



**RUSUMO POWER
COMPANY LIMITED**



**NELSAP-CU
NILE BASIN INITIATIVE
INITIATIVE DU BASSIN DU NIL**



Regional Rusumo Falls Hydroelectric Project



THE WORLD BANK
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APRIL 2021

PROJECT FACTS

Project Objective

To increase Supply of Electricity to the National Grids of Burundi, Rwanda and Tanzania

- **Capacity to be installed:** 80 MW
- **Beneficiaries:** 27MW for each member country's national grid
- **Location: Kagera River:** Northwest Tanzania in Ngara district and Southeast Rwanda in Kirehe district
- **Project Cost and Financiers:**
 - **The World Bank:** for the Rusumo Generating Station
 - **African Development Bank:** for the Transmission Lines
- **Ownership:** Rusumo Power Company Limited (RPCL) owned by 3 shareholding countries Burundi, Rwanda and Tanzania
- **Implementing Agency:** Nile Equatorial Lakes Subsidiary Action Program (NELSAP) on behalf of RPCL
- **Owner's Engineer:** Joint venture of AECOM-ARTELIA from Canada and France
- **Contractor CP1:** Joint Venture of CGCOC Group and Jiangxi Water & Hydropower Construction Company (JWHC) China
- **Contractor CP2:** Joint Venture of Andritz Hydro Germany and Andritz Hydro India

o Power Plant Component

- **Dam Type:** concrete / Height: 13m / Length including spillway: 116m
- **Headrace tunnel: Length:** 700m / Width x height: 9m x 12-13m
- **Power house: Installed capacity:** 80MW (500GWh/year)
- **Tailrace canal:** 250m long and 45m wide
- **Switchyard:** 220 kV

o Key Project Milestones

- **ESIA & RAP studies completed:** February 2013
- **Project Financing Agreements signed:** 11th October 2013
- **Rusumo Power Company Limited (RPCL) established:** November 2013
- **Preparations, negotiations and signing of various Project Agreements**
- **Project financing effectiveness:** 11th July 2014
- **Owners Engineer recruited:** June 2014
- **Compensation and land acquisition:** Completed
- **Construction contracts signed:** 9th November 2016
- **Construction commencement:** February 2017
- **Commissioning of the Unit 1 Wet Test by end of December 2021 (target date)**

1. BACKGROUND AND HISTORIC PERSPECTIVE

The Rusumo Falls is located on the Kagera River on the border between Rwanda (Southeast) and Tanzania (Northwest) and about 25 kilometers downstream of Burundi, Rwanda and Tanzania common border point. The catchment at the falls drains to the territories of Tanzania and Rwanda.

Kagera River Basin is shared by Burundi, Rwanda, Tanzania and Uganda and is the most remote headstream of the River Nile, as well as the largest tributary to Lake Victoria, the world's second largest freshwater lake by surface area. The Kagera river basin covers an area of about 60,000 square kilometers, a sub-basin of the River Nile system.

The Rusumo Falls site was identified as a potential area for hydropower generation as early as 1970s, to address inadequate energy supply, which is one of the major socio-economic development challenges facing Burundi, Rwanda and Tanzania. Shortage of electricity in these countries and indeed the entire Nile Basin region has resulted into an underdeveloped manufacturing sector hence limited options for business development necessary to increase income, reduce dependency on toxic fuel and limited opportunities for modernizing and improving the quality of key infrastructure (water supply, health care, social utilities, etc).

Burundi, Rwanda and Tanzania have a pressing need for electricity including household connectivity in the region which most of them still rely on wood for their cooking and heating needs, leading to extensive deforestation and soil erosion as well as reduction in air quality.

Although the three shareholders discussed over several years to move Rusumo Falls project forward, implementation of the highly needed project was not forthcoming due to a number of reasons. These included among other; lack of commitment from the partner states, lack of investment finance, civil conflict as well as absence of a joint institution to coordinate the project.

The Regional Rusumo Falls Hydroelectric Project (RRFHP) was conceived in 1977 under the auspices of the regional transboundary organization, the Kagera Basin Organization (KBO) under the old East Africa Community arrangement. The Kagera Basin Organization was established with the primary goal of alleviating poverty and achieving socio-economic development in the Kagera sub-basin region. But because the KBO was built on a weak social resources' foundation, it lacked the adaptive capacity to survive the historical, political and cultural dynamics among the riparian countries.

One of the key projects commissioned by KBO was to undertake a study on harnessing hydroelectric power at Rusumo Falls on the Kagera and the environmental and commercial implications of such development. The funding proposal to develop Rusumo power project among others was scheduled to be submitted in June 1995 but was called off following the April to July, 1994 genocide in Rwanda.

2. PROJECT PREPARATION PHASE

The development of the RRFHP idea was revived in 2006 and championed by Nile Equatorial Lakes Subsidiary Action Program Coordination Unit (NELSAP-CU), the investment arm of the Nile Basin Initiative (NBI). NELSAP-CU coordinated the preparation and signing of several important agreements by the three beneficiary countries. In March 2005, Ministers in charge of Energy Affairs in Burundi, Rwanda and Tanzania signed a Communique declaring their commitment “to jointly develop the Project and accompanying activities such as water resources management, catchment management and environmental management”. A year later in 2006, the Ministers signed a Joint Project Development Agreement (JPDA) to carry out optimization and feasibility studies.

The countries jointly mandated NELSAP-CU to coordinate the development of studies and later the implementation of the RRFHP. The Project Development Agreement recognized the importance of international cooperation on shared water resources and benefits for riparian states. The three countries recognized that cooperation over the development of the RFFHP would allow for better management of ecosystems for power production and other uses. The sharing of Kagera and Ruvubu waters in addition to reducing transaction costs, was seen as catalyst to economic and regional integration.

Other key agreements signed include the Tripartite Agreement signed in February, 2012 in which the partner states reaffirmed and recorded their commitment to jointly develop, finance, own and operate the project in accordance with the principles of the Agreement. The Agreement also paved way for NELSAP-CU to continue the pre-implementation arrangements for the project. This was followed by the signing of the most crucial documents namely the ‘Implementation Agreement’ and the ‘Shareholders Agreement’ in September 2013.



Project Feasibility Works, 2012



Ministers signed shareholders agreement, 2013

The 2012 Tripartite Agreement guided to formation of:

- Council of Ministers for Energy (COM)
- Project Implementation Committee (PIC)
- Technical Advisory Committee (TAC)
- Project Steering Committee (PSC)
- Rusumo Power Company Limited (RPCL)
- RPCL Board of Directors

Other key agreements:

- 2013 Shareholders Agreement
- 2013 Implementation Agreement
- 2013 Financing Agreements
- 2013 Subsidiary Agreements
- 2013 Project Agreement
- 2013 Power Purchase Agreements
- 2014 Project Implementation Support Agreement

Financial Arrangement: World Bank Financing the Power Plant

- Financial negotiations: July 2013
- Board approval: August 2013
- Financial agreements: October 2013
- Project effectiveness: July 2013

3. PROJECT PURPOSE, COMPONENTS AND BENEFITS

a. Project Purpose and Objective

The project overall objective is to increase the supply of electricity to the national grids of Rwanda, Tanzania and Burundi and comprises of construction of an 80MW Power Plant including the associated three transmission lines. The generated electricity will be equally shared among the three countries each benefiting about 26MW transported to the national grid through the transmission lines.

b. Project Components

The RRFHP funded by the World Bank has four main sub-components:

- Civil Works/ Supply and Installation of Hydro-Mechanical Equipment as the Contract Package1 (CP1)
- Supply and Installation of Electro-Mechanical Equipment as Contract Package 2 (CP2)
- Livelihood Restoration Program (LRP) for the People Affected Persons (PAPs) and
- The Local Area Development Plan (LADP)

c. Project Benefits

The Project is recognised by the three energy beneficiary countries as a good initiative that will improve its socio-economic benefits. Once operational, the project will bring 80 MW of renewable, clean, relatively low-cost power to the national grids of Burundi, Rwanda and Tanzania, shared equally.

4. PROJECT OWNER, IMPLEMENTATION AND OPERATION ARRANGEMENTS

The Company is by shareholding and jointly owned utility/ institutional mechanism for the co-management of power generation and supply to national power utilities. The Rusumo Power Company Limited/SPV will be publicly financed, publicly owned and privately managed to oversee activities during Power Plant operations.

RPCL is registered in Rwanda and has a certificate of compliance in Tanzania. The role of RPCL was first and foremost to fast-track the implementation of RRFHP as well as negotiate the funding with potential development partners notably the World Bank and the African Development Bank (AfDB) that had shown interest in the project. RPCL is substantive owner

5. RPCL Governance

The three Ministers responsible for Energy in each of the shareholder countries are the representatives of the shareholders; they compose the **Project Council of Ministers (CoM)**.

Council of Ministers (CoM)

Burundi: Hon. Eng. Ibrahim UWIZEYE, Minister for Energy (CoM Chair)
Tanzania: Hon Dr Medard KALEMANI, Minister for Energy (CoM Member)
Rwanda: Hon Amb Claver GATETE, Minister of Infrastructure (CoM Member)

Each shareholder appointed two directors and two independent members recommended by the nominee Board members; they compose the **RPCL Board of Directors (BoD)**.

Rusumo Power Company Limited is headed by a Managing Director who reports to the RPCL BoD. Currently, the Managing Director is Eng.Ntare KARITANYI.

RPCL Board of Directors

Burundi: Eng. Nolasque NDAYIHAYE (Chair) / Mr. Didace NDERICIMPAYE (Member)

Rwanda: Mr. Gerald MUGABE (Member) / Eng. Felix GAKUBA (Member)

Tanzania: Eng. Innocent LUOGA (Member) / Mr. Nuru NDILE (Member)

Independent Members: Eng. Ezekiel KASARO, Zambia (Substantive) / Eng. Albert MUGO, Kenya (Alternate)

The Project Steering Committee is a technical advisory organ that interacts on regular basis with NELSAP Project Implementation Unit to take stock of the Project progress.

Project Steering Committee (PSC)

Burundi: Eng. Gaëthan NICAYENZI(Chair) / Mr. Come NKURUNZIZA

Rwanda: Mr. Tom RWAHAMA / Mr. Theoneste HIGANIRO

Tanzania: Eng. Costa RUBAGUMYA / Eng. Salum INEGEJA

"The Company RPCL is led by a Managing Director (MD) supported by a Senior Management Team composed of the Plant Manager and the Finance Administration Manager. The RPCL MD reports to the RPCL Board of currently Directors through the Chairperson of RPCL Board of Directors. The Company RPCL has an approved organizational structure composed of 48 staff. Besides the Senior Management Team, RPCL has already employed an Electrical Engineer, a Mechanical Engineer, a Human Resource and Administration Officer, a Corporate Secretary/Legal Counsel, a Security Officer, an IT Engineer, two Mechanical Technicians and a Protection and Controls Technician. The remaining personnel will be on board during Financial Year 2021/2022"

Please visit RPCL Website for more details: www.rusumorpcl.com



Members of Council of Ministers Visiting the Project, Dec 2019

6. COMPLETED ACTIONS DURING PREPARATION PHASE

NELSAP-CU through Rusumo Project Implementing Unit (PIU) has moved the Project to implementation phase. Completed project preparatory activities prior to the Construction phase

- a. The Owners' Engineer (OE) AECOM-ARTELIA JV was recruited on 21st April 2014. The Project Technical Designs through the Owners Engineer (AECOM & ARTELIA Joint venture) was finalized.
- b. Selection and hiring Contractor for CP1, CGCOC Group & JWHC Joint Venture from China for Civil Works / Supply and Installation of Hydro-Mechanical Equipment is on board.

- c. Selection and hiring Contractor for CP2, ANDRITZ Hydro from Germany/India for Supply and Installation of the Electro-Mechanical Equipment is on board since 9th November 2016.
- d. Compensation of all the Project Affected Persons (PAPs): 60 households and 1 commercial group in Rwanda and 108 households and 3 commercial groups in Tanzania respectively. A total USD 3.1 million were paid out to the PAPs as compensation in the two Districts Ngara in Tanzania and Kirehe in Rwanda.
- e. Completed Environmental Baseline Studies, which included; (i) fish baseline survey, (ii) the spray zone biodiversity survey and (iii) the water quality baseline study.



Community Engagement

7. PROJECT IMPLEMENTATION UPDATES

Civil Works by the Joint Venture of CGCOC Group and Jiangxi Water & Hydropower Construction Company (JWHC) China for Contract Package 1 (CP1).

Electro-Mechanical Works by the Joint Venture of Andritz Hydro Germany and Andritz Hydro India for Contract Package (CP2)

The overall status of the Regional Rusumo Falls Hydroelectric Project is approaching a combined total near 80% combined progress for CP1 (civil contract) and CP2 (electromechanical contract) as of March 2021. Civil Work project implementation is at 79.6 % while Electro-Mechanical work is at 72.5 %. The Dam and Spillway are 92% complete, the Power Intake is at 96% complete, the Headrace Tail (HRT) is at 70% complete, the Powerhouse structure is at 83%.

The Electromechanical Works Contractor progress on the main work, with delivery of equipment at 97% and Installation of Equipment at the Switchyard at 65% (Outdoor steel structures, Equipment and overhead wires). Only control panels inside the Control Building and cabling remaining.

The Power House Installation (Turbines, Generators, EPS & AMS) is at 25% for all the 3 Units combined. Unit 1 being advanced, Unit 2 slightly advanced and Unit 3 is still at spiral case assembly stage. The Service Bay overhead crane has been installed and commissioned for generator handling.

Civil Works: CP1 civil contractor maintained free water flow through the three open spillway gates (fourth gate being installed) and the hollow sill dyke ecological compensation flow structure. Radial gate and deck work are done on spillway structure.



The Dam Spillway

The head Race Tail (HRT)

Within the HRT top header and bench excavation is complete, with the tunnel header works at about 55 m remaining to be excavated until the header is open completely from end to end of the HRT.



The tunnel header works is ongoing

Inlet Chamber



Works at the inlet chamber is ongoing while welding continued inside penstocks unit 1 and 3.

Powerhouse

Powerhouse works continue with finalization of works on the concrete firewall (located downstream of the future transformers), while the downstream wall beyond unit 2 is raised with the placement of reinforced concrete



Spiral Case works

Electro-mechanical contractor (CP2) continues works to install water passage steel within unit 3, assembly of steel within unit 2 and continues water pressure testing of the unit 1 spiral case.



At the switchyard

The civil contractor constructed some portions of the main cable trench. Interior work within the control building continues. The electro-mechanical contractor continues to erect overhead electrical works, assemble and install both protection and insulator works within the switchyard.



Several factors have initially impacted the project schedule at the beginning of the project due to delayed site handover, delayed contractors obtaining work permits, delayed mobilization and the impacts of COVID 19. However, the project work has progressed well and quality remains very high.

8. ENVIRONMENTAL & SOCIAL SAFEGUARDS

1. Environmental, Social, Health and Safety (ESHS) Management



The Environmental and Social Safeguards of the RRFHP are evaluated as high risks because of negative impacts can be significant. Contractors developed detailed Environmental, Social, Health and Safety Management Plan (ESHS-MP) to be implemented during construction phase covering all aspects including:

1. Erosion and Sediment Control
2. Spoil Disposal Management
3. Quarry Management
4. Solid Waste Management
5. Hazardous Products and Waste Management
6. Wastewater Management
7. Emergency Preparedness and Response
8. Water Quality Monitoring
9. Air Emission and Dust Control
10. Noise and Vibration
11. Site Decommissioning and Rehabilitation
12. Management of Physical Cultural Resources (PCR)
13. Occupational Health and Safety (OHS) Management
14. Worker Camps Management
15. Recruitment and Labor Management
16. Road Traffic and Site Access
17. ESHS Training

2. Site Specific Plans

Site Specific Plans (SSPs) are mandatory submittals for each of opening construction sites and require approval by the Owners Engineer. The SSPs ensure that all specific technical, social and environmental issues are considered before construction activities start. They include for example records and agreements on land or property acquisition, effects and mitigations from blasting, quarry management, campsite, waste management area, etc.

9. COMMUNITY DEVELOPMENT

Livelihood Restoration Program

Implementation of the Livelihood Restoration Program (LRP) started in February 2017 and is ongoing. \$ 670,000 has been earmarked for program in Kirehe and Ngara districts of Rwanda and Tanzania.

Country	Rwanda	Tanzania
Project duration: 36 months Implementation commencement period: Feb 2017		
Province/Region	Eastern Province of Rwanda	Kagera region of Tanzania
District	KIREHE	NGARA
Sectors	Kigarama and Nyamugali	Rusumo Area
Cell	Nyankurazo, Rusumo and Kiyanzi	Rusumo Area
Villages:	Nyakabungo, Nyakwisi, Nshungerezi, Ruhuha and Rusumo West, Rusumo East	Rusumo Village
Total participating	61 households	108 households
Total PAPs participants	127 PAPs	227 PAPs
Lead institution	Kirehe district	Ngara district
Implementing process	<ul style="list-style-type: none"> • Community based program implemented by affected communities under the community procurement process. • LRP beneficiaries were trained on LRP implementation process through community procurement manual approved by the WB and conducted by the PIU and district officials. • LRP benefiting community elected their representatives in sets of 3 committees: executive, procurement and control committees. 	
Total Budget	USD 711,000	
Terms of Budget	A Grant Agreement signed between NELSAP and the community of project affected people	

Program components

Sustainable Agriculture Development

- Vegetables (Tomatoes and Cabbages)
- Beans & Soya Beans
- Mushroom production
- Banana productivity
- Avocado crop production
- Sun flower crop production

Livestock Development

- Rabbit farming
- Cattle zero grazing
- Poultry production
- Goat keeping
- Piggery
- Apiculture (beekeeping)
- Fishery and fish farming

Off-farm Business

- Hair dressing
- Tailoring
- Restaurant
- Stock and sale of agricultural commodities
- Modern bricks making
- Improved stove making

Local Area Development Plan (LADP)

LADP is a benefit-sharing program worth 15.5 Million US Dollars designed to enhance regional economic and social development in the Rusumo area as an extended program related to the construction of the project. LADP is expected to improve community livelihoods and promote socially sustainable outcomes of the riparian citizens of the affected districts.

Memoranda of Understandings (MoUs) for LADP implementation were signed in 2017 with Busoni Commune (Kirundo Province, Burundi) and Giteranyi Commune (Muyinga Province, Burundi), Ngara District (Kagera region, Tanzania) and Kirehe and Ngoma Districts (Eastern Province, Rwanda).

The formulation of the LADP was a participatory process whereby each district identifies LADP priority investment areas. The management of LADP is executed by respective districts under the supervision of the PIU. LADP is funded by the World Bank under the RRFHP framework. Each country will be able to call on USD 5 Million for their respective projects.

LADP Burundi

Giteranyi Commune has constructed

- 1) Bugoma Health Center
- 2) Ruzo Youth Training Center
- 3) Giteranyi Commune Headquarter Offices
- 4) And has worked on Ruzo soil protection along Akagera river

Busoni Commune has constructed

- 1) Murore Youth training Center
- 2) Rugando Health Center

LADP Rwanda

Kirehe District

- 1) Kigina Health Center
- 2) Road Rehabilitation of 30km of Cyagasenyi-Gasarabwayi-Nganda feeder road (Kigarama & Musaza sectors)

Ngoma District

- 1) Construction of 28,7 km of mixed water pipeline of Gatonde-Gahima cells
- 2) Construction of 33km of Gituku-Murama water supply system
- 3) Rehabilitation of 9.54 km Kigabiro – Rurenge –Gatore Feeder Road

LADP Tanzania

Ngara District

- 1) Mumeterama Secondary School
- 2) Rusumo Primary School
- 3) Rusumo Kyenda Dispensary
- 4) Lukole Health Center
- 5) Rusumo Village Water Project
- 6) Rusumo Health Center
- 7) Ngoma Primary School
- 8) Rusumo Secondary School
- 9) Rehabilitation of 4 Villages Water Projects (Mshikamano, Kasherazi, Kasulo, Rwakalemela)
- 10) Remela Vocational Training
- 11) Makugwa Primary School
- 12) Bukiro Secondary School
- 13) Beekeeping Projects
- 14) Agriculture and Livestock projects



Local Area Development Program (LADP) is improving livelihood of shareholders' citizens, specifically Rusumo communities in improving access to potable water and hygiene to Rusumo communities, a healthy environment, an empowered youth and educated generation.

10. COMMUNICATION AND STAKEHOLDER ENGAGEMENT

Project activities requires intensive development communication and engagement of all project stakeholders. Project Communication enhances public understanding of the Project's benefits, building confidence among Rusumo communities and raising awareness on Environmental, Social Health Safety.

Project Stakeholders include:

1. Schools surrounding construction area
2. Rusumo communities on Rwanda and Tanzania sides
3. Districts/Communes & Region/Provinces Leadership
Burundi: Busoni Commune / Kirundo Province / Giteranyi Commune /Muyinga Province
Rwanda: Kirehe District / Ngoma District / Eastern Province
Tanzania: Ngara District / Kagera Region
4. Institutions that facilitate Free Movement of Project Personnel, Equipment and Materials:
Immigration (and/or Security) Institutions, Social Security & Taxes Institutions of Burundi, Rwanda and Tanzania.
5. Media
6. The General public

Through various engagement initiatives, NELSAP PIU maintain continuous good relationships with the local communities. Communication and engagement of Rusumo Communities remain permanent; communities are kept informed on Project status on Blasting Effects

This responsibility that will be handed over to RPCL later when the RPCL organization will be mobilized to site. RPCL will take over the powerplant and become the only major international business in the area.

11. OTHER PROJECT BENEFITS

Employment Opportunities

The construction activities have created job opportunities to shareholders' citizens, especially to communities surrounding Rusumo construction sites in several aspects of works to skilled and casual laborers in administration, laboring, security, janitors, kitchens, traffic management from both civil contractor (CP1) and electromechanical contractor (CP2) and their respective subcontractors.

The total work force at peak is about 700 workers in total as of February 2021, 258 Rwandans, about 179 Tanzanians and about 102 Burundians being employed by both contractors; the other workers being of other nationalities such as South Africa, Ugandans, Ethiopians, Portugal, Slovenia, Austria, Indonesia, Sri Lanka among others. Surrounding local business women and men are benefiting from the Project.

CP1 and CP2 Purchase of local construction supplies such as steel cement wood sand and rental equipment. Other indirect benefits include the contribution of employees' salaries to the local economies, educational opportunities for the local schools, enhancement of skills in the local workforce to name but a few. Local sub-contractors provide supplies and logistics to the main contractors, such as food supplies, vegetables, fruit etc

Long Term Benefits of RPCL During Operation

- Customers of the power utilities of the three countries will benefit from the Power Plant.
- New grid connections to communities will support business development, economic growth and poverty alleviation.
- Stable power supply in the surrounding districts who suffer brown-outs daily providing a better quality of living.
- Power supply may create opportunities to new industries such as mining and green stable power to attract other businesses.
- RPCL may employ local communities for several jobs such as cleaners, drivers, administration, security at the offices and similar opportunities at the RPCL Residential Areas (Main Camp and Switchyard Camp)
- RPCL may use local suppliers for their logistical needs
- RPCL will provide community assistance through CSR (Corporate and Social Responsibility such as skills enhancement, community infrastructure facilities and support.
- Using the powerplant / RPCL as a new hub for new local economic development
- Fisheries opportunities in the newly formed reservoir (ie fish cages)
- Tourism for the powerplant in association with the Falls
- New restaurants, hotels and other facilities may arise to support the new tourist facilities.



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**NELSAP-CU Office
NELSAP Rusumo Project Implementation Unit
Kigali City Tower, 4th and 5th
KN 81 Street,
P. O. Box 6759, Kigali - Rwanda.
Office Tel: +250 788 30 5195**

**Rusumo Project Website:
www.rusumoproject.org
<http://nilebasin.org>
<http://nelsap.nilebasin.org>**

**RPCL Website:
www.rusumorpcl.com**

Emails: nelsapcu@nilebasin.org / Landayizeye@nilebasin.org / info@rusumorpcl.com