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A Review of Private-Public Partnerships in Hydropower Projects

English Synopsis

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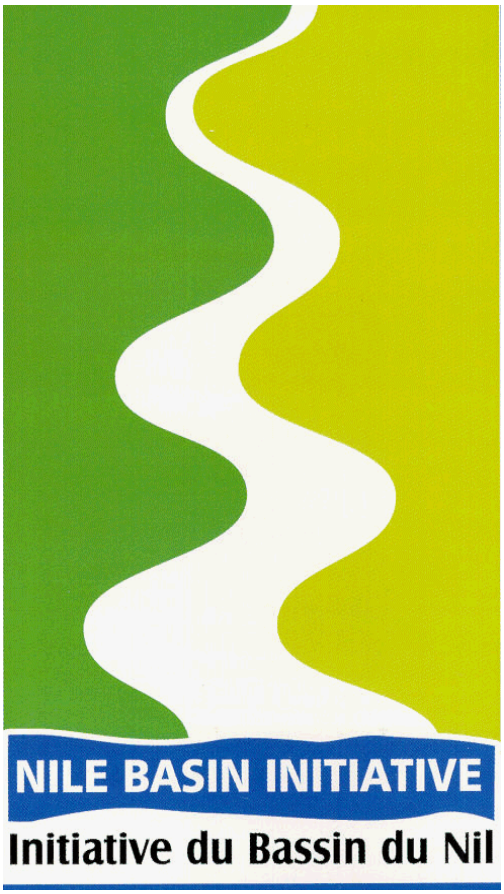

A Review of Private-Public Partnerships in Hydropower Projects

English Synopsis

Commissioned by
Nile Basin Initiative

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1 Background

The investment needs in the power sectors of the NBI region are substantial, and hydropower will have to continue to make up a substantial part of the regions generation mix if least cost principles are to be adhered to. As described in this paper, private-public partnerships (PPP) will likely have to emerge as a primary model for power sector expansion if both public and private investment is to be mobilized and implemented efficiently and effectively. Thus, the Regional Power Trade Project (RPTP) of the NBI has commissioned a review of the associated PPP financing and implementation models, so as to draw out lessons learned that can inform a set of guiding principles for its member states. Given the significant challenges and implications of this work, as exemplified with both short- and long-term power crises throughout the region and the continent, the review and associated training workshops represent an important component of the RPTP overall aim of establishing the institutional means to coordinate the development of regional power markets among the Nile Basin countries.

Objectives and methodology

The overall objective of the PPP Review is to;

"…arrive at a set of guiding principles, grounded in international lessons-learned, for NBI member countries looking to implement PPPs in the development and utilization of their hydropower resources."

In achieving this objective, two data collection and analysis streams have been carried out. First, data and information from international databases, publicly available documents and the institutional expertise housed at the consultant have been put to use in reviewing international trends and experience. The analysis of the three case studies have been based on a detailed review of relevant documentation obtained from official websites, the World Bank, donors and journals. Additionally, in providing a recommended PPP model framework, the consultant has carried out a review of available literature on country-specific contextual issues for the NBI countries, as well as reviewed the outcome of a questionnaire which was filled out by representatives of member states.

International trends

A review of international trends related to private-public participation in infrastructure reveals that shifting policy focus between public and private investment and ownership, respectively, had until recently left little space for innovative and pragmatic private-public partnerships. As a result, it appears that many countries, especially in Africa, will have to play catch-up with respect to rapidly growing demand for infrastructure services, particularly electricity. It is now well understood that in order to fill the growing infrastructure gap, public and private investors will be needed to carry out their respective comparative advantages. While the Asian financial crisis in 1997 and the current global credit market turmoil present challenges, there remains strong interest and available funding in search of attractive power projects. This is particularly true for renewable energy projects, given the rapid emergence of climate change concerns as a so-called mega-trend, having an impact on investment and policy trends.

Internationally, PPPs have been implemented in a wide range of industries and have proven particularly useful in large-scale infrastructure projects in higher-risk countries. As indicated in later sections, PPPs can be viewed as an alternative to pure private and pure public implementation models, which provide a tool for mobilizing investment while ensuring that the well-being of the public are looked after.

The concept of private-public partnerships (PPPs) is a broad one, generally used to describe financing, ownership and implementation models in which the government, the consumer and the private developer share the risk of the project as well as the rewards. Specific PPP models are generally differentiated along a number of lines; model employed to select private partner; public and private ownership and financing shares; designation and distribution of specific endogenous (controllable) and exogenous risks; role of multi- or bi-lateral donor financiers; cross-border relations, and; time-frame. The specific PPP model, which is most appropriate for a given project will be dependent on a number of factors, including; the anticipated external benefits (e.g., beyond financial benefits and costs of a project); the comparative operational advantage and relative financial strength of the public and private actors; and the planning horizons of the public and private actors. Broadly speaking, policy makers should choose a model which best balances the need to mobilize private finance to a prioritized project with the objective of maximizing the positive impact of the projects on the citizens and consumers they represent.

2 Case Studies and Lessons Learned

The three case studies analyzed were Cana Brava, Brazil; Birecik, Turkey and Nam Theun 2 in Lao PDR.

Brazil prepared an Expansion Plan for 1997 to 2006 in which it was concluded that massive investments in generation capacity was needed to meet the growing demand. Therefore Electrobras[1] (Contrails Elétricas Brasileiras SA) proposed the construction of the Cana Brava run-of-river hydropower plant (450MW). The project was one of the first projects with private participation after the new institutional and regulatory frameworks were established in 1995 and 1996 and it is one of the first IPPs to be financed under a project finance mechanism in Brazil.

In **Turkey,** Birecik is part of a $32 billion South Eastern Anatolia Project (known as GAP after its Turkish name, Guneydogu Anadolu Projesi). GAP has been largely financed by the Government of Turkey, with $3.79 billion coming from foreign sources. Turkey's macro-economic troubles during the 1990s, however, led to an increasing reliance on external financing, including export credits from Germany, Switzerland, Italy, Austria and the USA. GAP consists of a planned network of 22 dams, 19 power plants and ancillary irrigation and industrial projects, and GAP is intended to use the waters of the Tigris and Euphrates Rivers to transform the Southeast of Turkey into a regional "breadbasket". The Birecik Hydropower Project includes a reservoir and 672MW in installed capacity, and is expected to generate 2.5 billion kWh per year. The project was the first project, in any sector, using the build-operate-transfer (BOT) model. As the project was completed on time and under budget, it has be argued that the project can be used as a role model in terms of the efficiency of having private companies being in charge of the planning, financing, construction and operation of hydro power plants.

In **Laos**, the Government of Lao (GOL) signed a MoU in 1993 with the Thai Government (GOT) in which GOL agreed to supply GOT with 1500MW of hydro based power by 2000, an agreement that was later extended to 3000MW by 2006. GOL also signed a MoU with Vietnam in 1995 to supply 1500 MW by the end of 2010 and in 1996 a MoU was signed with Cambodia but no specific agreements in terms of MW supplied were detailed. The Nan Theun 2 (NT2) is a large project (1075 MW) and the overall purpose with the project is to "generate revenue through environmentally and socially sustainable development of NT2's hydropower potential to finance poverty reduction and environmental management programs in Lao PDR."(World Bank, 2007)

Table A provides a summary of the success criteria, as applied to the case studies.

The analysis of lessons learned in the review focuses on the tools and approaches available to policy makers in pursuing the above stated objective; ie balancing the need to mobilize private finance while maximizing the developmental impact of the resulting project(s). This analysis, together with the contextual assessment, is the building blocks of the proposed guiding principles, summarized below.

[1] The major Utility in Brazil, the Government owns 52% of the stocks.

Table A Summary of lessons learned versus success factors

Success factor	Brazil	Turkey	Lao PDR
Terms of the PPA for public entities, particularly the tariff level achieved by the single buyer.	Not applicable – as PPA signed with private entity	The public utility took on the majority of the risks which might have been necessary to get the necessary private funding for the project.	Lao only kept 5% of the power of this project, but gained export revenue due to the agreement with Thailand, who is a steadily growing economy with increasing demand for electricity
The timeliness of implementation.	Short and smooth, four years from Concession award to COD.	Long and complex until FC but short construction time.	Long due to environmental and social impacts and external factors such as the Asian crisis which disturbed the MoU with EGAT.
The overall effect on country/region's power sector.	Cana Brava was part of a generation expansion plan for 1997-2006 and as such it was a prioritized project.	Part of a large scale project, the GAP, which is a highly prioritized project by the Turkish government.	Power mainly for export hence the project will mainly contribute to the country through export revenues. NT2 is part of a larger program of economic development for Lao citizen and hence the export revenues is geared towards this programme
The effectiveness and efficiency of operation and maintenance	No negative references found, it seems that the plant is delivering the expected amount of power to the Brazilian net.	No negative references found, it seems the plant is delivering the expected amount of power; only problems relate to environmental and social impacts.	N/A since its not yet in operation
Efficiency and prudence of the procurement process.	Smooth ICB process	Complex due to interpretation of concession terminology by Danistay	Direct negotiations
Both positive and negative environmental and social impacts	Some negative environmental impacts and some complaints regarding inadequate resettlement compensation	Large social impacts, both in terms of resettlement and in cultural values. Inadequate resettlement processes	Initial delays due to inadequate ESIA but the concession agreement now regulates all social issues in detail and several external independent audit teams are reviewing the work, approx two teams per month.
Impacts on cross-border relations.	N/A	World Bank did not support the project since it argued that riparian countries did not approve it, could be a potential conflict in the area.	The Mekong River Commission was established already in 1995 to assure the management of the water resources in the Mekong river system, of which river Theun is a part. Unlike the Birecik project, the World Bank did support this project which means the project fulfilled their policy regarding international waters.
The overall sustainability of the PPP and PPA.	Sustainable	The transparency and good governance could be questioned due to the lack of international observers, such as Multilaterals.	Good transparency and governance which can be partly attributed to the heavy involvement of multilateral agencies such as ADB and WB as well as strong NGOs.

3 Contextual Review

The contextual review sets out to identify key similarities and differences between the NBI member states (as a group) and the case study countries – as applicable in identifying guiding principles based on lessons learned. A range of issues are considered, including; investment attractiveness; sector institutional set-ups; power sector planning; water rights and multiple use issues; and regional cooperation. The contextual assessment reveals that while there is a relatively wide range of institutional preparedness for PPP throughout the region, overall there appears to be *no* reason to believe that the (relative) successes of the case study countries *cannot* be repeated, in some form, in the Nile Basin region.

4 Guiding Principles for PPP Financing and Implementation Models

Based on the international trends, lessons learned and contextual assessment, as well as discussions during the training workshop, a set of guiding principles has been developed. These guiding principles are meant to serve as guide posts for the member countries and NBI-RPTP in developing and implementing PPP models which will have a high probability of success. The key recommendations associated with these principles are summarized below and laid out in detail in Section 7.2 of the report.

- Independent regulator should be in place before implementation of PPPs, as it is critical for ensuring;
  - transparent and fair processes – especially in case of (part) public ownership,
  - that benefits of PPP reach the general public
  - the long-term sustainability of the project
- Progress is needed in much of the region in ensuring financial viability of the off-taker – *before* private capital can be raised on reasonable terms
- PPPs in hydropower are not a 'quick fix' and must be carefully planned and diligently prepared, and should follow least-cost expansion principles. For many countries in the region this will require a return to systematic investment planning. There is a risk that this will be neglected in favor of emergency power needs.
- Regulatory frameworks should allow for private financing (not necessarily ownership) of transmission lines which allow for evacuation of power – thus reducing the associated risk
- Public ownership of the 'reservoir component' of HPPs could be particularly beneficial in the region, given the likely multiple use benefit and the regional importance of the Nile River.
- Progress should be made towards improving power trade capabilities, and a Regional Hydropower Investment Help Desk should be considered for private participation within the Nile Basin– as opposed to country-specific help desks. This could also serve as a platform for sharing of regional experiences and best practices in implementation of PPPs.