

## **PROJECT CONCEPT NOTE**

### **BHUTAN**

#### **Hydropower Sector Study: Issues & Options**

##### **Context/Relevance/Audience**

1. The Royal Government of Bhutan (RGoB) is interested in assessing longer-term strategic options for developing Bhutan's hydropower potential. Hydropower has a dominant role in Bhutan's economy, even while increasing Bhutan's reliance on a single commodity exported to a single market and strengthening the role of the public sector in the economy. The aim of the present activity is to provide the RGoB policy guidance on issues and options of such development from a broader strategic perspective.
2. Direct sale of electricity to India contributes as much as 45% of the national gross revenue. Chuckha Hydropower station, commissioned in 1988, has been the first stage of this hydro export business, which will be increased by the commissioning of Tala hydropower station in about one year from now.
3. The Government of India is the major donor supporting Bhutan's economy. In addition to budgetary contributions, GoI has funded the construction of the major hydropower facilities. The scheme used to finance these facilities was 40% grant and 60% loan (20 years maturity and 9 percent interest rate in rupees). Under this scheme, Chuckha Hydropower Station (336 MW) has been constructed and the loan will be repaid in two more years. Chuckha Hydropower Corporation has signed a PPA with National Power Trading Corporation of India (NPTC), the tariff is about US\$ 4.5 cents per unit, and the prices are reviewed every two years. Tala Hydropower Station (1020MW) has been financed under the same approach and it will follow the same commercial arrangements.
4. Notwithstanding that increasing its reliance on an economic activity with a single market/ single-commodity export implies a risk for the whole economy, the Bhutanese authorities have expressed their confidence that this approach is a win-win situation, and it can be sustained in the long term for the following reasons: (i) Even when in terms of construction costs hydropower projects in India could cost the same, it is much easier to implement power facilities in Bhutan since their projects are mostly run-of-river type with minor or none social and environmental issues, (ii) Power demand projection in India are such that it will be able to absorb any power produced in Bhutan, (iii) By funding the construction of those facilities, India is providing Bhutan with a permanent stream of revenues, which can replace grant support in the long run, and (iv) This long term agreement will help to consolidate the economic relationship between both countries in their relationship with the neighboring countries in the region.

##### **Objectives/Result Indicators:**

5. The proposed activity will analyze the issues and options available to the RGoB to continue developing the hydropower business taking into account the legal, technical and financial issues that suit properly the country's overall macroeconomic framework, given that this resource is the most important for Bhutan's economy. The result of the

proposed activity is a report proposing specific options for hydropower development in the medium to long term based on the specific conditions of the country, the competitiveness of the projects, and the mood of private investment community. The analysis will determine the economic benefits for the country for all the proposed schemes, and identifying specific regulatory actions to promote private investment.

**Scope/Methodology:**

6. The Note will include the following activities:

- a. Review and understand the framework for the existing agreement between India and Bhutan on financing the development of hydropower. It will be necessary to identify the risks and constraints –if any- that those arrangements impose to the country for further developments in hydropower outside of the agreed approach;
- b. Review the Power Sector Master Plan in order to determine the main technical financial features of the individual projects (FIRR, LRAC, CF revenues) in order to determine their competitiveness, and their chances to be developed under a non-subsidized or private finance environment. Comment on any impacts of transmission lines for these large projects.
- c. Review the options open to Bhutan in terms of power markets and trading. (clearly mainly India but the intent would be to consider whether there any other options such as regional trade or private traders in India.)
- d. Review the implications of the hydropower development plan in the country's overall macroeconomic framework in terms of growth both during construction and operation, foreign exchange, employment, etc.;

**Consultations with Client and Other Stakeholders:**

8. In order to undertake a comprehensive analysis of the issues and options, an extensive work of consultation with the relevant stakeholder will take place, including governmental Authorities, power utilities in the country and the neighboring countries.

9. The final report will be presented to the concerned stakeholders in a specific workshop to be organized in Bhutan.

**Resources:**

10. The assignment will be conducted by a World Bank Team comprising Pedro Sanchez (Sr. Energy Specialist) and Judith Plummer (Sr. Financial Analyst), and the technical analysis will be developed by a Consultant firm to be contracted under a competitive process.

**Timetable:**

11. The Proposed implementation timetable is the following:

Decision Meeting January 2, 2006

Delivery to client April 14, 2006

Dissemination Workshop April 20, 2006

Final delivery April 28, 2006

Self-Evaluation (Activity Completion Summary) June 28, 2006