



Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 07-Jun-2022 | Report No: PIDC33903



BASIC INFORMATION

A. Basic Project Data

Country Eastern and Southern Africa	Project ID P178685	Parent Project ID (if any)	Project Name Ruzizi 3 Regional Hydropower Project (P178685)
Region EASTERN AND SOUTHERN AFRICA	Estimated Appraisal Date Feb 14, 2023	Estimated Board Date Mar 14, 2024	Practice Area (Lead) Energy & Extractives
Financing Instrument Investment Project Financing	Borrower(s) Democratic Republic of Congo, Republic of Burundi, Republic of Rwanda	Implementing Agency Ruzizi III Energy Limited (REL)	

Proposed Development Objective(s)

The Project Development Objective is to increase the supply of clean hydropower electricity to Democratic Republic of Congo, Rwanda and Burundi by leveraging private capital.

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	760.00
Total Financing	760.00
of which IBRD/IDA	195.00
Financing Gap	0.00

DETAILS

Private Sector Investors/Shareholders

Equity	Amount	Debt	Amount
Government Contribution	42.00	IFI Debt	618.00
Other Donors	42.00	IDA (Credit/Grant)	195.00
Non-Government Contributions	100.00	Other IFIs	423.00



Private Sector Equity	100.00		
Total	142.00		618.00

Payment/Security Guarantee

Total			0.00
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Environmental and Social Risk Classification

High

Concept Review Decision

Track II-The review did authorize the preparation to continue

Other Decision (as needed)



B. Introduction and Context

Sectoral and Institutional Context

1. Burundi, DRC¹ and Rwanda have shared interconnected electricity networks since the 1950s. These networks serve a densely populated region and approximately 18 million people within the existing three-country interconnected area². Some of the large metropolitan areas include Kigali with around 1.2 million inhabitants, Bujumbura with around 1.1 million and Goma with around 900,000 inhabitants. Since only around 25 percent of the population within the grid area is connected, there is an enormous scope for demand growth and development, particularly when adequate power supply will be available to serve the loads.
2. The three countries established a regional organization EGL based in Bujumbura in 1974, to ensure cooperation on regional energy planning and design and monitoring of regional energy projects. One of EGL's initiatives has been the development of hydropower generation potential of the Ruzizi river, which flows out of Lake Kivu³ and forms the border among Burundi, DRC and Rwanda on its way south to Lake Tanganyika⁴.
3. The Ruzizi River has roughly 500 MW of viable hydropower potential, of which 74MW have already been developed with two existing hydropower plants. The 29.8 MW Ruzizi 1 HPP, operational since 1959, is owned and operated by DRC's national utility, the National Electricity Company (*Société Nationale d'Electricité* - SNEL). The 43.8 MW Ruzizi 2 HPP, operational since 1989, is owned and operated by the International Electricity Association of the Great Lake Countries (*Société Internationale d'Electricité des pays des Grands Lacs* - SINELAC), a commercial company jointly owned by Burundi, DRC and Rwanda. The output of the HPPs has since degraded by around 20 percent, mainly due to the lack of available funding to carry out the required maintenance and rehabilitation. An estimated US\$30 million is needed to complete the rehabilitation of the two power plants.

¹ The Eastern DRC city of Goma and surrounding areas have been provided with grid-based power since the 1950s from the existing Ruzizi 1 HPP and subsequently from Ruzizi 2 HPP. This grid is not connected to the rest of DRC, and hence "Eastern DRC" will generally be used in this document to describe the region of DRC that will benefit from the Ruzizi 3 project.

² The total population of Burundi, Rwanda and North and South Kivu in Eastern DRC is close to 40 million people and growing at approximately 3 percent per annum.

³ Lake Kivu forms the border between DRC and Rwanda.

⁴ Lake Tanganyika is shared between Burundi, DRC, Tanzania and Zambia.



Relationship to CPF

4. By ensuring additional hydropower supply to Burundi, DRC and Rwanda through a PPP arrangement, the project is well aligned with the strategic context in each participating country as well as with the World Bank's (WB) regional programs and strategies aimed at increasing sustainable power supply and improving access to electricity through regional cooperation and private sector mobilization.
5. The operation is aligned with the World Bank Gender Strategy, by integrating targeted interventions to reduce gender gaps in the electricity sector through (i) increasing the supply of modern and reliable electricity with impact on household connections and opportunities to develop productive uses of electricity and (ii) creating more and better jobs, by integrating activities to increase women's participation and training in the workforce in the sector.
6. The operation is also aligned with the World Bank Group's Maximizing Finance for Development (MFD) which entails leveraging the private sector in ways that optimize the use of scarce public resources. This operation leverages the World Bank's previous and ongoing support to policy reforms in the three member states to improve the sector's financial and operational performance and reduce its dependence on public funding, enhance transparency, and build credibility with investors.

C. Proposed Development Objective(s)

7. The Project Development Objective is to increase the supply of clean hydropower electricity to Democratic Republic of Congo, Rwanda and Burundi by leveraging private capital.

Key Results (From PCN)

8. PDO level indicators:
 - Generation capacity of renewable energy constructed or rehabilitated [megawatt]
 - Private capital mobilized for power generation [US\$]
 - Net greenhouse gas (GHG) emissions (**CRI**) [metric tons/year]
9. The primary project beneficiaries will be the households and other utility customers of Burundi, DRC and Rwanda who will be supplied with a more reliable, clean and affordable electricity service. The project will also facilitate increased access to electricity by ensuring sufficient power generation to expand reliable access. With average generation of 1,168 GWh per year and based on average household consumption patterns, the project will produce the electricity required for the equivalent of 7 million persons in the sub-region.

D. Concept Description

10. The project rationale is to provide clean and affordable hydropower generation that will result in improved reliability of services and enhanced electricity access for households and other utility customers in



the heavily populated Great Lakes region of Burundi, DRC and Rwanda, a region that currently has low access to electricity. The project is included as part of least cost generation sources in the latest electricity masterplans in Burundi and Rwanda, and as a key resource for the development of electricity of Goma and its surrounding area in Eastern DRC. As a regional project with equity participation of the three countries, it will enhance regional cooperation and integration. As a PPP, it will mobilize US\$100 million of private capital, and project development and implementation will benefit from highly capable private sponsors and operators.

11. The Ruzizi 3 HPP will have an installed generation capacity of 206 MW. The Ruzizi River forms a natural border between Burundi, DRC and Rwanda, flowing southwards from Lake Kivu into Lake Tanganyika. Ruzizi 3 will be located downstream of the existing Ruzizi 1 (29.2 MW) and Ruzizi 2 (43.8 MW) HPPs, commissioned respectively in 1958 and 1989. Ruzizi 1 HPP is located 3 km downstream of the outlet of Lake Kivu and controls the discharge from Lake Kivu. A fourth hydropower scheme, Ruzizi 4, is also planned in the future.

12. The project will include two World Bank-funded components as follows: **Component 1:** Contributions to the construction costs of Ruzizi 3 HPP (US\$190 million), and **Component 2:** Advisory support to EGL, member States and public utility companies (US\$5 million).

13. Component 1 will contribute to the financing of the main construction contract that will cover the following items: (i) the access roads; (ii) the 45 meter high embankment dam, the spillway and the bottom outlets; (iii) the power intake, the eco-flow bypass and associated hydro unit; (iv) the 4,000 meter long lined headrace tunnel; (v) the penstocks and surface powerhouse with three turbine-generator units; (vi) the 30 kV site transmission lines, switchyard and 7.1 km 200 kV transmission lines to Kamanyola substation; and (vii) the employer's village. These will be included in the scope of a single turnkey Engineer-Procure-Construct (EPC) contract combined with a FIDIC Emerald book contract⁵ for underground works. Component 2 will comprise technical assistance and capacity building to the regional body EGL, its member States, and the public utility companies in order to strengthen their participation in the development of the project. It will also include advisory and analytical work to strengthen the member State's institutional, legal, and regulatory framework to facilitate the trade and dispatch of electricity between the public utility companies⁶. As part of construction, natural and climate risks will be included in the engineering design. Examples of resilience measures include, among others: provision of appropriate anchorage support, deep foundation and size of footings to adapt against extreme wind and flooding, elevated control room and critical equipment to reduce flood hazard potential, use of steel, concrete or composite towers, creation of vegetation buffers and regular vegetation management.

14. The project's theory of change (ToC) is predicated on the financing of project activities that will result in the construction of a 206 MW hydropower generation facility that will feed associated transmission lines and substations. The project will result in increased energy generation capacity that will enable the three countries to expand electricity access but also to improve the quality and quantity of the service provided. As a

⁵ FIDIC (Fédération Internationale Des Ingénieurs-Conseils) is the International Federation of Consulting Engineers who prepare template contracts that gather best international practices in terms of construction and supply contracts. The Emerald book has recently been issued by FIDIC in order to support contracts with significant underground works.

⁶ It is so far planned that each country will receive one third of the electricity produced. Flexibility to allow adjustments depending on ad-hoc demand and offtake capacity is also under consideration as previously envisaged within Rusumo project.



competitive and renewable energy, the project will also enable to lower the cost of energy generation as well as reduce the carbon footprint of the sector. The former will also contribute to improve the financial sustainability of the three utilities. The provision of technical assistance to the regional body EGL, its member States, and the public utility companies will also contribute to the finalization of the development until financial close, while empowering them in the discussions with private sponsors. This should in fine support finalization of a balanced and fair deal and partnership, enhance the bankability of the project and support private capital mobilization. In a longer term, the technical assistance will also build the capacity of the three countries in managing and developing such PPP project.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

15. The environmental and social risk rating has been assessed as High (Category A) at this stage. The Project will follow the OP 4.03 as the project is a PPP and being implemented by the private sector. The project will apply the World Bank’s Performance Standards (PSs), including relevant WBG Environment, Health, and Safety (EHS) Guidelines, to all the activities implemented by REL, that is a special purpose vehicle company established to develop the Project, in lieu of the World Bank Environmental and Social Standards. The following standards have been assessed as relevant at this stage of project preparation: PS1, PS2, PS3, PS4, PS5, PS6, PS7, PS8 for private sector activities as well as ESS1, ESS2, ESS4, ESS5, ESS6 and ESS10 for activities implemented by the the Contracting States.

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APPROVAL

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Approved By

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