

# ITAIPÚ POST-2023:

## Strategic Investment for Paraguay's Sustainable Development

In 2023, important parts of the Itaipú Binational Hydroelectric Dam Treaty (Brazil-Paraguay), which governs the largest dam in the world, will be renegotiated. This presents a broad range of challenges and opportunities for Paraguay, including energy strategy, national and international politics, economic disparity, and environmental impacts. Because the central issues in these negotiations are all pressing global concerns, the outcomes have the potential to steer sustainable development not just in Paraguay, but around the world.

## CONTEXT:

### Paraguay leads in renewable energy

#### **SOUTH AMERICA IS THE WORLD LEADER IN RENEWABLE ENERGY GENERATION**

Nevertheless, Paraguay stands apart in the use of renewable energy: all of its electricity is generated from renewable, non-fossil fuel sources.

#### **REVENUE FROM ITAIPÚ PROVIDES SUBSTANTIAL INCOME TO THE PARAGUAYAN GOVERNMENT: US\$650 MILLION IN 2016**

Today, nearly US\$2 billion of the dam's US\$3.5-\$4 billion energy sales goes to its creditors every year. But in 2023, that debt will be paid off, leaving US\$2 billion, or US\$1 billion each for Paraguay and Brazil, up in the air.

#### **BRAZIL USES MOST OF ITAIPÚ'S ELECTRICITY, INCLUDING THE MAJORITY OF PARAGUAY'S SHARE**

Itaipú Dam, which Paraguay co-owns with Brazil, supplies almost all of Paraguay's electricity. Paraguay's needs do not consume its half of the massive dam's energy: 20% of Paraguay's share goes to Paraguay. The rest is sold to Brazil, which gets ~17% of all its electricity from Itaipú Dam alone.

#### **THE RENEGOTIATION OF THE TREATY RAISES URGENT QUESTIONS**

- How should the tariff be calculated once the debt is paid off?
- What will jumpstart sustainable growth: a lower cost for electricity or more government revenue invested in social and economic development?
- Will Brazil seek a lower price for Itaipú electricity?

# FINDINGS:

## Challenges and Opportunities

### RENEWABLE ENERGY IS NOT PERMANENT

Itaipú's ability to generate electricity and income is viewed by many as perpetual. Revenue from the dam pays significant government expenses, in place of taxes, a trade-off between short-term benefits and long-term democratic resilience. However, wear and tear and river siltation will ultimately render the dam inoperative, in the next 100 to 150 years. When that occurs, Paraguay will need to replace both the energy and the income from the dam.

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### MONOPSONY

At present, the only viable market for Paraguay's share of Itaipú energy is Brazil. Because of treaty stipulations, infrastructure, and demand, Brazil wields lone buyer (monopsony) power in the dam. And Brazil has new hydroelectric dams in the works and natural gas agreements with neighbors Bolivia and Peru, all of which may compete with Itaipú. If Brazil were to find a different source for the energy it buys from Paraguay, Paraguay could find itself with a large surplus of energy that is hard to sell.

### CONSUMPTION VS. JOB-CREATION

Electricity consumption is on the rise in Paraguay, but much of that increase has gone to the residential sector, rather than job-creating industry. If more of Paraguay's surplus energy were devoted to industry, it could be invested into spurring an energy transition and sustainable economic growth, rather than simply consumed. But the window of opportunity is finite. If current demand patterns continue, Paraguay's market will soon consume all its surplus electricity, and the opportunity to invest it in industry will be lost.

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### FLEXIBILITY

The longer the status quo persists, the more entrenched current systems and patterns will be, and the more difficult a transition to a sustainable solution will prove. Paraguay's important advances in the National Fund for Public Investment & Development, the Fund for Excellence in Education & Research, National Energy Policy, and National Development Plan are a crucial, but not sufficient step. Paraguay has the most room to maneuver now.

# RECOMMENDATIONS:

## Sovereignty, Institution-Building, and Capacity-Building

**Public Communications Strategy:** To inform the public, solidify democratic engagement, and generate support for alternate solutions. Paraguay's most valuable resource is a knowledgeable, empowered citizenry.

**Strategic Investment:** Itaipú financial benefits should be strategically invested because they are a finite and limited resource. We urge the establishment of a Natural Resource Fund with an anti-cyclic fiscal policy and expenditure rules.

**Itaipú Technology Park as Business Incubator and Accelerator:** Create environmentally-sustainable industry and innovative development with the dam's surplus energy under the rubric of public investment in research.

**Strengthen Energy Sector:** To consolidate better democratic governance and avoid the monopsony trap, establish an independent Ministry of Mines and Energy and diversify via energy integration.

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Itaipú Post-2023: Strategic Investments for Paraguay's Sustainable Development (Full Discussion Draft) contains assessments and recommendations in greater detail. Duke University's team will be in Paraguay from June 6 - June 17 to present and discuss these recommendations. Contact us at [Itaipu2023@duke.edu](mailto:Itaipu2023@duke.edu) with more questions.

Sources Cited: Belt, C. et al (2011). *Situación de Energías Renovables en el Paraguay*. Deutsche Gesellschaft für Internationale Zusammenarbeit. Energy Information Administration, U.S. Department of Energy. (2017) *International Data*. Washington D.C. Folch, C. (forthcoming) *Hydropolitics: Sovereignty, Energy, and Itaipú Dam*. Viceministerio de Minas y Energía, Paraguay. (2016) *Balance Energético Nacional 2015*.