Hunan Yuanshui River Basin Hydropower Development Project

Contributing to relieving the tight situation of power supply and demand by constructing hydropower plants in the Hunan Yuanshui River basin, which is rich in potential hydropower resources.

**Project Objectives**

To enhance the balance of electric power demand and supply in the mid-western province of Hunan, which serves as a node between the coastal and inland regions of China and is thus strategically important for national economic development, by constructing two hydroelectric power plants with an installed capacity of 225 MW and 240 MW, respectively, with concrete gravity dams in the Yuanshui River basin, thereby contributing to the economic development of the province and the wider mid-western part of China.

**Operation and output performance of the Jiujiang Thermal Power Plant Part III**

<table>
<thead>
<tr>
<th>Year</th>
<th>Capacity factor (%)</th>
<th>Annual total inflows (100 million m³)</th>
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**Effects of Project Implementation (Effectiveness, Impact)**

The Hongjiang and Wanmipo plants are operated highly efficiently. The hydro utilization factor reached 99.2% (against the planned value of 80.0%) for Hongjiang and 99.4% (85.3%) for Wanmipo. However, most of the other indicators were slightly below the planned values. The output amounted to 852.7 GWh (870 GWh) for Hongjiang and 721.8 GWh (792 GWh) for Wanmipo. The capacity factor stood at 41.1% (49.2%) for Hongjiang and 37.7% (37.7%) for Wanmipo. Annual inflows totaled 16,210 million m³ (22,200 million m³) for Hongjiang and 10,550 million m³ (9,430 million m³) for Wanmipo.

The two plants have contributed to job creation and economic development. Local communities in their vicinity have benefited from the dam reservoirs by using them for aquaculture and tourism.

Yet employment opportunities created by the Wanmipo plant were inadequate. Some of the residents who have been resettled in connection with the dam construction have no other choice but to work far away from their home.

Therefore, project has largely achieved its objectives and its effectiveness is high.

**Relevance**

This project has been highly relevant with China’s national policies and development needs at the times of both appraisal and ex-post evaluation. At these points in time, power demand exceeded power supply in Hunan Province. Hydroelectric power generation in the Yuanshui River basin accounts for about 50% of the total power output in the province. There is therefore a considerable need for constructing hydropower plants that capitalize on the abundant potential hydropower resources in the basin.

**Efficiency**

This project cost less than planned (67% of the planned period) but took slightly longer (106% of the planned period); therefore, the evaluation for efficiency is moderate. The implementation was delayed chiefly because the bidding procedures took much time.

**Sustainability**

No major problems have been observed in the capacity of the executing agency nor its operation and maintenance system of the executing agency; therefore, sustainability of this project is high.

**Conclusion, Lessons Learned, Recommendations**

In light of the above, this project is evaluated to be highly satisfactory. The resettlement of residents in connection with the construction of hydropower plants deserves special attention. When no major industries have been established in the candidate areas for resettlement, a viable option may be to provide the residents to be resettled with vocational training and offer a destination that is more industrialized whenever possible. This option should be considered in developing and appraising any resettlement plan. Since the socioeconomic conditions for the resettled residents change over the long term, the project evaluation should preferably have a longer-term scope.

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**Project Evaluation**

**Rating**

Effectiveness, Impact: a

Relevance: a

Efficiency: b

Sustainability: a

Overall rating: A

**Outline of the Loan Agreement**

- Loan amount / disbursed amount: 17,664 million yen / 8,857 million yen
- Loan agreement: December 1998
- Terms and conditions: 0.75% interest rate; 40-year repayment period (including a 10-year grace period); partially untied (or bilateral tied in parts)
- Final disbursement date: July 2006
- Executing agency: China Guodian Corporation
- Website URL: http://www.cgdc.com.cn/web/guest/home

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