ICR Review

Operations Evaluation Department

Report Number: ICRR11395

1. Project Data:		Date Posted: 01/24/2003		
PROJ ID:	P009869		Appraisal	Actual
Project Name:	Nathpa Jhakri Power Project	Project Costs (US$M)	1838	2184
Country:	India	Loan/Credit (US$M)	485	427
Sector(s):	Board: EMT - Power (95%), Sub-national government administration (5%)	Cofinancing (US$M)	300	653
L/C Number:	L3024			
		Board Approval (FY)		89
Partners involved :		Closing Date	12/31/1997	03/31/2002

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2. Project Objectives and Components

a. Objectives

The project has four objectives:

1. Alleviate the acute shortage of electricity generating capacity in the Northern Region of India .

2. Reinforce and expand the transmission system of Himachal Pradesh .

3. Modernize and strengthen Himachal Pradesh State Electricity Board (HPSEB) operations, and its load and financial management capability.

4. Strengthen the Central Electricity Authority (CEA), Central Water Commission (CWC) and other selected agencies in the planning, design, and management of hydropower projects .

b. Components

Original Components :

1) Construction of the Nathpa Jhakri power station, a 1,500 MW run of the river hydropower scheme, including a 60 meter high dam, 27 km long head race tunnel, underground de-silting chambers, underground powerhouse, a rehabilitation program for the population to be displaced by the project, and a plan to protect the environment in the scheme area.

2) Construction of about 500 km of 132 kV transmission lines and associated substations with a capacity of about 184 MVA in the state of Himachal Pradesh, including tools, transport, and equipment for construction, inspection, and maintenance of the system; installation of communication system and a state load dispatch facility for control and operation of the Himachal Pradesh system.

3) Preparation by consultants of a ten-year transmission plan for HPSEB, and studies on accounting, management, and information; and utility management to streamline HPSEB operations.

4) Implementation of a training program to strengthen the capabilities of CEA, CWC, and other selected agencies to plan, design, and manage hydropower projects and associated works, including the acquisition of specialized office equipment, technical literature, computer hardware and software, office space to install such equipment; and the utilization of consultant services to implement the training program.

Revised Components :

In response to the GOI's request, the following changes were made:

1) Reduce the length of the transmission lines from 500 km to 437 km, and increase capacity of the substations from 184 MVA to 256 MVA.

2) Finance internationally recruited consultants to study and report on the feasibility of developing the proposed Rampur hydro scheme downstream of Nathpa Jhakri. By loan closure, however, no further action had been taken to undertake the study.

c. Comments on Project Cost, Financing and Dates

Total project cost was $2,184 million, compared to the appraisal figure of $1,838 million. The Bank provided a loan in the amount of $485 million, of which $ 427 million was disbursed and $ 58 million was cancelled. The government provided counterpart financing in the amount of $1,104 million, compared to the appraisal figure of $1,053 million. Co-financing of $653 million was provided by a consortium of European banks and the Nordic Investment Fund ($300 million) and by India's Power Finance Corporation ($353 million). The original closing date of December 31, 1997 was extended twice: first, to December 31, 1998, and second, to March 31, 2002.

3. Achievement of Relevant Objectives:

1) **Alleviate the acute shortage of electricity generating capacity in the Northern Region of India** . *This objective was achieved*. At the time of the loan closing, the construction of the Nathpa Jhakri power station was not completed. However, after the closing date, the first of the six units was commissioned on December 30, 2002, which complies with the accelerated schedule of full commissioning by December 2003 that was forecast at the time of the May 2002 ICR mission. The remaining five units are expected to be commissioned by July 2004, according to the schedule reported to the State and Central Governments.

2) **Reinforce and expand the transmission system of Himachal Pradesh** . *This objective was achieved*. The construction of 436 km of 132 kV transmission lines and associated substation were completed and commissioned on December 2000. As a result of these network improvements, overall technical losses were reduced by 150 GWh per year or an amount equivalent to $7.5 million, per HPSEB's estimates.

3) **Modernize and strengthen HPSEB operations, and its load and financial management capability** . *This objective was partially achieved*. Computers and appropriate programs have been put in place for HPSEB's administration and financial accounting procedures, consumer billing, staff records, bank reconciliation, and payroll and inventory management control. The HPSEB board, however, declined to adopt the recommendations on the restructuring of HPSEB which the Board found to be too complex. HSEB's financial performance was fully unsatisfactory.

4) **Strengthen CEA, CWC and other selected agencies in the planning, design, and management of hydropower projects.** *This objective was achieved*. 56 engineers received training in Canada and in the United States, and 236 engineering technicians were trained in India. In addition, procurement was completed for specialized engineering equipment, technical literature, computers and printers, and computer-aided software for the design of systems and hydro schemes.

4. Significant Outcomes/Impacts:

According to the ICR, the CEA staff trained under the project's TA are now providing research and design services to several new hydro-schemes in India, and through consultancy contracts, to the neighboring countries of Nepal and Bhutan.

5. Significant Shortcomings (including non-compliance with safeguard policies):

The project was not ready for implementation at entry. The 1998 QAG review of quality at entry rated the project as unsatisfactory and noted that: "the Nathpa Jhakri project was not ready for approval even by the 1989 yardsticks". Various deficiencies at project entry were noted including the lack of agreed basic technical design, absence of bidding documents, and incomplete staff and management personnel in Nathpa Jhakri Power Company (NJPC), the project's implementing agency. Although a resettlement program and an environmental plan were included in the project's components, neither of these plans were drawn up prior to appraisal. It was only in 1999, 11 years after loan effectiveness, that a Rehabilitation Action Plan was implemented. The ICR mission found that the implementation of the income generation activities has been discouraging. On environmental safeguards, the ICR noted that project supervision from environmental specialists was provided only in 1994 and their subsequent participation in supervision missions were infrequent, occuring once every four years, on average (as indicated in the ICR's Annex 4). It was only in 1998, 10 years after loan effectiveness that an Environmental Management Plan (EMP) was formulated but it took another three years for it to be implemented, which was rated by the ICR mission as unsatisfactory. Finally, it was only in 2002, that the EMP was initiated and an environmental engineer for the project was recruited.

The government's inability to appoint key management personnel of the NJPC at appraisal, and to delegate authority to NJPC management led to frequent vacancies, and to inaction in major project issues, thereby contributing to further delays in completing the project. The force majeures that occured during implementation also contributed to further delays and had negative impacts on the project which could have been minimized if extensive geological studies were undertaken during the design preparation phase.

HPSEB's financial performance was unsatisfactory throughout the project implementation period (ROR covenant met in only 1 of 12 years)(see section 3.3 above). Finally, the Nathpa Jhakri project did not fully comply with the Bank's safeguards policies; it entered the portfolio with major deficiencies in all design aspects, and without a resettlement program and environmental plan. In essence, the design and appraisal for the Naptha Jhakri project only began in earnest when the loan became effective.

After the project's closing date, however, some outstanding commercial, financial, and operational issues have been adressed. A full-time Chairman and Managing Director has been appointed; a commercial department has been established and is fully functional; the audit and CEA's approval of the revised cost have been complied with; three PPAs have been signed and more are in discussion, which are expected to reach closure given the continuing power shortages; and the operational manual is in the final stages of preparation, taking into account the recent experiences of the commissioning team.

Further, noticeable progress has been made on environmental issues that were outstanding at the project's closing : an environment monitoring action plan has been prepared and the monitoring agency has completed two rounds of pre-operations period monitoring; the environment unit of the NJPC is now functioning with two environmental engineers involved in environmental monitoring and management; a catchment area treatment plan has been finalized; a redevelopment plan for the degraded and muck disposal areas has been finalized; the fisheries development plan is being implemented; a safety assurance plan has been prepared . In addition, at NJPC's own initiative, a 5 year monitoring plan is being prepared to assess geological and ecological impacts of the changes in the river flow.

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments
Outcome:	Satisfactory	Moderately Satisfactory	Given the completion of the physical works and the commissioning of the first unit in December 2002, there is reasonable certainty that the project's main physical objective will be achieved upon commissioning of the remaining five units by July 2004, as indicated to the Central and State Governments. Although commissioned after the project closing date, the six units (which account for 96 percent of the project cost) are attributable to the project. Outcome is rated as only "moderately satisfactory", however, on account of delays in completion and HPSEB's poor financial performance.
Institutional Dev .:	Modest	Modest	
Sustainability :	Likely	Likely	Likely on balance. However, this assumes that HPSEB's financial weaknesses will be satisfactorily addressed.
Bank Performance :	Unsatisfactory	Unsatisfactory	
Borrower Perf .:	Unsatisfactory	Unsatisfactory	
Quality of ICR :		Unsatisfactory	

NOTE: ICR rating values flagged with ' * ' don't comply with OP/BP 13.55, but are listed for completeness.

7. Lessons of Broad Applicability:

1) The project provides lessons on *how not to design and implement a project*. While there were efforts both from the Bank and from the government to resolve design deficiencies during implementation, the problems were too numerous to be surmountable. The government's inability to act decisively on major project issues, and by force majeures, worsened the problems.

2) Securing broad based commitment from key stakeholders in government is an important element in ensuring timely completion of projects. This process involves dialoguing and agreeing with government prior to appraisal on key institutional issues such as staff composition and recruitment, delegation of authority, and key accountabilities and responsibilities of various key agencies involved in the project .

3) To ensure satisfactory compliance to safeguards policies, the Bank needs to secure commitment from the Borrower at the early stage of project preparation, and provide technical support in undertaking social and

environmental impact studies and in developing mitigating measures .

8. Assessment Recommended? ○ Yes ● No

9. Comments on Quality of ICR:

The ICR's quality has been rated as Unsatisfactory on balance . It contains a number of inconsistencies, and provides unnecessary and sometimes confusing details, especially in its discussion on the achievement of objectives and on the resettlement and environmental issues . For instance, para. 4.6.12 states that '"...At the time of the ICR mission, the implementation of the EMP remained unsatisfactory " yet para 4.6.14 indicates that "...the SAR environmental targets have been implemented satisfactorily, and the implementation of the EMP targets are proceeding..." Some aspects of the ICR are weak: (i) The logframe is inadequate and does not provide sufficient performance indicators consistent with the objectives and components of the project . For instance, the logframe has one only one outcome/impact indicator and one output indicator; and (ii) The economic analysis lacks details and is incomplete. The assumptions on costs and benefits are not clearly laid out, thus making it difficult to compare the calculation between the ex-ante (SAR) and the ex-post ERR (ICR). Benefits accruing to consumers from expected increase in power supply, and the costs and benefits from social and environmental impacts of the project have not been properly valued and assessed on how they affect the project's ERR . Finally, some key information subsequently provided to OED by the region should have been included in the ICR .