basin-wide action plan for development and use of the Nile waters.

Rwanda and the Nile Basin Initiative - Highlights
Founding Member of NBI on 22 February 1999
Total country contribution to NBI, from 2000-June 2020: USD 32,229,469 (USD 1,844,397 in-cash; equivalent USD 30,385,082 in-kind)
Hosts NBI investment programme office, the Nile Equatorial Lakes Subsidiary Action Programme Coordination Unit (NELSAP-CU): January 2001 – to date
Hosted the 5th and 3rd Nile Basin Development Forums in 2017 and 2011, respectively, in Kigali
Hosted NBI's 20th anniversary and Regional Nile Day event in February 2019 in Kigali
Hosted inaugural Regional Nile Day event in February 2007 in Kigali
Signed the Cooperative Framework Agreement (CFA) on 14 May 2010; ratified the CFA on 28 August 2013

Current and Future Investment Benefits in Numbers - Highlights

706,940
Direct project beneficiaries

333 million m³
Water supplied

113.5 MW
added to national grid

620 KM
Transmission lines

4 sub-stations constructed
Kigoma, Shango, Rubavu, Gisagara

5,981 HA
Irrigated area

765 HA
Restored watersheds

Benefits from Nile Basin cooperation

Investments for improved livelihoods

Some nine investment projects prepared by the NBI are at various stages of development and operation. Upon completion, the projects will contribute to Rwanda's water, energy and food security, as well as environmental sustainability. These projects will ultimately contribute to national and regional development and integration.

The interconnection and power generation projects will increase Rwandans' access to reliable and affordable energy as a result of cross-border power trade, reduced operational costs and improved planning of energy infrastructure.

Irrigation agriculture under multi-purpose projects such as Bugesera Transboundary Integrated Water Resources Management Project will lower the country's reliance on rain-fed agriculture and help build more robust food production systems. At the same time, some communities will gain access to clean and safe water supply for domestic use and livestock.

Investments in watersheds and wetlands are key to maintaining vital multiple ecosystem goods and services such as water supply, unique biodiversity habitat, flooding control, drought buffering and diverse livelihoods support such as tourism, fishing and livestock farming. These make the restoration and conservation of watersheds and wetlands critical in overall integrated water resources management (IWRM) and climate change resilience building in the Nile Basin.

The table below summaries the investment projects and benefits derived from their successful implementation.

INVESTMENT PROJECT BENEFITS	BENEFICIARIES	STATUS
Integrated Management of Transboundary Water Resources of Lakes Cyohoha, Rweru and Akanyaru Marshland Project (2010 – 2012)		
» Two hydro meteorological stations operational » Training of local actors	Population of the sub-basin 21,000 farmers	Completed / Operational
Kagera River Basin Management		
» 15 rainwater harvesting tanks for 15 schools in Nyagatare » Implemented agro-forestry projects in Kirehe, Nyamagabe and Gicumbi districts » Facilitated LVEMP II preparatory activities » Supported updating of national water policies » Supported formulation of terms of reference for preparing the National Water Resources Master Plan » Kagera Cooperative Framework Arrangements » Kagera Monograph and Information Database » Kagera Capacity Building Plan, Training and Study Tour Reports » Kagera Gender Mainstreaming Strategy and Gender Action Plan » Kagera Stakeholder Participation Plan » Kagera Basin Development Plan and Water Allocation Model	Population of the sub-basin	Completed

Bugesera Transboundary Integrated Water Resources Management		
» About 2,000 ha of irrigated land set up with hillside irrigation techniques and effective marshland management » More than 6,500 farmers with improved capacities on improved seeds, dairy cows and post-harvest infrastructure	Population of Akanyaru marshland, the Lakes Cyohoha and Rweru and watersheds shared by Rwanda and Burundi	Completed
Rwanda (Shango) – Uganda (Mbarara/Mirama) Power Interconnection		
» 172 km 220 kV power transmission line	Population of Rwanda	Completed
The Rwanda (Gisenyi) - DR Congo (Goma) Power Interconnection		
» 12 km 220 kV line	Population of Rwanda	Completed
Rwanda (Gisenyi – Kibuye - Shango) - DR Congo (Buhandahanda – Goma) - Power Transmission Line		
» The transmission line is composed of the 95-km-long, 220 kV Goma-Bukavu line, an extension of the completed 12 km Gisenyi-Goma OHTL	Population of Rwanda	Ongoing
The Rwanda (Gisenyi) - DR Congo (Goma) Power Interconnection (200 km 220 kV overhead transmission line (OHTL)		
» The transmission line has contributed to increased power supply security in the region to the benefit of households, industry, and small- and medium-sized enterprises which have gained access to cheaper, more reliable and sustainable electricity contributed to the implementation of the regional power market and poverty reduction efforts	Population of Rwanda	Completed Successfully and operational since 2016
Rwanda (Shango) - Uganda (Mbarara/ Mirama) power interconnection through 172 km at 220 kV and synchronisation and Installations at Shango sub-station		
» Strengthening the interconnections between NEL countries » Promoting trade in energy and power	Population of Rwanda	Lines and sub-stations completed in Feb 2020 awaiting commissioning
Power sub-stations		
» Kigoma, Shango, Rubavu, Gisagara	Population of Rwanda	Ongoing
Rwanda (Kigoma) - Burundi (Gitega) Transmission Line - Interconnection of Electric Grids of the Nile Equatorial Lakes Countries Project		
» New 143 km 110 kV line » Strengthening the interconnections between NEL countries » Promoting trade in energy and power	Population of Rwanda	Design work ongoing
Akanyaru Multi-Purpose Water Resources Development		
» Expand irrigation by 3,969 ha in Rwanda » Generation of 14.5 MW hydropower » 333 million cubic metres of water for irrigation	» Provision of food for about 124,740 people » Supply of electricity to the population of Rwanda » Supply of water to 75, 535 people	Prepared
Akanyaru River Small Hydro Power		
» 25 MW hydropower	Supply of electricity to the population of Rwanda	Identified
Muvumba Multi-Purpose Water Resources Development		
» Expanded Irrigation of 12 Ha » 15 masonry water tanks in Nyagatare schools to harvest water from roof tops		Ongoing -
Regional Rusumo Falls Hydroelectric		
» 80 MW hydropower project of which Rwanda will get 26 MW » USD 5 million Local Area Development Project (LADP) for Rwanda » Rehabilitation o Kirehe » Job opportunities » Rehabilitation of 30 kms of feeder roads in Kirehe District » Construction of 28.7 kms of roads in Ngoma District » Water pipeline for supplying 10,500 people in Gatonde-Gahima cells » 33 km Gituku-Murama water supply system » Construction of 9,54 km of Kigabiro-Rurenge-Gatore feeder road	» Power to the population of Rwanda » Water supply to 10,500 people in Ngoma District » Quality Healthcare to 10,000 in Kirehe District » Quality Roads for the populations of Ngoma District	» Ongoing » Completed » Completed and operational since 2019 » Completed
Nsongezi Hydropower Project between Rwanda, Tanzania and Uganda		
» Generation of 48 MW	Population of Rwanda	Feasibility

Photo: NBI

Shango power sub-station

Water Resources Planning and Management

Benefits to Rwanda include capacity building in Integrated Water Resources Management (IWRM) intended to close the water resources knowledge gap among countries. This will leverage the capacity of Rwandans to jointly manage and develop shared water resources in a more sustainable manner and with a transboundary orientation. These issues are addressed through exchange visits, workshops, appreciation seminars, short courses, post-graduate training as well as research and studies at regional and national levels.

Water Resources Planning-Management Benefits - Highlights

At least **32** Regional policies that support national level policy, planning and practice

6 Hydrological stations integrated in the Nile Basin Regional HydroMet Network

Rwanda also benefits from an array of scientific knowledge products, policies, strategies and guidelines, as well as analyses and tools that support informed decision making for optimal joint utilisation and sustainable management of the shared water and related natural resources.

Furthermore, Rwanda has used the Nile Basin Decision Support System (NB DSS) to quantify the amount of water available for use within the Muvumba catchment; to allocate water to different uses (irrigation, hydropower and domestic supply); to optimise production; and to evaluate the overall impact of development projects on downstream catchments.

Other uses have been modelling of the Sebeya dam. Using the tool for flood control in the Sebeya River catchment greatly assisted the country in reservoir operation and flood plain control, in identification of the location of the reservoir, in assessment of the social, economic

and ecological impact of the reservoir on the surrounding environment and population, and in avoiding repeated flood damage.

Furthermore, transboundary dimensions have been strengthened in the country's national water policy following technical assistance provided by NBI. Rwanda has also benefitted from the rehabilitation and installation of two hydro-meteorological stations in Lakes Cyohoha, Rweru and Akanyaru.

Six hydrological stations will be upgraded to state of the art technology as part of the first ever Nile Basin Regional HydroMet System. Five of these will be rehabilitated and one will be newly installed (see Annex 2 on page 81). The system will significantly contribute to promoting joint efforts towards enhanced planning, management and development of the shared water and related natural resources in an efficient and sustainable manner.

The Economics of Ecosystems and Biodiversity (TEEB) study for Rweru/Bugesera transboundary wetlands (together with Burundi) generated knowledge on the value of wetland ecosystem services and will enable mainstreaming of wetland ecosystems and associated biodiversity in sectoral planning.

On the other hand information from a pioneering study on peatlands, which are habitats for high carbon sequestration and storage crucial for climate change mitigation of the Nile Basin region, will help Rwanda in her efforts towards climate change mitigation and adaptation. The country can tap into this information and

« We need to build on NBI's core strength as the only cooperation mechanism through which, the Basin states can discuss with trust and confidence how to jointly address the challenges while benefiting from the development opportunities presented by the Basin. » HON DR VINCENT BIRUTA, former Minister of Natural Resources, Rwanda, during the 23rd Nile-COM meeting held in Dodoma, Tanzania (2015).

investment towards meeting its obligation under the Climate Change Paris Agreement, Nationally Determined Contributions (NDCs) and other multilateral environmental agreements.

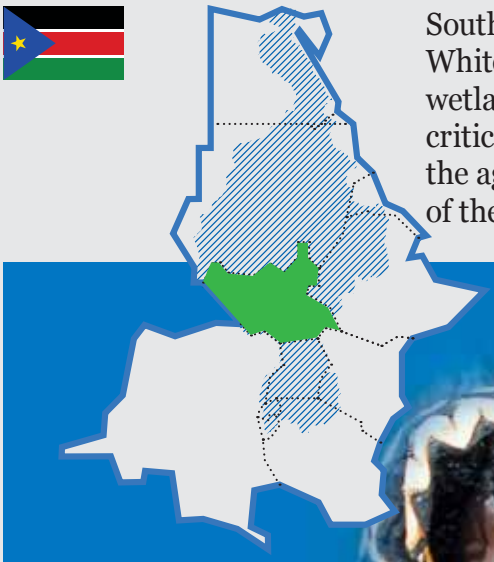
Basin Cooperation

Rwanda uses the platform provided by the NBI to engage, consult and deliberate with its fellow Nile Basin countries on how to collectively take care of and use the shared Nile Basin water resources so as to build a common ground for win-win benefits. This is possible through the various fora and platforms, which include regular governance meetings, regional expert working groups, annual Nile Day events, the triennial Nile Basin Development Forum, project steering committees, and multi-sector national level consultations.

Estimated 2,532 Rwandans
Trained on topics ranging from IWRM, e-flows, NB DSS, Hrdro diplomacy, small and large scale irrigation, to advocacy and more.

Estimated 10,700 Rwandans
Have taken part in NBI organised events

SOUTH SUDAN



South Sudan is located almost wholly within the River Nile Basin. The White Nile as well as the Sudd wetlands (the world's largest tropical wetland) are the main features of the country. They both provide critical ecosystem services and environmental functions and support the agriculture on which the livelihoods of the population depend. 17.7% of the total Nile Basin area is located in South Sudan.

Photo: Akuot Chol Mayak Akuot

Benefits from Nile Basin Cooperation

Investments for improved livelihoods
South Sudan is a member of both ENSAP and NELSAP, and as such benefits from projects prepared and supported by both Subsidiary Action Programmes.

South Sudan is taking part in 22 investment projects of transboundary significance. The projects are at various stages of development. The transboundary projects benefit upstream and downstream countries alike as the country is located midstream. Upon completion, the projects will contribute to South Sudan's water, energy and food security, as well as environmental sustainability, ultimately contributing to national and regional development.

The projects include interconnection and power generation, which will increase access to reliable and affordable energy through cross-border power trade, reduced operational costs and improved planning of energy infrastructure. Possibilities for integrating South Sudan into the regional grid include; Kenya-Uganda 400 kV line, the Rwanda-

South Sudan and the Nile Basin Initiative - Highlights
Joined NBI on 5 July 2012
Total country contribution to NBI, from 2012-June 2020: USD 1,086,092 (USD 266,818 in-cash; equivalent USD 819,274 in-kind)
Cooperative Framework Agreement - Not yet ratified

Uganda 220 kV line, the Uganda-DR Congo 220 kV line, the Tanzania-Kenya 400 kV line, the Burundi-Rwanda 220 kV line, the Rwanda-DR Congo 220 kV line, the Ethiopia-Kenya 500 kV line and the Tanzania–Zambia 400 kV line (connecting to the Southern Africa Power Pool). When developed, technical studies indicate a tariff of USD 0.08/KWh, which is attractive when compared with the South Sudan Electricity Company's (SSEC) average tariff of USD 0.22/KWh.

The various irrigation schemes will lower the country's reliance on rain-fed agriculture and help build more robust food production systems. At the same time, the beneficiary communities will gain access to clean and safe water supply for domestic use and livestock.

Investments in watersheds and wetlands are key to maintaining vital ecosystem goods and services such as water supply, unique biodiversity habitat, flood control, drought buffering and diverse livelihood support such as tourism, fishing and livestock farming. These make the restoration and conservation of watersheds and wetlands critical in overall integrated water resources management (IWRM) and climate change resilience building in the Nile Basin. The first-ever Strategic Social and Environmental Assessment (SSEA) of the Baro-Akobo-Sobat provided an upstream analysis of the relatively pristine and undeveloped sub-basin in order to situate any future water resources development within pre-determined environmental and social limits to ensure sustainability of the system. An integrated water resources development and management plan has been prepared for the sub-basin and on the basis of a number of short-, medium- and long-term investment plans prepared in both South Sudan and Ethiopia.

The table below summarises the investment projects and benefits derived from their successful implementation.

Current and Future Investment Benefits in Numbers - Highlights

- **1,185.8 MW** added to national grid
- **2,674 KM** Transmission lines
- **4 sub-stations constructed** Renk, Bor, Malakal, Shukoli
- **48,717 HA** Irrigated area

INVESTMENT PROJECT BENEFITS	BENEFICIARIES	STATUS
Limur-Nyimur		
» Irrigation scheme of 1,150 ha net in South Sudan » 800 kW hydropower plant in the control dam (C) to supply the South Sudan side	Population of South Sudan	Feasibility done
Nyimur Multipurpose Water Resources Development		
» Irrigate 6,000 ha in the Aswa Basin	Population of Aswa basin	Prepared
South Sudan Bedden 496 HPP in the South Sudan		
» 540 MW of Hydropower from the Bahr El Jebel/Nile River	Population of Sudan	Prepared
Lakki 524 HPP in the South Sudan		
» 410 MW of Hydropower in the Bahr El Jebel/Nile River	Population of Sudan	Prepared
Shukoli HPP in the South Sudan		
» 235 MW Bahr El Jebel/Nile River	Population of Sudan	Prepared
South Sudan (Juba) - Uganda (Karuma) Power Transmission interconnection		
» 320 km of 400 kV overhead transmission line (OHTL)	Population of Sudan	Prepared
Aweil Irrigation Development and Watershed Management		
» Irrigate 17,876 ha in Bahl el Ghazal region in the north western part of South Sudan	Population of Bahl el Ghazal region	Identified
Jebel Lado Irrigation Development and Watershed Management		
» Irrigate 3,159 ha in the State of Central Equatoria	Population of State of Central Equatoria	Identified

Pagarau Irrigation Development and Watershed Management		
» Irrigate 13,832 ha in the Lakes state, in central South Sudan	Population of Lake State	Identified
Integrated Fisheries Management of Jebel Awhia Dam Reservoir		
» Use the 629 km reservoir to enhance fisheries production in the two countries	Population of South Sudan and Sudan	Identified
Investment Program for Sustainable Management & Utilization of the Sudd at a Transboundary level		
	Population of the Sudd Wetlands	Identified
Renk – Malakal transmission line in South Sudan		
» 220 kV of 320 km + 3 sub-stations	Population of Sudan	Identified
South S(Juba)- South S(Bor) Power TL		
» 400 kV of 151 km segment of Juba - Malakal	Population of Sudan	Identified
South S(Bor) - South S(Malakal) Power TL		
» 400 kV of 366 km segment of Juba - Malakal (Single circuit)	Population of Sudan	Identified
Malakal – Bentiu transmission line in South Sudan		
» 220 kV of 222 km	Population of Sudan	Identified
Bedden HPP – Juba Power Transmission Line in South Sudan		
» 220 kV of 37 km transmission line	Population of Sudan	Identified
Lakki HPP – Juba Power Transmission Line in South Sudan		
» 220 kV of 100 km	Population of Sudan	Identified
Shukoli HPP - Collector substation TL,		
» 220 kV of 80 km	Population of Sudan	Identified
Ethiopia (Gambella) – South Sudan (Malakal) Power TL (Phase 1)		
» 230 kV of 357 km	Population of Sudan	Identified
South Sudan (Bor) - Ethiopia (Tepi) Power transmission (Phase 2),		
» 400 kV of 441 km	Population of Sudan	Identified
South Sudan (Torit–Kapoeta)- Kenya(Lokichogio) in		
» 220 kV of 352km segment of South Sudan–Kenya	Population of Sudan	Identified
South Sudan Juba – Torit Power transmission in South Sudan		
» 220 kV of 128 km	Population of Sudan	Identified

Water Resources Planning and Management

Benefits to South Sudan include capacity building in Integrated Water Resources Management (IWRM) intended to close the water resources knowledge gap among countries. This will leverage the capacity of South Sudanese to jointly manage and develop shared water resources in a more sustainable manner and with a transboundary orientation. These issues are addressed through exchange visits, workshops, appreciation seminars, short courses, post-graduate training as well as research and studies at regional and national levels.

The country also benefits from an array of scientific knowledge products, policies, strategies and guidelines as well as analyses and tools that support informed decision making for optimal joint utilisation and sustainable management of the shared water and related natural resources.

South Sudan has applied the Nile Basin Decision Support System (NB DSS) in five cases: (a) Water for Eastern Equatoria project - Kinneti River water balance modeling; (b) Bahr el-Ghazal basin water resources management; (c) Jur River Water Resources Development; (d) Bahr el-Jebel water resources development; and (e) Groundwater availability and conjunctive use assessment in the Eastern Nile.

The Eastern Nile Flood Preparedness and Early

Photo: NBI

Mr Lamin Barrow (L) the AfDB's Resident Representative to Ethiopia and Dr Yosif Ibrahim (R) Office In-charge at ENTRO, upon signing a USD 3.5 million Grant Agreement for Baro-Akobo-Sobat (BAS) Multi-purpose Water Resources Development Study Project in May 2013

Warning Project Phase 1 established the National Flood Forecasting Centre and completed flood risk mapping over 1,750 km². Phase II of the project focused on capacity development in flood risk management and national level technical and institutional strengthening, including through provision of equipment and training. The Flood Season bulletin has been issued to the national centres and relevant authorities, including South Sudan, during the three-month flood season forecasting and early warning, thus enhancing preparedness.

South Sudan has also benefitted from the technical support provided by NBI to review its Water Policy and include transboundary dimensions. This has been through dedicated capacity building, training of selected staff and sharing of the compendium of good practices and policies in transboundary water resources policy.

Seven hydrological stations will be upgraded to state of the art technology under the Nile Basin Regional HydroMet project (July 2018 – July 2021) (see Annex 2 on page 81). The project will establish the Nile Basin Regional HydroMet System, the very first in the region, that lays the foundation for information exchange. As such, it forms a cornerstone for Nile cooperation, building trust for joint water resources management and planning in the Basin.

The Economics of Ecosystems and Biodiversity (TEEB) studies for the Sudd as well as Marchar transboundary wetlands generated knowledge on the value of wetland ecosystem services and will enable mainstreaming of wetland ecosystems and associated biodiversity in sectoral planning. These case studies feed into a basin-wide process to better understand the role and value of

Water Resources Planning-Management Benefits - Highlights

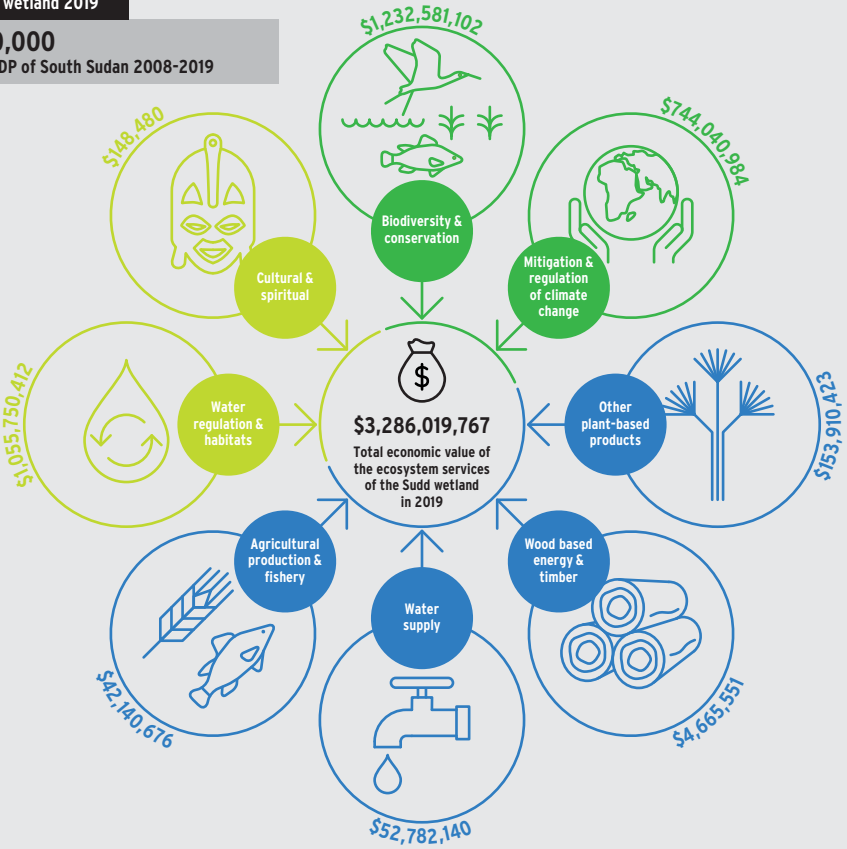
- At least **32** Regional Policies, strategies and guidelines that support national level policy, planning and practice
- **7** Hydrological stations integrated in the Nile Basin Regional HydroMet Network

THE REAL VALUE OF NILE BASIN WETLANDS

Using the example of the Sudd wetland

$3,286,019,767
Value of the Sudd wetland 2019

$11,670,000,000
Average annual GDP of South Sudan 2008-2019



wetlands for the river system and the people that depend on it.

Information from a pioneering study on peatlands, which are habitats for high carbon sequestration and storage crucial for climate change mitigation of the Nile Basin region will help South Sudan in her efforts towards climate change mitigation and adaptation. The country can tap into this information and investment towards meeting its obligation under the Climate Change Paris Agreement, Nationally Determined Contributions (NDCs) and other multilateral environmental agreements.

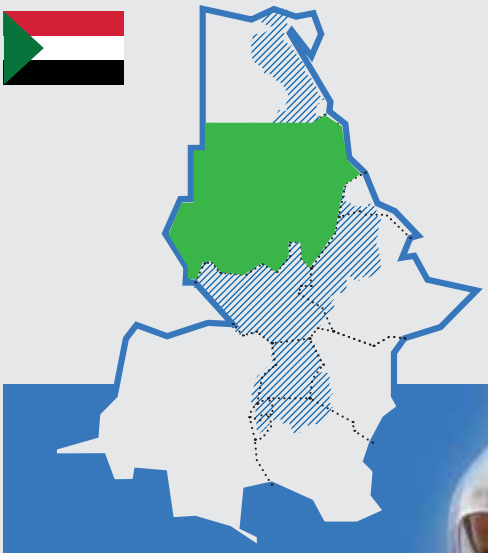
Basin Cooperation

Like the rest of the NBI Member States, South Sudan benefits from the platform provided by the NBI to engage, consult and deliberate with its fellow Nile Basin countries on how to collectively take care of and use the shared Nile Basin water resources so as to build a common ground for win-win benefits. This is possible through the various fora, which include regular governance meetings, project steering committees, regional expert working groups, annual Nile Day events, the triennial Nile Basin Development Forum, multi-sector national level consultations and media training.

Estimated 483 South Sudanese
Trained on topics ranging from IWRM, e-flows, NB DSS, Hydro diplomacy, small and large scale irrigation, to advocacy and more.

Estimated 2,040 South Sudanese
Have taken part in NBI organised events.

THE SUDAN



The Sudan is overall a flat plain land that is predominantly desert (56%) in the north of Khartoum. The Nile, running through the country from south to north, more so its three main tributaries (the Blue and White Niles and Atbara River) has by and large shaped the settlement pattern and agricultural production of the country. The river provides about 77% of Sudan's fresh water. Khartoum, Sudan's capital city, is where the White Nile and the Blue Nile converge to form the main Nile. 45.6% of the total Nile Basin area is located in The Sudan.

Photo: istock

Background

Sudan has been part of all earlier efforts towards Nile Basin cooperation, starting with one of the early regional projects, the Hydromet, which was established in 1967 to conduct joint hydro-meteorological surveys on the Nile in the wake of flooding disasters earlier in the decade. The country then joined Undugu (meaning 'brotherhood' in Kiswahili), which was established in 1983 to consider regional economic development and was later part of the Technical Cooperation Committee for the Promotion of Development and Environmental Protection of the Basin (TECCONILE), which ran from 1993 to 1999. One of its objectives was to promote the development, conservation and use of the

The Sudan and the Nile Basin Initiative - Highlights
Founding Member of NBI on 22 February 1999
Total country contribution to NBI, from 2000-June 2020: is USD 9,821,629 (USD 3,376,955 in cash; equivalent of USD 6,444,474 in-kind)
Hosted the Nile Transboundary Environment Action Project (NTEAP) in Khartoum (October 2003 – December 2009)
Hosted Regional Nile Day events of 2020 and 2015 in Khartoum
Hosted the 2nd Nile Development Forum (NBDF) in Khartoum in 2008
Participated in all Cooperative Framework Agreement (CFA) negotiations; Non-signatory because the decision to sign was taken by majority rather than agreed upon by consensus procedure, which was followed throughout the process.
Froze participation in NBI in 2010 due to CFA signing; resumed unconditionally in 2012

Current and Future Investment Benefits in Numbers - Highlights

1,400,000
households (in Sudan and Ethiopia) accessing electricity (due to Ethiopia-Sudan Power Transmission Interconnector)

300 MW
electricity imported from Ethiopia, with cost savings to consumers

5010 HA
rangeland reseeded

27,000 HA
degraded land rehabilitated

7,600 HA
irrigated land benefiting 50,000 farmers

300 KM
livestock routes demarcated and opened for pastoralists

Nile Basin water resources in an integrated and sustainable manner, through Basin-wide cooperation for the benefit of all. TECCONILE identified 22 projects for technical assistance and capacity building as part of a Basin-wide action plan for development and use of the Nile waters.

Benefits from Nile Basin Cooperation

Investments for improved livelihoods

ENERGY SECURITY

Fully commissioned at the end of 2013, the Ethiopia-Sudan Power Transmission Interconnector (515 km transmission interconnection between Bahr Dar and -Shehedi-Metema in Ethiopia) has enabled 300 MW of power trade between the two countries, enabling nearly 1.4 million households in both countries to access reliable electricity.

Apart from improved reliability of supply, Sudanese consumers have gained from lower tariffs of US$ 0.05 per kWh for imported electricity compared to USD 0.096 per kWh from thermal power generated domestically. Improvements in reliability and security of supply (due to the complementary nature of the power generation systems of the two countries)

INVESTMENT PROJECT BENEFITS	STATUS
IDEN Projects	
Eastern Nile Irrigation and Drainage Studies (ENIDs)	Feasibility study completed for Ethiopia and Sudan
Eastern Nile Watershed Management Project (ENWM)	Study completed and operational
Eastern Nile Power Trade Project (ENPT)	Study completed
Ethio-Sudan Interconnection	Operational
Post-IDEN Investment projects	
Restoration of Kerib land along the Upper Atbara River	Project preparation completed
Water Harvesting in the gash Delta, Kassala	Project preparation completed

INVESTMENT PROJECTS AT IDENTIFICATION STAGE
Energy Sharing Arrangements in the Eastern Nile Basin
Coordinated Operations of Water Infrastructure
Promoting Efficient Irrigated Agriculture
Watershed management for Climate Resilience
Environmental and Social Assessments and Safeguards
Water Re-Use and Salinity Management
Water Quality and Sediment Management
Improved Groundwater Use, Monitoring and Management
Enhanced Climate Change Adaptation Capability
Coordination and Phasing of win-win ENB Development Packages

have enabled lighting of schools and homes, better access to social services, and greater opportunities for business development.

Sudan fully supported and participated in the landmark Eastern Nile Joint Multi-Purpose (JMP) Study which identified the Abbay/Blue Nile sub-basin as most suitable for cooperation among the three countries (Egypt, Ethiopia and Sudan) for joint large-scale transformational multi-purpose win-win sub-basin cooperation in infrastructure development.

Even though the JMP did not result in implementable projects as initially envisaged, the study nevertheless yielded two useful working papers: Paper 1 Environmental and Social Perspectives on Blue Nile Multipurpose Development and Paper 2 Strategic Options Assessment for Blue Nile Multipurpose Development.

These studies have become the foundation for the ongoing Eastern Nile Dam Safety and Coordinated Operation of Dam Cascades studies, critical for ensuring the safe and optimal operation of over 30 large dams (> than 15 meters height or >3 million cubic meters storage capacity) located across stretches of the Eastern Nile in the three countries.

The Eastern Nile Power Trade Studies proposed the Eastern Nile Regional Transmission Line, connecting the grids across Ethiopia-Sudan (Rabak)-Egypt (Nage Hamadi). This line has the potential to enable further power trade that promises optimisation of production, power trade and cost reduction. The first phase of the line - 500 KVA from GERD to Roseries (120 km) - was studied by the Government of Sudan and is only awaiting financing for implementation.

FOOD SECURITY

Apart from enhanced shared understanding and commitment between Sudan and Ethiopia about the watershed problems

Photo: NBI

Ethiopia-Sudan Power Transmission Interconnection

affecting the two countries, the Eastern Nile Watershed Management (ENWSM) project under ENSAP has enabled joint action. Consequently, the ENWSM has resulted in rehabilitation of 27,000 ha of degraded agricultural land. As a result, farm yields for dominant crops have shown significant improvement, with sorghum

Water Resources Planning-Management Benefits - highlights

- At least **32** Regional policies, strategies and guidelines that support national level policy, planning and practice
- **13** Hydrological stations integrated in the Nile Basin Regional HydroMet Network
- **Coordinated Operation** of Cascade Dams and Dam Safety studies will increase synergy, efficiency and safety within Sudan and across Ethiopia and Egypt

Photo: NBI

Sudan Foreign Affairs Minister, Hon Asma Mohamad Abdalla launching the exhibition during Regional Nile Day 2020, held in Khartoum

yields increasing from a baseline 519 kg/ha to 1,249 kg/ha in Dinder and from 1,249 kg/ha to 3,391kg/ha in Atbara. Similarly, sesame yields increased from 202 kg/ha to 336 kg/ha in Dinder and white bean yields from 887 kg/ha to 2,480 kg/ha in Lower Atbara. More than 300 km of livestock routes have been mapped, demarcated and opened for pastoralists, thus reducing cattle transit conflicts. More than 5,010 ha of rangeland have been reseeded with nutritious and soil rehabilitating varieties of fodder. Fodder production has been initiated in 24 villages.

Under the Eastern Nile Watershed Management Project, a new round of investment projects will benefit 185,000 people in Tilkuk and 120,000 in Atbara.

The Eastern Nile Irrigation and Drainage Studies Project supports the development and expansion of irrigated agriculture as well as strengthening the productivity of existing small- and large-scale agriculture through improved agricultural water use. At least 50,000 people will benefit from 7,600 ha (plus 107,000 ha in other areas) under the Wad Meskin irrigation project.

Water Resources Planning and Management

The Eastern Nile Flood Preparedness and Early Warning Project Phase 1 established the National Flood Forecasting Centres in Sudan and Ethiopia and has completed flood risk mapping of more than 1,750 km^2. At least 50,000 people benefit directly and another 500,000 indirectly from these project interventions including people from 107 flood-prone communities.

Phase II of the project focused on capacity development in flood risk management and national level technical and institutional strengthening, including through provision of equipment and training, as well as covering new areas such as in the Tekeze-Seitit sub-basin. For over seven years now, a 72-hour time lag flood

bulletin has been issued to the national centres and relevant authorities, including in Sudan, during the three-month flood season forecasting and early warning, thus enhancing preparedness.

Under the Nile Basin Regional HydroMet System project (July 2018 – July 2021), 13 hydrological stations will be upgraded to state of the art technology (see Annex 2 on page 81). The HydroMet project will establish the Nile Basin Regional HydroMet System, the very first in the region, that lays the foundation for information exchange. As such, it forms a cornerstone for Nile cooperation, building trust for joint water resources management and planning in the Basin.

Furthermore, Sundanese experts have been utilising the Nile DSS applying them in some tasks associated with operational flood forecasting in Abbay/Upper Blue Nile sub-basins and watershed management.

The ongoing e-flow study will benefit Sudan as one of the pilot sites. Dinder River and the marker species of plants and animals as well as the level of ecosystem functioning desired were estimated. This is particularly useful for the management of the Dinder National Park. Sudan will also benefit from implementing the dam safety guidelines and the recommendations from the Eastern Nile Coordinated Operation of Dam Cascade Study which is critical for safe, efficient and synergised management of water infrastructure in Sudan and Ethiopia and across Egypt.

Basin Cooperation

Sudan has been supporting and benefitting from the platform the Nile Basin Cooperation offers to Member States in two categories. The first is the platform for basin cooperation, which comprises both consultative, governance, project steering (i.e. stakeholder engagement) and technical training (i.e. skills-capacity building) dimensions.

The first dimension consists of governance meetings (e.g. Nile-COM/Nile-TAC, EN-COM/ ENSAPT, NEL-COM/NEL-TAC), project steering/oversight meetings and technical working group meetings, the triennial Nile Basin Development Forums, and the annual Regional/ National Nile Day commemorations.

The second dimension pertains to capacity building of nationals through scholarships, internships, media training, negotiations training, project planning and management, integrated water resources management (IWRM), decision support systems (DSS), expert working group consultations on ongoing studies (SOB, wetland studies, cascade coordination, watershed management, SSEA/ environmental and social safeguards and policies, and upstream investment studies such as MSIOAs), and knowledge-exchange study visits to other river basin organisations.

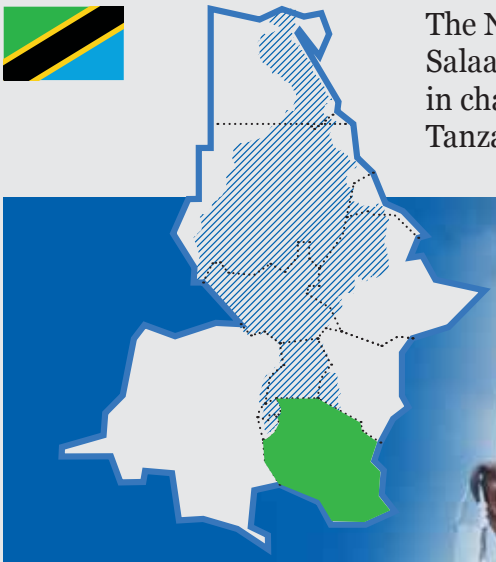
Estimated 2,500 Sudanese
Trained on topics ranging from IWRM, e-flows, NB DSS, Hydro diplomacy, small and large scale irrigation to advocacy

Estimated 10,000 Sudanese
Have taken part in NBI organised events

49 Sudanese
Benefited from ENTRO's internship programme

At least 10,610 Sudanese have been engaged and participated through the various stakeholder platforms that the NBI provided since its establishment. In terms of capacity building, 2,510 Sudanese have benefitted from numerous training opportunities in water resources planning and management, the majority of which have been shot-term. For example, in ENSAP alone, 286 Sudanese took part in and benefitted from 32 training programmes between 2016 and 2019. Similarly, during the same period 182 Sudanese took part in 10 Flood Forum and Project Review workshops. Also during the same period, 49 of the 163 participants in the ENTRO Internship Programme were Sudanese.

TANZANIA



The Nile Basin in Tanzania borders Lake Victoria. It was in Dar es Salaam that the NBI was established on 22 February 1999 by Ministers in charge of Water Affairs. 3.8% of the total Nile Basin area is located in Tanzania.

Photo: istock

Background

Tanzania joined the early efforts aimed at Nile Basin cooperation starting with one of the early regional projects, the Hydromet, which was established in 1967 to conduct joint hydro-meteorological surveys on the Nile in the wake of flooding disasters earlier in the decade. While the country did not participate in Undugu (meaning 'brotherhood' in Kiswahili), established in 1983 to consider regional economic development, it joined the next attempt, which ran from 1993 to 1999, the Technical Cooperation Committee for the Promotion of Development and Environmental Protection of the Basin (TECCONILE). One of the objectives of TECCONILE was to promote the development, conservation and use of the Nile Basin water resources in an integrated and sustainable manner through Basin-wide cooperation for the benefit of all. TECCONILE identified 22 projects for technical assistance and capacity building as part of a Basin-wide action plan for development and use of the Nile waters.

Tanzania and the Nile Basin Initiative - Highlights
Founding member of NBI on 22 February 1999
Total country contribution to NBI, from 2000-June 2020: USD 14,160,729 (USD 1,426,525 in-cash; equivalent USD 12,734,204 in-kind)
Hosted the Regional Power Trade Project (Phases 1 and 2) from July 2004 to June 2011
Hosted Regional Nile Day event of 2017 in Dar es Salaam and NBI's 10th anniversary event in December 2009 in Dar es Salaam
Signed the Cooperative Framework Agreement (CFA) on 14 May 2010; ratified the CFA on 26 March 2015

Benefits from Nile Basin Cooperation

Investments for improved livelihoods

Twenty-five investment projects prepared under NBI will, upon completion, contribute to Tanzania's water, food and energy security as well as environmental sustainability, while at the same time creating employment opportunities and driving national development.

Projects prepared are at different stages of implementation, with some completed. These include interconnection and power generation projects, which will increase cross-border power trade and Tanzanians' access to reliable, affordable energy and reduced operational costs, as well as improved planning of energy infrastructure and better regional integration.

Irrigation schemes and multi-purpose dams will lower Tanzania's reliance on rain-fed agriculture and help build more robust food production systems. At the same, Tanzanians gain access to clean and safe water supply for domestic use and livestock.

Current and Future Investment Benefits in Numbers - Highlights

1,075,130
Direct project beneficiaries

63.85 MW
added to national grid

1098.2 KM
Transmission lines

2 sub-stations constructed
Arusha, Singida

53,984 HA
of Irrigated area

Investments in watersheds and wetlands are key to maintaining vital ecosystem goods and services such as water supply, unique biodiversity habitat, flood control, drought buffering and livelihood support, such as tourism, fishing and livestock farming. These make the restoration and conservation of watersheds and wetlands critical in overall integrated water resources management and climate change resilience building in the Nile Basin.

The table below summarises the investment projects and benefits derived from their successful implementation.

INVESTMENT PROJECT BENEFITS	BENEFICIARIES	STATUS
Kagera and Mara RBM Hydromet		
» 24 hydromet stations » 12 evaporation pans and automatic weather stations » 6 standard rain gauges » 6 lake water level recorder stations,	Population of the Kagera River basin	Completed / operational
Bisarwi Smallholder Irrigation Scheme		
» Constructed a 50,000m^3 capacity storage earth dam in Bisarwi village Tarime District, Mara river basin. » 500ha irrigation area	Population of Barsawi village	Completed / operational
Installation of Hydro-Meteorological Equipment		
» 4 automatic weather stations have been installed at Buhemba Agriculture Centre, Mugumu, Kuruya and Nyabusara Primary Schools » 4 automatic water level recorders in Mara river at Kirumi bridge, Mara mine, Nyansurura bridge and Kogatende » 5 standard rain gauge tipping buckets installed	Population of the Mara River basin	Completed / operational
Iringa – Mbeya Power Transmission Line		
» 292.2 km 400kV overhead transmission line (OHTL)	Population of Tanzania	Under implementation
Kenya (Isinya) –Tanzania (Singida) Transmission		
» 414 km of overhead transmission line (OHTL) » Sub-stations in Arusha and Singida in Tanzania	Population of Tanzania	Under implementation

Tanzania(Mbeya)-Zambia (Kabwe) Interconnection		
» 392 km of 400/330kV overhead transmission line (OHTL) » to connect Zambia-Tanzania-power grids	Population of Tanzania	Under implementation
Regional Rusumo Falls Hydroelectric		
» 80 MW hydropower project of which Tanzania will get 26 MW » USD 5 million Local Area Development Project (LADP) for Ngara District	Power to the population Water supply	Under Implementation
Kagera River Basin Management Catchment		
» of 11,681ha potential for irrigation in Tanzania	20,000 people	Prepared
Borenga Multipurpose Water Resources Development		
» 15.8 MCM dam capacity water supply to 30 villages » Irrigation of 8,340 ha » Generation of 2.85 MW of electricity	500,000 people in Nyamongo	Prepared
Mara Valley and Water Resources Multi-Purpose		
» Borenga Dam to irrigate 13,630 ha and supply water to 13 villages for irrigation, 17 villages with water supply for domestic use	10,000 people will benefit from the Mara Valley site	Prepared
Ngono Water Resources Multi-Purpose		
» Irrigation of 6,340 ha covering 21 villages	20,000 people will benefit direct from the Ngono infrastructure	Identified
Mugozi Multipurpose Water Resources Development		
» 3,000 ha irrigated » MW of power generated » Water supply	50,000 people) in Ngara District	Identified
Buligi Valley (Ikaki) Irrigation & Water Supply Deployment		
» 5,000 ha irrigated » Water supply	Population of Muleba District	Identified
Omwibale Multipurpose Water Supply		
» Water supply Irrigation of 500 ha pilot scheme » Livestock watering	5,000 people from Karagwe District	Identified
Nshanje irrigation		
» Irrigation of 1,600 ha » Water supply	Population of Muleba District	Identified
Muhongo valley irrigation		
» Irrigation of 1,500 ha » Water supply in Ngara District	Population of Ngara District	Identified
Kafunzo irrigation		
» Irrigation of 1,500 ha » Water supply	Population of in Missenyi District	Identified
Kishoju irrigation		
» Irrigation of 1,000 ha » Water supply	Population of in Karagwe District	Identified
Mugango Multipurpose Storage Reservoir Development		
» Hydropower 1.2 MW » Irrigation of 1,000 ha in Upper Mara sub-basin on Nyangores River	Population of upper Mara	Identified
Nyakunguru Irrigation Development and Watershed Management		
» Irrigation of 625 ha in Lower Mara sub-basin	Population of Lower Mara River	identified
Mesaga Irrigation Development and Watershed Management		
» Irrigation of 450 ha in Lower Mara sub-basin	Population of the Lower Mara Sub basin	Identified

Biswari Irrigation Development and Watershed Management		
» Irrigation of 400 ha in Lower Mara sub-basin	Population of the Lower Mara sub-basin	Identified
Bugwema Irrigation		
» 2,030 ha land for irrigation	To benefit 4,530 people	Identified
Mara Valley Irrigation		
» 6,030 ha land for irrigation	To benefit 10,000 people	Identified
Nsongezi Hydropower Project between Rwanda, Tanzania and Uganda. Uganda 48 MW shared		
» 16 MW for Tanzania	Population of Tanzania	Feasibility

Water Resources Planning and Management

Benefits to Tanzania include capacity building in Integrated Water Resources Management (IWRM) intended to close the water resources knowledge gap among countries. This has leveraged the capacity of Tanzanians to jointly manage and develop shared water resources in a more sustainable manner and with a transboundary orientation. These issues are addressed through exchange visits, workshops, appreciation seminars, short courses, post-graduate training as well as research and studies at regional and national levels.

Tanzania also benefits from an array of scientific knowledge products, policies, strategies and guidelines as well as analyses and tools that support informed decision making for optimal joint utilisation and sustainable management of the shared water and related natural resources.

Among the tools, Tanzania has used the Nile Basin Decision Support System (NB DSS) to address specific national water resources issues and challenges. The NB DSS has been applied to three cases: (a) Assessment of water availability for competing users in Ruvu sub-basin; (b) Applying water allocation systems and Nile Basin Decision Support System to manage competing water users; and (c) Ngerengere sub-catchment.

Eight hydrological stations will be upgraded to state of the art technology under the Nile Basin Regional HydroMet project (July 2018 – July 2021). Seven of these will be rehabilitated while one will be newly installed (see Annex 2 on page 81). The HydroMet project will establish the Nile Basin Regional HydroMet System, the very first in the region, which lays the foundation for information exchange. The system forms a cornerstone for Nile cooperation, building trust for joint water resources management and planning in the Basin.

« At the technical level, much has been accomplished in the last two decades, thanks to Basin States and to our cooperating partners. Political will is what is required to move cooperation to a higher level. I believe the will is somewhere there and the way can be found. And as the Late Mwalimu Julius Kambarage Nyerere succinctly put it: 'It can be done. Play your part'. » PROF. MARK J. MWANDOSYA, former Minister responsible for Water, Tanzania, on the occasion of NBI's 20th anniversary (February 2019).

Water Resources Planning-Management Benefits - Highlights

- At least **32** Regional policies strategies and guidelines support national level policy, planning and practice
- **8** Hydrological stations integrated in the Nile Basin Regional HydroMet Network

The country has been assisted to develop Minziro transboundary wetland management plan between Tanzania and Uganda on River Kagera. This case study feeds into a basin-wide process to better

Photo credit: istock

understand the role and value of wetlands for the river system and the people that depend on it.

Furthermore, information from a pioneering study on peatlands, which are habitats for high carbon sequestration and storage crucial for climate change mitigation of the Nile Basin region will help Tanzania in her efforts towards climate change mitigation and adaptation. The country can tap into this information and investment towards meeting its obligation under the Climate Change Paris Agreement and the Nationally Determined Contributions (NDCs), among other multilateral environmental agreements.

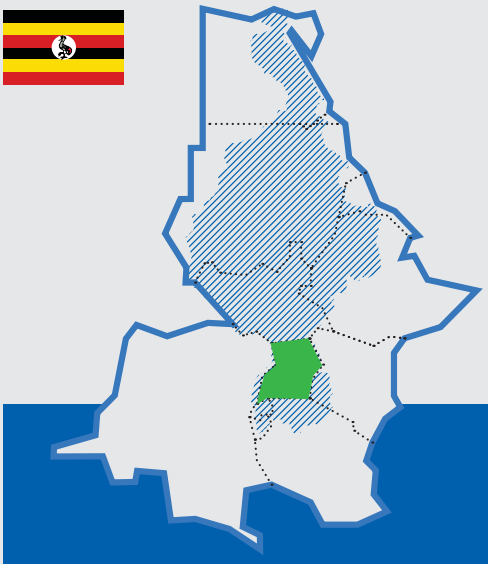
Estimated 2,489 Tanzanians
Trained on topics ranging from IWRM, e-flows, NB DSS, hydro diplomacy, small and large scale irrigation to advocacy.

Estimated 10,519 Tanzanians
Have taken part part in NBI organised events.

Basin Cooperation

Tanzania, like the rest of the NBI Member States, uses the platform provided by the NBI to engage, consult and deliberate with its fellow Nile Basin countries on how to collectively take care of and use the shared Nile Basin water resources so as to build a common ground for win-win benefits. This is possible through the various fora. These include regular governance meetings, project steering committees, regional expert working groups, the annual Nile Day, the triennial Nile Basin Development Forum, multi-sector national level consultations and media training.

UGANDA



Uganda has played a key role in the story of the River Nile ever since 1862, when the explorer John Henning Speke found the spot at Ripon Falls where the river flows out of Lake Victoria, near the current day town of Jinja.

As it meanders north and west from Lake Victoria, crashing through the magnificent Murchison Falls before turning north at Lake Albert, the river is used for hydropower generation, transportation, fishing, agriculture and a wide range of other activities. 7.7% of the total Nile Basin area is located in Uganda.

Photo:shutterstock

Background

Uganda was part of the Hydromet, which was one of the early regional projects established in 1967 to conduct joint hydro-meteorological surveys on the Nile in the wake of flooding disasters earlier in the decade. In 1983, Uganda joined Undugu (meaning 'brotherhood' in Kiswahili), whose aim was to consider regional economic development.

Uganda was also a member of the Technical Cooperation Committee for the Promotion of Development and Environmental Protection of the Basin (TECCONILE), which ran from 1993 to 1999. One of its objectives was to promote the development, conservation and use of the Nile Basin water resources in an integrated and sustainable manner, through Basin-wide cooperation for the benefit of all. TECCONILE identified 22 projects for technical assistance and capacity building as part of a Basin-wide action plan for development and use of the Nile waters.

The country has hosted previous cooperation mechanisms on the Nile, namely the HYDROMET (1967-1992) and TECCONILE (1992 – 1999).

Uganda and the Nile Basin Initiative - Highlights
Founding member of NBI on 22 February 1999
Total country contribution to NBI, from 2000-June 2020: USD 14,382,165 (USD 1,718,063 in-cash; equivalent USD 12,664,102 in-kind)
Hosts NBI headquarters, the Secretariat (1999 - to-date)
Hosted two project implementation units under the Shared Vision Programme - Confidence Building and Stakeholder Involvement (July 2004 - December 2009) and Social Economic Development and Benefit Sharing (June 2005 - June 2009)
Hosted the first Nile Basin Heads of State Summit in June 2017 in Entebbe
Hosted three Regional Nile Day events: 2014 (Kampala) 2012 (Jinja) and 2010 (Kabale)
Signed the Cooperative Framework Agreement (CFA) on 14 May 2010; ratified the CFA on 15 August 2019

Current and Future Investment Benefits in Numbers - Highlights

1,793,484
Direct project beneficiaries

40.03 million m³
Water supplied

54.035 MW
added to national grid

556.5 KM
Transmission lines

2 sub-stations constructed
Mbarara/Mirama

23,381 HA
Irrigated area

Benefits from Nile Basin Cooperation

Investments for improved livelihoods

Twenty-six investment projects facilitated by NBI are at various stages of development. The transboundary projects benefit upstream and downstream countries alike as the country is located midstream of the River Nile. The projects upon completion will contribute to Uganda's water, energy and food security, as well as environmental sustainability, ultimately contributing to national and regional development and integration.

The interconnection and power generation projects will increase Uganda's access to reliable and affordable energy as a result of cross-border power trade, reduced operational costs and improved planning of energy infrastructure.

Irrigation agriculture under the various multi-purpose dams will lower Uganda's reliance on rain-fed agriculture and help build more robust food production systems. At the same time, Ugandans will gain access to clean and safe water supply for domestic use and livestock.

Investments in watersheds and wetlands are key to maintaining vital ecosystem goods and services such as water supply, unique biodiversity habitat, flood control, drought buffering and diverse livelihood support such as tourism, fishing and livestock farming. These make the restoration and conservation of watershed and wetlands critical in overall integrated water resources management and climate change resilience building in the Nile Basin.

The table below summarises the investment projects and benefits derived from their successful implementation.

INVESTMENT PROJECT BENEFITS	BENEFICIARIES	STATUS
Mella Water Supply and Sanitation		
» Water supply and sanitation	2,000 persons 4,500 livestock	Completed / operational
Busia Community Fish Ponds		
» Fish » Improved source by constructing seven community fish ponds		Completed
Lukhuna Gravity Fed Irrigation Demonstration Scheme in the Sio-Malaba-Malakisi basin (Manafwa)		
» Horticultural crop production through irrigation from a 12 km water transmission with intake structure and main lines; commissioned February 2015	500 people	Completed / operational
Rehabilitation of Hydro-Meteorological Network within the Sio-Malaba-Malakisi (SMM) Basin		
» 5 river gauging stations installed » 4 automatic weather stations installed » 19 rain gauges installed		Completed
Installation of Hydro Meteorological Network within the Kagera River Basin		
» 5 automatic water level recorders installed » 4 automatic weather stations installed » 4 standard rain gauges installed	Population of Kagera River Basin in Uganda	Completed

Katuna Water Supply (Kabale)		
» Water supply and sanitation	10,000 people	Completed / operational
Integrated Fisheries and Water Resources Management of Lakes Edward and Albert (LEAF) II		
» Harmonised fisheries policies » Cooperative framework for joint management of the lakes » Improved beach management Institutional framework for basin management » 4 surveillance boats delivered » A mobile laboratory delivered » Cooperative agreement for joint management signed	400,000 persons (shared) (Source: PPR)	Under implementation
Uganda (Bujagali-Tororo) – Kenya (Lessos) 256 km (shared)		
» Power trade » Length 128 km for each country	Population of NBI countries	Implementation at 80%
Rwimi Irrigation Development and Watershed Management (Bunyangabu)		
» Irrigation of 4,000 ha		Prepared
Uganda (Masaka) - TZ (Mwanza) Power Transmission Interconnection		
» 640 km (shared) » Improved energy access » Cheap cross-border energy » Reduced tariffs	Population of Uganda on electric grid	Prepared
Uganda (Nkenda - Beni) – DR Congo (Butembo – Bunia) Power Transmission Interconnection		
» transmission line, 220KV of 396 km of which 72.5 km is in Uganda.	Population of Uganda	Prepared
Kabuyanda multipurpose water resources development project (Isingiro)		
» 5000 ha for irrigation » 0.16 MW of HEP of 7.8 million cubic metres reservoir	200,000	Prepared and handed over to Government
Nyimur/Limur Multi-Purpose Water Resources Development (4180 ha of irrigation; 1.2 MW)		
» Irrigation of 3,080 ha » Water supply	12,000 people	Prepared
Bigasha Multipurpose WRD		
» Irrigation of 500 ha » Water supply	118,000 people	» Prepared
Angololo Multi-Purpose Dam (capacity 44 MCM); 3,300 ha of irrigation; 1.75 MW of power (shared)		
» Irrigation of 2,120 ha » Employment » Agricultural production » 0.875 MW	63, 650 direct beneficiaries in Uganda	Under preparation
Preparation of Inland Waterway Sector on Lake Albert, Albert Nile, Bahr el Jebel River Basin and Main Nile (Uganda-South Sudan-Sudan)		
» Water way transport (xx km) » Trade		Identified
Nsongezi HEP (Shared with Tanzania and Rwanda) 48 MW		
» 16 MW for Uganda	1,138,800 people in Uganda	Identified
Uganda (Olwiyo)-South Sudan (Juba) Power Transmission Interconnection		
» Improved energy access » Cross-border energy » Countries agreed on joint cooperation	320 km (shared)	Identified
Nyabanja Dam		
» Fish production US$ 8,330 per ha per yr » WSM 9,568 ha » Bee keeping US$ 15.35 per ha per Yr Dam with capacity of 8.5 MCM	12,000 persons	Identified

Semliki Hdropower		
» 72 MW hydropower shared » Increased and reliable electric energy Increased energy trade » Increased access to electricity » Reduced electric energy cost » Reduced technical losses » Improved planning of energy infrastructure » Improved regional integration		Identified
Lirima Irrigation Development and Watershed (Manafwa)		
» Irrigation of 341 ha	5,154 people	Identified
Bukhabusi Irrigation Development and Watershed (Manafwa)		
» Irrigation of 480 ha	6,200 people	Identified
Nyamatunga Irrigation Development and Watershed (Tororo)		
» Dam of 2 MCM, » Irrigation of 412 ha	3,000 people	Identified
Busia Cross-Border Pollution Control		
» Pollution control » Storm water drainage	37,842 people	Identified
Shared Lwakhakha, Lower Sio, Middle Malaba and Middle Malakisi Sub-Catchment management plans		
» Farm production » Reduction in soil fertility loss » Increased incomes » Improved livelihoods	560,000 people	Identified
Shared Soono HEP 2 MW (Uganda and Kenya)		
» 1 MW to Uganda » Increased and reliable electric energy Increased energy trade » Increased access to electricity » Reduced electric energy costs » Reduced technical losses » Improved planning of energy infrastructure » Improved regional integration	Shared across Kenya and Uganda	Identified

« We have been able to use the Nile Basin Decision Support System to inform Uganda's new water resources strategy for the entire country. Perhaps if we didn't have this tool, we would not have been able to develop the quality product that we have for Uganda. »

ENG SOWEDI SEWAGUDDE, Principal Water Officer in charge of Trans-boundary Water Affairs, Ministry responsible for Water and Environment, Uganda, on the occasion of NBI's 20th anniversary (February 2019).

Water Resources Planning and Management

Besides the basin-wide benefits, specific gains for Uganda include capacity building for officials in Integrated Water Resources Management (IWRM) intended to close the water resources knowledge gap among countries, thus leveraging the capacity of Ugandans to jointly manage and develop shared water resources in a more sustainable manner and with a transboundary orientation. These issues are addressed through exchange visits, workshops, appreciation seminars, short courses, post-graduate training as well as research and studies at regional and national level.

Uganda also benefits from the various scientific knowledge products, policies, strategies and

Photo: NBI

Hon. Sam Cheptoris Uganda's Minister of Water and Environment officially launching the Regional Water Laboratory, Mobile Water Laboratory and handing over keys for Patrol Boats for Lakes Edward and Albert under the LEAF II project, 30 October, 2019

guidelines as well as analyses and tools that support informed decision making for optimal joint utilisation and sustainable management of the shared water and related natural resources.

Among the tools, the Nile Basin Decision Support System (NB DSS) provided a framework for management and development of the country's water and related resources by 2040.

In addition, the NB DSS has been applied to five cases as follows: (a) Development of catchment management plans for River Aswa and Albert Nile; (b) Development and selection of alternative water supply sources for irrigation schemes; (c) Development of the Katonga catchment management plan; (d) Sustainable water use in the Edward-George basin - A case study of the Mubuku-Sebwe catchment; and (e) Improved climate change resilience in Northern Uganda through water resource management, including for refugees and host communities.

Other country specific benefits include technical support provided by the NBI to review Uganda's water policy to include transboundary dimensions. The support was through review of the national water policies conducted as part of the Water Resources Planning and Management Project. This was followed by capacity development for relevant staff in transboundary water policy, and on tools to support policy formulation and implementation. Basin-wide capabilities were enhanced and convergence of the legal, regulatory and policy frameworks of NBI countries on transboundary issues was realised.

Water Resources Planning-Management Benefits - Highlights

- At least **32** Regional policies that support national level policy, planning and practice
- **15** Hydrological stations integrated in the Nile Basin Regional HydroMet Network

« The most important part of this fish landing facility is the fish handling, the smoking areas and the Fisheries Officer's office. Because with these, the sanitation, cleanliness and quality of fish will improve and this will lead to better prices for our fishers. » MR DAN KAGUTA, Resident District Commissioner, Rukungiri District, Uganda speaking during the handing over of the completed Rwenshama landing site, to the District Local Government under the LEAF project (18 February 2020).

Fifteen hydrological stations will be integrated in the Nile Basin Regional HydroMet System, the very first in the region, which will be established by the Nile Basin Regional HydroMet project (July 2018 – July 2021). The System lays the foundation for information exchange and as such forms a cornerstone for Nile cooperation, building trust for joint water resources management and planning in the Basin.

Of the 15 stations, 14 will be upgraded to state of the art technology while one will be newly installed (see annex 2 on page 81).

Uganda together with her neighbour Kenya has been supported in developing transboundary wetland management plans for the Sio-Siteko sub-basin. The Semliki transboundary wetland management plan was shared with DR Congo and the Minziro plan was shared with Tanzania. These will feed into a basin-wide process to better understand the role and value of wetlands for the river system and the people that depend on it.

In addition to The Economics of Ecosystems and Biodiversity (TEEB) studies for Sio-Siteko (Uganda and Kenya) as well as Semliki (Uganda and DR Congo) transboundary wetlands generated knowledge on the value of wetlands ecosystem services and will enable mainstreaming of wetland ecosystems and associated biodiversity in sectoral planning.

Furthermore, information from a pioneering study on peatlands, which are habitats for high carbon sequestration and storage crucial for climate change mitigation of the Nile Basin region will help Uganda in her efforts towards climate change mitigation and adaptation. The country can tap into this information and investment towards meeting its obligation under the Climate Change Paris Agreement, the Nationally Determined Contributions (NDCs), and other multilateral environmental agreements.

Basin Cooperation

Uganda uses the platform provided by the NBI to engage, consult and deliberate with other Nile Basin countries on how to collectively take care of and use the shared Nile Basin water resources so as to build a common ground for win-win benefits. This is possible through the various fora. These include regular governance meetings, project steering committees, regional expert working groups, the annual Nile Day, the triennial Nile Basin Development Forum, multi-sector national level consultations and media training.

Estimated 2,542 Ugandans
Trained on topic ranging from IWRM, e-flows, NB DSS, Hydro diplomacy, small and large scale irrigation, to advocacy and more.

Estimated 10,746 Ugandans
Have taken part in NBI organised events.

CHAPTER 3

Photo: istock

LOOKING AHEAD

The strength of army ants is in their numbers. In order to accomplish complex tasks, they work as a team and not as individuals. An individual ant on its own is blind and would not achieve much. But by working together with other ants, they accomplish so much. For example, when a colony of these ants wants to cross a water body, individual ants freeze their bodies in place to form bridges over which their mates climb and build a 'floating vessel' that glides to the other side.

This is cooperation like no other, by different entities collaborating towards achieving a common goal. Member States of the NBI realised two decades ago that working unilaterally was futile to their efforts towards socio-economic development and improving the lives of their citizens.

In fact, all 10 NBI Member States do appreciate that there is no way around cooperation or they would have to suffer the consequences of non-cooperation. They realised and acknowledged that the cost on non-cooperation was very high, far exceeding the cost of cooperation. These costs include risking optimisation of benefits and all ecosystem functions and services on which local communities depend, not to speak of flora and fauna as well as risking the Nile itself.

Other consequences of non- cooperation are opportunities for joint action foregone, significant harm to the mutual trust and confidence built between riparians over the last 20 years, as well as to lack of sustainable regional peace and security. The lack of peace would condemn the region to perpetual instability and a vicious cycle of poverty and environmental degradation.

Photo: NBI

« The future of the Nile is the future and bread of our people. Water is food, water is energy, water is peace, water is security, water is life. Without joint planning and investment, we miss out on the opportunities of development, which benefit the Nile people. » HON ASMA MOHAMAD ABDALLA, Minister of Foreign Affairs, The Sudan speaking as Guest of Honour during the Regional Nile Day event held in Khartoum (22 February 2020).

On the other hand, opportunities that come as a result of working as a bloc include the fact that it is cheaper to mobilise resources as a group. A good example is the 80 MW Regional Rusumo Falls Hydroelectric Project, jointly implemented by Burundi, Rwanda and Tanzania.

When a bloc acquires a regional project, the countries benefitting from it would ensure its sustainability because of the vested interests in the investment. No one would want to see a project they had invested many resources into go to waste.

Another opportunity is in exploiting comparative advantages to complement shortages in one area for different countries. If each country focused on their agricultural and industrial strengths, they would then trade with other countries in goods and services they lack or have in abundance.

What is being awaited with much hope and anticipation is a bold and visionary decision by Member States that will be focused on addressing the looming long-term risks the basin will face while taking priority actions.

NBI's myriad work, for example, the Strategic Water Resources Analyses, Wetland Studies, and more than 30 basin-wide policies, all have clearly identified what needs to be done and prioritised. The NBI 10-year Strategy (2017-2027) has taken this task forward and identified six strategic priorities that Member States need to focus on, namely: water security, energy security, food security, environmental sustainability, climate change adaptation and strengthening transboundary water governance.

Underpinning all the strategic priorities is the increase in cooperation between Member States and dialogue with NBI's broader stakeholders and regional actors.

The Strategy is also in alignment with, and provides an important means for attaining, the Sustainable Development Goals (SDGs) within the Nile region. It makes a direct contribution to eight of the 17 goals, and 11 of the 169 targets of the new global agenda. The Strategy will make an indirect contribution to another five of the 17 goals.

In the years running up to 2027, the overarching target is that permanent basin-wide and sub-basin wide arrangements for cooperation are agreed by all Member States and are operational. The overarching impact is that disagreements and or conflicts over the utilisation of the common Nile Basin water resources are averted or constructively resolved.

What the future holds for NBI Member States is cooperation beyond water and towards economic integration, intensified trade and movement of capital and labour across borders, and cultural exchange. All these contribute to regional integration, peace and security as well as building communities that have joint hope in effectively managing and taking care of their common Nile Basin water resources to benefit current and future generations.

Provided as outlined in the strategy, the Basin achieves the goal of establishing a permanent, rules-based river basin organisation in which all riparian countries of the Nile take part, then the prospects for the Basin can only be positive and promising.

In delivering its mandate, NBI is supported by Development Partners either multilaterally or bilaterally. We take this opportunity to express our appreciation to all for the continued support to Nile Basin cooperation.

ANNEX 1

SHARED VISION PROGRAMME PROJECTS

PROJECT: Nile Transboundary Environmental Action (NTEAP)	
Total Funding Mill. USD: 39.30 Starting date: October 2003 Closing Date: December 2009 Location of Project Management Unit: Khartoum, Sudan	**OBJECTIVE** Provide a strategic framework for environmentally sustainable development of the R. Nile Basin and support Basin-wide environmental action linked to transboundary issues in the context of the NBI Strategic Action Programme.
PROJECT: Regional Power Trade (RPT) - Phase I & 2	
Total Funding Mill. USD: 5.27 Starting date: July 2004 Closing Date: June 2011 Location of Project Management Unit: Dar es Salaam, Tanzania	**OBJECTIVE** Establish the institutional means to coordinate the development of regional power markets among the Nile basin countries.
PROJECT: Efficient Water Use for Agricultural Production (EWUAP)	
Total Funding Mill. USD: 4.39 Starting date: July 2005 Closing Date: June 2009 Location of Project Management Unit: Nairobi, Kenya	**OBJECTIVE** Provide a sound conceptual and practical basis to increase availability and efficient use of water for agricultural production.
PROJECT: Water Resources Planning and Management (WRPM)	
Total Funding Mill. USD: 21.27 Starting date: Feb. 2005 Closing Date: December 2012 Location of Project Management Unit: Addis Ababa, Ethiopia	**OBJECTIVE** Enhance the analytical capacity for basin-wide perspective to support the development, management and protection of the Nile Basin waters in an equitable, optimal and sustainable manner.
PROJECT: Confidence Building and Stakeholder Involvement (CBSI)	
Total Funding Mill. USD: 11.56 Starting date: July 2004 Closing Date: December 2009 Location of Project Management Unit: Nile-SEC Entebbe, Uganda	**OBJECTIVE** Develop confidence in regional cooperation and the NBI and ensure full stakeholder involvement in the NBI and its projects.
PROJECT: Applied Training Project (ATP)	
Total Funding Mill. USD: 16.98 Starting date: June 2004 Closing Date: December 2009 Location of Project Management Unit: Cairo, Egypt	**OBJECTIVE** Strengthen capacity in selected subject areas of water resources planning and management in public and private sectors and community groups; strengthen centres with capacity to develop and deliver programmes on a continuing basis; and expand the frequency and scope of the basin interchange among water professionals.
PROJECT: Socio-Economic Development and Benefit-Sharing (SDBS)	
Total Funding Mill. USD: 5.89 Starting date: June 2005 Closing Date: June 2009 Location of Project Management Unit: Entebbe, Uganda	**OBJECTIVE** Strengthen the River Nile Basin-wide social-economic cooperation and integration through: (a) joint identification, analysis and design of cooperative development options and priorities; and (b) development of criteria, methods and frameworks for sharing benefits/costs and managing attendant risks
PROJECT: Regional Agriculture Trade and Productivity (RATP) Phase I & 2	
Total Funding Mill. USD: 8.0 Starting date: April 2008 Closing Date: April 2012 Location of Project Management Unit: Bujumbura, Burundi	**OBJECTIVE** Increase knowledge of Basin agriculture in NBI institutions to promote more efficient and sustainable use of water resources and economically viable investment in agriculture.
PROJECT: Shared Vision Programme Coordination Project (SVP-C)	
Total Funding Mill. USD: 11.89 Starting date: October 2003 Closing Date: December 2008 Location of Project Management Unit: Entebbe, Uganda	**OBJECTIVE** Strengthen the capacity of NBI institutions to execute basin-wide programme and to ensure the effective oversight and coordination of NBI's SVP.

ANNEX 2

HYDROMET STATIONS

MEMBER STATE	STATION NAME
Burundi	Ruvubu at Muyinga
	Ruvubu at Gitega
DR Congo	Ishango at Ferry Crossing (New)
Ethiopia	Geba near Supi
	Lake Tana at Bahir Dar
	Didessa near Arjo
	Angar near Nekemte
	Dabus near Bambasi
	Tekeze near Embamadre
	Abay near Bure
	Abbay near Pedagogi
	Jemma at Abay Confluence (Jema Near Ejere)
	Abay at Kessi Bridge
	Abay at Mekane Selam-Gundewein Br.
	Main Bele at Bridge DS of Bagusta
	Gilo near Pugnido
	Tekeze near Amdework (u/s TK5) (New)
	Baro at Gambela
Kenya	1EF01_Nzoia Ruambwa
	1FG03_Yala Kadenge
	1GD03_Nyando (Ogilo)
	1JG04_Miriu Sondu
	1KB05_Gucha Migori
	1LA04_Mara
Rwanda	Gakindo
	Gihinga
	Kigaitumba
	Ruliba
	Shell
	Akagera Outlet (New)
South Sudan	Shobat at Doleib Hill
	Bahr el Jebel at Malakal
	Bahr el Jebel at Mongalla
	Assua River/Nimule Road Bridge
	Wau
	Bahr el Jebel at Juba
	Bahr el Jebel at Nimule

MEMBER STATE	STATION NAME
Sudan	Eldeim
	Roseries
	Madani
	Khartoum
	Gewesi
	Hawata
	Atbara Kilo 3
	El Hudeiba (Hassanab relocated)
	Dongola
	Al Asira
	Hamdait
	El Jebelein (Res u/s Khartoum)
	Halfaya Bridge (Tamanyat replacement)
Tanzania	Mara River at Mara Mine
	Grumeti river at M Bridge
	Mbalgeti
	Kagera at Kyaka Ferry
	Ruvuvu at Mumwendo Ferry
	Simiyu River at Lumeji
	Kogatende Ranger Post
	Rusumo Falls (New)
Uganda	Lake Victoria at Jinja Pier
	River Katonga at Kampala-Masaka
	River Sio at Luhalali near Bunadet
	River Bukora at Mulukula-Kyotera
	Lake Kyoga at Bugondo Pier
	River Victoria Nile at Mbulamuti
	River Malaba on Jinja-Tororo Road
	River Kyoga Nile at Masindi Port
	River Kyoga Nile at Paraa
	Lake Edward at Katwe
	Lake Albert at Butiaba
	River Semliki at Bweramule
	River Albert Nile at Laropi
	River Albert Nile at Panyango
	River Kagera at Nsongezi (New)

ANNEX 3

NBI KEY MILESTONES: 1999 - 2020

Year	Nile Basin cooperation EVENTS	MAJOR POLITICAL EVENTS	EXTREME EVENTS
1990/91		End of the Cold War	El-Niño event in the Horn of Africa
1992	Dec: TECCONILE[1] launched Dec: Nile-COM[2] established	Mar: UNECE[12] Water Convention adopted	El-Niño event continued
1993	Feb: 1st Nile 2002 Conference, Aswan		
1994	Jan: Nile 2002 Conference, Khartoum	May: ER independence	
1995	Feb: NRBAP[3] approved		
1996	Feb: Nile 2002 Conference, Kampala		
1997	Jan: Institutional and Legal Framework Project (D3) launched	Jan: Announcement of the Toshka Project, EG May: UN Watercourses Convention adopted	Drought in the Horn of Africa, caused by El-Niño
1998	Jul: First meeting of the Nile-TAC	May: ER-ET War begins	Drought continued
1999	Sep: NBI Secretariat launched		
2000	Aug: Strategic Action Program approved	Sep: MDGs[13] agreed Jul: EAC[14] re-established	
2001	Jun: ICCON[4] 1 donors meeting held in Geneva ENTRO[5] launched		
2002	Oct: Final Nile 2002 Conference, Nairobi NELSAP-CU[6] launched Feb: Nile Basin Initiative Act passed		El-Niño event in the Horn of Africa
2003	Nile Basin Trust Fund established Oct: Negotiation of the CFA[7] started	Dec: NBD[15] established GWP-EA[16] constituted	El-Niño event continued
2004	Oct: 1st SVP[8] Project launched		
2005	First set of cooperative investments	Jul: Establishment of the LVBC[17]	
2006	Nov 30 - Dec 2: 1st NBDF[9]		Apr: Massive floods in ET & SD
2007	Feb: Annual Nile Day launched		Jul: Historical floods in SD
2008	Dec: SVP8 closed ISP[10] project established	Spike of global food prices	
2009	Feb: NBI's 10-year anniversary	Mar: Inauguration of the Merowe Dam, SD Nov: Inauguration of the Tekeze Dam, ET	El-Niño event in the Horn of Africa
2010	May 14: CFA7 opened for signature in Entebbe, ET, RW, TZ & UG sign EG & SD freeze participation in NBI May 19: KE signs the CFA7 in Nairobi	May: Inauguration of the Tana-Beles Hydropower Project, ET	El-Niño event continued
2011	Feb 28: BI signs the CFA7 in Bujumbura	Jan: Beginning of EG uprising Apr: Announcement of the construction of the GERD[18] Jul: SS independence	Drought in the Great Horn of Africa
2012	Jan: CIWA[11] formed Jul: SD unfreezes participation in NBI Jul: SS joins NBI	Oct: Inauguration of Bujagali Falls Dam, UG	
2013	Jun 13: ET ratifies the CFA7 Jan: Nile Basin cooperation for Results Project launched Dec: Inauguration of ET-SD Power Transmission Line Aug 28: RW ratifies the CFA[7]	Jan: Completion of the Roseires Dam heightening, SD	Aug: Massive floods in SD
2014	Dec: Closure of Nile Basin Trust Fund	Sep: Formation of the TNC[19] Aug: UNWC[20] enters into force	

2015	Mar 26: TZ ratifies the CFA[7]	May: Signing of the DoP[21] in Khartoum Oct: SDGs[22] agreed	Drought in the Horn of Africa, caused by El-Niño
2016			Drought continued
2017	Jun: 1st Nile Basin Heads of States Summit, Entebbe		
2018		May: Nine-Party Outcome Document on GERD[18] signed Jul: End of ER-ET War	Jul: Massive floods in SD
2019	Jan 27: Year of the Nile Basin launched Feb: NBI's 20-year anniversary		

[1]Technical Co-operation Committee for the Promotion of the Development and Environmental Protection of the Nile Basin
[2]Nile Council of Ministers
[3]Nile River Basin Action Plan
[4]International Consortium for Cooperation on the Nile
[5]Eastern Nile Technical Regional Office
[6]Nile Equatorial Lakes Subsidiary Action Program Coordination Unit
[7]Negotiation of the Cooperative Framework Agreement
[8]Shared Vision Program Project
[9]Nile Basin Development Forum
[10]Institutional Strengthening Project
[11]Cooperation in International Waters in Africa
[12]Convention on the Protection and Use of Transboundary Watercourses and International Lakes
[13]Millennium Development Goals
[14]East African Community
[15]Nile Basin Discourse
[16]Global Water Partnership Eastern Africa
[17]Lake Victoria Basin Commission
[18]Grand Ethiopian Renaissance Dam
[19]Tripartite National Committee
[20]United Nations Water Convention
[21]Declaration of Principles
[22]Sustainable Development Goals
ET Ethiopia / RW Rwanda / TZ Tanzania / UG Uganda / EG Egypt / SD Sudan / KE Kenya / BI Burundi / SS South Sudan / ER Eritre

NBI@20: STRONGER TOGETHER

Twenty years of NBI (1999-2019) provided the opportunity to reflect on what has been achieved – the mutual trust that has been built, Member States have since been working together, developing technical tools and identifying investment opportunities. These are the achievements:

JOINT INVESTMENT: FOR TRANSFORMING LIVES AND SUSTAINING THE ENVIRONMENT

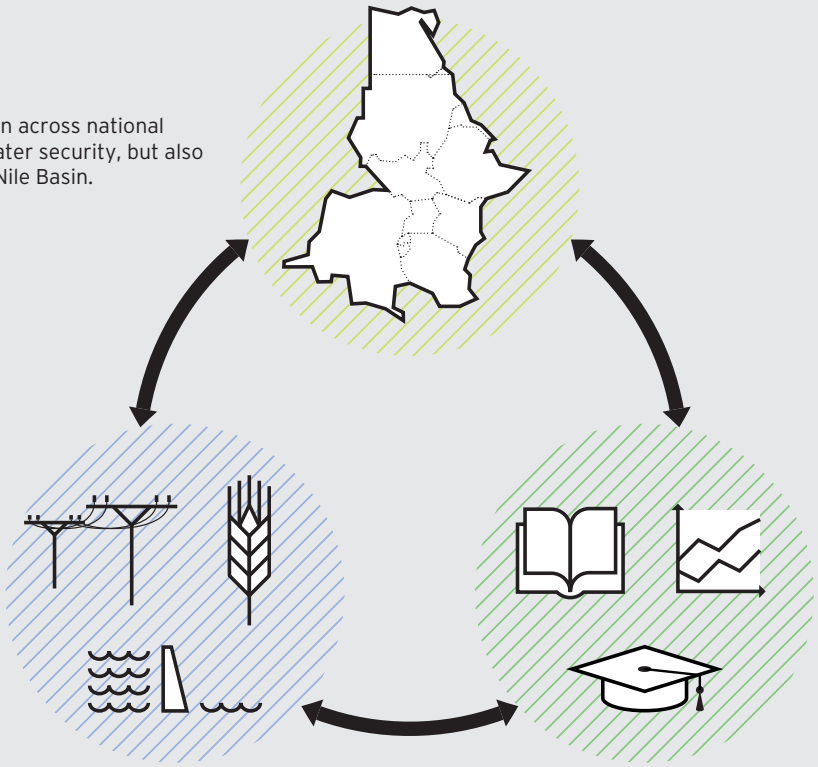
Joint investment projects that, like the Nile itself, span across national borders, play an integral part in achieving not only water security, but also food and energy security, eradicating poverty in the Nile Basin.

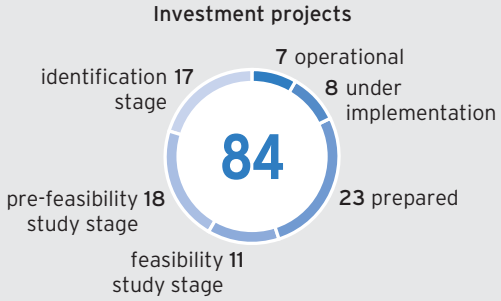
6.5B US$

Accumulated investment volume of all finalised projects

3

Centres enable NBI to leverage its unique potentials





CONFIDENCE & TRUST: NILE COOPERATION FOR REGIONAL TRANSFORMATION

Joint institutions and dialogue platforms contribute to a culture of dialogue, building mutual trust and confidence within the Nile Basin for regional transformation.

1

Vision that brings all Nile Basin countries together

10

Countries work together within the NBI

20

Years of constructive cooperation

KNOWLEDGE & CAPACITY: EMPOWERING COUNTRIES AND PEOPLE TO MANAGE THEIR WATER RESOURCES EFFECTIVELY

Through capacity building, generation of policies and knowledge, the NBI supports the countries and people of the Nile Basin to better manage their shared water resources.

32

Strategies provide policy directions for NBI member countries

10,000

Knowledge products produced by NBI

102,377

directly engaged through NBI events/capacity building

Rapids in the Victoria Nile, Uganda

Photo: istock

ONE RIVER ONE PEOPLE ONE VISION

NILE BASIN INITIATIVE
INITIATIVE DU BASSIN DU NIL

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