



# Hydropower projects and benefit sharing on the Nile River: The Grand Ethiopian Renaissance Dam and Rusumo Falls

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1. Introduction / literature review on benefit sharing
2. The cases & methodology
3. Findings: Rusumo Falls & GERD
4. Comparison and conclusions

# Hydropower and benefit sharing on international rivers

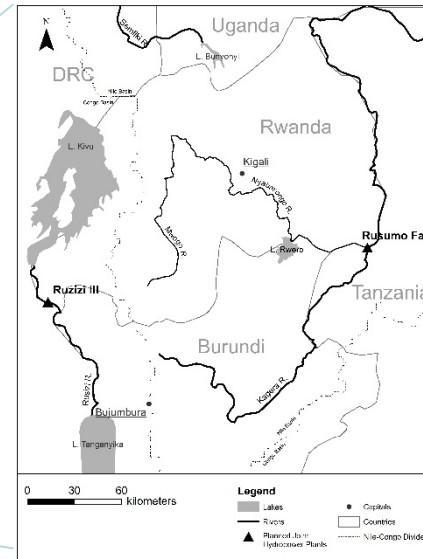


- Benefit sharing as a means for fostering cooperation: from sharing water to sharing the benefits from its use (e.g. Sadoff & Grey 2002/2005, Klaphake 2005)
- Dam/hydropower projects as one option (Philipps et al. 2006/undated, SADC undated, Dombrowsky 2009)
- Benefit-sharing mechanisms related to dams on international rivers depend on problem structure! (Hensengerth et al. 2012; Scheumann et al. 2014)
  - In the case of transboundary rivers, countries *may cooperate* (e.g. to access finance, increase aggregate benefits or reduce the costs of non-cooperation)
  - In the case of border rivers cooperation *is required*
- Cooperation and benefit sharing on international rivers more likely under:
  - Presence of regional organizations (Wolf et al. 2003; Dombrowsky 2007; Schmeier 2013)
  - History of cooperation between states (Wolf 2004)
  - Symmetric power relations (Song and Whittington 2004, Zeitoun and Warner 2006)
  - Presence of donors (Alam 1998; Zawahri 2009; Houdret et al. 2010)
  - National policies conducive to cooperation (Waterbury 1997)

# Exploring contrasting cases in the Nile basin



Economist.com



## GERD



## Rusumo Falls



# The cases



|                         | Rusumo Falls   | GERD  |
|-------------------------|--|---|
| HPP located on          | Border river section   | Transboundary river section   |
| Capacity                | 80 MW (ROR)  | 6,450 MW  |
| Countries               | Investors: Burundi, Rwanda, Tanzania<br>Downstream: Uganda opted out, others provided no objection | Investor: Ethiopia,<br>Downstream: Sudan & Egypt  |
| Planning                | Planned in 1980s (KBO) and since 2005 (NELSAP)   | Dates back to 1950s, considered in 2000s under the NBI, but launched unilaterally in 2011 |
| Institutional structure | Jointly publicly owned, privately managed  | Owned by Ethiopia, joint mechanism to be formed to coordinate first filling and operation |
| Key features            | Change from reservoir (2005) to run-of-river (ROR) (2012)  | Reservoir of 74bcm (about 1.5 times the mean annual charge of the Blue Nile)              |
| Current status          | Construction started in March 2017 for completion in 2020  | Construction started in April 2011 for completion in 2017                                 |
| Sources of funding      | World Bank   | Ethiopian government (and public), transmission lines funded by a loan from China         |



## Rusumo:

- review of project documents

- 50 semi-structured interviews at international, national and sub-national levels in 2013

## GERD: review of

- International Panel of Experts report (IPoE) (2013)

- Declaration of Principles (2015)

- Official statements by Egyptian, Ethiopian and Sudanese officials

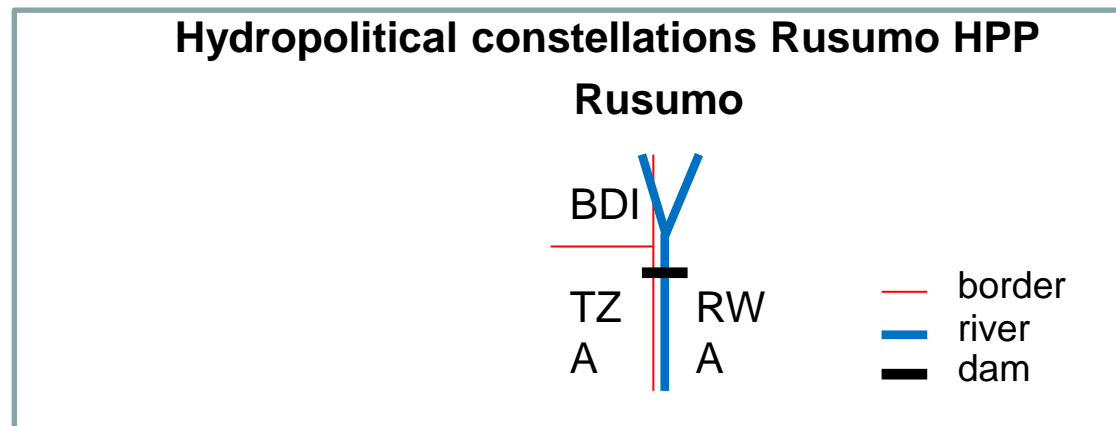
- Secondary sources

# Rusumo: how do countries cooperate & share benefits?



## How?

- Infrastructure jointly owned by three countries => countries contribute equal equity
- Access to electricity will be shared equally, but different default mechanisms!



Source: Own presentation

# Rusumo: why do countries cooperate & share benefits?



## Why?

- Huge energy deficit: access to electricity is 21%, 16% and 10% in Tanzania, Rwanda and Burundi respectively
- Border river: conducive to joint infrastructure
- Burundi included because of potential upstream effects, membership in regional organizations and history of cooperation!
- Donor preference for regional project, and wish to promote economic integration, peace and stability



# GERD: How are the countries coordinating to assess benefits and costs?



- ⇒ So far unilateral project, no explicit benefit-sharing arrangement!
- May 2012-May 2013: International panel of experts examined project documents & recommended further studies on downstream impacts
- Since Sept. 2014: A Tripartite National Committee (TNC) oversees the implementation of the required studies on the dam's downstream impacts
- March 2015: Trilateral Declaration of Principles
  - A joint mechanism to be set up to agree on the guidelines for the first filling and operation, with Ethiopia preserving the right to change these guidelines in 'unforeseen or urgent circumstances'
  - Egypt and Sudan are given a priority in purchasing hydropower generated from GERD
  - Countries are committed to mitigate 'significant harm' and negotiate compensation, but the mechanism is yet unclear

# GERD: Uneven benefits, differentiated incentives



| Country  | Potential positive impacts/benefits   | Potential negative impacts/costs   |
|----------|---|--|
| Ethiopia | <ul style="list-style-type: none"> <li>• Extending electricity coverage</li> <li>• Foreign currency from electricity exports to neighboring countries.</li> <li>• Promotion of Ethiopia's position as Africa's power hub.</li> <li>• The project's symbolic value.</li> </ul> | <ul style="list-style-type: none"> <li>• is it the optimal investment choice?</li> <li>• Is the installed capacity economically justified?</li> </ul>  |
| Sudan    | <ul style="list-style-type: none"> <li>• Affordable electricity</li> <li>• Reduction of sedimentation and improving the operation of Sudanese dams</li> <li>• Expanding irrigated agriculture</li> </ul>  | <ul style="list-style-type: none"> <li>• Affecting recession agriculture and groundwater.</li> <li>• Affecting Roseires' biodiversity and fisheries.</li> <li>• potential impact of riverbeds and banks erosion on agricultural livelihoods and brick industry.</li> </ul> |
| Egypt    | <ul style="list-style-type: none"> <li>• Affordable electricity.</li> <li>• Less evaporation and water losses from the HAD, and potential increase of water supply in the operation phase.</li> </ul>   | <ul style="list-style-type: none"> <li>• Challenging Egypt's hydro-hegemony.</li> <li>• Impacts of Sudan's expanding agriculture on its withdrawals.</li> <li>• Impacts on water flow and hydropower production from HAD, especially in dry years.</li> </ul>              |

# GERD: factors affecting the conclusion of a benefit-sharing agreement



- Foreign policies: prevailing mistrust Egypt - Ethiopia and Egypt - Sudan
- Regional organizations: Egypt suspended its membership in Nile Basin Initiative in 2010 due to upstream signing of Cooperative Framework Agreement
- Power relations: pro Egypt in terms of material power, but Ethiopia is now realizing upstream geographic power after sustained economic growth
- Donors: Ethiopia opted for much bigger dam outside NBI

# Comparisons and conclusions



In line with initial assumptions:

- The hydro-political constellation matters: HPP on border river stretch required cooperation in case of Rusumo Falls
- History of cooperation, presence of RBOs and presence donors facilitated (even) benefit sharing in Rusumo case (≠GERD)

Beyond initial assumptions:

- Size and scheme (ROR vs. reservoir) matters: more diverse and more unevenly distributed benefits and costs in case of GERD complicate arrangements
- Process matters: unilateral launching fosters focus on negative impacts instead of benefit maximization
- GERD: a benefit sharing arrangement seems to require agreement on water use rights in order to determine compensation for harm!

# Thank you for your attention!

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