Trung Son Hydropower Project

*Overview and Update*

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Overview

Trung Son is a US$411.57 million medium-sized hydropower and development project located in Northwest Vietnam that will supply least-cost electric power for domestic consumption in an environmentally and socially sustainable manner and will contribute to improvements in dam safety in the power sector in Vietnam. The project will also contribute to the climate change agenda in Vietnam by avoiding CO2 emissions of about 1 million tons per year (net) taking into account the additional low emissions from its reservoir.

Trung Son will enable Vietnam to develop an additional 260MW of electricity-generating capacity to service power expansion and the energy demands of Vietnamese society as the country continues improving its economic growth path of more than 7% per annum over the past several years, while ensuring key conditions like energy security and climate change are contemplated. The project responds to and is circumscribed into the integrated hydrological basin studies conducted as part of developing the Energy Master plan for Vietnam and its subsequent revisions and is part of a broader World Bank energy assistance to the country.

Trung Son Hydropower Project (TSHPP) was approved by the World Bank Board of Executive Directors on April 26th, 2011, and is the first World Bank investment project under IBRD lending conditions to the Government of Vietnam. The World Bank is providing financial support in the form of a loan of $330 million payable with a 27 year maturity and a grace period of 6 years.

Challenges

Vietnam’s annual growth rate of 7-8% during the period of 1996-2010 has led to an increasing demand for power. Electricity consumption in Vietnam has been growing at 15% annually for the past several years. Chronic shortages are affecting the agricultural, industrial and services sector, while many houses still have no electricity. To meet this demand—estimated at an installed capacity of 39GW by 2020, compared to 15.8 GW in 2008—the Government is developing a range of power sources, including hydropower.

As climate change impacts create increasing national concern, a series of hydropower plants that provide clean, renewable and low-cost energy have been planned. Vietnam is keen to improve the social and environmental performance of these projects, and TSHPP is an opportunity to show the progress Vietnam has made in developing a legal and policy framework that complies with the Bank’s safeguards policies.

The World Bank has a history of involvement in Vietnam’s power sector dating to the early 1990s. The US$330 million IBRD loan includes support for equipment, civil works and technical assistance. A sum of US$26 million is reserved for improved resettlement, livelihood development, support for ethnic minorities and environment protection. Through the project, the World Bank will also provide technical support to Vietnam Electricity (EVN) in improving the performance of its hydropower projects in dam safety and operations as well as in adopting international standards in social and environmental practices.

Approach

Trung Son Hydropower Project’s implementation is being undertaken by the Trung Son Hydropower Company (TSHPCo), the former project management board (TSHPMB), a unit under Vietnam Electricity (EVN), and the national electricity utility. It is responsible for ensuring the entire project is implemented according to both Government and World Bank requirements. EVN created the Trung Son Hydropower Company (TSHPCo) as a One-member Company from the former TSHPMB. TSHPCo is a wholly owned subsidiary of EVN into which all the assets of Trung Son Hydropower Plant (TSHPP) will be placed. The
Trung Son Hydropower Company has a dedicated website (http://www.trungsonhp.vn) where publicly available information is updated and placed.

Trung Son Hydropower Project includes the development, construction, and operation of the power plant using water from the Ma River and releasing it into the same basin. The project site is located 48km from the border with Lao PDR in Son La, Thanh Hoa and Hoa Binh provinces in northwestern Vietnam, with the plant in the territory of Trung Son commune, Quan Hoa district, Thanh Hoa province. The main features of the project include:

- 84.5 meter-high dam on the Ma River;
- 13.13 square-kilometer reservoir;
- Powerhouse containing four 65 MW Francis turbines (260 MW installed capacity) each designed for a maximum water head of about 72 m;
- 65 kilometer-long 220-kV transmission line to the Vietnamese national grid;
- Over 20 kilometer access road connecting the road system to the project site;
- Social, environmental and community relations programs to mitigate project anticipated and unanticipated impacts to a directly or indirectly impacted population of about 10,000 people. Of these, over 7,000 people are directly impacted in the main projects area.

Apart from the above mentioned features, the Trung Son project has a robust, multi-layer monitoring and evaluation framework consisting of the following elements:

- **Project Technical Advisory Panel (PTAP)** to advise on technical construction, operations, and dam safety issues. At the request of TSHPMB/TSHPCo, the Dam Safety Review Panel, which provides broad engineering advice, is absorbed by a Project Technical Advisory Panel (PTAP). The PTAP is tasked to provide more general project technical and engineering advice during the construction phase of the project.

- **Panel of Environmental and Social Experts (POE)**, reporting to the TSHPCo and financed via the IBRD loan, to advise on environmental and social issues. In addition to these oversight roles the Panel will be involved in the independent grievance process. The POE normally will visit Vietnam once or twice per year (or more often at the request).

- **Independent monitoring consultants (IMC)**, reviewing activities by both contractors and TSHPCo and reporting independently to TSHPCo and the World Bank.

- **Regular supervision by staff of the World Bank**, in the form of site visits and management and technical missions. The World Bank’s decentralized nature ensures staff are based in the Hanoi office who are able to provide real-time guidance on most aspects of project implementation, from technical, fiduciary, social and environmental safeguards perspectives, and in other areas.

**Benefits**

The project’s development objective is linked to supply of the least-cost electric power in a safe and environmentally and socially sustainable way. Direct benefits include:

- Improvement in living conditions for over 2,000 people that will be relocated;
- Livelihood restoration activities for over 7,000 people whose households are affected by the project;
US$2 million for specific environmental programs that go further than the EMP, including US$700,000 for the protection of 3 natural biodiversity preserves in the Project areas;
• Continuous consultations with villagers on their preferences related to the social change;
• Employment opportunities for Vietnamese workers during construction years;
• Improved road access for villagers and surrounding areas, including 25 km access road connecting the Project site;
• Increase in Vietnam’s power supply with an additional 1019GW a year; while CO2 emissions of about 1 million tons per year will be avoided;
• Provision of flood control benefits through a water storage capacity of 112 million m3.

World Bank Contribution

The World Bank is providing financial support in the form of a loan of US$330 million payable with a 27 year maturity and a grace period of 6 years. The loan includes support for equipment, civil works and technical assistance. The project is composed of four components and the IBRD funding allocation is distributed as follows:

• *The Dam and Ancillary Construction Component*, providing the basis on which least cost electric power is generated. The total cost is estimated at $262.86 million, of which IBRD will provide $233.76 million.

• *The Transmission Line Component* is the means by which the power generated is moved to electricity consumers. The total cost for this component is US$18.61 million, of which IBRD will provide the full amount.

• *The Social and Environment Impact Mitigation Component* ensures the environmental sustainability and socially responsible construction and operation of the Trung Son Hydropower Plant. The total cost for this component is estimated at US$35.47 million, of which IBRD will provide $16.53 million.

• *The Capacity Development and Scale-up Component* scales up the impact of the environmental sustainability and socially responsible construction of the plant by leveraging the knowledge gained to other projects in Vietnam. The total cost is estimated at US$3.0 million, of which IBRD will provide the full amount.

An estimated amount of US$58.1 m has been included for physical and price contingencies as well as front end fees and other unallocated expenditures.

Toward the Future

The Trung Son Hydropower project is a good example of a well-designed, medium-scale hydropower project prepared according to international good practices in technical design, analysis of alternatives, and particularly environmental, social and dam safety elements. Given Vietnam’s plans to develop a series of medium scale hydropower projects in the coming years, the first hydropower project that the World Bank is financing in Vietnam can serve as a good practice example upon which subsequent projects can build. The Trung Son Hydropower Project is an example of how hydropower can help support Vietnam’s development in an economically, environmentally and socially sustainable way.

For more information

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More detailed aspects of the project in all sections and components described above can be found in the Project Appraisal Document, publicly available after the IBRD/DA World Bank Board of Executive Directors' approval.