ICR Review

Operations Evaluation Department

Report Number : ICRR10691

1. Project Data :		Date Posted : 07/27/2000		
PROJ ID : P010423	OEDID : L3632		Appraisal	Actual
Project Name :	NTPC Power Generation	Project Costs (US$M)	1269.1	976.9
Country :	India	Loan/Credit (US$M)	400	400
Sector, Major Sect .:	Thermal, Electric Power & Other Energy	Cofinancing (US$M)	0	0
L/C Number :	L3632			
		Board Approval (FY)		93
Partners involved :		Closing Date	09/30/1997	03/31/1999

Prepared by :	Reviewed by :	Group Manager :	Group :	
Alvaro J. Covarrubias	Alain A. Barbu	Alain A. Barbu	OEDST	

2. Project Objectives and Components

a. Objectives

The project objectives were to: (a) improve commercial discipline in the power system; (b) help the National Thermal Power Corporation (NTPC) mobilize funds from internal sources and domestic and foreign capital markets, and joint-ventures with the private sector, to meet its targets for power capacity additions; (c) upgrade the environmental performance of NTPC's existing power stations and make its new power stations more environmentally sustainable; and (d) strengthen NTPC's capacity for managing resettlement, rehabilitation and environmental programs.

b. Components

The project comprised: (a) generation capacity additions: a five-year time-slice of NTPC's least cost investment program of new gas and coal based power stations, of which Vindhyachal-II 2x500 MW and Rihand-II 2x500 MW coal-fired stations were to be financed by the Bank loan; (b) private sector component: support to NTPC to undertake several joint venture operations; and (c) environmental strengthening and resettlement and rehabilitation: the implementation of an Environmental Action Plan (EAP), which included environmental upgrading projects, training, and technical assistance for the strengthening of NTPC's capacity for management environmental and Resettlement and Rehabilitation (R&R) programs.

c. Comments on Project Cost, Financing and Dates

The actual project cost of US$976.9 million equivalent is 23 percent lower than the US$1,269.1 million estimated at appraisal. This is mainly a consequence of the significant low cost of the turbine-generator and auxiliary equipment for the 2x500 MW Vindhyachal- II power station obtained through international competitive bidding (about half of the US$410 million appraisal estimate). The US$400 million Bank loan was fully disbursed (the loan closing date required several extensions totaling 18 months) and contributed 41 percent to project financing. NTPC financed the balance 59 percent, of which 28 percent was its own cash generation and 31 percent was medium term domestic and international commercial borrowing. The Vindhyachal-II coal fired station and the Kayamkulam 350 MW combined cycle naphta-fired power project (built instead of the Rihand-II coal-fired station) were commissioned, respectively, in March 2000 --as scheduled at appraisal-- and in March 2000 -three months ahead of schedule. Project completion slipped from March 1997 to September 1999. At that time the project was declared substantially completed because the second unit of Vindhyachal and the steam component of the Kayamkulam were about to be fully commissioned.

3. Achievement of Relevant Objectives :

Commercial discipline in the power sector can be considered substantially achieved. In particular, NTPC improved its collection and financial situation by entering into bulk power purchase agreements with its customers, the States Electricity Boards. These agreements include, among other recourses, the ability to shut off power or restrict

supply to State Electricity Boards not in compliance with agreed terms of payment, and charge the defaulting states penalties for withdrawals exceeding the amounts guaranteed by their respective letters of credits. Collection efficiency of NTPC increased from 75 percent in 1990/91 to 82 percent in 1998/99. Yet, chronic default of eastern State Electricity Boards and Delhi, Uttar Pradesh, Kerala and Assam, compounded with a lack of political support, increased NTPC receivable to about 3.7 months of billing in 1999 (compared to the 2.0 months loan covenant). Power capacity increase was fully achieved by the timely commissioning of Vindhyachal-II and Kayamkulam stations totaling 1,350 MW. Although joint venture operations with the private sector for power generation were not achieved, NTPC entered in joint ventures for the development of gas supply infrastructure. NTPC has also succeeded in raising capital on both the domestic and international financial market, and in not relying solely on development institutions for funding its investment program. The resettlement and rehabilitation of Singrauli and Kayamkulam areas were deficient in the early stages of project execution but improved significantly toward the end of the project particularly with the intervention of an Independent Monitoring Panel that advises NTPC and the Bank on issues related to the Singrali region.. Also, NTPC's capacity to manage certain critical environmental activities, such as ash disposal, mercury contamination, and environmental medicine, has improved substantially. On this front, NTPC is seeking ISO 14001 certification for its environmental management.

4. Significant Outcomes /Impacts:

The project added 1,350 MW of thermal power capacity to the NTPC generation facilities. The progress made on environmental and resettlement policies for power stations in India are now deemed to be irreversible. NTPC relies to a lesser extent on international development institutions to finance its investment, but more in its internal cash generation and commercial credits from domestic and foreign sources. Although not an explicit project objective, the substantial institutional development achieved in NTPC by this project has led this institution to now play a central role in power sector reform in India.

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

The project was referred to the Bank's Inspection Panel. The request for inspection alleged that the Bank was not complying with five Operational Policies (ODs). Management's response indicated that the Bank was in full compliance with two ODs, in substantial compliance with other two ODs, and in partial compliance with the OD on environmental assessment. This led the Bank to appoint and independent monitoring panel to assess grievances and develop a more comprehensive program in the Singrali region. NTPC did not enter into joint ventures with the private sector for power development --although it did for gas supply infrastructure. NTPC's receivables continue to be a chronic problem caused by non payment of electricity bills by Eastern States and a few Northern/Southern States.

6. Ratings:	ICR	OED Review	Reason for Disagreement /Comments
Outcome:	Satisfactory	Satisfactory	Most of the project objectives have been achieved, though with some delays for the resettlement and environmental components. Actual EIRR is 17 percent, i.e. better than the 14.7 percent estimated at appraisal.
Institutional Dev .:	Substantial	Substantial	The strengthening of NTPC's capability in managing environmental and resettlement programs, as well as the achievement of commercial discipline support this rating.
Sustainability:	Likely	Likely	The upgrading of NTPC's staff skills ensures physical sustainability of the thermal power stations. The improvement achieved in both the management and financial position of NTPC

			ensures the availability of own and commercial resources for its current expenses and investment programs. Progress made in environmental and resettlement aspects is irreversible.
Bank Performance :	Satisfactory	Satisfactory	Based on available information and subject to validation by possible future audit
Borrower Perf .:	Satisfactory	Satisfactory	Project complexity and factors beyond control of NTPC (arrears of some State Electricity Boards) as well as problems in R&R implementation explain this rating
Quality of ICR :		Satisfactory	

7. Lessons of Broad Applicability :

(a) When Bank policies and standards to be agreed in a Bank project are more restrictive than those prevailing in the country, during project appraisal and negotiations or earlier during project preparation, all parties concerned in the country should be made aware of the implications entailed by such agreement. (b) An independent monitoring panel has proven to be an excellent instrument to help the Borrower and the Bank assess performance and likely outcomes of environmental, resettlement and rehabilitation programs. (c) The Bank should establish the principle that environmental studies that are included in projects financed by the Bank, are to be made readily available to concerned individuals and NGOs of the country; and (d) the increasing use of independent monitoring panels in Bank projects raises funding issues (in this project, the cost of the IMP was financed under the Bank's supervision budget --see below).

8. Audit Recommended? ● Yes ○ No

Why? To analyze in depth the project's resettlement, rehabilitation and environmental aspects, from which worthwhile lessons and best practices may be drawn, particularly in a social setting as complex as India's.

9. Comments on Quality of ICR :

Satisfactory. It contains a detailed account of project preparation, implementation and results.. Annexes on environment, resettlement and rehabilitation issues, and role of NTPC in the Indian power sector development are exemplary. There are some minor inconsistencies in data (e.g., Table 4 shows cumulative loan disbursements in excess of the loan amount). The ICR could also have highlighted the very high cost incurred by the Bank in project supervision and in ICR preparation (Table 11 shows an average cost close to US$200,000 per year in 7 years of supervision and US$149,000 in ICR preparation). Information subsequently provided by the region indicates that these above-average costs are due to the project's unusual complexity, geographical dispersion and the need to finance the cost of the independent monitoring panel (see above) under the Bank's budget. The ICR cost also includes some supervision cost (as this is one project which continues to be supervised after loan closing).