Will the Inga Hydropower Projects meet Africa’s electricity needs?

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Outline of the presentation

• Research background

• Research problem

• Institutional capacity of the DRC

• Logics and dynamics of the economic contract/social contract trade-off

• Civil Society’s Response to Grand Inga
Objectives of the presentation

• Explore institutional capacity of the DRC to run Inga 1 and Inga 2; and question further development of the Inga Falls;

• Explore the logics and dynamics of the economic contract/social contract trade-off confronted by the government of the DRC as represented in IHP;
Research Background

• Inga Hydropower Projects (IHP):
  – Are to be completed on the Inga Site/ Falls;
  – Inga Falls were discovered in 1885 by A.J. Wauters
  – Congo River in the DRC; 2\textsuperscript{nd} longest in Africa: 4,700 km; 5\textsuperscript{th} longest in World;

• Inga Falls: characteristics
  – Exceptional regular flow: 40,000 m\textsuperscript{3}/s
  – Congo River is on both sides of the Equator;
  – Congo basin surface: 3,800,000 km\textsuperscript{2} vs. DRC 2,345,000 km\textsuperscript{2}
  – 150 km upstream the mouth; 225 km downstream Kinshasa
Research Background
Research Background

Geological Map of Inga Site

Old Design of the IHP Complex
Research Background

• Inga Falls
  – Four Hydropower Projects
    • Inga 1 (1972): 351 MW; Inga 2 (1982): 1,424 MW
    • Inga 3 (?): 3,500 MW (WESTCOR - Western Power Corridor project - DRC, Angola, Namibia, Botswana, SA. Now dissolved; then MagEnergy, and hopefully by BHP Billiton).
      New pre-feasibility study recommends to build Inga 3 as Phase A of Inga 4 because the previous design is very expensive to build; and it could devalue the potential of Inga 4.
    • Inga 4 or Grand Inga (?): +45,000 MW
Research Background

• New Design IHP Complex
  – Advises to build Inga 3 as one of the phases of Inga 4
  – Initial design of Inga 3 i.e. a 8 km-long tunnel for 8 turbines could decrease the value of Inga 4;
  – Inga 3 could be more expensive to build in the initial design than in the new one;
  – There was little experience around the world on old the design; & collapse of Gibe 2 (a 6km-long tunnel)
Research Background
Research Problem

• IHP = Mega development projects (Sykes, 1990):
  – they are owned by the government, or a consortium of private companies, or a mixture of them;
  – they take a long time to be finished (…);
  – they usually are of public interest because of their high socioeconomic and environmental impacts. This gives them a political relevance;
  – the government is involved even if it is not one of the owners due to their economic & environment impact; and
  – they have a major impact on markets.
Research Problem

• Mega development projects (Flyvbjerg, 2005) & (Bruzelius et al., 2002) add that
  – They are “inherently risky due to long planning horizons and complex Interfaces”;
  – There are several actors with conflicting interests in decision making;
  – Almost always there is misinformation about benefits, costs and risks;
  – Long life time of projects.
Research Problem

• Mega development projects have the following characteristics:
  – **Optimum bias**: policy-makers and the projects’ stakeholders overlook the costs & overestimate;
  – **Optimism bias**: overlooks the public interests of the communities which will be affected by the projects (little or no compensation for their disrupted livelihoods);
  – **Optimism bias**: reflects a particular way of thinking about development which often excludes the poor from benefiting from ‘conventional development models and paths to modernity’.
  – **Cost-benefit analysis**: privileges the national economic interests and underplays the local impacts at the vicinity of the megaprojects;
  – **Megaprojects**: often characterised by corruption, cost overruns, schedule delays, benefit shortfalls;
  – **Megaprojects**: often lead to white elephant infrastructures;

• IHP do not make any exception to this rule
Research Problem

- Research investigates the impacts
  - Inga 1 (1972): 351 MW
    US$16.50 million (1965); US$ 34.5 million (1972);
  - Inga 2 (1982): 1,424 MW
    US$140.0 million (1971); US$ 460.0 million (1982) on local communities & the DRC in general
  - Inga 3 (?): US$5 billion (Hathaway, 2005: 6);
  - Inga 4 (?): US$55 billion in 2005 (Hathaway, 2005: 6);
    US$80 billion in 2008 (Hathaway, 2008; Allo, 2008)...;
- Research also investigates the logics and dynamics of the economic contract/social contract trade-off confronted by the government of the in the IHP, and to assess the ability of civil society to impress civil accountability on the state.
Research Problem

- Electricity Sector in DRC depends on financial management and technical expertise of SNEL;
- SNEL: *Société Nationale d’Electricité*
  - State utility which deals with
    - Generation;
    - Transmission;
    - Distribution; and
    - Commercialisation of electricity in the DRC
  - DRC has five Distribution Networks: Bas Congo, Kinshasa, Katanga, North and South Kivu & Other isolated systems
Institutional Capacity of the DRC

• SNEL & Generation of electricity at IHP
  – Potential capacity: 100,000 MW from hydropower;
  – Installed capacity: 2,400 MW or < 3 % of total potential capacity;
  – Inga 1 (351 MW); Inga 2 (1,424 MW) or 1,775 MW i.e. ±70%;
  – Inga 1: 2 out of 6 turbines not working
  – Inga 2: 4 out of 8 turbines not working
  Operate at 30 - 40% they never received maintenance because of a lack of skills, funding, political will.
  – Aquatic weed & sand reduce dam reservoir
IHP reservoir invaded by aquatic weeds
Institutional Capacity of the DRC

• **SNEL & Transmission of Electricity**
  – Transmission system: under significant strain, equipment outdated, insufficient maintenance & minimal investment;
  – Transmission also has inadequate capacity to meet increasing demand;
    • Inga-Shaba Power Line (1,770 km) - very high voltage - (24% DRC debts): carries only 25% of its capacity.
    • Inga –Kinshasa Power Line: under strain
    • Lack of funding for a 2\textsuperscript{nd} Inga-Kin Power Line
    • Situation is not different in other provinces either
Institutional Capacity of the DRC

• SNEL & Distribution of Electricity
  – Distribution Network Connections (WB, 2005)

<table>
<thead>
<tr>
<th>Distribution Networks</th>
<th>Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bas Congo</td>
<td>35,000</td>
</tr>
<tr>
<td>Kinshasa</td>
<td>290,000</td>
</tr>
<tr>
<td>Katanga</td>
<td>55,000</td>
</tr>
<tr>
<td>North &amp; South Kivu</td>
<td>32,000</td>
</tr>
<tr>
<td>Other isolated systems</td>
<td>21,000</td>
</tr>
</tbody>
</table>

– Unreliable, with saturated lines & transformers;
– Dilapidated poles & frequent load shedding:
  • Losses at all levels (generation, transmission and distribution)
  • 25 % distribution losses (10 % technical & 15 non-technical)
– Revenue collection rate: 50% in Kin & 55 % in DRC;
Institutional Capacity of the DRC

• SNEL & Distribution of Electricity (WB, 2005)
  – Revenue Collection Rate

<table>
<thead>
<tr>
<th>Customer Category</th>
<th>Collection Rate (revenues collected as per percent of sales)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government and parastatals</td>
<td>23%</td>
</tr>
<tr>
<td>Residential</td>
<td>32%</td>
</tr>
<tr>
<td>Low-voltage private sector</td>
<td>61%</td>
</tr>
<tr>
<td>Export</td>
<td>84%</td>
</tr>
<tr>
<td>Medium-voltage private sector</td>
<td>93%</td>
</tr>
<tr>
<td>High-voltage private sector</td>
<td>98%</td>
</tr>
<tr>
<td>Average (weighed by sales)</td>
<td>53%</td>
</tr>
</tbody>
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• Improving billing & collection is vital & should be a priority of SNEL financial management.
Institutional Capacity of the DRC

• What did Civil Society learn from Inga 1 and Inga 2: installed capacity: 1,775 MW (from 1972 to present);
  – Ineffective financial management;
  – Low revenue collection rates;
  – Lack of maintenance and repairs;
  – Under performance of Inga 1 and Inga 2;
  – Technical and non-technical losses of electricity;

• The DRC does not have the capacity for efficient, transparent and accountable financial management. Technical expertise is also lacking.

• Thus Grand Inga which needs between US$ 55 to 80 billion funding to produce ± 50,000 MW is premature.
Economic Contract vs. Social Contract

- Mining & Export of Electricity vs. Congolese Citizens
  - Priority to Mining & Export; Not Congolese Citizens

Uncovered & uninsulated electric wire in Kinshasa residential area

Inga-Shaba Power Line (1,770 km) + export toward SADC
Economic Contract vs. Social Contract

• 52 yrs Ayants Droits’ Struggles for Justice

• Request for Compensation from Inga 1 & Inga 2
Economic Contract vs. Social Contract

• 52 yrs Ayants Droits’ Struggles for Justice
  – Ayants Droits’ demands to IHP
    • Contract d’Emphytheose
    • Retrocession of their lands/ waters
    • Modern city with
      – Free houses
      – Free schools
      – Hospitals
    • Roads
  • Access to permanent employment at the IHP
Economic Contract vs. Social Contract

• 52 yrs struggles in Camp Kinshasa: 9,000 residents/ 8 Ha
Economic Contract vs. Social Contract

• 52 yrs Struggles Outside Ancestral Lands
Economic Contract vs. Social Contract

• Impacts of Inga 1 & Inga 2 in the Inga Zone according to the dam-affected communities:
  – No free education/ health care, employment…;
  – Increased water born diseases e.g. river blindness, sleeping sickness, malaria, bilharzia & several others;
  – Impoverishment & suffering of three generations;
  – Landlessness and hopelessness;
  – Destruction of community bonds/ social capital;
  – Threats to traditional gender roles;
  – Lack political will to address the legacy of Inga 1 & 2;
Economic Contract vs. Social Contract

- Outcomes of 52 yrs of Struggles for Justice:
  - Two representatives of dam-affected communities attended the int. roundtable on IHP in JHB in 2006;
  - Internationalisation of the struggles of dam-affected communities since 2008 through involvement of
    - International Rivers (IR);
    - *Campagna per la Riforma della Banca Mondiale* (CRBM)
    - Global GreenGrant Fund (GGF);
  - Visit Elena Gerebizza (CRBM) in 2011;
  - “Conrad’s Nightmare The World’s Biggest Dam and Development’s Heart of Darkness” in 2012 by 11.11.11
Civil Society’s Response to Grand Inga or Inga 4

• Local & global Civil Society uses lessons learnt in the Inga 1 and Inga 2 to objectively argues that:
  – Further developments of the Inga Falls is premature. Priority should be to improve inefficiencies Inga 1 and Inga 2 & thereafter to undertake Inga 4;
  – Winners of the IHP are mining companies and export; the losers are ordinary Africans and women in particular who need electricity the most to cook, lighting, look after their husbands/ concubines and children in better and worse conditions;
  – IHP’s net benefits do not match their costs (i.e. repayment of debts, lack of energy and water for the sick, elderly & women; poor or lack of maintenance...
Civil Society’s Response to Grand Inga or Inga 4

• Local and Global Civil Society has two plans in order to supply electricity to the people of Africa:
  
  – Plan A:
    
    • In the Plan A, Local civil and Global Civil Society - the affected communities included - argues that a better approach to the Inga Falls is to refocus the projects’ weaknesses in Inga 1 and 2, and learn from them. It is advocating for this cause.

    • The DRC could embark on megaprojects only when it is ready, the legacy of Inga 1 and Inga 2 addressed, and their lessons profitably used;

Several agreements signed and cancelled point to the same direction. It is premature for such megaprojects.
Civil Society’s Response to Grand Inga or Inga 4

• Local and Global Civil Society has two plans in order to supply electricity to the people of Africa:
  – Plan B:
    • In the Plan B, Local and Global Civil Society will use its local, national, and transnational advocacy networks to create more space to voice the concerns of the dam-affected communities at local and global levels;

• Local and Global Civil Society can also use concurrently Plan A & Plan B
Thank You