



Validation Report

Reference Number: PVR-369
Project Number: 32298
Loan Number: 2323
August 2015*

Multitranche Financing Facility India: Madhya Pradesh Power Sector Investment Program (Tranche 1)

Independent Evaluation Department
Asian Development Bank

* Revised December 2015.

ABBREVIATIONS

ADB	–	Asian Development Bank
DMF	–	design and monitoring framework
EIRR	–	economic internal rate of return
FIRR	–	financial internal rate of return
IED	–	Independent Evaluation Department
kV	–	Kilovolt
MFF	–	multitranche financing facility
MPTRANSCO	–	Madhya Pradesh Power Transmission Company Limited
MVA	–	megavolt-ampere
MW	–	megawatt
PCR	–	project completion report
RRP	–	report and recommendation of the President
WACC	–	weighted average cost of capital

NOTE

In this report, “\$” refers to US dollars.

Key Words

adb, asian development bank, distribution, energy efficiency, energy sector, india, investment program, lessons, madhya pradesh, performance evaluation, project completion report, transmission network, validation

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PROJECT BASIC DATA

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Project Number:	32298	PCR Circulation Date:	Aug 2013	
Loan Number:	2323	PCR Validation Date:	Oct 2015	
Project Name:	Madhya Pradesh Power Sector Investment Program (Tranche 1)			
Country:	India		Approved (\$ million)	Actual (\$ million)
Sector:	Energy	Total Project Costs:	132.5	114.1
ADB Financing: (\$ million)	ADF: 0.0	Loan:	106.0	97.3
		Borrower:	11.0	16.8
	OCR: 106.0	Beneficiaries:	0.0	0.0
		Others:	15.5	0.0
Cofinancier:		Total Cofinancing:	0.0	0.0
Approval Date:	4 Apr 2007	Effectiveness Date:	14 May 2007	11 Jul 2007
Signing Date:	12 Apr 2007	Closing Date:	30 Jun 2011	30 Jun 2012
Project Officers:	N.Tas-Anvaripour H. Kobayashi V. R. Karbar J. Banerjee	Location: ADB headquarters ADB headquarters India Resident Mission India Resident Mission	From: Apr 2007 Sep 2007 Jan 2009 Feb 2012	To: Aug 2007 Dec 2008 Feb 2012 Jun 2012
Initial Reviewers:	P. Choynowski, Consultant F. D. De Guzman, Senior Evaluation Officer, IED2	Peer Reviewer:	L. Hauck, Senior Evaluation Specialist, IED2	
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ADB = Asian Development Bank; ADF = Asian Development Fund; IED2 = Independent Evaluation Department, Division 2; OCR = ordinary capital resources; PCR = project completion report.

I. PROJECT DESCRIPTION

A. Rationale

1. In India, Madhya Pradesh faced severe challenges in supplying energy that could help reduce poverty and enhance the economic development of the state. According to the report and recommendation of the President (RRP),¹ within the energy sector, transmission capacity in Madhya Pradesh was inadequate as investment in the transmission network did not keep pace with the growing demand. Energy supply was also short and a failure of any network component could easily cause load shedding. The distribution system was another bottleneck in electricity delivery. It was characterized by high ratios of low-voltage circuit length to medium-voltage circuit length and overloaded power transformers. Safety was compromised on the distribution networks due to shoddy installation of equipment and inadequate maintenance practices. Distribution network losses in many areas were 40%–45%.

2. The financial position of the Madhya Pradesh State Electricity Board was critical due to inadequate tariffs, non-remunerative investments in rural electrification schemes, delays in receiving tariff subsidies from the state government of Madhya Pradesh, and high commercial and technical losses in the transmission and distribution networks. Following the Asian

¹ ADB. 2007. *Report and Recommendation of the President to the Board of Directors: Proposed Multitranche Financing Facility to India for the Madhya Pradesh Power Sector Investment Program*. Manila.

Development Bank (ADB)-supported financial restructuring of the sector and unbundling of the Madhya Pradesh State Electricity Board in 2002 into five corporations, the state government injected equity and took over arrears and rural electrification loans. However, shortfalls in sector revenues were expected to continue in the medium-term period as a result of high distribution losses. Therefore, targeted loss-reduction investments were critical to bring the cost of supply in line with average retail tariffs and to achieve sector profitability and eventual financial sustainability.

3. Encouraged by the reforms made by the state government since 2001, especially the establishment of the Madhya Pradesh Electricity Regulatory Commission, ADB developed an investment program estimated to cost \$5.3 billion (2007–2012), with ADB financing earmarked at \$620 million (11.7%), through a multitranche financing facility (MFF) comprising six tranches over 8 years. The RRP included details for Tranche 1, which primarily related to the transmission segment, and Tranche 2 for the distribution segment. The project completion report (PCR)² described the progress made under Tranche 1. It is the subject of this validation.

B. Expected Impact

4. The design and monitoring framework (DMF) of the RRP indicated the expected impacts of the investment program in Madhya Pradesh as contributions in sustaining economic growth and social development and in meeting its energy demand growth.

C. Objectives or Expected Outcome

5. The DMF in the RRP indicated six expected outcomes of the MFF, as follows: (i) sustainable and commercially operated power sector companies; (ii) transmission expansion, including improvement in operational efficiency, voltage profile, and power delivery capacity; (iii) distribution enhancement, including reduction in system losses and improved supply quality and reliability; (iv) strengthened capacity of sector institutions; (v) improved energy efficiency; and (vi) increased private sector participation. The investment program envisaged physical and nonphysical investments in both transmission and distribution segments of the energy sector.

6. The specific outcomes of Tranche 1 related to the transmission component. The DMF of the PCR indicated that the project envisaged improvement in operational efficiency, voltage profile, and power capacity of Madhya Pradesh. The performance indicators were improvements by 2008–2009 over 2005–2006 in the (i) transmission capacity from 5,563 megawatts (MW) to 8,170 MW—an increase of 47%, (ii) system availability from 95% to 97.5%, and (iii) reduced technical losses in the transmission system from 5.2% to 4.9%.

7. Also listed as performance targets were (i) enhanced ability of the Madhya Pradesh Energy Department to implement further reforms, (ii) improved capacity of the Madhya Pradesh Electricity Regulatory Commission, (iii) improved human resources and financial management and accounting in all sector companies, (iv) developed capacity for interstate power trading, (v) energy conservation funds established to support small-scale projects promoting energy efficiency, and (vi) sustainable increase in private investment in the power sector. However, the PCR was unclear about the sequence and how these targets were going to be achieved and monitored. More importantly, it was not clear how the institution-building activities envisaged

² ADB. 2013. *Completion Report: Multitranchise Financing Facility: Madhya Pradesh Power Sector Investment Program (Tranche 1) in India*. Manila.

across different tranches of the MFF would be mapped onto the targets when multiple tranches were running simultaneously.

D. Outputs

8. Under Tranche 1, the transmission capacity expansion component was focused on the construction of time-critical transmission lines, substations, and auxiliary equipment to evacuate and transmit power from new power stations and substations to consumers. Outputs delivered under Tranche 1 included the construction of (i) 2 circuit kilometers of 400 kilovolt (kV) and 1,435 circuit kilometers of 220 kV transmission lines across the state, (ii) two new 400/220/132 kV substations with 315 megavolt-ampere (MVA) transformer capacity, (iii) eight new 220/132 kV substations with six transformer capacity of 160 megavolt-ampere (MVA) and two transformers of 260 MVA capacity, (iv) 10 220/132 kV transformers of 160 MVA for existing substations, and (v) three 220/33 kV transformer of 100 MVA. These outputs broadly conformed to the outputs envisaged under the RRP.

E. Provision of Inputs

9. At appraisal, the total cost of Tranche 1 was \$132.5 million, comprising \$106 million in foreign currency (80% of the total) and \$26.5 million in local currency costs (20% of the total). Actual project cost at completion was \$114.1 million, comprising \$97.3 million in foreign currency (85.3%) and \$16.8 million in local currency costs (14.7%). The lower actual cost at completion was attributed to (i) lower-than-estimated cost of equipment procurement as a result of competitive bidding; (ii) depreciation of the Indian rupee against the dollar; and (iii) efficient project monitoring and administration, resulting in savings in interest during construction.

10. The MFF was to be sourced from ADB's ordinary capital resources. The specific terms of each tranche were to be based on the government's periodic financing requests. The Government of India (the borrower) was to relend the loan to the state government of Madhya Pradesh on the same terms and conditions as applicable to the national government. The state government, in turn, lent the funds to the Madhya Pradesh Power Transmission Company (MPTRANSCO) with a 1 percentage point spread, while bearing the loan's foreign exchange risk itself.

11. It was envisaged that MPTRANSCO and the energy sector companies would have the institutional capability to implement the project, and that the services of consultants would not be required. However, MPTRANSCO eventually appointed consultants to prepare the environment and social safeguard reports and formulate the resettlement plan.

F. Implementation Arrangements

12. MPTRANSCO was the executing agency for the transmission component. A coordinating committee comprising the chairman and the managing director of the MPTRANSCO, along with the managing directors of other executing agencies, was to be established to monitor and coordinate the overall implementation of the investment program. The coordinating committee was to report to the Madhya Pradesh Energy Department, which is responsible for monitoring the implementation of the reform policy and overall power sector investment. The Madhya Pradesh Electricity Regulatory Commission was to monitor the service delivery performance of the executing agencies.

13. Implementation arrangements were carried out as envisaged at appraisal. The project management unit established within MPTRANSCO was responsible for project implementation. It was guided by the chief executing officer (the chairman and managing director) who was responsible for overall project coordination. All procurements originated from the project headquarters in Jabalpur, India to ensure compliance with ADB procurement guidelines. Officers with the rank of chief engineer were in charge of civil works, building, and commissioning of transmission works. The chief financial officer was responsible for financial matters and issued regular quarterly progress reports.

14. As the scope of the project was fully spread across the large province, ADB took care to put in place environmental and social safeguards as per its guiding principles and policies. However, these did not get prioritized into the functions of the executing agencies and the associated supervising and regulatory agencies. The PCR noted lapses in the observance of environmental and social safeguards in the initial years (PCR, paras. 37 and 43). It was in 2010, more than 2 years after effectiveness, that ADB noted these shortcomings. ADB then drew the executing agencies' attention to follow the ADB environment and social safeguards guidelines and requirements scrupulously. Thereafter, all procedures and practices were reported by the PCR to have conformed to ADB standards. Details of environmental and social safeguards are further discussed in the impact assessment section (paras. 28–30).

15. The PCR noted that all covenants were complied with, except for one requiring the MPTRANSCO to maintain a 20% self-financing ratio from 2010 onwards. Compliance with covenants on the transfer of cash management responsibilities and environmental and social safeguards was delayed. Covenants were not modified, suspended, or waived during implementation.

II. EVALUATION OF PERFORMANCE AND RATINGS

A. Relevance of Design and Formulation

16. The PCR rated the project *highly relevant*. It indicated that project outcomes at appraisal and completion were consistent with India's development priorities and to the ADB country and sector strategies, which focused, among others, on removing transmission bottlenecks to facilitate better utilization of existing and planned generating stations. The country strategy of ADB was to fund infrastructure projects in key sectors that contribute to economic growth. Its sector strategy focused on (i) reinforcing and expanding existing transmission and distribution systems; (ii) reforming state power sectors, with emphasis on state electricity board restructuring and commercialization; (iii) rationalizing power tariffs, at bulk and retail levels; (iv) reforming the regulatory framework; and (v) improving energy efficiency. At project completion, the ADB strategy for the power sector in India was in line with the government's Eleventh Five Year Plan (2007–2012) objectives to develop infrastructure for economic growth and poverty reduction.

17. The choice of MFF as a modality was appropriate as ADB had earlier implemented a major policy and investment-oriented program in the energy sector in the state.³ The MFF formulation was, thus, based on an earlier experience and understanding of ADB on the institutional capacity of the sector. Tranche 1 sought to make the transmission system more efficient and was relevant at appraisal and completion. This validation notes that the design of

³ ADB. 2001. *Report and Recommendation of the President to the Board of Directors for the Madhya Pradesh Power Sector Development Program*. Manila. The loan for \$350 million was approved on 6 December.

the project and financing instrument selected were appropriate. During implementation, the project design was modified to add more subprojects that were funded by savings from the project's cost underrun. The PCR indicated that these savings were the result of prompt implementation of the original scope, along with economy and efficiency achieved in procurement. These minor changes in project scope, which consisted of construction and augmentation of substations, installation of additional transformers, among other things, resulted in increased transmission capacity.

18. This validation considers that during formulation, inadequate attention was paid to the institutional aspects under the MFF, particularly under Tranche 1. Some 6–8 organizations (corporations, commission, department, and national agencies) with varying perspectives were involved in the implementation of MFF. An assessment of their priorities, commitment, and capacity to implement environmental and social safeguards was not adequately done. The validation considers this a serious flaw in the project design given the large scope and long-term perspective of the MFF. For this reason, the validation rates the project *relevant*.

B. Effectiveness in Achieving Project Outcome and Outputs

19. The PCR rated the project *effective*. It noted that transmission capacity increased to 8,170 MW in early 2012 and then to 8,809 MW in September 2012, with the result that peak demand of 8,546 MW could be met during 2012. System availability increased to 99.2% in 2012 from 97.5% in 2009. Technical losses were reduced to 3.5% in 2012 from 5.2% in 2006. Thus, the project met the objectives of (i) strengthening the transmission system, increasing access to electricity in Madhya Pradesh, and reducing system losses; (ii) improving power system operation through reliable and economic dispatches; and (iii) facilitating the evacuation of power from generation units. However, it is not clear if the tranche-wise reporting under an MFF should address itself to more immediate outputs, and if outcomes should be assessed only at the facility level.

20. As regards the outputs, the PCR reported that 100% of the physical targets for transmission expansion were met. Although, it indicated the completion of a few works was delayed. On the whole, this validation assesses the project *effective* in achieving its intended outputs and outcomes.

C. Efficiency of Resource Use in Achieving Outcome and Outputs

21. The PCR rated the project *efficient*. It indicated the project was implemented efficiently and all components were operating continuously to capacity from the date of commissioning. It also indicated the economic internal rate of return (EIRR) of all components was recalculated at 20.6%, higher than the 14.9% estimated at appraisal and above the 12% threshold.

22. This validation notes several irregularities in the approach used to recalculate the EIRR. Major shortcomings in the economic valuation of costs included lack of clarity and consistency in the use of the numeraire, costs were not classified and properly shadow-priced, mistreatment of financial charges, taxes and duties, and operating costs were assumed at 5% of the cumulative capital cost instead of the actual from the project operation. Likewise, the estimate of benefits also had problems in identification, quantification, and valuation, the treatment of incremental and non-incremental benefits, and it had likely been overestimated.

These concerns were discussed with the South Asia Regional Department (SARD) during this validation process. SARD later revised the recalculated EIRR to 12.7%.⁴

23. In terms of the implementation processes, this validation notes that the project had a time overrun of one year. The loan closing date was extended twice for a total of 12 months, and it was finally closed in June 2012 as compared to the expected target June 2011. This validation also notes the project had lapses in implementing environmental and social safeguards during the first two years. It was in 2010, two years after the project started, when it was realized that ADB's environmental and social safeguards were not being adhered to (para. 14). In addition, the project did not fully adhere to the standard procedures of second-generation imprest account and statement of expenditure and these had to be rectified (PCR, para 16). On the whole, given these implementation slippages and the methodological concerns on the recalculated EIRR even after corrections during this validation process, the validation assesses the project *less than efficient*.⁵ The corrections done on the EIRR during the validation process was only marginally above the required minimum and not sufficiently robust to firmly establish project economic viability.

D. Preliminary Assessment of Sustainability

24. The PCR rated the project *likely sustainable*. It stated that the design of the subprojects and the technology adopted were technically robust and appropriate. The project helped in meeting demand for power evacuation by wheeling and transferring power utilizing the transmission system established under the project. The technical specifications of the equipment procured and commissioned in the project ensured that the equipment will not likely become obsolete earlier than its expected life span. All commissioned components are expected to be used at full capacity throughout their life, making the project technologically and financially sustainable in the long term.

25. The PCR indicated that the financial internal rate of return (FIRR) was recalculated at 5.3%, above the weighted average cost of capital (WACC) recalculated at 3.5%. However, this validation notes some concerns in the FIRR recalculation. Capital costs included financial charges, which should have been deducted. Operating costs were calculated at 5% of the cumulative capital cost, while the actual operating and maintenance costs from Madhya Pradesh Power Transmission Company and the distribution companies should have been used since the project was already operating. Energy cost at the generator, which was transmitted, distributed, and ultimately sold to consumers was not included in the FIRR calculation. The cost of land, resettlement, and income tax does not seem to have been included either. On the revenue side, it is not clear how output attributable to the project was estimated. During this validation process, SARD later revised the recalculated FIRR and WACC to 7.43% and 0.59%, respectively (footnote 4).

26. The PCR stated that MPTRANSCO has in-house capacity to operate and maintain the subprojects effectively and efficiently. Therefore, it has sufficient human, institutional, and financial resources to maintain the achieved outcome over the project's economic life, and to manage any risks that may arise. However, the PCR did not provide justification for concluding that MPTRANSCO has such financial adequacy and institutional capacity. During this validation process, SARD later provided a certificate for the MPTRANSCO's financial

⁴ SARD's email dated 19 April 2015.

⁵ The regional department disagrees with the downgrade and retains its rating of *efficient*.

performance with the self-financing ratio meeting the loan covenant requirement of at least 20%.⁶ On the whole, the validation rates the project *likely sustainable*.

E. Impact

27. The project had two impact performance indicators: (i) growth in gross state product (GSP) of at least 6% annually during 2007–2012, and (ii) reduction in energy deficit from 13% in 2007 to 0% in 2012. The PCR indicated the first target was met as the GSP growth of Madhya Pradesh was about 9% during 2007–2012. For the second target, it reported the transmission capacity increased to 8,809 MW while peak demand of 8,546 MW was met successfully during 2012 (PCR, Appendix 1). The PCR indicated the project had some positive social impacts resulting from improved electricity supply, an enhanced economy, increased employment opportunities, and better quality of life for local people (PCR, para. 44). The PCR did not discuss in detail how and the extent to which the said social impacts were attributed to the project. It also did not rate the overall project impact.

28. The PCR stated that some project components contributed to the reduced leakage of sulphur hexafluoride (a gaseous electrical insulator) and the project contributed to an overall improvement in environmental conditions, but did not provide evidence to support it (PCR, para. 39). However, the PCR indicated the April 2010 review of the environment management plan implementation revealed varying levels of compliance with agreed provisions, which was assessed less than adequate. The PCR indicated that a number of shortcomings and procedural lapses in implementing environmental safeguards were found during the first two years of implementation, and were caused by: (i) lack of deployment of appropriately trained or experienced personnel, and (ii) low MPTRANSCO priority on these environmental safeguards (PCR, para. 37).⁷

29. The resettlement plan was approved in 2007, updated in 2009 and in 2010 to cover two substations that involved private land acquisition under Tranche 1. The PCR indicated that reviews of the resettlement plan implementation in 2010 indicated procedural lapses during the initial phase of implementation, and these were due to MPTRANSCO: (i) not deploying a resettlement specialist in the environment and social management cell, (ii) not hiring a non-government organization for resettlement plan implementation, and (iii) not engaging an independent agency for monitoring and evaluation. Civil works were commenced without an ADB-approved updated resettlement plan for the changed scope of works. The vulnerable groups to whom compensation was due were not identified in accordance with the entitlement matrix (PCR, para. 43).

30. The PCR indicated that, consequently, in 2010, the setup for environmental and social safeguards management in all executing agencies had to be urgently strengthened and streamlined. Corrective action plans for environmental and social safeguards were put in place and periodic training and review meetings were required to inform executing agencies,

⁶ The certificate was attached in SARD's email dated 6 March 2015. According to the certificate, MPTRANSCO's self-financing ratio exceeded 20% since the 2011-12 period.

⁷ MPTRANSCO was responsible for preparing the required environmental assessment reports and for obtaining ADB concurrence before contracts were finalized and works commenced. An environment and social management cell was set up in MPTRANSCO in May 2002, comprising one full-time and six part-time employees, to attend to the environmental and social safeguards. The need for additional staff was not envisaged, although budget was provided for local consultants, nongovernment organizations, and external agencies to monitor environment and social safeguards during implementation.

advance their understanding, and firm up their commitment to environmental and social safeguards (PCR, paras 37 and 43). On the whole, this validation notes that the project may have eventually met the stated impact indicators for the transmission expansion. However, positive social impacts were not evidenced. Lapses in implementing environmental and social safeguards during the initial years could have negative effects. On this bases, this validation finds the project impact less than satisfactory and hence rates it *moderate*.

III. OTHER PERFORMANCE ASSESSMENTS

A. Performance of the Borrower and Executing Agency

31. The PCR rated the overall performance of the borrower and the executing agency *satisfactory*. MPTRANSCO demonstrated its capacity and ability to formulate, appraise, and arrange counterpart financing; and carry out engineering, procurement, and construction of a variety of projects that conformed to ADB specifications and standards in a satisfactory manner. Despite its earlier experience with ADB, and despite being involved in an MFF modality, the performance of MPTRANSCO was weak in terms of environmental and social safeguards. This validation concurs with the *satisfactory* rating.

B. Performance of the Asian Development Bank

32. The overall performance of ADB was rated *satisfactory* by the PCR. ADB regularly monitored project progress through review missions and quarterly progress reports and provided advice in a number of areas, including procurement and project management. ADB approvals were timely, enabling project milestones to be achieved and for projects activities to be smoothly executed. The executing agency, state government officials, and ADB held tripartite meetings, which helped in implementing the project in a timely manner. ADB addressed the environmental and social safeguards issues resolutely and is expected to remain vigilant in all other tranches of the MFF. This validation agrees with the *satisfactory* rating.

IV. OVERALL ASSESSMENT, LESSONS, AND RECOMMENDATIONS

A. Overall Assessment and Ratings

33. This validation rates the project *successful based on the four criteria ratings of relevant, effective, less than efficient and likely sustainable*. On relevance, the validation rates the project *relevant* and not *highly relevant* as it finds inadequate attention was paid during project formulation to the institutional aspects for the implementation of the MFF, particularly under Tranche I. On efficiency, the *less than efficient* rating reflects the finding that the project had a time overrun and lapses in implementing environmental and social safeguards in the initial years. The economic analysis in the PCR was weak and the resulting EIRR could not firmly establish the project economic viability. The reasons stated for the ratings of *effective* and *likely sustainable* were presented earlier.

34. Relating to more than one of these criteria, the participating institutions' priorities, commitment, and capacity to implement the crucial components, such as environmental and social safeguards were not adequately assessed. The validation notes the bulk of planned energy generation expansion in Madhya Pradesh will be coal-fired thermal plants (RRP, para

9). Although the project was approved before the ADB's new energy policy,⁸ ADB would need to be careful in supporting energy projects to contribute to decarbonizing by not, directly or indirectly, funding coal-power generation, as called for by the Special Adviser to the United Nations Secretary-General.⁹

35. The finding on the serious lapses on the environmental and social safeguards renders impact as *less than satisfactory*. Under the current evaluation method, impact is not part of the project rating. Coupled with the gaps in environmental and social safeguards, the issue of the link between coal-based energy and ADB's support for a low carbon economy raises serious concerns. Going forward, evaluation methods would include the environmental and social gaps in the sustainability criterion, thus marking it down the project rating directly when there are concerns like the ones mentioned here.

Overall Ratings

Criteria	PCR	IED Review	Reason for Disagreement and/or Comments
Relevance	Highly relevant	Relevant	The project formulation overestimated the capacity of the executing agencies, and misjudged MPTRANSCO's low priority and implementation capacity for environmental and social safeguards (para. 18).
Effectiveness in achieving project outcome and outputs	Effective	Effective	
Efficiency in achieving outcome and outputs	Efficient	Less than efficient	The economic analysis was weak and the recalculated EIRR could not firmly establish the project economic viability. The project slipped in terms of process efficiency (paras. 22–23).
Preliminary assessment of sustainability	Likely sustainable	Likely sustainable	
Overall assessment	Successful	Successful	
Borrower and executing agency	Satisfactory	Satisfactory	
Performance of ADB	Satisfactory	Satisfactory	
Impact	Not rated	Moderate (<i>Less than satisfactory</i>)	Positive social impacts were not evidenced. Lapses in implementing environmental and social safeguards in the initial years could have negative effects (paras. 27–30).
Quality of PCR		Less than satisfactory	Refer to para. 40.

ADB = Asian Development Bank, FIRR = financial internal rate of return, IED = Independent Evaluation Department, MFF = multitranché financing facility, MPTRANSCO = Madhya Pradesh Power Transmission Company Limited, PCR = project completion report.

Source: ADB Independent Evaluation Department.

⁸ ADB. 2009. *Energy Policy*. Manila.

⁹ [http://lnadbg1.adb.org/oer0012p.nsf/0/7D00250AE1F8FC1D48257E990001358B/\\$file/6Aug-business-mirror-rev.pdf](http://lnadbg1.adb.org/oer0012p.nsf/0/7D00250AE1F8FC1D48257E990001358B/$file/6Aug-business-mirror-rev.pdf)

B. Lessons

36. The PCR identified three lessons related to environment, social safeguards, and project management. Most of the suggestions seem to be improvements in procedures during project implementation, rather than lessons. This validation has no other lessons to offer.

C. Recommendations for Follow-Up

37. The PCR recommended that a benefit monitoring and evaluation study be undertaken by 2015 to assess and document the socioeconomic benefits and lessons for incorporation in future projects. This validation concurs with the PCR recommendations and has no other recommendations to offer.

V. OTHER CONSIDERATIONS AND FOLLOW-UP

A. Monitoring and Evaluation Design, Implementation, and Utilization

38. According to the RRP, performance monitoring and evaluation was to comprise indicators and targets stipulated in the DMF. ADB was to prepare periodic reports to inform the ADB Board of Directors of overall progress. A Board information report was to be submitted annually and supplemental progress reports were to be submitted before ADB management approved individual loan agreements. From the limited information derived from the Tranche 1 PCR, it is not clear if all these activities were undertaken regularly and on time.

39. Loan covenants required the borrower to ensure that, within 3 months of the effective date, a project performance monitoring system was established by the executing agency in accordance with the investment program and project performance indicators. The executing agency was to undertake periodic project performance reviews to evaluate the scope, implementation arrangements, progress, and achievements of objectives of the subprojects and the overall investment program. According to the PCR, the executing agency complied with the covenant on the project performance monitoring system. The PCR did not discuss the project performance monitoring system and, therefore, it was not possible to assess its design, implementation, and utilization.

B. Comments on Project Completion Report Quality

40. This validation assesses the quality of the PCR *less than satisfactory*. The major shortcoming of the PCR was the inadequate analysis and assessment of the efficiency and sustainability criteria. The EIRR calculation did not account for a number of project costs, including the cost of generated energy, land, and resettlement. Capital and operating and maintenance costs were not shadow-priced appropriately. The cost of land and resettlement costs were also omitted. Economic benefits were not identified, quantified, and valued appropriately. An assessment of the sustainability criterion did not follow ADB guidelines. It used achievements to support the sustainability rating, and failed to justify its assessment that the executing agency is financially and institutionally capable. The PCR erroneously used FIRR as an efficiency measure. The FIRR calculation also suffered from many of the shortcomings that characterized the EIRR calculation. The recalculated EIRR and FIRR required revisions during this validation process. Likewise, the assessment of MPTRANSO's financial performance in the PCR was inadequate and required additional information during this validation process to justify the sustainability rating. Lastly, there was no assessment of the project performance management system.

C. Data Sources for Validation

41. Data sources included the RRP, PCR, and reports of loan review missions.

D. Recommendation for Independent Evaluation Department Follow-Up

42. The PCR did not provide a recommendation for a project performance evaluation review. This validation recommends a project performance evaluation be undertaken after the completion of the MFF.