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Governance arrangements for regional hydropower on shared rivers - The African Ruzizi cascade and Rusumo Falls projects

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with contributions by

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Session A.3: Roles of Multifunctional Reservoirs in the SDG Agenda



1. The problem

The problem



- Africa: quickly rising energy demand, only 7-8% of hydropower potential exploited, however several challenges:
 - More than 60 international rivers => regional approaches?
 - Infrastructure financing gap => public-private partnerships?
 - Poverty => affordable electricity?





- Which governance arrangements ensure that regional HPP are financially viable and at the same time environmentally and socially sustainable?
 - How do alternative governance arrangements compare with respect to the
 - mobilization of public and private finance
 - transaction costs in reaching an agreement
 - affordability of electricity tariff
 - enforceability of payments/debt repayment
 - compliance with environmental and social safeguards
- ⇒ Comparison of 3 regional HPP in Africa's Great Lakes region



- Who finances the project (governments, private investor, donors)?
- Who develops/owns the project (governments, private investor, mixed)?
- Who operates the project (public or private project company)?
- How is the tariff calculated? (cost recovery?, internal rate of return?, geological/market/hydrological risks?)?
- Who signs Power Purchasing Agreements (PPAs) (project company, private operator)?
- What default/enforcement mechanisms are put in place? (avoidance of political interference, Escrow accounts, risk guarantees, ability to sell to third parties)?
- Benefit sharing with project affected population?

HPPs: Potential risks and risk sharing arrangements



Risk	Institutional response / Risk taker
<u>Construction:</u>	
Cost overruns and delays (e.g. due to geological risks)	EPC contract: risk with contractor/off-taker Regular tender: risk with developer
<u>Operating:</u>	
Hydrological and climate change	Energy charge: risk with the operator Capacity charge: risk with the off-taker
Payment default by off-taker	Escrow accounts/ Sovereign guarantees by host governments and IFIs/ Ability to sell to third parties/ Avoidance of political interference
<u>Political:</u>	
Expropriation, legislative changes, war and civil strife	Political risk guarantees International Finance Institutions (IFIs)
<u>Environmental and social:</u>	
Interruption due to social protest	Construction: Avoid, mitigate, compensate Operation: benefit sharing

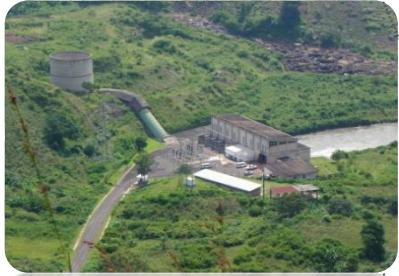


2. Cases and methodology

The cases



Ruzizi II: 36 MW



Ruzizi III: 147 MW



Energie des Grands Lacs (EGL)



Nile Equatorial Lakes Subsidiary Action Program (NELSAP)



Rusumo Falls: 80 MW



The cases



	Ruzizi II (RII)	Ruzizi III (RIII)	Rusumo Falls (RF)
Capacity	36 MW	147 MW (ROR)	80 MW (ROR)
Countries	BDI, DRC, RWA	BDI, DRC, RWA	BDI, RWA, TZA
Planning	Planned in 1970s (EGL) Operational since 1989 (SINELAC)	Planned in 1990s and since 2007 (EGL)	Planned in 1980s (KBO) and since 2005 (NELSAP)
Institutional structure	Publicly owned and managed	Public-private joint venture envisioned	To be publicly owned, privately managed
Key features	Delivered electricity despite conflicts Debt default	First regional HPP as PPP	Was changed from reservoir to run-of-river
Donors involved	World Bank	AfDB, EIB, KfW, ADF et al.	World Bank, ADB
Current status	To be rehabilitated and restructured	Negotiations with investor since 10/2012 AfDB loan 12/2015 Project agreement initialized 07/2016	Financial closure in 08/2013, resettlement 05/08/2015 Construction to start

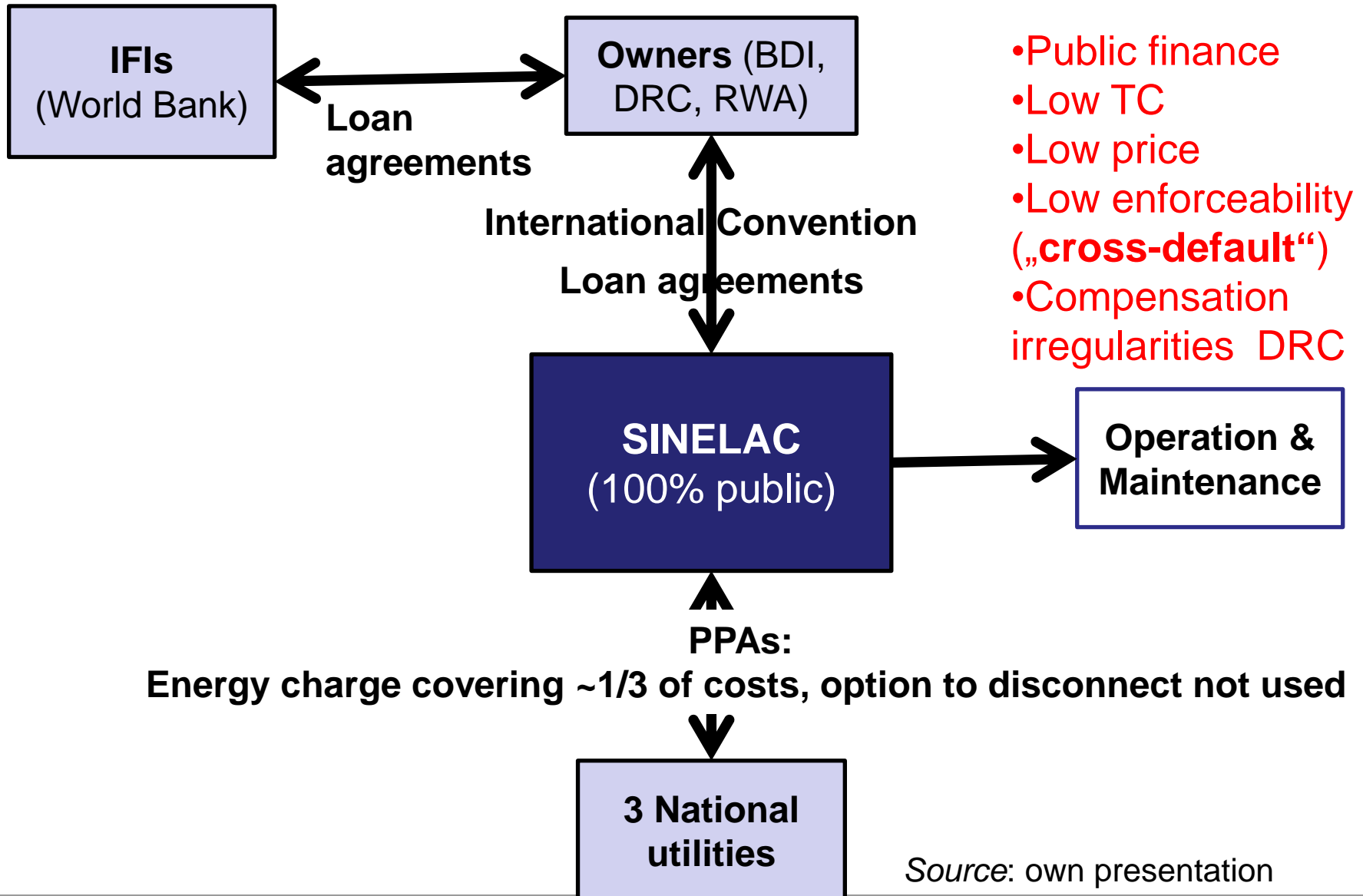


- Comprehensive literature and document review
- 98 semi-structured interviews at international, national and sub-national levels in 2013
 - of these 42 with reps of regional organizations, national negotiation teams, energy ministries and utilities
 - Update based on web sources and KfW contacts
- Interviews were transcribed, coded and analyzed in atlas.ti



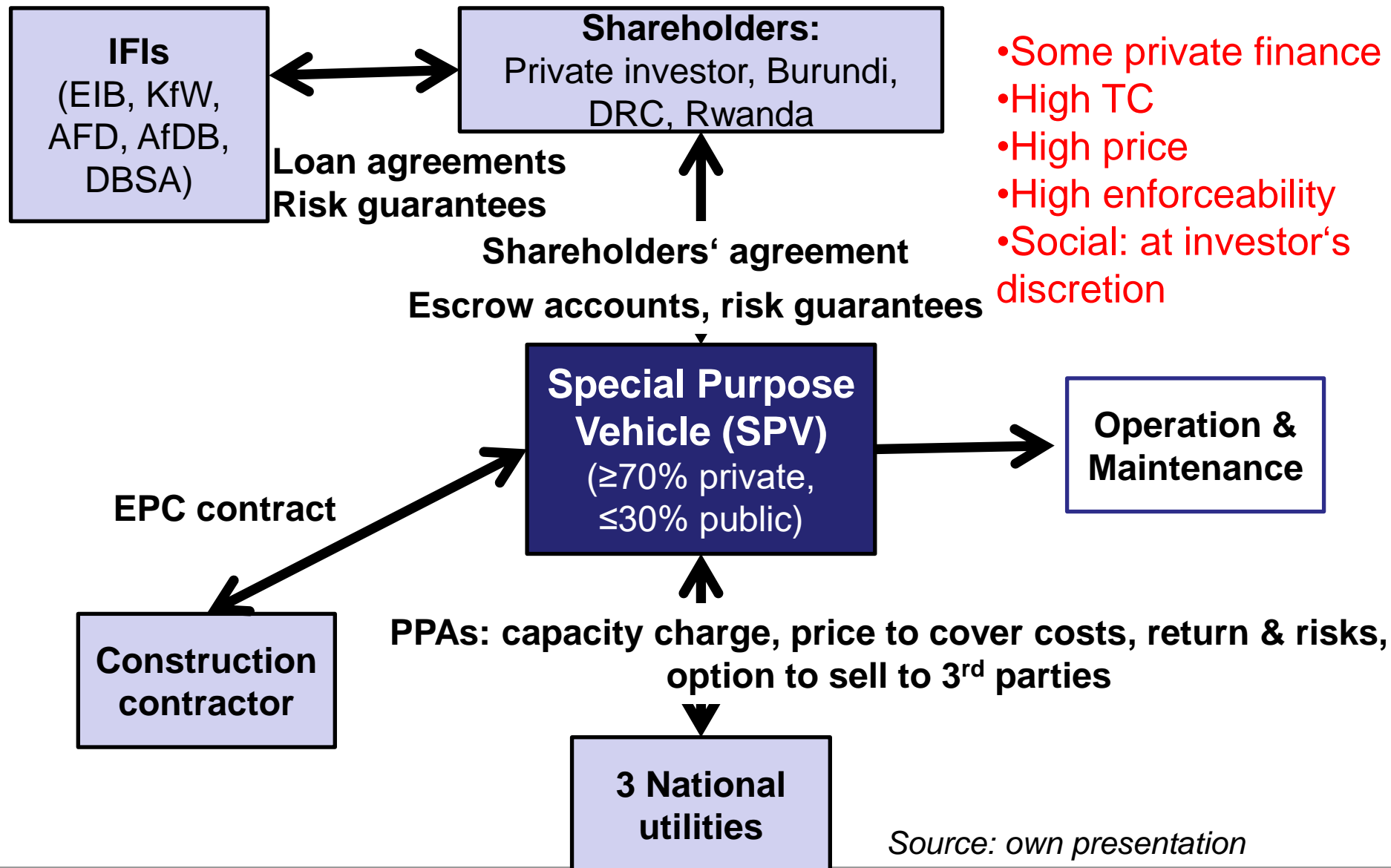
3. Findings

Ruzizi II: Publicly owned and managed



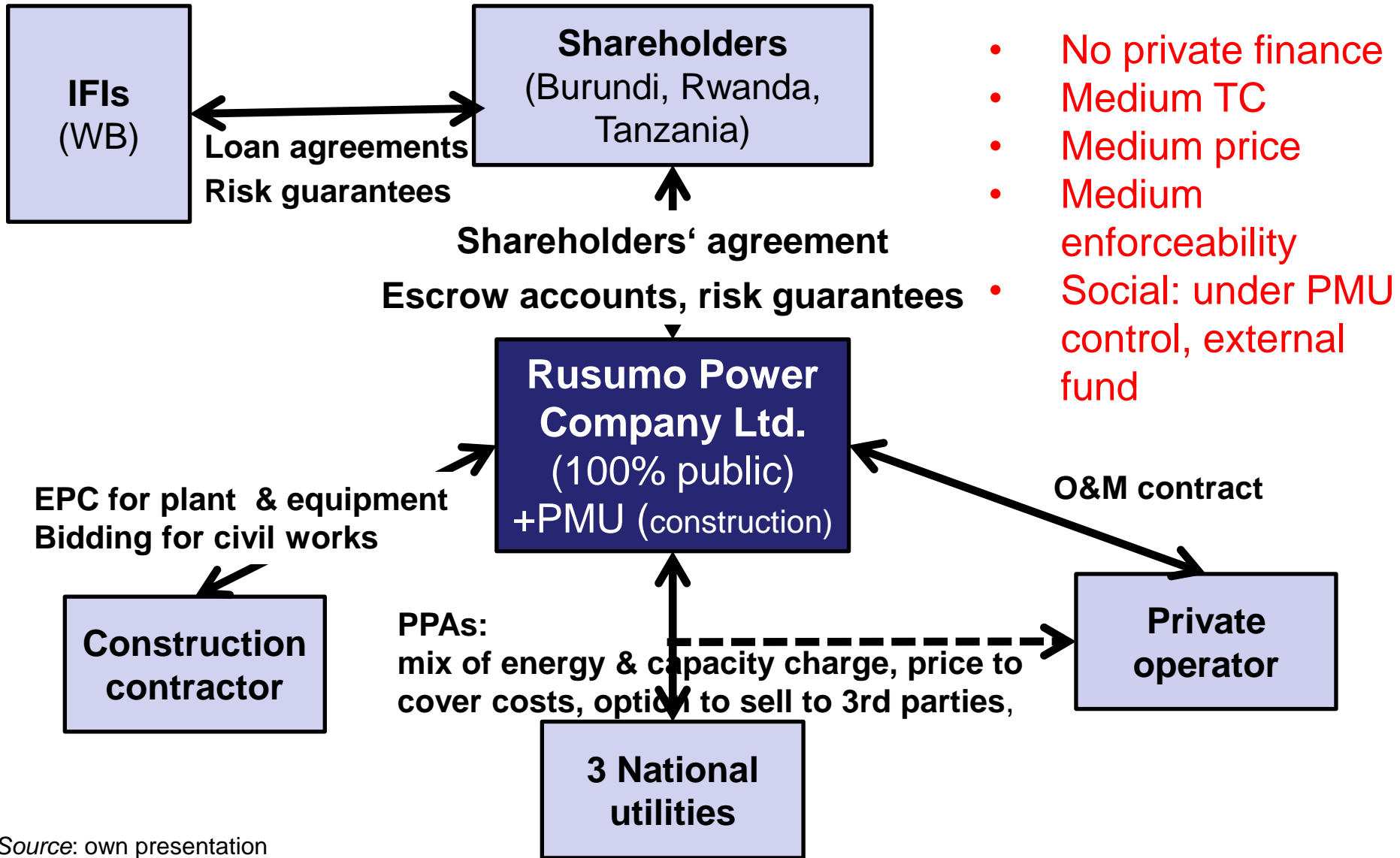
Source: own presentation

Ruzizi III: Public-private joint venture



Source: own presentation

Rusumo Falls: Publicly owned, privately managed



- No private finance
- Medium TC
- Medium price
- Medium enforceability
- Social: under PMU control, external fund

Source: own presentation

Comparison



Issue	Publicly owned and managed (Ruzizi II)	Publicly owned, privately managed (Rusumo Falls)	Public-Private Joint Venture (Ruzizi III)
Mobilization of private finance	No	No	Yes
Transaction costs in reaching an agreement	Low	Medium	High
Electricity tariff	Low, but no cost recovery	Medium	High
Enforceability of payments	Low	Medium	High
Meeting environmental & social standards	Low	Under WB/PMU control: High?	Up to private investor: Medium?



4. Conclusions

Conclusions: Governance arrangements for regional hydropower on shared rivers in SSA



- Three alternatives under discussion and test
- Trade-off: affordability vs. mobilization of private finance
- Regional HPP: incentives to free-ride in the public solution
 - Will the private operator (Rusumo) solve enforcement problem?
 - Will negotiations for joint venture (Ruzizi III) succeed?
- Risk minimization: ECP contract, capacity charge, Escrow account, risk guarantees, no political interference project company, benefit sharing
- Social and environmental safeguards: greater IFI control in public solution, but empirically open question
- No obvious “best” solution: ex-post evaluation RIII & RF!

Thank you for your attention!

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