Uganda Investment Benefits from the Nile Basin Cooperation

LEAF II supplied two (2) modern mobile water quality laboratory vehicles to D.R Congo and Uganda to support water quality management.

Completed new Mbarara Substation with overhead transmission lines (OHTL). When commissioned in 2022, will enable exchange of power between Rwanda and Uganda through Shango Sub Station.

RV Angara, new marine research vessel acquired through LEAF II Project for Lake Albert. It can host 12 scientists for 15 days in the waters. Will be used to conduct hydro-acoustic and bottom trawl surveys etc.

Fish trading at the completed Rwenshama landing site on Lake Edward, Uganda. Rwenshama is one of the five landing sites that have been constructed in Uganda through the LEAF II Project.

NELSAP-CU, JUNE. 2023
The Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP-CU) headquartered in Kigali, Rwanda, is one of the two investment programs of the Nile Basin Initiative (NBI), the other being the Eastern Nile Subsidiary Action Program (ENSAP), headquartered in Addis Ababa, Ethiopia and known as Eastern Nile Technical Regional Office (ENTRO). NELSAP-CU was established in December 1999 by the Council of Ministers for Water Affairs with a mission to “contribute to the eradication of poverty, promote economic growth, and reverse environmental degradation in the Nile Equatorial Lakes (NEL) region, within the overall NBI’s shared Vision of sustainable socioeconomic development and the equitable use of and benefit from Nile Basin water resources.”

NELSAP-CU is governed and reports to the Council of Water Ministers from 10 Nile Basin membership states of Burundi, DR Congo, Kenya, Rwanda, Tanzania, Uganda, Egypt, Ethiopia, South Sudan and Sudan. NELSAP-CU within its mandate facilitates jointly agreed transformative in-country projects with regional impact/significance and trans-boundary cooperative investment projects related to the common use of the Nile Basin water resources. It also builds regional capacity of countries and provides a platform for implementation coordination of trans-boundary investment projects. NELSAP-CU renders support to national initiatives and focuses on two investment areas of: (i) power development and trade; and (ii) natural resources management and development. NELSAP-CU has prepared a number of cooperative in country and regional trans-boundary projects, which are at various levels of preparation and implementation. NELSAP-CU mobilized USD 557.107 million cumulative finance to-date for pre-investment programs of and additional USD 493.018 million for investment projects. Since 2014, NELSAP-CU has gained regional experience, strengthened its capacity and emerged as a reliable regional institution for facilitating key in country and regional investment projects in the Nile Equatorial Lakes Region and beyond. Its key institutional strength lies in project pre-investment feasibility studies, regional projects coordination support, regional strategic analysis, environmental aspects, social economic development, stakeholders’ engagement and development communication, financial and procurement management as well as results based monitoring and evaluation.

NELSAP-CU, in delivering on its mandate, is supported bilaterally and multilaterally by different development partners including, but not limited to, the World Bank, the African Development Bank (AfDB), the Canadian International Development Agency (CIDA), the Governments of Norway (NORAD), Swedish International Development Cooperation Agency (Sida), the Government of The Netherlands, the Japan Bank for International Cooperation (JBIC), Japan International Cooperation Agency (JICA), GIZ (Germany), French Development Agency (AFD), European Union(EU) and KfW (Germany). NELSAP-CU work has provided direct and indirect benefits to the Republic of Uganda since 2006 as elaborated below.
ONGOING PROJECTS WITH DIRECT BENEFITS TO UGANDA

A. LAKES EDWARD AND ALBERT INTERGRATED FISHERIES AND WATER RESOURCES MANAGEMENT (LEAF II)

Second phase of the LEAF II Project, a trans-boundary project that was jointly implemented by the DR Congo and Uganda, with its regional coordination by the NELSAP-CU ended in March 2022. This project was financed by the African Development Bank (AfDB) through a US$ 8.785 million grant to DR Congo and US$ 7.321 million loan to Uganda, and an US$ 8.1 million grant from the Global Environment Facility (GEF) through the AfDB to the NELSAP-CU. The project’s overall objective was to “sustainably utilize the fisheries and allied natural resources of the Lakes Edward and Albert Basin through harmonized legal framework and policies”.

Key LEAF II Achievements


c. Labs: Constructed a Regional Water Quality Lab (UG) and surveillance station (DRC) for water quality management.

d. Mobile Labs: Supplied two Mobile Water Quality labs to support water quality management in DRC and Uganda.

e. Joint Patrols: Provided four (4) equipped patrol boats to support joint surveillance of shared lakes.

f. Provided Marine Research Vessel RV. Angara to support research on shared Lake Albert.

g. The project initiated alternative livelihoods projects to reduce pressure on Lakes Edward and Albert and increase income for artisanal fishers.

B. INTERCONNECTION OF ELECTRIC GRIDS OF NILE EQUATORIAL LAKES COUNTRIES PROJECT

Through interconnection of electric grids many projects were achieved for the five Nile Basin Initiative member states of which the following were of direct benefit to Uganda:

i) Construction of 220kV double circuit transmission line from Mbarara North substation, via Mirama Substation in Uganda to the Rwanda border over a distance of 66km.

ii) Extension of Bujagali substation

iii) Extension of Tororo substation, with incoming lines from Bujagali, to Lessos – Kenya;

iv) Construction of 220kV double circuit transmission line from Bujagali via Tororo substation to the Uganda/ Kenya border, over a distance of 131km.

Alternative Livelihoods Projects by LEAF II

[Images of livelihood projects]
v) Construction of two 132kV lines from existing Mbarara North substation and 132kV 220/132KV, two 220kV line feeder bays to Mirama; 

vi) Construction of Mirama Substation, NEL-SAP mobilized 18 million NOK (USD 3 million) 

vii) NELSAP undertook feasibility study for the Uganda (Nkenda) - DR Congo (Beni-Bunia-Butembo). Fundraising for its implementation ongoing. 

viii) NELSAP is mobilizing funding for the Uganda-South Sudan interconnection for Uganda to export power to South Sudan following signing of an MOU between them. 

C. SHARED ANGOLOLO IRRIGATION DEVELOPMENT AND WATERSHED MANAGEMENT PROJECT (KENYA / UGANDA)

In November 2022 NELSAP-CU completed full feasibility, the Angolo Water Resources Development Project between Uganda and Kenya that was funded by the African Development Bank (AfDB) NEPAD-IPPF. The Angolo Project will contribute towards increased irrigated agriculture and is targeting 4,300 ha of land in Kenya and Uganda) . The project will supply water to 270,000 people in Mala- ba and generate 1.3MW of hydro power from the envisaged 31.6 million cubic metre dam. The project also includes an upstream integrated watershed management of about 430 km². The project will benefit people from Tororo, Manafwa, and Namisindwa districts in Uganda and Busia and Bungo- ma Counties in Kenya through employment creation, irrigated agriculture, piped water supply, hydro power genera-

The project was found to be viable with 14% IERR. A donors roundtable was held in February 2023 in Nairobi Kenya to enable the project to move into full implementation.

The roundtable was attended by the Hon. Min- ister for Water and Environment Hon. Sam Cheptoris of Uganda and Minister for Water irrigation and Sanitation for Kenya Hon. Alice Muthoni Wahome.

D. NYIMUR / LIMUR MULTIPURPOSE WATER RESOURCES DEVELOPMENT

November 2013, NELSAP CU submitted a joint funding request to the African Water Facility of the African De- velopment Bank (AfDB/AFW) on behalf of South Sudan and Uganda for financing the Feasibility Studies - FS, Tender Design Studies Environmental and Social Impacts Assessment Studies – ESIA, and the Resettlement Action Plan (RAP) of the Nyimur/Limur project within the trans-boundary Aswa River Basin. This was approved in May 2015, and a Grant Agreement was signed between the AfDB/AFW and NELSAP to the tune of USD 1.9 million. 

The project comprises of a community based irrigation scheme, a water reservoir, and a water and soil conservation component among others. 

The core scheme of the project consists of:  a) A 27 m head dam and reservoir on Nyimur/Limur River in Uganda to supply water for an irrigation scheme of 2,900ha net in Uganda; b) A 21m control dam downstream at the confluence of Nyimur/Limur and Ateng rivers in Uganda to supply water for an irrigation scheme of 1,150ha net in South Sudan and 130ha net in Uganda; bringing the total irrigat- ed area in both countries to 4,180ha  

c) A mini hydropower plant with a capacity of 410 kW to supply the Ugandan side and an 800 kW hydropower plant to supply the South Sudan side.

Progress so far: Feasibility, Social Impacts Assessment Studies – ESIA and the Resettlement Action Plan (RAP) were completed in March 2018. The detailed designs were scheduled to be completed by June 2019.
UGANDA TO GET 15 HYDROLOGICAL STATION, LINKED TO NEL REGION HYDROMET NETWORK FOR EFFECTIVE RIVER BASIN PLANNING

The hydromet stations will enable flood and drought disaster preparedness, monitoring of surface water quality and sediment transport, coordinated management of water storage dams, navigation and improved adaptation to climate change. A HydroMet (hydrometeorological monitoring) system, comprises the infrastructure – both software and hardware – and associated institutional setup for monitoring meteorological and hydrological parameters of a geographical area, such as a river basin. As part of this hydrological package, Uganda will receive water level and rainfall sensors, data loggers, accessories necessary for water discharge measurements (ADCP), dual data transmission technology (GPRS and Satellite) and Uganda will have the option to switch to either option for compliance with their national policy and country limitations. This hydromet package is part of a basin-wide Euros 5.5 million EU-BMZ funded project that will install a total of 80 hydrological stations across the Nile River basin. Upon completion, the station will be handed over to Uganda for operation and maintenance. This project was launched in Nairobi in November 2019 by Kenya’s Deputy President Hon. William Ruto and Head of Delegation of European Union in Kenya H.E. Amb. Simon Mordue.

Locations of Uganda’s 15 Hydrological stations

1) Lake Victoria at Jinja Pier 2) River Kagera at Masangano 3) River Katonga at Kampala – Masaka 4) River Sio at Luhalili near Bunabeli 5) River Bukora at Mutukula – Kyotera 6) Lake Kyoga at Bugondo Pier 7) River Victoria Nile at Mbulamuti 8) River Malaba at Jinja - Tororo Road 9) River Kyoga Nile at Masindi Port

THE UGANDA – KENYA POWER GRID INTERCONNECTION

This is a component of the NELSAP interconnection of electricity grids of the NEL countries and it connects Uganda–Kenya power grid through the 256 km 220kV Lessos – Tororo - Bujagali Over Head Transmission Line (OHTL). The line in Uganda is 128 km long. Actual construction of the OHTL on the Ugandan side (Tororo-Bujagali) it is 88% complete while the Kenyan side (Lessos-Tororo) is 50% done. This interconnection is expected to lead to increased power supply allowing for the transfer of about 150MW-300MW along a 256 km power line. The interconnection It is expected to lead to reduced power tariff leading to socio-economic benefits and also facilitate trade of power with Burundi, DR Congo, Rwanda as well as Uganda.

NELSAP COMMENCES UPDATING FEASIBILITY OF UGANDA - D.R CONGO POWER INTERCONNECTION

NELSAP-CU has entered into negotiations with the two firms that will conduct the Feasibility, ESIA and RAP for the updated feasibility of this line. In March 2020, NELSAP-CU received funding from the African Development Bank (AfDB) to conduct updated feasibility studies of this 352.2 km (220 kV / 400kV) Uganda-D.R Congo power interconnection. This line runs from Uganda (Nkenda) to D.R Congo (Beni-Bunia-Butembo) and includes four substations one of which is in Uganda at Nkenda. The feasibility study covers engineering design, tender documents preparation, environmental and social impact assessment (ESIA) and resettlement action plan (RAP). This line will connect the Eastern part of DR Congo to the Uganda power grid.

The Uganda portion of the interconnector line will be 72.5 km. The AfDB funding is to the tune of USD 0.95 million. Uganda and D.R Congo will each provide USD 0.065 million as counterpart contributions. The feasibility study will be conducted by NELSAP-CU in consultation with Electricity Transmission Company Limited (UETCL) of Uganda and Société Nationale d’Électricité (SNE) of the D.R Congo and the study is expected to run for 14 months.

As a precursor to this feasibility study, NELSAP facilitated signing of an M.O.U between the Ministers in charge of Energy affairs of Uganda and D.R Congo in August 2017 in Kinshasa.

UGANDA (OLWIYO) - SOUTH SUDAN (NIMULE-JUBA) POWER INTERCONNECTION

In October 2020, NELSAP signed an MOU with the Government of South Sudan for full feasibility of the 170 km 400kV Nimule-Juba interconnection, which is expected in future to evacuate approximately 2,000 MW of hydropower from four potential dam sites along the Nile. Upon request of Uganda, this project has been expanded to include the 138 km Uganda (Olwiyo) - South Sudan (Nimule) section. NELSAP-CU is procuring a consultancy firm to conduct these feasibilities and is aiming to conclude them by September of 2022.
A. NELSAP CONSTRUCTS 5 MODERN FISH LANDING SITES IN UGANDA TO PROCESS 5,700 TONS OF FISH ANNUALLY

NELSAP through LEAF II project has completed construction of three modern fish landing sites in Uganda on the trans-boundary lakes Edward and Albert that will improve the processing of 5,700 tons of fish annually. The completed landing sites are Rwenshama, Mahyoro, Mbegu, Kitabere and Dei landing sites in Uganda. Each of these sites consists of a modern fish landing and processing facility, solar powered potable water supply system, ‘ecosan’ sanitation facility, hygienic sun drying facilities, modern fish smoking kilns, an administration block with fisheries officer’s offices, secure fencing and access roads. Another two landing sites at Kitebere and Mbegu in are nearing completion. The landing sites are expected to significantly reduce the high post-harvest losses of fish, which according to recent LEAF II research were up to 25% of all catches, improve fish prices through better fish handling and energy efficiency through modern kilns that are 50% more efficient. This initiative is supported through a loan to Uganda from the African Development Bank (AfDB). “With these, the sanitation, cleanliness and quality of fish from Rwenshama will improve and will lead to better prices,” said Mr. Dan Kaguta, the Resident District Commissioner of Rukungiri District of Uganda. He was speaking on 18.02.2020 during the ‘Technical Handing Over’ of the completed Rwenshama Landing site to the Rukungiri District Local Government.

“We have been thinking of the global market, packaging and adding value to the fish, which we couldn’t do because we didn’t have proper fish handling facilities, but now we will pursue it,” he added. The completed sites have been handed over to the District Local Governments.

B. UGANDA RECEIVES MOBILE WATER QUALITY LABORATORIES FROM NELSAP

NELSAP officially handed over mobile water quality laboratories to Uganda and were received by the Permanent Secretary, Ministry of Water and Environment (MWE) Mr. Alfred Okot Okidi and the Director of Water Resources Management (MWE) Ms. Florence Grace Adongo. The PS Mr. Okidi appreciated this support, which came from funding from the African Development Bank (AfDB) and the Global Environment facility (GEF). The PS said that the mobile water quality laboratory van will be of great benefit to the 25 districts around Lake Albert and Lake Edward that it will serve. While addressing journalists at the sidelines of the event, Ms. Florence Grace Adongo elaborated in details how the ministry will use the mobile water quality laboratory vans. “The van has fridges that can store samples which are then delivered to the regional water quality laboratory which is also being constructed through the LEAF II project. The mobile water quality laboratory van can analyze up to 20 different descriptive characteristics of water out in the field and get the results immediately and enable the Ministry to make real time decisions. The van will be linked to the national water quality database such that through the mobile phone, results can be immediately transmitted to the office of the head of department in Entebbe,” said Ms Adongo. Ms Adongo further explained the van will be deployed during flood emergencies to test the flood water, treat it, and supply immediately to people affected by flood. The mobile lab is equipped to test for water pollution including that of oil and gas since the Lake Albert Region is an exploration zone.

C. UGANDA-RWANDA POWER INTERCONNECTION COMPLETED, AWAITING COMMISSIONING

The 172 km Uganda (Mbarara/Mirama)- Rwanda (Shango) power interconnection is complete. The substations on either side of the border (Mbarara in Uganda and Shango in Rwanda) are also complete and initial power trading through the lines is planned to commence in 2022 once the interconnector is commissioned into operational service. On the Uganda side, the line has been energized up to the Rwanda border. The electric grids of Kenya and Uganda are in synchronized operation, the same case is for Rwanda, Burundi and part of the Eastern D.R Congo at Ruzizi. The interconnection between Rwanda and Uganda was the missing link, whose commissioning will realize parallel operation of the electric grids of the five countries namely; Burundi, D.R Congo, Kenya, Rwanda and Uganda. NELSAP-CU together with EAPP with support from USAID are working on modalities for preparation for coordinated and smooth synchronized operation of the interconnected grid system in the NEL.
NEL-IP Projects in the Pipeline With Direct Benefits to Uganda

The Nile Equatorial Lakes Investment Program (NEL-IP) NELSAP has consolidated the advances made in independently prepared investment projects from Member Countries into a single, feasible Nile Equatorial Lakes Investment Program (NEL-IP). The NEL-IP provides a framework for shared water and other resources, and more importantly, a suite of well-structured, - designed, purposeful, integrated and bankable projects for development partners and investors to consider. Out of the total list of 17 projects Uganda got five projects, these are; 1) Uganda - D.R. Congo (TL) 2. Shared Angololo MPP Water Resources Development Project (MPP), 3) Kagera Basin-wide Integrated Watershed Program (WM) 4) Semliki Transboundary (HP) 5) Limur / Nyimur multipurpose water resources project (MPP)

Full Implementation of Uganda - D.R. Congo Transmission Line (TL) This proposed transmission line from Kanda in Uganda to Beni-Butembo-Bunia (DR Congo) will allow the supply of the north east of the DR Congo, particularly the towns of Beni, Bunia and Butembo with electricity from Uganda through 352km of high voltage (220KV) line. Supply is projected to be 64MW, approximately equal to 532.68GWh in the scenario for year 2021, and 752,699 people are expected to benefit from the project. Update of the Feasibility studies, detailed design and preparation of tender documents are currently underway. The next stage of this project is resource mobilization and implementation, for which funding is sought in the NEL-IP. A preliminary estimate for implementation of USD 165m will need be reviewed prior to implementation.

Full Implementation of the Shared Angololo MPP Water Resources Development Project (MPP) This project has a command area of 3300ha, a dam capacity of 43Mm3, to supply water to 85,000 people and will benefit 127,300 people. The dam site is located on River Malaba on the Kenyan-Uganda border partly in Mella Sub County of Tororo district, Eastern Uganda and partly in Teso district, Western Kenya. The proposed appropriate dam design shall be a composite dam; concrete gravity part on the right-hand side and rock-fill to the left hand. Prefeasibility studies have been done. Feasibility studies and design, Environmental and Social Impact Assessment and preparation of a Resettlement Action Plan are being undertaken and will need to be used to refine the preliminary estimate for implementation of USD 67m.

Kagera Basin-Wide Integrated Watershed Program (WM) The overall objective of this watershed management project is to establish a sustainable cooperative framework for the joint management (Burundi, Rwanda, Uganda, Tanzania) of the water resources of the Kagera River Basin; in order to prepare for sustainable development-oriented investments that will improve the living conditions of the people while protecting the environment. The Kagera River Basin Project contributes to the improvement of living conditions of the basin communities through social economic development, poverty reduction and reversal of environmental degradation. Numerous notable achievements and outputs within the basin already, and the NEL-IP request is for USD 60m to further assist with implementation including substantial water benefits to Kagera Basin including Soil and Water Conservation on 300,000 ha, Irrigation on 65,000 ha, and building of rural roads up to 2,000 km.

72 MW Semliki Transboundary Hydropower (HP) Semliki will provide electricity to people mostly in and around the towns of Butembo and Beni would be main beneficiaries of Semliki’s hydropower plant. The Northern Kivu’s capital city is Goma, which is 400 km away from Butembo and Beni. Target power 72 MW, Target energy 631.152 GWh Semliki is one of four (Mogomba, Muyama and Kiyimbi) proposed hydropower projects, packaged to have potential capacity of 150MW, generating annual energy production of 800 GWh. Dated studies suggested the project would cost USD 900m. Several areas that require particular attention have been noted in previous studies including: Improvement of...
hydrological data and modelling, economic modelling to determine viability, comprehensive ESIA to address potentially large environmental challenges, the actual geological conditions, layouts and designs. A budget of USD 6m has been included in this phase of the NEL-IP for the required studies to define the project better.

FULL IMPLEMENTATION OF LIMUR / NYIMUR MULTIPURPOSE WATER RESOURCES PROJECT (MPP)

The project comprises two community-based irrigation schemes, one in Uganda and one in South Sudan. The Uganda scheme comprises a 33.9 MCM dam and associated irrigation infrastructure to irrigate 4,140 ha. The South Sudan scheme has a 13.9 MCM dam (in Uganda), supplying water to 1,830 ha irrigation. The project will supply water to 12,000 people and 6,000 livestock and include 14,300 ha of Sustainable Land use Management. There is an opportunity for HP 410kW (1.4GWh) and 800kW (2.4GWh) at the two sites. The next stage of this project is resource mobilization and implementation, for which funding is sought through the NEL-IP. The project requires funding of USD 96.7m.

### Other Projects in the Pipeline with Direct Benefits to Uganda

<table>
<thead>
<tr>
<th>NAME AND LOCATION</th>
<th>STATUS</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rwimi Irrigation Development &amp; Watershed Management Project (4000 ha) - Kabarole D.</td>
<td>Prefeasibility done, next to be done is Feasibility, ESIA, detailed design</td>
<td>Pre-investment USD 3.5 mln, Investment USD 28 million</td>
</tr>
<tr>
<td>Kabuyanda Multipurpose Water Resources Development Project (5,000 Ha) - Isingiro District</td>
<td>Feasibility &amp; ESIA studies ongoing, next to be done is detailed design &amp; project implementation</td>
<td>Investment USD 55 million</td>
</tr>
<tr>
<td>Lirima Irrigation Development &amp; Watershed Project - Manafwa District</td>
<td>Prefeasibility done, next to be done is detailed design &amp; project implementation</td>
<td>Pre-investment USD 0.3 mln, investment USD 1.1 mln.</td>
</tr>
<tr>
<td>Bukhabusi Irrigation Development &amp; Watershed Project - Manafwa District</td>
<td>Prefeasibility done, next to be done is detailed design &amp; project implementation</td>
<td>Pre-investment USD 0.3 mln, investment USD 2.6 mln.</td>
</tr>
<tr>
<td>Nyamatunga Irrigation Development &amp; Watershed Project - Mella Sub County</td>
<td>Prefeasibility done, next to be done is detailed design &amp; project implementation</td>
<td>Pre-investment USD 1.4 mln, investment USD 13.5 mln.</td>
</tr>
<tr>
<td>Maziba Sub-catchment Management Plan - Kabale District</td>
<td>Sub catchment management Plan (SCAMP) completed, next is Project Design and Implementation</td>
<td>Pre-investment USD 0.5 mln, investment USD 22 mln.</td>
</tr>
<tr>
<td>Semuliki Hydropower Project (72 MW)</td>
<td>Identification done, next is Feasibility study &amp; ESIA RAP - detailed Design</td>
<td>Pre-investment USD 6 mln</td>
</tr>
<tr>
<td>Nsongezi Hydro power project (48MW) - Kagera River</td>
<td>Identification done, next is Feasibility study &amp; ESIA RAP - detailed Design</td>
<td>Pre-investment USD 6 mln</td>
</tr>
<tr>
<td>Oliwiyo-Juba South Power Interconnection, 400KV of 320 Km (Uganda-S. Sudan)</td>
<td>Identification done, next is Feasibility study and ESIA RAP - detailed Design</td>
<td>Pre-investment USD 3.0 mln, investment USD 240 mln.</td>
</tr>
<tr>
<td>Nkenda - Beni - Butembo - Bunia transmission line, 220KV of 396 km (UG-DRC)</td>
<td>FS and ESIA RAP completed, next is Resource mobilization &amp; Implementation</td>
<td>Investment USD 165 mln.</td>
</tr>
<tr>
<td>Masaka- Mwanza Interconnection 220KV of 640km (Uganda - Tanzania)</td>
<td>FS and ESIA RAP completed, next is Resource mobilization &amp; Implementation</td>
<td>Investment USD 325 mln.</td>
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</tbody>
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