

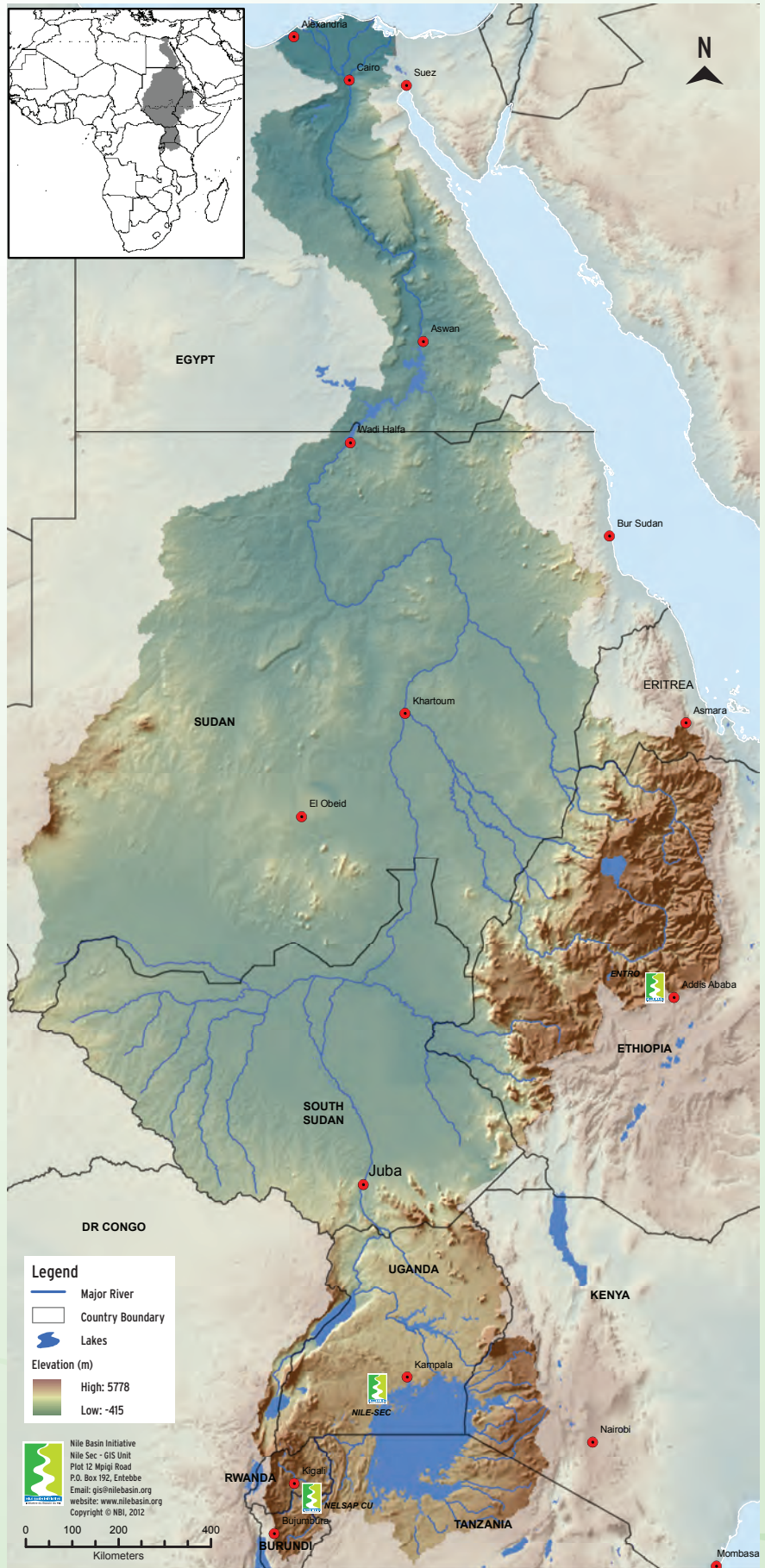


OneRiver OnePeople OneVision

**2011 Edition: Please send your feedback to the NBI Secretariat**

Disclaimer: While every care has been exercised in compiling and publishing the information and data contained in this document, the NBI may not guarantee full accuracy due to the changing nature of the projects.

# The Nile Basin





Ministers in charge of Water Affairs and Representatives of the Nile Basin countries during the 19<sup>th</sup> Nile Council of Ministers' meeting held in Nairobi, Kenya - July 2011

## MEMBERS OF THE NILE COUNCIL OF MINISTERS



**HON. JEAN-MARIE NIBIRANTJE**  
MINISTER OF WATER, ENVIRONMENT, LAND  
MANAGEMENT AND URBAN PLANNING, BURUNDI



**HON. JOSE BONONGE ENDUNDO**  
MINISTER OF ENVIRONMENT, NATURE  
CONSERVATION AND TOURISM, DR CONGO



**HON. PROF. HESHAM KANDIL**  
MINISTER OF WATER RESOURCES AND  
IRRIGATION, EGYPT



**HON. ALEMAYEHU TEGENU**  
MINISTER OF WATER AND ENERGY, ETHIOPIA



**HON. CHARITY KALUKI NGILU, EGH MP**  
MINISTER OF WATER AND IRRIGATION, KENYA



**HON. AMB. STANISLAS KAMANZI**  
MINISTER OF WATER, ENVIRONMENT AND  
NATURAL RESOURCES, RWANDA



**PROF. DR. SEIFELDIN HAMAD ABDALLA**  
MINISTER OF WATER RESOURCES, SUDAN



**HON. PROF. MARK J. MWANDOSYA**  
MINISTER OF WATER, TANZANIA



**HON. MARIA MUTAGAMBA**  
MINISTER OF WATER AND ENVIRONMENT  
UGANDA

## ABOUT THE NILE BASIN INITIATIVE



The Nile Basin Initiative (NBI) is an inter-governmental organization dedicated to equitable and sustainable management and development of the shared water resources of the Nile Basin. Member States include Burundi, Democratic Republic of Congo, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda. Eritrea and South Sudan participate as observers. The NBI was established on 22<sup>nd</sup> February, 1999 by Ministers responsible for Water Affairs in each Member State. These Ministers comprise the governing body known as the Nile Council of Ministers (Nile-COM) supported by the Nile Technical Advisory Committee (Nile-TAC). The latter is comprised of technical representatives from the Member States. The Nile-TAC offers technical support and advice to the Nile-COM on matters related to the management and development of the common Nile basin water resources and provides oversight for NBI programmatic activities. A Shared Vision and a Strategic Action Program to operationalise NBI were agreed upon to guide Nile cooperation.

### SHARED VISION

**TO ACHIEVE SUSTAINABLE SOCIO-ECONOMIC DEVELOPMENT THROUGH THE EQUITABLE UTILIZATION OF, AND BENEFIT FROM, THE COMMON NILE BASIN WATER RESOURCES.**

### NBI'S CORE FUNCTIONS

#### FACILITATING COOPERATION

The NBI provides a platform upon which Member States can deliberate issues of trans-boundary water resources management and development.

#### WATER RESOURCE MANAGEMENT

The NBI provides analytic tools and a shared information system that enables Member States to monitor and sustainably manage the Nile Basin's water resources.

#### WATER RESOURCE DEVELOPMENT

The NBI assists Member States to identify development opportunities, prepare projects and seek investments. Development programs are focused on power trade and generation, agriculture and river basin management.

### NBI CENTERS

#### NILE-SECRETARIAT

The Nile Secretariat (Nile-SEC) is the executive arm of NBI responsible for the overall corporate direction as delegated by the Nile Council of Ministers. It is also the lead centre for NBI's two core functions, namely 'Facilitating Cooperation' and 'Water Resource Management'. Nile-SEC is based in Entebbe, Uganda.

#### EASTERN NILE TECHNICAL REGIONAL OFFICE

The Eastern Nile Technical Regional Office (ENTRO) is the executive arm of the Eastern Nile Subsidiary Action Program taking the lead in Water Resource Development in the Eastern Nile sub-basin (Egypt, Ethiopia and Sudan). ENTRO is based in Addis Ababa, Ethiopia.

#### NILE EQUATORIAL LAKES SUBSIDIARY ACTION PROGRAM COORDINATION UNIT

The Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP-CU) is the executive arm of the Nile Equatorial Lakes Subsidiary Action Program (NELSAP) taking the lead in Water Resource Development in the Nile Equatorial Lakes sub-basin (Burundi, Democratic Republic of Congo, Egypt, Ethiopia, Kenya, Rwanda, Sudan, Tanzania and Uganda). NELSAP-CU is based in Kigali, Rwanda.

# Kenya the Nile Basin Initiative & Benefits of Cooperation



"I wish to let you know that my country has reaped several benefits from the NBI programs. Several projects have been implemented in Kenya through NBI programs. These include (i) the Angurai water project, (ii) Sio-Malaba and Malikisi Trans-boundary Water Resources Management project and (iii) Mara Integrated Watershed Management Project which is aimed at addressing watershed degradation and ultimately ensure sustained water flows and long lifespan of water infrastructure."

**Hon. Charity Kaluki Ngilu, EGH, MP, Minister of Water and Irrigation**



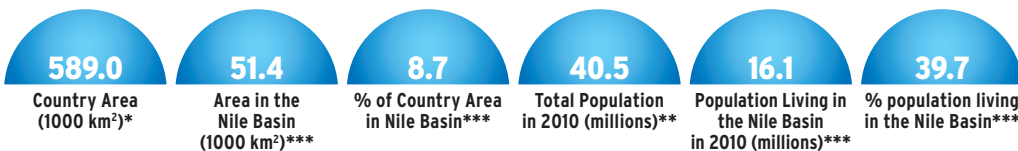
This profile provides a brief description of the Nile Basin Initiative, the cooperation with Kenya and highlights benefits of the cooperation. The benefits are results of more than a decade of cooperative effort in water resource management and development in the Nile Basin.

Kenya has actively participated in NBI programs and projects since 1999 when the Initiative was established in Dar es Salaam. The Ministry of Water and Irrigation is the focal point government institution that coordinates NBI activities in Kenya. The Minister of Water and Irrigation represents Kenya on the Nile-COM. Similarly, two senior officials from the Ministry represent the country on the Nile-TAC. Steady progress is also being made in integrating

NBI activities in the national plans.

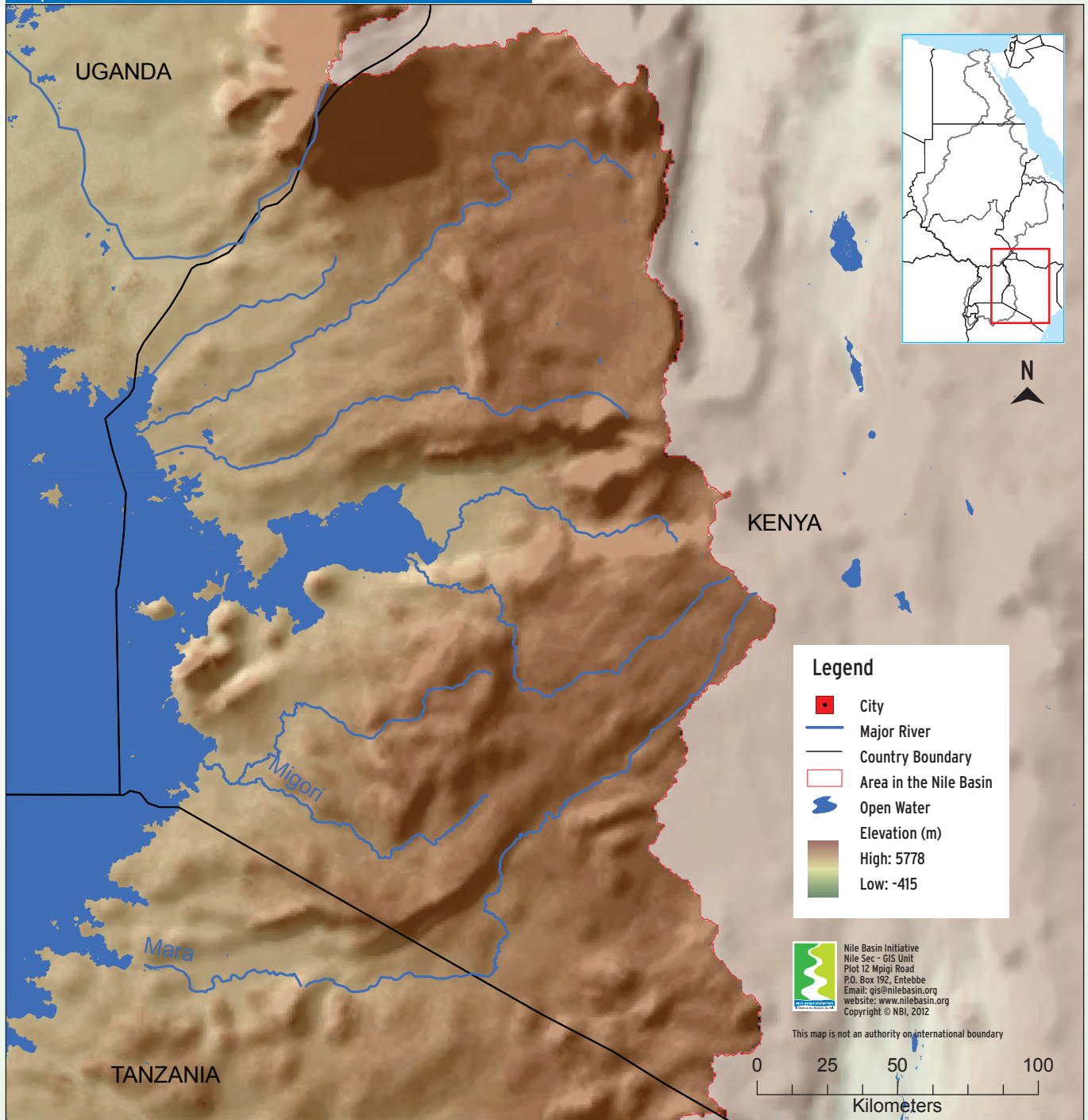
The country provides both cash and in-kind contribution annually towards NBI's (Nile-Sec and NELSAP-CU) operational costs. Cash contribution to Nile-Sec and NELSAP-CU is approximately USD 35,000 and USD 15,000 respectively.

Annual in-kind contribution is approximately USD 450,000. This contribution includes; supervision



Source: \*CIA The World Fact Book; \*\*UN Population Division; World Population Prospects; \*\*\*NBI Nile-Sec

## Kenya: Area of the Nile Basin



and technical guidance by members of the the Nile Equatorial Lakes Technical Advisory Committee (NEL-TAC) and the Nile-TAC, participation of Ministry officials in specialized meetings on NBI issues, hosting incoming NBI missions as well as telecommunication services. Furthermore, staff time through either secondment or direct hire of coordinators based on relevant sector institutions (Water, Power, Agriculture, Environment and Finance) is increasingly being devoted to NBI's different programs and projects.

Further in-kind contribution is in the form of hosting and financially contributing to regional events such as Nile-COM meetings, Nile Day celebrated annually on 22<sup>nd</sup> February and the Nile Basin

Development Forum held every two years.

Kenya provides offices premises for the Project Management Unit of the Sio-Malaba-Malakisi River Basin Management Project (between 2006 and 2012) and in the past (between 2005 and 2009), for the Efficient Water Use for Agricultural Productivity Project under the Shared Vision Program.

The Government of the Republic of Kenya signed the Cooperative Framework Agreement (CFA) on 19<sup>th</sup> May 2010 in Nairobi, to establish a permanent river basin organization that aims at ensuring the sustainable development and equitable utilisation of the common water resources of the Nile basin.

# Unlocking the Nile Basin's Development Potential

## Benefits of Cooperation: Kenya



The benefits to Kenya are results of more than a decade of cooperative effort in water resource management and development in the Nile Basin. Broadly and at a basin-wide level the results include: the establishment of a transitional regional institution; the preparation of investment projects worth more than USD 1 billion; and the creation of scientific tools (e.g. Nile Basin Decision Support System) as well as capacity building (institutional and technical) for joint planning and management of the shared waters of the Nile Basin.

Kenya derives benefits from NBI's facilitation in the following core areas:

- **Water Resource Development:** The NBI assists Member States to identify development opportunities, prepare projects and seek investments.
- **Water Resource Management:** The NBI provides analytic tools and a shared information system that enables Member States to monitor and sustainably manage the Nile Basin's water resources.
- **Facilitating Cooperation:** The NBI provides a platform upon which Member States can deliberate issues of trans-boundary water resources management and development.

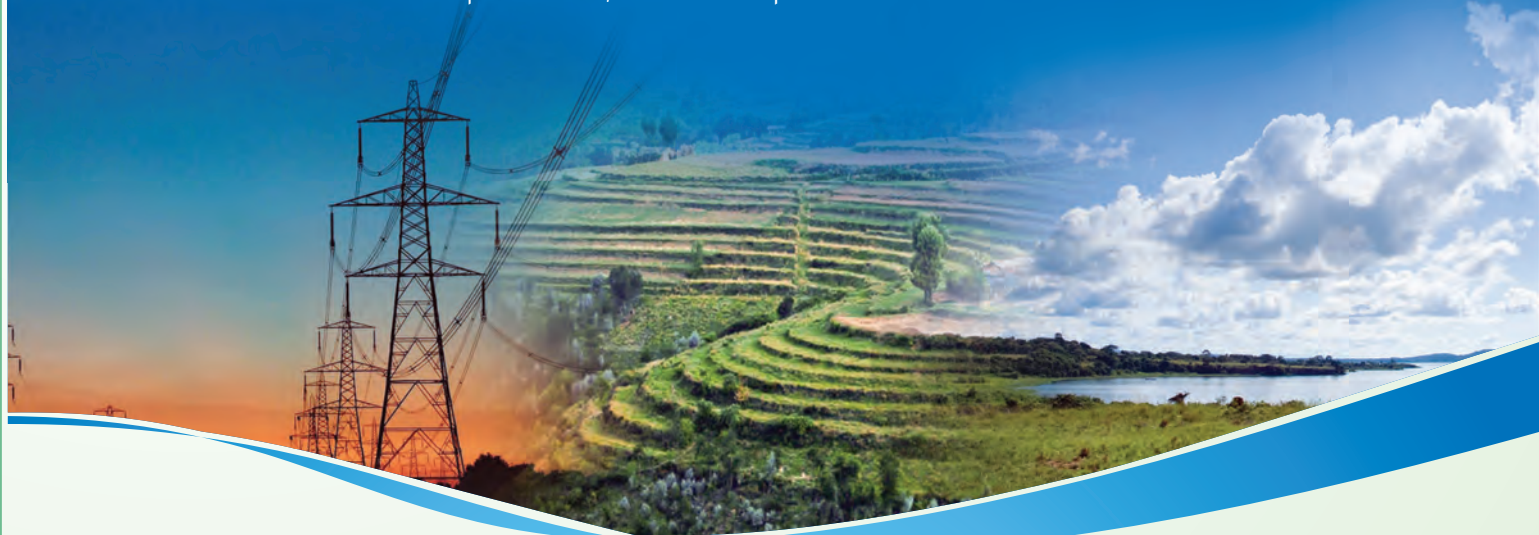
The benefits, some of which have already been realised, while others are potential, are elaborated in the following pages.

## BENEFITS OF COOPERATION

Unlocking the Nile Basin's development potential

### Water Resource Development

The NBI through its Subsidiary Action Programs (SAPs) promotes investments in three critical areas of priority to all Member States namely Power, Agriculture and River Basin Management. The role of NBI is to **identify opportunities** and **prepare investment projects** which contribute to economic growth and poverty reduction. The NBI **assesses costs** and **benefits** of participation in proposed joint projects and **facilitates agreements on cost-benefit sharing** among Member States who are party to joint projects. The NBI also supports investment **resource mobilization, preparation of multi-country agreements** and provides technical assistance in project supervision and monitoring during project implementation, if and when requested.



#### POWER

Electrical power constitutes one of the areas where the Nile basin's infrastructure has fallen short of potential, but where cooperation is beginning to show tangible results. NBI has built regional capacities and provided a forum for dialogue for countries to promote power trade in the Nile Basin, by bringing together officials from national utilities and ministries in charge of electricity affairs in all Nile basin countries. Technical specialists and policy makers are working to build capacity to negotiate and manage power trade arrangements.

While possible transmission interconnections had been identified prior to the formation of the NBI, some even decades earlier, the Member States lacked the mechanisms to jointly prepare and advance the infrastructure and policy environment needed for power trade. Today, the NBI has filled this void by providing a platform for Member States to negotiate necessary agreements as well as conducting the detailed studies and preparation work necessary to advance the investment programs. As a result, Ethiopia and Sudan are now connected by transmission lines and multiple interconnections are underway in the Nile Equatorial Lakes region, with established protocols for sustained regional power trade. The enhanced infrastructure capacity and transmission in power interconnection will increase the countries' options and accessibility to cheap and reliable power.

#### AGRICULTURE

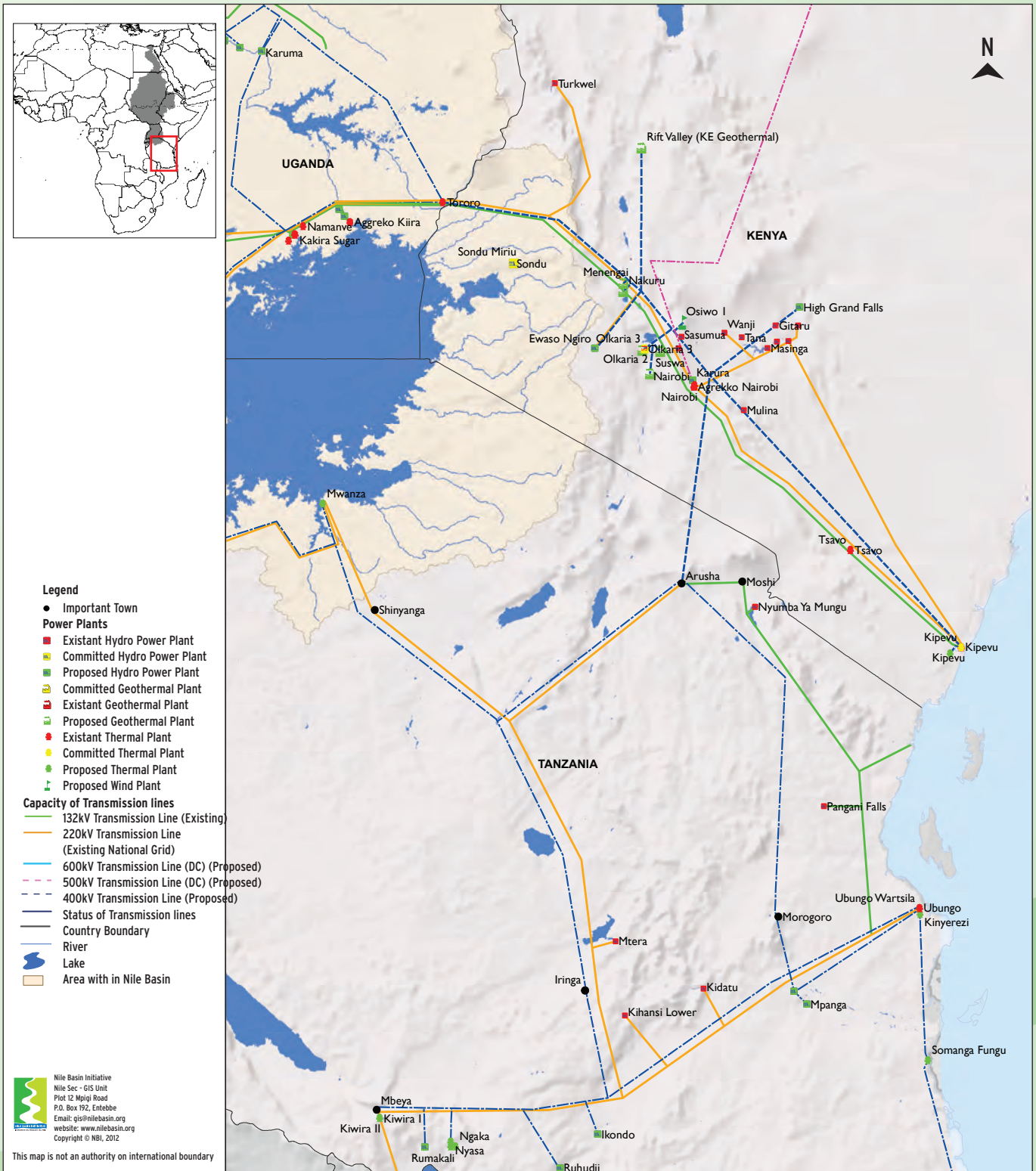
Agriculture plays a significant role in economic development of the Nile Basin countries and accounts for about one quarter of the Gross Domestic Product (GDP). The agricultural sector absorbs 30-92% of the labour force, reflecting the wide variation in the importance of agriculture in the region. The NBI has so far collected best practices in water harvesting, small scale and large scale irrigation and development of new schemes in the Nile basin, with the objective of improving water use efficiency and cross-country learning.

#### RIVER BASIN MANAGEMENT

River basin management in the Nile Basin presents challenges that are national, regional and transboundary. Throughout the region, forests, woodlands and wetlands are continuously lost as the population seeks out new areas for grazing, farming or burning charcoal from trees. Joint action generates 'public goods' and reduces costs of extreme water events associated with climate variability and change such as floods and droughts. Joint river basin management enhances watershed management and conservation of the eco-systems thereby enhancing integrated water resources management and ensuring sustainable development.



# POWER OPTIONS & TRANSMISSION LINES IN KENYA



# BENEFITS OF COOPERATION

Unlocking the Nile Basin's development potential

**POWER**  
Portfolio

## Regional Transmission Interconnection Project

### Total on-going Investment

USD 363.0 million

### Kenya Contribution

USD 2.15 million

### Project Preparation Cost

USD 9 million (Phase 1)

### Estimated Total Project Cost

USD 400.0 million

### Participating Member States



Access to electricity is a priority for the Nile Equatorial Lakes (NEL) countries' economies because it is a prerequisite for poverty reduction and economic growth. The majority of NEL countries have very low access to electricity, with an average of 6%. Load shedding is common to all countries such that industrial and domestic consumers often experience erratic service. This is mostly due to demand surpassing supply as well as limited power trade in the region, which could arrest the situation.

Under the Regional Transmission Interconnection Project, over 769 km of 220 kV and 110 kV transmission lines and associated sub-stations are to be constructed to interconnect electric grids. This will improve access to electricity through increased cross-border sharing of energy and power. The Project is coordinated under NELSAP-CU and the Project Management Unit is located in Kigali, Rwanda. Overall, the project consists of three Components as follows:

- ii. 220 KV Uganda (Bujagali) - Kenya (Lessos) interconnection (256 km)
- ii. 220 KV Uganda (Mbarara) - Rwanda (Kigali) interconnection (172 km)
- iii. Rwanda - Burundi - DRC (Eastern part) (R-B-C) Interconnections:
  - a) 220 KV Ruzizi - Bujumbura (112 km) to Kiliba (19 km)
  - b) 220 KV Ruzizi - Goma (150 km)
  - c) 220 KV Kibuye-Gisenyi-Goma-Kigali about 200 km
  - d) 110 KV Rwanda (Kigoma) - Burundi (Rwegura) about 120km

### Project objective

Improve access to electricity in NBI Member States through increased cross-border sharing of energy and power.

### Before



Limited power trade between:

- Uganda and Kenya at 132 KV.
- Rwanda-Burundi-DRC from a jointly developed Ruzizi 2 (45 MW) operated by a joint utility - SINELAC.
- Limited Cross-border electrification between Uganda-Rwanda; Uganda-Tanzania; Kenya-Tanzania.

### NBI Role



- Promoting the project.
- Undertaking feasibility studies.
- Mobilising funding from African Development Bank ( AfDB), JICA (Japan), KFW (Germany), The Netherlands and the European Investment Bank (EIB).
- Providing overall project coordination at regional level and technical assistance to the National Project Coordination Units.

### Benefits/ Potential Benefits

Provision of transmission lines to relay power from generating plants: Bujagali and Karuma in Uganda, Lake Kivu Gas Methane in Rwanda and geothermal plants in Kenya. This will further give rise to the following benefits:

- Increased cross-border exchange and trade energy at 220 KV.
- Improved transient stability of the systems' safety.
- Affordability of supply, as well as flexibility in the operation of the interconnected networks of the five beneficiary Member States.
- Accelerated decommissioning of expensive power generation options such as thermal and use of generators.
- Reduced tariffs.
- Support to rural electrification programs .
- Load diversity savings.
- Evolution of a power market dedicated to:
  - Cost effective electricity supply.
  - Cost reflective tariff.
  - Continuity of service of load demand to ensure secure, safe, and reliable operation of the system nationally and regionally.
- Improved standards of living and economic development.
- Positive contribution to environmental management through reduced deforestation.
- Reduction in GHG emissions.

# Kenya-Tanzania Power Interconnection Project



**Estimated Total Project Cost**  
USD 271.43 million

**Project Preparation Cost**  
USD 3.4 million

**Participating Member States**



It is expected that the interconnection will start from a proposed 400 kV substation at Isinya, 40 km south of Nairobi to Singida in Tanzania through Arusha. The total length of the proposed line will be 510 km. The project constitutes part of the regional power transmission backbone needed to create a regional power market. This project, combined with the Regional Transmission Interconnection Project will result in the six upstream countries of Burundi, DR Congo, Rwanda, Uganda, Kenya and Tanzania being interconnected. The Project is coordinated under NELSAP-CU and the Project Management Unit is located in Kigali, Rwanda.

### Project objectives

- Improve access to electricity in NBI Member States through increased cross-border sharing of power between Kenya and Tanzania on one hand and within the region on the other.
- Connect the Southern Africa Power Pool (SAPP) through the Zambia-Tanzania Interconnection, to the Eastern Africa Power Pool (EAPP) / Nile Basin Region.
- Increase reliability and security of power energy supply as well as the livelihood of the population living along the transmission line since the project includes a rural electrification component.

### Before



No power exchange between Kenya and Tanzania.

### NBI Role



- Coordinating and managing the project preparation stage including supervising the study related to the project, assisting beneficiary Member States to mobilize funds for implementing the project as well as training and transferring technology for future operation of the project.
- Informing and creating awareness and cooperation surrounding implementation of the project among the communities residing in the project area.
- Providing a platform for dialogue between Kenya and Tanzania.

### Benefits/ Potential Benefits

- Improved access to electricity in NBI Member States through increased cross-border sharing of power between Kenya and Tanzania on one hand and within the entire region on the other.
- Connection of the Southern Africa Power Pool (SAPP) to the Eastern Africa Power Pool (EAPP) / Nile Basin Region through the Zambia - Tanzania Interconnection.
- Increased reliability and security of power energy supply as well as improved livelihoods of the population living along the transmission line since the project includes a rural electrification component notably:
  - Provision of electricity to communities.
  - Electricity supply to rural towns replacing/reducing the consumption of woody biomass and petroleum products used for cooking, lighting, and motive power.
  - Development in the agricultural related sector (irrigation pumps, poultry, animal husbandry, preservation of products).
  - Promotion of small and medium scale industries (flour mills, rural water supply installations, tanneries, and coffee processing plants).
- Contribute to industrial growth, revenue gains, economic growth and reduction of transmission losses.
- Reduced/slow deforestation and soil erosion as women stop collecting firewood and water.
- Interconnection possibility to Ethiopia.

# BENEFITS OF COOPERATION

Unlocking the Nile Basin's development potential

## AGRICULTURE Portfolio

### Regional Agricultural Trade and Productivity Project



Red box: Focal areas for Pre-feasibility studies for irrigation schemes



Pre-feasibility studies for four irrigation schemes have been prepared covering the following focal areas: Kuja - 5141 hectares, Kano plains - 7160 hectares, Nzoia river basin - 3599 hectares, Sio basin - 7248 hectares

**Project Preparation cost**  
USD 7.0 million (Phase 1 & 2)

**Participating Member States**



The Regional Agricultural Trade and Productivity Project will conduct studies that will highlight potential agriculture and agricultural trade opportunities in the Nile basin countries and beyond. It will also increase knowledge of basin agriculture in NBI institutions and promote more efficient and sustainable use of water resources and economically viable investment in agriculture. The Project is coordinated under NELSAP-CU and the Project Management Unit is located in Bujumbura, Burundi.

**Project objectives**

- Define NBI future agricultural functions.
- Support productive water-use in basin agriculture.
- Incorporate agricultural trade into basin water resource planning.

**Before** →

- Absence of decision support tools for Agricultural Investments.
- No consistent information on irrigation potential.
- Lack of user friendly training materials on best practices in water harvesting and small scale irrigation.
- Scattered information on trans-boundary agricultural trade Issues.
- Water footprint and comparative advantage not documented and used by countries.

**NBI Role** →

- Defining Nile Basin Member States' core agricultural functions.
- Extending the Nile Basin Decision Support System (Nile-DSS) to agricultural decision tools and integrating agricultural data and information into the Nile-DSS.
- Assessing irrigation potential in selected Nile Equatorial Lakes countries and preparing pre feasibility studies for at least four irrigation schemes per country
- Preparing and disseminating training materials on best practices in rain water harvesting and small scale irrigation.
- Conducting analysis of selected cross border trade corridors and identifying potential investments in Agricultural cross border trade.
- Analyzing and documenting virtual water and water footprint for major commodities.

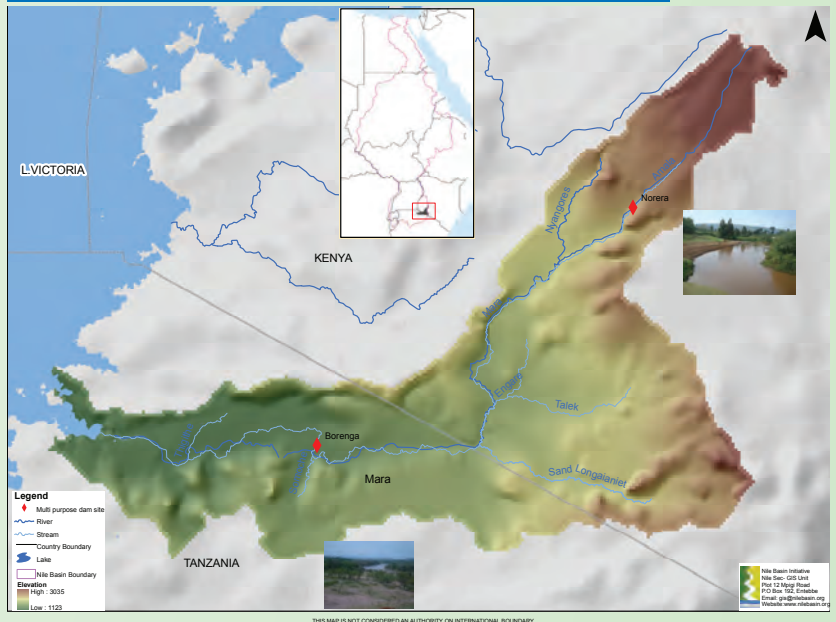
**Benefits/ Potential Benefits**

- Informed decision making in agricultural policies and investments.
- Pre-feasibility studies for four to five irrigation schemes prepared for each Member State for resource mobilization.
- Trained people and prepared materials on best practices in water harvesting and small scale irrigation.
- Policies and investment profiles available to beneficiary Member States to improve regional trade.
- Policy options on virtual water/ water footprint developed and used in investment decision making by Nile Basin countries.

## Mara River Basin Management Project



Multipurpose Dam sites in Mara River Basin



### Total Potential Investment

USD 200.0 million

### Project Preparation Cost

USD 7.66 million (Phase 1&2)

### Participating Member States



The Mara River Basin is shared by Kenya and Tanzania. The basin is experiencing environmental degradation, primarily because of increasing population pressure. This has led to deforestation, increased soil erosion, increased effluent discharges into the river, pollution from mining activities, and threats to fishing in the lower reaches of the river. The environmental degradation of the basin is closely linked to its socio-economic development. Poverty leads to over-use of the basin's resources, while the degradation reduces the ability of the resource base to provide a sustainable livelihood. These issues cross national borders and require 'a whole of' basin approach to their management.

The Mara River Basin Management Project facilitates Kenya and Tanzania to develop a sustainable cooperative framework; jointly identify, prepare, develop and manage water infrastructure projects and watershed restoration and build the capacity of staff with a view of ensuring water security, food security and poverty reduction and thus improved standards of living of the riparian communities.

The Project is coordinated under NBI's Nile Equatorial Lakes Subsidiary Action Program Coordination Unit, based in Kigali, Rwanda. The Project Management Unit is located in Musoma, Tanzania. **In Kenya, the project is operational in the districts of Molo, Bomet, Narok South, Chepalungu and Transmara East.**

### Project objectives

- Establish a sustainable cooperative framework for the joint management of the shared water resources of the Mara River Basin.
- Develop an investment strategy and conduct pre-feasibility and feasibility studies.
- Build capacity at all levels for sustainable management and development of Mara River Basin.
- Implement small-scale investment projects to build early confidence among the Mara River Basin communities.

# BENEFITS OF COOPERATION

Unlocking the Nile Basin's development potential

## RIVER BASIN MANAGEMENT

Portfolio

### Before

- No joint Identification, preparation, development and management of investments in water resources by the two countries.
- Hydro-meteorological monitoring network coverage was far from satisfactory.
- No joint investment projects with trans-boundary aspects and benefit sharing.
- Inadequate capacity in water resources planning and development.
- Lack of understanding and confidence in what NBI/ NELSAP can do to promote the socio-economic welfare of riparian populations and to protect the environment.
- Lack of preparedness for climate change adaptation in the Mara basin.
- Lack of joint identification, planning and management of trans-boundary water resources projects.

### NBI Role

- Harmonizing the legal, institutional and policy frameworks for the two beneficiary Member States.
- Identifying large scale development investment opportunities in the basin.
- Conducting pre-feasibility and feasibility studies for the identified large-scale development projects.
- Training staff at national and basin levels.
- Sensitizing the community about environmental management issues and development options.
- Establishing basin wide sustainable hydro-meteorological network and baseline for water quality.
- Implementing selected small-scale irrigation, water supply and environmental management projects.

### Benefits/ Potential Benefits

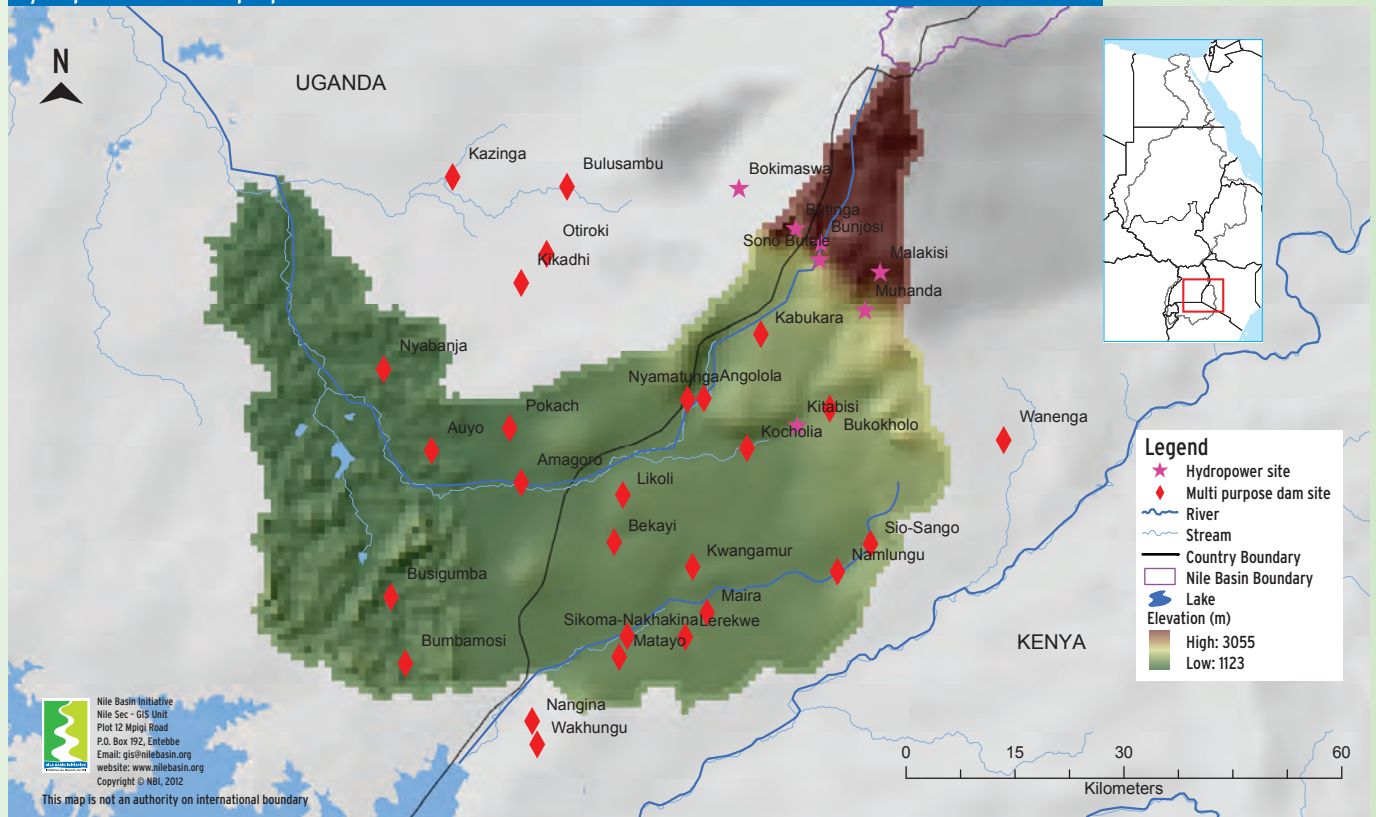
- Hydro meteorological monitoring stations installed along Mara River.
- Trans-boundary policy frameworks, policies, guidelines, data and information base for water resources management developed.
- Communities have benefited from various small-scale projects - for example, 10,000 residents of Bomet town supplied with clean water following construction of the Bomet water supply providing 1,200m<sup>3</sup>/day; over 10,000 people in Teso district supplied with clean and safe water through the Angurai Water and Sanitation project; as well as pollution control and solid waste management in Malaba Town, benefiting 500,000 town dwellers.
- Framework for trans-boundary sustainable joint management of the Mara River sub-basin, will enhance cooperation with Tanzania.
- Increased power production, accessibility and reliability, leading to economic growth and better quality of life.
- Enhanced watershed management leading to increased land productivity, food security, water conservation as well as increased and good quality flows.
- Enhanced management and income from tourism and wildlife.
- Enhanced and sustainable utilization of wetland products for improved livelihoods.
- Expansion of irrigated agriculture, improved productivity of existing small and large scale agriculture through efficient water use.
- Better positioning to adapt to climate change through water infrastructure projects.
- Norera medium dam will provide water for irrigation, domestic water supply, fisheries and flood control.
- Improved livelihoods among forest adjacent communities and sustainable management of Maasai Mau and Transmara forest blocks.

Communities have benefited from various small-scale projects such as:

- The Bomet water supply providing clean and safe water to 10,000 residents of Bomet town.
- The Angurai Water and Sanitation project supplying clean and safe water to over 10,000 people in Teso district.
- Pollution control and solid waste management in Malaba Town, benefiting 500,000 town dwellers.

## Sio-Malaba-Malakisi River Basin Management Project

### Hydropower and Multi purpose dam sites in the Sio-Malaba-Malakisi River Basin



#### Total Potential Investment

USD 240.0 million

#### Project Preparation Cost

USD 6.67 million (Phase 1)

#### Participating Member States



The Sio-Malaba-Malakisi sub-basin is endowed with abundant natural resources that present tremendous potential for social economic development. Agriculture is the major socio-economic activity in the catchment. Poor agricultural practices exacerbated by inadequate extension services have resulted in extensive catchment and water quality degradation. The rivers do not only include complex problems related to upstream (Kenya) and downstream (Uganda) conditions but also several rivers forming the international border (e.g. the Lwakhakha and lower Sio Rivers). Joint action and investments are needed to improve the condition of these rivers.

The Sio-Malaba-Malakisi River Basin Management Project is coordinated under NELSAP-CU and the Project Management Unit is located in Kakamega, Kenya. **In Kenya, the project is operational in nine districts of Bungoma East, Bungoma North, Bungoma South and Bungoma West, Busia, Mt. Elgon, Teso North, Teso South and Samia.**

#### Project objectives

- Establish a sustainable cooperative framework for the joint management of the shared water resources of the Sio-Malaba-Malakisi River Basin.
- Develop an investment strategy and conduct pre-feasibility and feasibility studies for Integrated Watershed Management and Multipurpose Water Storage Reservoirs.
- Build capacity at all levels for sustainable management and development of Sio-Malaba-Malakisi River Basin.
- Implement small-scale investment projects to build early confidence among the Sio-Malaba-Malakisi River Basin communities.

## Before



- No legal and policy framework between the Sio-Malaba-Malakisi riparian countries (Kenya and Uganda) for joint trans-boundary development and implementation of shared water resources.
- No joint investment projects with trans-boundary aspects and benefit sharing.
- Limited joint identification, preparation, development and management of regional water infrastructure projects.
- Limited sub basin-wide water resources planning and management.
- Limited operational Hydro-meteorological monitoring network.
- Limited knowledge about potential investment opportunities in water resources development in the sub basin.
- Limited capacity in water resources planning and development.
- Limited knowledge regarding climate change and adaptation mechanism.

## NBI Role



- Identifying and preparing the multipurpose regional water infrastructure development project (Dams).
- Identifying and preparing Integrated Watershed Management Investment Projects.
- Preparing policy and legal framework for enhanced cooperation in the basin.
- Preparing the Sio-Malaba-Malakisi Basin Investment Strategy.
- Preparing monograph and Sio-Malaba-Malakisi Data Base.
- Mobilizing resources for project implementation.
- Coordinating and oversight supervision.

## Benefits/ Potential Benefits

### Benefits/Potential benefits

- Rehabilitated sub basin hydro meteorological network facilitating water resources planning (20 digital rain. gauges, 4 Automatic Weather Stations, 4 Automatic Water Level Recorders, Acoustic Doppler Current Profiler).
- Constructed Mella Piped Water Supply and Sanitation Project serving over 10,000 people in Mella Sub County, Tororo District resulting into improved health and lower cost of water through reduced water fetching distances or costs if earlier purchased from vendors.
- A total of 2,300 people in Busia district provided with community fish ponds/aquaculture development projects.
- Developed Malaba Storm water Drainage Master Plan.
- Identified 13 Multipurpose water Storage Reservoirs and four small hydropower development potential sites for improved irrigation development, domestic water supply and small scale hydro power production.
- Water Resources Database and Decision Support System for Improved Water Resources Planning at Sub basin Level.
- Staff Training in Integrated Water Resources Management and Development, Decision Support System and Network Maintenance.
- Community participation In Integrated Watershed Management.
- Sio-Siteko Wetland Management Plan as a guide for planning..
- Solid waste management plans for Lwakhakha, Malaba and Busia Urban Councils developed.
- Storm water Drainage Management Plans for Lwakhakha, Malaba and Busia Urban Councils developed.
- Integrated Watershed Management Plan and Investment Project.
- Joint framework for management and development of the shared water resources.
- Improved per capita water storage In the sub basin (Bulusambu Multipurpose Dam).
- At least 2000 ha In Lower Sio will be put under improved irrigation development
- At least 3000 ha of land at Doho Rice Scheme and out growers put under improved irrigation development.
- Pollution control of Sio and Malaba River Systems - Improved solid waste and storm water management in Lwakhakha, Busia and Malaba Urban Councils.
- Restoration of wetlands ecosystem functions.
- Improved community livelihoods.
- Improved watershed management functions.
- Flood control resulting in prevention of loss of human life as well as reduced losses of livestock, irrigation farms and other assets.
- Hydropower generation resulting in savings in energy costs, reduced deforestation and greenhouse gas emissions.
- Recreation.

- Angurai Water Supply and Sanitation Project (400m<sup>3</sup>/day) serving over 10,000 people in Angurai Division.
- Solid waste management In Malaba Town Council - 6 Tonne Tractor Trailer and 400 dustbins provided.
- Identified multipurpose storage reservoir sites for improved irrigation development, domestic water supply and small Scale hydropower production.



# BENEFITS OF COOPERATION

## Unlocking the Nile Basin's development potential

### Water Resources Management

To ensure equitable and sustainable use of the common water resources across the basin, the NBI has intensified its efforts to **provide state-of-the-art** water resource management tools and expertise. The NBI **monitors and assesses** the water related natural resources of the Nile basin so as to provide its Member States with a shared knowledge base and an interactive Information system that facilitates choices for planning options. It also **maintains and operates** analytical and scenario evaluation systems that support informed decisions on sustainable management of the basin's water resources.

#### Irrigation and Hydropower Opportunities in the Kano Plains, Kenya Case Study with the Nile Basin Decision Support System

##### Background

Kenya has embarked on a program to increase food production and energy production to fill the gap of increasing demand and recurrent drought that led to reduced rainfall agricultural production. This pilot case demonstrates the opportunities available for the country to meet this target in one of the Nile catchments through irrigated agriculture and hydropower production.

The potential development interventions in this catchment that contains the waters Nyando, Sondu and Yala are the following:

- Wandt Forest Reservoir (Volume: 65 Million m<sup>3</sup>, 45 MW installed capacity)
- Koni Reservoir on the Yala River (Volume: 94 Million m<sup>3</sup>, 5 MW installed capacity)
- Kuno Plains Irrigation Project (19,000 ha)

##### Objective

1. Identify win-win opportunities for irrigated agriculture and hydropower.
2. Assess the extent of water shortage and its extent in the irrigation project area that can be produced.

#### State of the River Nile Basin Report

The first ever State of the Nile River Basin Report will present information on the general health of the Nile Basin, and provide a framework for pressure-state-response analysis. It will target policy makers and the general population within the basin, and raise awareness and improve understanding of biophysical, socio-cultural, and economic conditions. It will also seek to catalyse and facilitate discussion, information sharing, knowledge-based decision making, and collective action at basin-wide level. The report will be published early 2012.

#### Basin-wide Benefits

- **The first ever State of the River Nile Basin Report.** This strategic-level document presents a basin-wide picture of prevailing physical and socio-economic conditions, pressures and threats to the water and environmental resources of the basin. It also assesses the potential of the water and related natural resources of the basin to meet common development goals as well as opportunities for collaboration among Member States. The report further provides an invaluable summary of key indicators of the health of the Nile Basin that can be used to inform decision-making from a basin-wide vantage. The first edition presents a baseline for the basin while subsequent reports to be published every three years will present trends over time.
- **Nile Basin Decision Support System (Nile Basin-DSS).** This is a state-of-the-art tool providing Member States with a common analytic platform and knowledge base to support the cooperative development of the Nile Basin water resources. NBI in collaboration with Member States has piloted the tool to answer questions relating to the physical system of the Nile including river flow patterns, past and present trends in climatic variables versus stream flows, and the water balance in different parts of the system. More importantly, the Nile Basin-DSS is being used to answer questions about expected benefits and potential impacts of planned development interventions. **Kenya has so far used the tool to conduct a pilot case on 'Irrigation and hydropower opportunities in the Kano plains'.**
- **Technical support in water policy.** Technical support is provided to strengthen the national water policy framework with a key focus on strengthening the consideration of the trans-boundary dimension (so far Kenya and Rwanda supported).
- **Support for Basin-wide information exchange.** A mechanism for basin wide exchange of information and prior notification for water resources development following the adoption by the Nile-COM in July 2009 of the Nile Basin Data and Information Sharing and Exchange Interim Procedures.
- **Investment in basin human resources.** Increased human capacity including Post Graduate training in Integrated Water Resources Management.
- **Nile Basin Sustainability Framework (NBSF).** This is a suite of policies, strategies and guidelines used by NBI to ensure that its activities with regard to the Nile Basin water resources are in accordance with the principles of integrated water resources management.
- **Nile-Information System (Nile-IS).** This enables sharing of information across NBI centres and access to information by NBI governance, Member States' institutions, media practitioners, researchers and the general public. The system complements other NBI information and knowledge tools such as the online library, archives, website and the intranet.

The first ever State of the River Nile Basin Report as well as the State-of-the-art Nile Basin Decision Support System are some of the water resources management products/tools developed by NBI.

## BENEFITS OF COOPERATION

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### Facilitating Cooperation

Of the estimated total population of 424 million in the Nile basin countries, more than half i.e. 54% (232 million) live within the Nile Basin (United Nations Population Division, 2010). Despite the basin's natural and environmental endowments and opportunities for growth, its people face increasing water scarcity, deteriorating water quality, lack of access to electricity, climate change impacts (such as droughts, floods) as well as uneven levels of economic development.

Water resources related drivers of poverty and under development in the basin can be addressed only through cooperative management and development of the common Nile basin water resources. This fact was the impetus for the formation of the Nile Basin Initiative.



**“Sharing of resources and in particular water resources is a complex issue that requires goodwill and commitment of all the riparian parties to trans-boundary waters. Ten years ago there was an atmosphere of mistrust, suspicion and doubts among Nile basin countries.....As such, countries were not willing to share data and information on their water resources for planning purposes.” H.E. Dr. Ali Mohamed Shein, Vice President of the United Republic of Tanzania speaking as Guest of Honour during the opening ceremony of celebrations to mark the 10<sup>th</sup> anniversary of the Nile Basin Initiative held in Dar es Salaam – December, 2009.**

The NBI is the unique platform for Member States to facilitate, support and nurture cooperation amongst the Nile Basin countries so as to promote timely and efficient joint actions required for securing benefits from the common Nile Basin water resources. This platform enables Member States to continue to benefit from opportunities of cooperative water resources management and development, building upon the more than USD1 billion in investment leveraged to date.

#### Basin-wide benefits

- A platform where NBI countries, through Nile-COM and Nile-TAC regularly deliberate on cooperative management and development of the shared water resources of the Nile Basin.
- A forum for technical exchange of ideas and experiences in river basin management, agriculture production and productivity as well as power generation and trade through various Project Steering Committees and Task Forces.
- Basin-wide power development and trade options identified to limit power shortfalls, increase access to electricity and reduce cost of power.

#### Potential benefits beyond water

- Increased economic growth due to increased and stable power supply, bigger regional markets and cross border trade.
- Overcoming associated impacts of climate change such as extreme events (floods and droughts) that lead to loss of life, serious water scarcity and food shortage.
- Enhanced regional peace, security and political stability, ensuing from regularised inter riparian collaboration.





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