



# Validation Report

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Reference Number: PVR-301  
Project Number: 34263  
Loan Numbers: 1958 and 1959  
December 2013

## India: Madhya Pradesh State Roads Sector Development Program

Independent Evaluation Department  
**Asian Development Bank**

## ABBREVIATIONS

ADB	–	Asian Development Bank
HDM4	–	Highway Design Model version 4
km	–	kilometer
MPRDC	–	Madhya Pradesh Road Development Corporation
PCR	–	program completion report
PWD	–	Public Works Department
SHA	–	State Highway Authority
TA	–	technical assistance

## NOTE

In this report, "\$" refers to US dollars.

### Key Words

adb, asian development bank, flexibility in execution, governance, india, labor force, land acquisition, madhya pradesh, program loan, reform plans, road administrative management, road sector

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## PROGRAM BASIC DATA

<b>Project Number:</b>	34263	<b>PCR Circulation Date:</b>	Jul 2011	
<b>Loan Numbers:</b>	1958 and 1959	<b>PCR Validation Date:</b>	Dec 2013	
<b>Project Name:</b>	<b>Madhya Pradesh State Roads Sector Development Program</b>			
<b>Country:</b>	India		<b>Approved</b> (\$ million)	<b>Actual</b> (\$ million)
<b>Sector:</b>	Transport and ICT	<b>Total Project Costs:</b>		
		Program	80.20	80.20
		Project	261.20	299.30
<b>ADB Financing:</b> (\$ million)	<b>ADF:</b> 0.00	<b>Loan:</b>		
		Program	30.00	30.00
		Project	150.00	150.00
		<b>Borrower:</b>		
		Program	50.20	50.20
		Project	111.00	149.30
	<b>OCR:</b> 180.00	<b>Beneficiaries:</b>	0.00	0.00
		<b>Others:</b>	0.00	0.00
<b>Cofinancier:</b>		<b>Total Cofinancing:</b>	0.00	0.00
<b>Approval Date:</b>	5 Dec 2002	<b>Effectiveness Date:</b>	5 Mar 2003	16 Dec 2002
<b>Signing Date:</b>	5 Dec 2002	<b>Closing Date:</b>		
		Program	30 Jun 2005	29 Mar 2006
		Project	30 Jun 2008	10 Dec 2008
<b>Project Officers:</b>	S. Wu N. Zhang A. Akanda A. Motwani S. Tsukada P. Dutt	<b>Location:</b>	<b>From</b>	<b>To</b>
		ADB headquarters	Dec 2002	Oct 2003
		ADB headquarters	Nov 2003	Dec 2003
		India Resident Mission	Jan 2004	May 2005
		India Resident Mission	Jun 2005	Sep 2005
		India Resident Mission	Oct 2005	Oct 2007
		India Resident Mission	Nov 2007	Dec 2008
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<b>Quality Reviewers:</b>	C. Kim, Principal Evaluation Specialist, IED2 R. Vasudevan, Evaluation Specialist, IED1	<b>Director:</b>	H. Hettige, IED2	

ADB = Asian Development Bank; ADF = Asian Development Fund; IED1 = Independent Evaluation Department, Division 1, IED2 = Independent Evaluation Department, Division 2; OCR = ordinary capital resources; PCR = program completion report.

### I. PROJECT DESCRIPTION

#### A. Rationale

1. Madhya Pradesh, one of India's larger and poorer states, was one of the focal states for lending activities of the Asian Development Bank (ADB). A dilapidated road system's serious effects on economic performance made the state a priority case for piloting focused improvement efforts on the management of roads. ADB designed a support package comprising a program loan, a project loan, and technical assistance. The Madhya Pradesh State Roads Sector

Development Program was approved and signed in December 2002.<sup>1</sup> In this report, both program and project components are reviewed jointly, and whenever necessary, reference is made either to the program or the project.

## **B. Expected Impact**

2. The program was expected to support the economic and social development of Madhya Pradesh, leading to poverty reduction in the state. Rehabilitation of state roads combined with modernization of the government's road management practices was expected to have significant impact on economic growth and on the welfare of poor people living near the upgraded roads. As skills of staff improve and reforms diffuse, these impacts are expected to increase.

## **C. Objectives or Expected Outcome**

3. The main objective of the program was to improve the efficiency and effectiveness of Madhya Pradesh's road sector management and undertake institutional reform of Madhya Pradesh's Public Works Department (PWD). The idea was to establish a state highway authority (SHA), which would apply modern management practices, be a lean organization efficiently staffed with the right skills mix, and be responsible for road sector policy, resource management, development planning, and asset management. The PWD's labor force was to be reduced by some 15,000 staff by 2005. The project was to rehabilitate 1,750 kilometers (km) of deteriorating and damaged state roads, including some 200 km of rural connector roads, state highways, roads in major industrial centers, and major district roads. The work was to be contracted out to private enterprises and completed by the end of 2007.

## **D. Components and Outputs**

4. The objectives of the program were to be achieved by (i) instituting measures for good governance of the sector, (ii) improving capability and building capacity for better road asset management, (iii) enhancing capacity to improve institutional effectiveness and efficiency, and (iv) initiating steps to identify pilot cases for outsourcing and promoting private sector participation. The implementation of the program required the Madhya Pradesh government to undertake a number of actions. These are described below.

5. **Change in organizational structure.** This involved (i) setting up a state highway zone within the PWD as an interim measure, with the necessary staff and institutional authority to integrate key responsibilities and functions in managing state roads, implement the program, and prepare for transforming the zone into the SHA; (ii) transforming the state highway zone into the SHA as a self-contained and fully functional agency to take over state road management; and (iii) organizing a lean and efficient SHA at headquarters and in the region, employing the right staff to be responsible for road sector policy, resource management, development planning, and asset management.

6. **Introduce modern management practices.** This involved (i) implementing modern planning and decision-making tools, and preparing five-year plans and annual road sector development and maintenance plans based on economic and other clearly-defined sector performance criteria; and (ii) improving internal business processes to enhance operational and financial efficiency, management accountability, transparency, and service quality.

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<sup>1</sup> ADB. 2002. *Report and Recommendation of the President to the Board of Directors: Proposed Loans and Technical Assistance Grant to India for the Madhya Pradesh State Roads Sector Development Program*. Manila.

7. **Rationalize staff and labor.** This meant implementing a staff and labor rationalization program in the PWD as approved by the Madhya Pradesh government; following its voluntary retirement scheme for government employees; and statutory reduction of nonpermanent employees following the Industrial Dispute Act 1947 to free more funds for road maintenance works.

8. **Engage in financing and regulatory activities.** This involved (i) obtaining adequate budget allocation to ensure sustainable funding of road maintenance in the near term until further economic development and traffic growth supported the establishment of a road maintenance fund, and (ii) introducing effective vehicle overloading controls to preserve roads and road safety programs to reduce road deaths and injuries.

#### **E. Provision of Inputs**

9. A program loan of \$30 million from ADB's ordinary capital resources was provided for implementation over 30 months. The program loan was to be released in two tranches. The first tranche of \$12 million was scheduled for release in December 2002 and the second tranche of \$18 million in June 2005. In addition, a loan of \$150 million was provided from ADB's ordinary capital resources to finance 81% of the foreign exchange cost and 2% of the project's local currency cost, or 57% of the total project cost. Funds from the program loan were disbursed to the Government of India, which in turn passed the rupee equivalent to the Madhya Pradesh government to cover the components for the road sector reform.

#### **F. Implementation Arrangements**

10. The Finance Department of the Government of India was the executing agency for the program loan. Initially, the PWD was both executing agency and implementing agency for the loan project. When the Madhya Pradesh Road Development Corporation (MPRDC) was established on 14 July 2004, it became the implementing agency, which dealt with daily project implementation, while the PWD retained responsibility for overall project coordination. The MPRDC worked closely with the technical assistance (TA) consultant team and the consultants hired to supervise the large roadwork program under the project, and used these services to help train MPRDC staff. When the MPRDC became the state highway authority in October 2005, it took over a network of more than 8,333 km and relieved the PWD of that function. Subsequently, the length of state highways increased to over 10,000 km.

#### **G. Technical Assistance**

11. The program provided technical assistance<sup>2</sup> to assist the Madhya Pradesh government in implementing institutional reforms in the road sector. The TA project was to (i) build institutional capacity to support the recovery and development of the state road network; (ii) strengthen capabilities in transport planning, project financing and investment management, and environmental management by introducing internationally recognized practices; (iii) provide training programs to disseminate findings and recommendations on reforming and improving the state's management of the road sector; and (iv) assist the PWD to implement the labor rationalization and social safety net programs for the employees to be retrenched. The technical assistance financed by the Government of the United Kingdom (UK)

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<sup>2</sup> ADB. 2002. *Technical Assistance to India for Institutional Strengthening and Capacity Building for the Madhya Pradesh State Road Sector*. Manila (TA 4013-IND).

amounted to \$1.5 million. The Madhya Pradesh government provided the \$0.4 million equivalent. The TA project was extended three times and the UK government increased its allocation by \$600,000 to enable the consultants to provide support until December 2006, half a year longer than originally planned.

## II. EVALUATION OF PERFORMANCE AND RATINGS

### A. Relevance of Design and Formulation

12. The program completion report (PCR) rated the program *highly relevant* to the needs of the country and/or state at the time of appraisal.<sup>3</sup> It continued to remain equally relevant upon completion. The effort was consistent with the state government's development strategy and ADB's country partnership strategy. In terms of program content, the PCR emphasizes good adaptation of the institution-building design to local needs, which effectively stressed ways to achieve and maintain good governance and sound administrative management. The PCR noted with approval the program's flexibility in adapting engineering changes to the specific conditions of each site and its users, and the major adjustment of the plans and approaches to rationalize the labor problem. The project roads component appears to be generally well-designed. These roads were selected and subsequently rehabilitated under the project. Although a few engineering design features were revised, these were done based on site conditions' needs.

13. While often contributing to program success, such flexibility would not have been necessary had the initial design of alternatives been more realistic in terms of how much of the PWD employment reduction might actually be achieved in a short time. The large shortfall in the planned PWD staff reduction reflected the political opposition to earlier government efforts to sharply reduce government employment, court decisions in some cases, and the election of a new government in 2003, and indicated limitations in program design. The retrenchment could have been an obstacle preventing disbursement of the program loan's second tranche. ADB staff did well in attending to this issue, taking account of the state's persistence in looking for effective and politically feasible means to gradually resolving this inherited obstacle. They obtained Board support for considering the relevant tranche disbursement condition as "partially complied with," so that disbursement could proceed on 29 March 2006, some 9 months behind the original schedule. A more realistic target for the cutback of public sector employees working on road maintenance would have reduced the scale of the expensive administrative effort involved in subsequent renegotiations within the country and adjustment of the commitments undertaken internationally through the program. Considering these program design issues, this validation downgrades the program to *relevant*.<sup>4</sup>

### B. Effectiveness in Achieving Project/Program Outcomes

14. The PCR rated the overall program *highly effective* in delivering the outcomes. The program made good progress in implementing the required institutional and management reforms. The program benefited especially from the tranche release conditions of the program loan for broader policy issues and from the initial implementation of works under the project loan. In mid-2004, a new public sector company, the MPRDC, was created to manage contracts and supervise road rehabilitation projects. The state legislature approved the transfer of responsibility for roads from the long-established PWD to a new SHA. Budget

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<sup>3</sup> ADB. 2011. *Completion Report: Madhya Pradesh State Roads Sector Development Program in India*. Manila.

<sup>4</sup> The concerned regional department expressed the view to maintain the *highly relevant* rating in the PCR.

provisions for maintaining the state's roads were increased in line with the quite ambitious targets that had been agreed. The task of rehabilitating and subsequently maintaining about 2,000 km of roads was competitively contracted on a build–operate–transfer basis, with revenues being earned from tolls. Modern financial management and accounting systems were introduced for the roads sector. More transparent and competitive public procurement was established. Modern planning tools, including the Highway Design Model version 4 (HDM4), to help establish economic priorities and sound spending plans, were introduced; and the ground laid for the development of a strong road database. The creation and development of a wholly new body, initially working entirely on program-assisted elements, and taking over full responsibility from the PWD during its second year proved to be effective for bringing about the required structural changes. The MPRDC, with strong backing from the state government, effectively delivered on the main elements of modernized management of a state road system. Another particularly important program initiative, somewhat beyond original intentions but strongly supported by the TA consultant, was the effective introduction of practices and management skills that enabled the use of large numbers of staff for road maintenance.

15. Rehabilitation of state roads under the ADB-assisted project continued, only a year or two behind the planned schedule, but fell nearly 10% short in aggregate upgraded, at 1,603 km. While the project-financed road-building programs ended up slightly smaller in terms of coverage than originally planned, the more important outcomes from the overall effort were the effective establishment of the improved management practices and their readiness for wider application to the state's full road network. The validation therefore gives the program a *highly effective* rating, appropriate for three reasons: (i) overall success achieved on the main issues, including the most difficult ones, during program execution; (ii) the significance of the visible consequences in network performance; and (iii) the sound basis for further development, which has indeed been pursued. Other than the unrealistic initial targets set by the state government for reducing public sector employment, timely action on all the program loan tranche conditions significantly strengthened the broader policy framework.

### **C. Efficiency of Resource Use in Achieving Outcome and Outputs**

16. The PCR rated the overall program and its components *efficient*, considering both the improved overall management of the state's road sector and the roads rehabilitated with project funds. Despite the shortfall in length of rehabilitated roads, total costs on the project part of the overall program ran some 15% over planned cost, with the excess financed entirely by the Madhya Pradesh and Government of India. The costs of the works and their supervision averaged \$178,000 per km, 29% above appraisal. The increase was attributed mainly to inflation in prices of construction materials and, to a smaller extent, adjustments of design to local site conditions, which exceeded the approximately 10% contingency that had been allowed equally for price and physical adjustments.

17. The various forms of support mobilized under the program contributed to the design and implementation of reforms. The reforms responded well to the identified weaknesses, improving overall performance in both the scale and the time schedule as foreseen. Results of individual road projects are consistent with this picture. The projects were selected with the aid of the HDM4 tool installed in the MPRDC. Analysis of an initial group of these projects at appraisal indicated economic internal rates of return (EIRR), mainly from vehicle operating cost savings of 25% overall and ranging from 19% to 34% for individual Phase 1 projects (those eventually contracted in September 2004).

18. Reevaluation by the completion review mission of December 2010, again using the HDM4 methodology but applying updated input on investment, traffic, and operating costs, indicated returns of 21.6% on Phase 1 roads; 30.6% for Phase 2 roads (that had been contracted in December 2005 and January 2006); and 28.1% for the project as a whole. Presumably, the effects of the higher-than-expected investment costs were offset partly by the price increases in vehicle operating costs and more particularly by higher-than-expected traffic growth. The new analysis took account of road-by-road traffic experience and made cautious assumptions about future traffic growth, with rates of annual increase declining over time. This validation also rates the program *efficient*.

#### **D. Preliminary Assessment of Sustainability**

19. The PCR rated sustainability *likely*, taking account of the improved trends in the state's economic performance, and the government's continued efforts to deepen and spread the improved management of the road system and the quality of service provided. The completion review mission found the rehabilitated roads still in good condition because of more adequate maintenance and management budgets. It emphasized the need to continue building up the MPRDC capacity, deepening reforms in the PWD, and further strengthening efforts and systems to reduce overloading and services to respond to road accidents. The effort has been sustained after program completion: (i) two further loans were obtained from ADB for additional road works,<sup>5</sup> and (ii) opportunity is being taken towards progress on issues that were introduced but could not move further within the program period—such as performing safety audits to identify remedial measures for black spots, and opportunities for performance-based contracting for the maintenance of government-managed roads. Additional domestic financing was also mobilized. This validation also rates the program *likely* to be sustainable.

#### **E. Impact**

20. The PCR did not rate the program's impact but used available evidence to describe it. Enterprises and commercial activities using the roads directly benefited from lower costs and significantly reduced travel time. During visits and inquiries and in surveys conducted by consultants, many local inhabitants have indicated positive impacts such as improved access to commercial and social services, better opportunities and prices for sale of household products, and the rapid increase in the price of land alongside many of the improved roads. Based on surveys conducted after completion of a road upgrade, the MPRDC estimated that incomes of rural households in the affected areas had increased by an average of 15% to 20% mainly because of higher prices for their agricultural products and construction materials, and increased job opportunities. The validation rates the overall impact of the program on the various dimensions mentioned *significant*.

### **III. OTHER PERFORMANCE ASSESSMENTS**

#### **A. Performance of the Borrower and Executing Agency**

21. The borrower for the two loans was the Government of India, and the executing agency for the program loan was the Government of India's Department of Finance, while that for the project loan was the Madhya Pradesh PWD. The Madhya Pradesh government and the

<sup>5</sup> ADB. 2007. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Technical Assistance Grant to India for the Second Madhya Pradesh State Roads Sector Project*. Manila; ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Loan and Technical Assistance Grant to India for the Third Madhya Pradesh State Roads Project*. Manila.

Government of India's Department of Finance provided the required counterpart funds and necessary support in a timely manner. Establishment of the MPRDC in July 2004 as implementing agency greatly facilitated project execution. The PCR emphasized the MPRDC's critical role in bringing to life the major management reforms, correctly describing the program experience and key factors to success. This validation agrees with the PCR and rates the performance of the borrower and the executing agency *satisfactory*.

## **B. Performance of the Asian Development Bank**

22. The PCR rated ADB's performance *satisfactory*. It gave a generally fair and balanced assessment, noting the substantial guidance given to Madhya Pradesh government institutions that were involved with ADB for the first time in roads—sound advice on technical issues and matters of contract administration, and the periodic yet thorough review missions to encourage progress and avoid potential problems. This validation also rates ADB's performance *satisfactory* because of ADB's important contributions—at the cost of high expenditure on analysis and discussion during project execution—to help Indian authorities overcome obstacles and achieve important improvements.

## **C. Others**

23. At appraisal, no land acquisition or involuntary resettlement was envisaged since the roads would be improved within their existing alignments. However, arrangements were made in 2006 for possible local variations in this regard, with adherence to appropriate standards. Local authorities have put great emphasis in finding solutions within the existing rights-of-way. For this overall program, no land was acquired—one temple was moved out of the right-of-way and payment of cash was made for the frontage of one house.

24. Due to the characteristics of the selected geographic areas, major environmental impacts were not expected and the project was assigned environmental category B. However, environmental monitoring and management plans were developed for each project to respond to any issues that might arise, and the MPRDC established an environmental and social cell. Reviews by ADB specialists indicated that environmental safeguards were adequate and that the main effects perceived by local people have been improvements in the form of reduced air and noise pollution, some improvements in drainage, and generally good management by contractors of their activities. The PCR gave appropriate attention to several other program-related issues and the coverage was adequate. The PCR also touched on the support ADB provided to help discharged PWD staff and workers find new sources of livelihood.

## **IV. OVERALL ASSESSMENT, LESSONS, AND RECOMMENDATIONS**

### **A. Overall Assessment and Ratings**

25. The PCR mistakenly assigned an overall rating of *highly successful* to the program and project even while the aggregated score fell under the *successful* rating.<sup>6</sup> This validation rates the program *successful* (see table). The program developed by Madhya Pradesh and ADB and ADB's package of support were critical in conceiving and actually developing institutions and capacities that reversed deteriorating trends in the state roads. The program opened the way to achieving the economic development sought by the state. The solutions envisaged at appraisal

<sup>6</sup> ADB. 2006. *Guidelines for Preparing Performance Evaluation Reports for Public Sector Operations (amended in 2013)*. Manila.

did not prove entirely realistic but they initiated the cooperative effort, advanced the hard work developed, and applied solutions that proved to adapt well to local circumstances.

### Overall Ratings

Criteria	PCR	IED Review	Reason for Disagreement and/or Comments
Relevance:	Highly relevant	Relevant	Diagnosis is relevant but remedies had to be changed. The very large public-sector labor retrenchment proved politically and socially unfeasible and had to be substituted by a combination of more limited, phased cutbacks with substantial productivity-increasing management improvements of retained staff (para. 13).
Effectiveness in Achieving Outcome:	Highly effective	Highly effective	
Efficiency in Achieving Outcome and Outputs:	Efficient	Efficient	
Preliminary Assessment of Sustainability:	Likely	Likely	
<b>Overall Assessment:</b>	<b>Highly successful</b>	<b>Successful</b>	The PCR mistakenly rated the project <i>highly successful</i> even while the total score fell under a <i>successful</i> rating (para. 25).
Borrower and Executing Agency:	Satisfactory	Satisfactory	
Performance of ADB:	Satisfactory	Satisfactory	
Impact:	Not rated	Significant	Refer to para. 20
Quality of PCR:		Satisfactory	Refer to para. 29.

ADB = Asian Development Bank, IED = Independent Evaluation Department, PCR = program completion report.  
Source: ADB Independent Evaluation Department.

## B. Lessons

26. The PCR appropriately highlighted the experience with the MPRDC in this case, and the merits of developing an entirely new body rather than trying to reform a long-established existing authority. The need for modernizing management of relatively small roads as part of the PWD's functions and the difficulty of bringing about this change amid the agency's many inimical traditions and practices were so great that the fresh start was probably the right solution in this case. ADB's initial road rehabilitation project offered an ideal opportunity for introducing the new institution. The PCR also highlighted lessons from the MPRDC's initial years, particularly the importance of early initiatives and sustained cooperation among the relevant public and private parties for the job.

## C. Recommendations for Follow-Up

27. The PCR noted that the need to further build up the MPRDC, the assurance of adequate financing for the roads sector, and parallel initiatives to result in broader development were being pursued under ADB's follow-on projects in Madhya Pradesh. It suggested that it might be worthwhile to prepare a project performance evaluation report

(PPER) in 2015 or later to include the two follow-on loans approved and focus on the trends achieved in maintenance and management, the actual economic benefits attained, and the effects on the social and economic well-being of the poor.

## **V. OTHER CONSIDERATIONS AND FOLLOW-UP**

### **A. Monitoring and Evaluation Design, Implementation, and Utilization**

28. The report and recommendation of the President (RRP) emphasized that the important responsibility of consultants hired to assist in project implementation would be the establishment of a project performance management system (PPMS), which would regularly gather key data particularly relating to the welfare of poor people in the areas served, access to social services, income and employment, agricultural production, and costs of transport services used. The PCR asserted that “PPMS reports containing key indicators were prepared.” These reports must refer to the consultant field assessments carried out in 2007 for the 332 km of road rehabilitated under Phase 1, and in 2008 for the 1,271 km covered in Phase 2. The impact-related assessments and comments in para. 20 were based on these studies. These important perceptions, which have already helped plan subsequent initiatives in the state, must be updated as more comprehensive and new evidence becomes available.

### **B. Comments on Project Completion Report Quality**

29. The PCR quality is rated *satisfactory*. It is a thorough and balanced document although it assigned a wrong overall success rating. It touches briefly on the shaping of the reform program. The annex on loan conditions describes why compliance with two loan conditions had to be considered only partial. The report sufficiently covered important issues such as safeguard issues and economic reassessment, and made judicious use of available information. The PCR could have explored in greater depth the ways in which the difficult public sector staff and management problems could have been resolved with less administrative cost (especially to ADB) than eventually required in 2004–2005 to pursue the relevant conditions in the loan agreement. The underlying issue addressed by ADB was certainly important and common—so that fuller consideration of alternative ways of handling the issue would have corresponded directly to the priority function stressed in ADB’s PAI 6.07 on learning lessons that could help improve the performance of ADB-supported projects in general.

### **C. Data Sources for Validation**

30. This validation referred to related documents from ADB’s website, the RRP for the Madhya Pradesh state road projects, and project files for Loans 1958 and 1959 from 2004 to 2005.

### **D. Recommendation for Independent Evaluation Department Follow-Up**

31. The preparation of a PPER after the complete disbursement of the two follow-on loans could be a good opportunity to refine and deepen the current assessment on the economic significance and impact of such projects.