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handshake

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RECONSTRUCTION + PPPs

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Cooperation *amid* conflict

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with contributions from Marie Marconnet & Ananda Covindassamy

It's not impossible for nations in conflict to put aside their differences to coordinate the delivery of natural resources, but it's unusual. For the Democratic Republic of Congo, Rwanda, and Burundi, cooperation is transforming the shared Ruzizi River into a valuable source of hydropower for three peoples.

It sounds too good to be true: three countries with a history of conflict, finding creative ways to split resources from a shared river that can deliver much-needed hydropower to the citizens of all three nations. There are no loopholes and no secret ways for one nation to gain the advantage, even when it comes to taxes.

The umbrella organization that is promoting the project has sponsored a treaty governing the management of the river and the catchment area that supplies it with water, and is in the process of establishing an independent international regulatory authority that will regulate the use of this shared resource.

For the Democratic Republic of Congo (DRC), Rwanda, and Burundi, this sort of creative cooperation amid conflict makes reconstruction possible. Energie des Grands Lacs (EGL), the

international organization that operates under the auspices of the Economic Community of the Great Lakes Countries (CEPGL), has promoted this reconstruction since the late 1970s, first with the development of the Ruzizi II hydroelectric project, and now by promoting the Ruzizi III hydroelectric project, which will be developed as a public-private partnership.

Those behind the Ruzizi initiative point to four important reasons this post-conflict project has flourished: the mounting need for power and for replacing high-cost gas-oil based generation with lower cost sources; the precedent set by past initiatives; the cross-border coordination; and the tariff tailored specifically for the needs of the parties involved.

THE NEED FOR LOW-COST CAPACITY

The power systems of Burundi, the eastern DRC, and Rwanda are mainly based on gas-oil fired units. The cost of gas-oil based generation is especially high in the Great Lakes region due to huge transport costs from Kenyan and Tanzanian ports. Most of the alternative economical hydro sites are small and Ruzizi III is the largest and lowest cost option in the region, along with methane gas extracted from Lake Kivu for the generation of base load electricity. Increasing demand for electricity has been fueled by economic growth and ambitious electricity access programs financed by donors. As a result, the region is facing a rapidly increasing shortage of capacity and energy.

MEET *the* MEDIATOR

Claude Kayitenkore is Director at Energie des Grands Lacs (EGL). He oversees negotiations among officials of the DRC, Rwanda, and Burundi for Ruzizi III. Here, he discusses how the group has overcome political tensions to produce a workable agreement.

How did EGL ensure that each of the players in the Ruzizi project were treated fairly?

EGL focused on ensuring that there was transparency in the work, studies, and decision-making throughout the entire process. EGL has been consulting extensively and regularly with a committee of representatives from each country on the various technical matters. For high-level issues, EGL consulted government ministers, including ministers for energy, foreign affairs, and water resources.

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PRECEDENTS PAVE THE WAY

The Ruzizi III dam will be the third in a series of four projects on the Ruzizi River. The experiences of the first two initiatives provide the clues to the success of Ruzizi III. The Ruzizi River forms the border between the DRC and Rwanda. The south-flowing river connects Lake Kivu with Lake Tanganyika. The 29.8 megawatts (MW) Ruzizi I plant, owned and operated by SNEL, the parastatal electricity utility of the DRC, is located 3 kilometers downstream of the outlet from Lake Kivu and was commissioned in 1959. The 43.8 MW Ruzizi II plant is owned and operated by SINELAC, a multi-national organization established by a treaty among Burundi, the DRC, and Rwanda, and was commissioned in 1989. SINELAC has been besieged by management and financial challenges since its commissioning—a repeat of that structure for Ruzizi III was not an option. Donors and governments wanted a fully commercial and independent structure protected from interference by any of the three governments, assuring that they are all equal.

EGL has been working steadily to promote the third project. In June 2012, EGL launched a request for proposals for the selection of a private investor to develop Ruzizi III on a Build-Operate-Transfer basis. In September, EGL declared the consortium of Sithe Global and Industrial Promotion Services (Kenya) as the preferred bidder for the project (the same consortium that developed the 250 MW, US$900 million Bujagali Hydroelectric Dam on the River Nile in Uganda).

Hydropower in Africa

In late December of 2012, the General Assembly of the United Nations declared 2014-2024 the decade of sustainable energy for all and launched the Sustainable Energy for All (SE4ALL) Initiative jointly with the African Development Bank. In passing the resolution, the General Assembly noted that 1.3 billion people live without access to electricity and that 2.6 billion people in developing countries rely on traditional biomass sources for cooking and heating needs. Half a billion of those living without access to electricity live in Africa.

Hydropower is undoubtedly the most common form of sustainable and renewable energy. In 2008, hydropower accounted for 16.3% of global electricity production. In Europe and North America, 25% and 29% respectively of the potential hydropower has been developed. In Africa, one of the continents with the greatest need for additional generation capacity, only 5% of potential hydropower is in use today. With solutions like Ruzizi III, hydropower has the potential to provide a significant percentage of the energy that is necessary to realize the objectives of the General Assembly's resolution.

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The proposed technical solution for Ruzizi III envisions a run-of-river project comprising:

- a diversion dam,
- a 7 kilometer headrace tunnel,
- penstock and surge chamber,
- surface powerhouse,
- three Francis type turbine-generator units,
- a 220 kilovolts switchyard, and
- a 10 kilometer transmission line to a substation located at Kamanyola in the DRC.

The design also includes a small generating unit at the dam site to produce energy from the ecological flow that will be released to the bypassed reach of the river between the dam and power station.

The Proposed Technical Solution has a total installed capacity of 147 MW, with each turbine designed for a maximum flow rate of 50m3/s, giving a total plant discharge of 150 m3/s (not including the small unit at the dam site). Given the hydrology of the river, it is anticipated that the nominal mean annual energy production will equal approximately 710 gigawatts per hour, which equates to a capacity factor of approximately 56 percent.

CROSS-BORDER COORDINATION

The need for cross-border coordination has derailed many projects that are economically attractive. Typically, the political issue of distributing power among three nations is trickier than the technical solutions proposed. In this case, the cross-border coordination facilitated by EGL

How do you steer discussions so that political differences don't threaten the project?

The discussions have remained convivial and we have had no difficulty maintaining a focus on technical issues. All three countries realize the significance of this project for meeting the energy needs of the region, so participants have remained focused on how to move it forward.

What are the most important qualities for an organization like yours that serves as the "go-between" for nations in conflict with each other?

- A community spirit: EGL itself is composed of representatives from all three countries who work side by side and who are able to coordinate action in all three countries.
- Transparency: for national and international stakeholders.
- Competence: to understand both the regional aspects and context, as well as the technical aspects.
- Team work.

has been key. EGL has been successful at bringing the three countries together by developing practical solutions, and sidestepping the more sensitive political issues by emphasizing values such as transparency, competence, and socio-economic benefits.

For Ruzizi III, EGL has arranged for the project's capacity to be purchased by the parastatal utilities of Burundi, the DRC, and Rwanda. Each off-taker will purchase on commercial terms, with a full payment security package, one-third of the capacity of the project under a Common Power Purchase Terms Agreement, and separate Power Purchase Agreements.

The political question of distributing power among three nations is trickier than the technical solutions proposed.

Tariffs are being structured with cooperation in mind as well. Off-takers will pay for the capacity made available by the project company. Capacity will be adjusted hourly from actual to nominal hydraulic conditions to determine an hourly availability payment, which will later be converted to a monthly availability payment.

This structure achieves two objectives: it incentivizes the project company to ensure that the plant is available, and it allocates day-to-day hydrological risk to the offtakers. This "all for one and one for all" concept allows the nations to share equally in the benefits as well as the risks.

COMMON CAUSE, COMMON POWER

The countries will enter into a Common Power Purchase Terms Agreement before firm pricing is known because the tariff will be set using a so-called regulation by contract method. This will effectively enable the project to be constructed using a form of regulation that is similar to the return on rate base form of regulation widely used in the U.S., Europe, and other well developed markets. Such *ex post* regulation is feasible in those markets given the long history of their regulators successfully balancing the interests of investors and ratepayers. It is unlikely that a system of *ex post* regulatory review would be feasible in countries that are in an earlier stage of development, including in most of Sub-Saharan Africa.

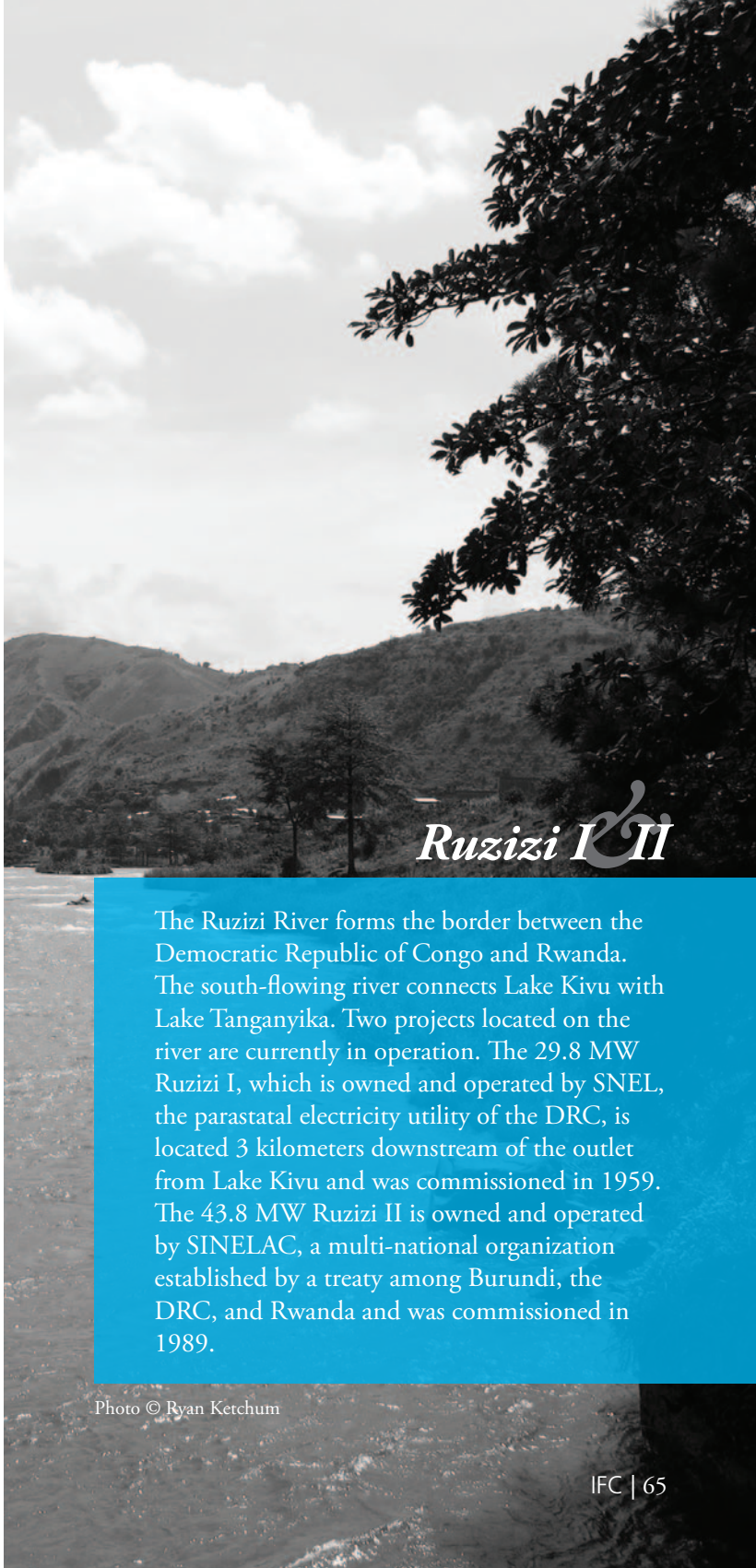
To overcome this problem and allow for a system of regulation that entails many of the benefits of return on rate base regulation, the regulation by contract method defines the methodology that will be used to establish the final tariff in an agreement that is subject to international arbitration. This agreement is entered into before the investment is made. This approach leads to a balanced sharing of risks on construction cost between the investor and the future off-takers.

MOVING DOWNSTREAM

Multi-lateral development finance institutions (DFIs) have expressed an interest in providing or have already provided significant funding for the Ruzizi III project. Interested private lenders will be encouraged to participate by the protection offered by a possible (under discussion) partial credit guarantee from the World Bank. The sponsors are expected to request political risk insurance on equity from MIGA.

EGL recently selected a preferred bidder for the project—a consortium made up of Sithe Global and Industrial Promotion Services (Kenya) and the project agreements are under negotiation.

The successful development of Ruzizi III will integrate the region's disparate power systems into a single interconnected system with scale and diversification. It will dramatically lower the cost of electricity in East Africa, making access for all a dream that has a chance of coming true.



Ruzizi I & II

The Ruzizi River forms the border between the Democratic Republic of Congo and Rwanda. The south-flowing river connects Lake Kivu with Lake Tanganyika. Two projects located on the river are currently in operation. The 29.8 MW Ruzizi I, which is owned and operated by SNEL, the parastatal electricity utility of the DRC, is located 3 kilometers downstream of the outlet from Lake Kivu and was commissioned in 1959. The 43.8 MW Ruzizi II is owned and operated by SINELAC, a multi-national organization established by a treaty among Burundi, the DRC, and Rwanda and was commissioned in 1989.

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