



# Evaluation Framework and Methodology

From the 2007 Sector Assistance Program Evaluation  
for the Transport Sector in India— Focusing on Results

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# Abbreviations

ADB	Asian Development Bank
JBIC	Japan Bank for International Cooperation
NHAI	National Highway Authority of India
NHDP	National Highway Development Program
TA	technical assistance

## Note

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

1. Evaluating the impact of the Asian Development Bank's (ADB's) assistance without examining the performance of the transport sector as a whole is conceptually impossible, as ADB's assistance was not undertaken in isolation. Rather, ADB's assistance was accompanied by investments by other multilateral and bilateral financing institutions, such as the Japan Bank for International Cooperation (JBIC) and the World Bank, and by the Government. ADB provided more technical assistance (TA) projects than other development agencies and financial institutions. These TA projects addressed a range of systemic issues, such as institutional development; capacity building (contract administration, environment and social development, corporate finance); private sector participation; toll strategies; commercialization of operation and maintenance; and road safety. These factors required a systematic evaluation of the transport sector and developments in the sector over the past 20 years. The impact of individual projects has been assessed with the use of available information and site visits, and the results form the basis for evaluating the patterns and common traits of ADB transport sector projects in India. Comparing individual projects systematically can yield important insights into the main issues and problems facing the transport sector today. In contrast to a project-level evaluation, a sector evaluation can help to assess the aggregate potential impact of the projects and TA on the achievement of sector, rather than project, objectives.

2. The sector assistance program evaluation<sup>1</sup> sought to answer the following board questions:

**(i) Bottom-Up Evaluation**

- (a) **Relevance.** Were the strategies pursued by ADB relevant to:
  - i. the evolving economic circumstances in India?
  - ii. ADB's country strategies and programs?
  - iii. essential sector policy and institutional reforms?
  - iv. the transport needs perceived by the central and state governments, as well as development plans?
  - v. the strategies of other development partners?
- (b) **Likely effectiveness.** Are ADB's project designs likely to achieve the intended outcomes in light of the perceived effectiveness of the projects?
- (c) **Implementation efficiency.** Were or are ADB's operations in the transport sector efficient?
  - i. Does ADB work effectively with the Government in implementing the projects?
  - ii. Do ADB's operations ensure efficient procurement?
- (d) **Likely sustainability.** Are the planned outputs likely to be sustained?
- (e) **Likely impact.** What is the likely impact of road interventions at the local and regional levels?

**(ii) Top-Down Evaluation**

- (a) **ADB's performance.** Were ADB's choices of thematic initiatives in the transport sector appropriate?
- (b) **Sector performance.** What are the trends in the transport sector?

3. Since there are not enough completed projects and corresponding outputs, the evaluation assesses the likely impact of the sector results and their outcomes with the use of

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<sup>1</sup> ADB. 2007. *Sector Assistance Program Evaluation on Transport Sector in India – Focusing on Results*. Manila. Available: <http://www.adb.org/Documents/Reports/SAPE/IND/SAP-IND-2007-09.asp>

secondary data and a socioeconomic impact assessment of a sample of road projects. Table 1 provides an outline of the evaluation approach adopted by the evaluation.

4. The evaluation framework (Figure 1) consisted of five building blocks of evaluation, i.e., relevance, efficiency, efficacy, sustainability, and other institutional and development impacts. For each of these criteria, questions to be addressed through the evaluation were raised. For example, a key question regarding relevance was: whether the policy objectives outlined in the country strategies and programs were appropriate for the development context and strategies of India in the past 17 years. Another question related to relevance was whether the planned transport sector interventions in the ADB country strategy reflected the policy objectives. The coordination with other development partners that have been active in this sector, particularly the World Bank and JBIC, was also assessed. Specific themes that cut across different evaluation parameters were identified; these included road safety, private sector participation, and contribution to poverty reduction.

5. The evaluation relied heavily on discussions with development partners; with ADB and government officials at the central and state levels; and with a few key stakeholders (nongovernment organizations, infrastructure financing banks, contractors, and transport operators).

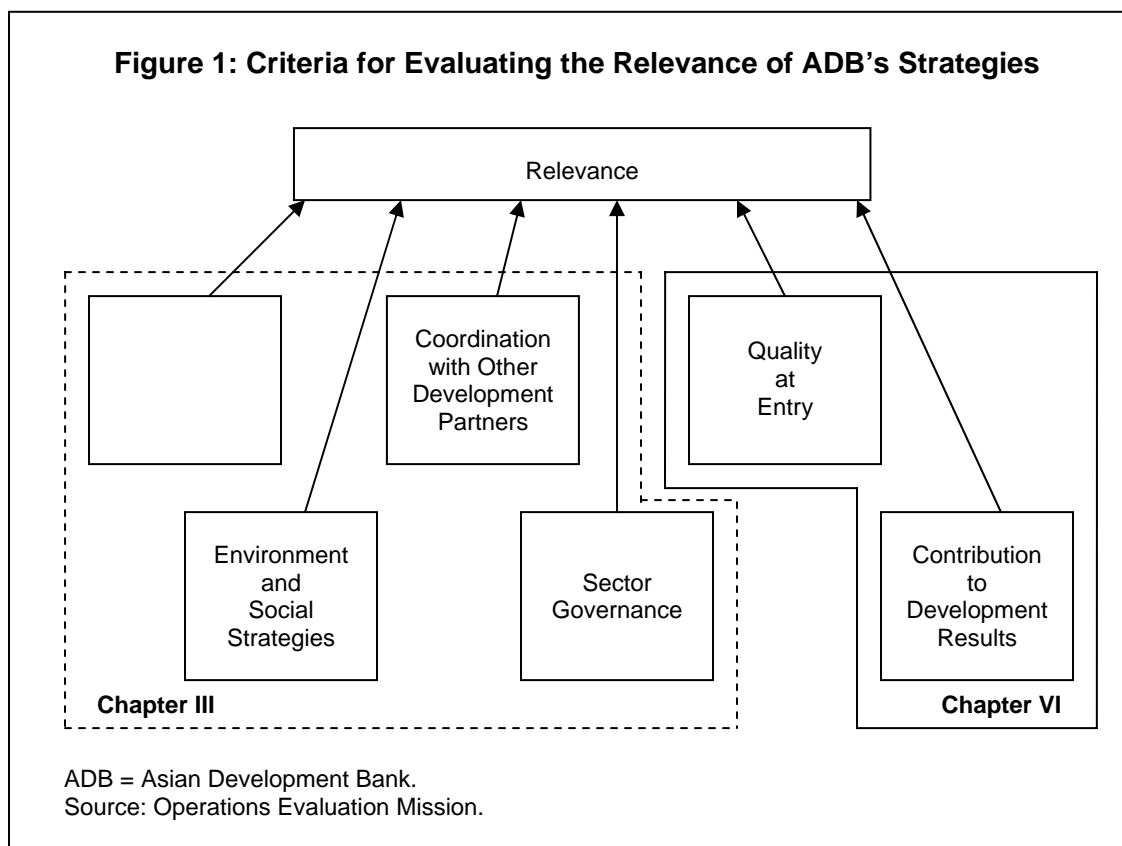
6. The methodology is based on a thematic approach focused on the roads and rail subsectors. This approach includes the following studies:

- (i) policy level assessment,
- (ii) technical study,
- (iii) financial study, and
- (iv) socioeconomic assessment.

**Table 1: Evaluation Approach**

Evaluation Parameters	Nature of Analysis	Sources of Information
<b>A. Bottom-Up Evaluation</b>		
Relevance	<ul style="list-style-type: none"> <li>Analysis of ADB’s sector strategy in the context of the country’s needs</li> </ul>	<ul style="list-style-type: none"> <li>Desk study</li> <li>Meetings with government officials and ADB staff</li> <li>Policy experts’ inputs</li> </ul>
Efficiency (mainly implementation efficiency)	<ul style="list-style-type: none"> <li>Analysis of ongoing projects to assess progress made</li> <li>Assessment of completed projects (limited to a sample owing to the disparate locations of the subprojects and lack of information available)</li> </ul>	<p>Completed projects</p> <ul style="list-style-type: none"> <li>Desk review of PCRs and internal reports</li> <li>Meetings with government officials</li> </ul> <p>Ongoing projects</p> <ul style="list-style-type: none"> <li>Physical inspections of selected ongoing projects</li> <li>Technical study to identify implementation bottlenecks</li> <li>Meetings with government officials, consultants, and contractors</li> <li>Discussions with government officials and desk study to assess progress of reforms</li> </ul>
Likely effectiveness	<ul style="list-style-type: none"> <li>Partly subjective analysis using without-project scenarios and comparable projects</li> </ul>	<ul style="list-style-type: none"> <li>Review of internal documents</li> <li>Desk study of PCRs and PPARs</li> <li>Interviews with stakeholders</li> <li>Field study – socioeconomic study of selected road projects</li> </ul>
Likely sustainability	<ul style="list-style-type: none"> <li>Analysis of the national highways program using a financial model</li> <li>For other subsectors, partly subjective analysis based on available information</li> </ul>	<ul style="list-style-type: none"> <li>Financial model of the national highways program</li> <li>Assessment of current fund allocations for state roads and rural roads</li> <li>Physical inspections of completed projects</li> <li>Discussions with government officials to assess sustainability of reforms and investments</li> </ul>
Likely impacts	<ul style="list-style-type: none"> <li>Partly subjective analysis based on a socioeconomic assessment of a sample of projects</li> </ul>	<ul style="list-style-type: none"> <li>Interviews with stakeholders</li> <li>Field study – socioeconomic impact of selected road projects</li> <li>Secondary data</li> </ul>
<b>B. Top-Down Evaluation</b>		
Sector positioning and quality of entry	<ul style="list-style-type: none"> <li>Review of ADB’s selection of interventions within the overall development plans of the country and analysis of the objectives of the assistance</li> </ul>	<ul style="list-style-type: none"> <li>Desk study</li> <li>Meetings with government officials and ADB staff</li> <li>Policy experts’ inputs</li> </ul>
Contribution to development results	<ul style="list-style-type: none"> <li>Partly subjective analysis of the socioeconomic impacts and the likely contribution of the projects to development results</li> </ul>	<ul style="list-style-type: none"> <li>Interviews with stakeholders</li> <li>Field study – socioeconomic impact of selected road projects</li> <li>Secondary data</li> </ul>
ADB’s performance	<ul style="list-style-type: none"> <li>Review of ADB’s implementation performance</li> </ul>	<ul style="list-style-type: none"> <li>Review of internal reports</li> <li>Discussions with government officials and ADB staff</li> </ul>

ADB = Asian Development Bank, PCR = project completion report, PPAR = project performance audit report.  
 Source: Operations Evaluation Mission.



7. A policy-level assessment of all the subsectors (roads and highways, rail, and, to a limited extent, inland waterways and ports) was conducted, and the relevance of ADB's strategies was reviewed against evolving trends in the sector and the Government's policies on transport growth and management, as reflected in the country's five-year plans.

8. The assessment included a brief evaluation of the waterway and port subsectors. The following areas were assessed:

- (i) ADB's initial strategy in each of these subsectors and the underlying rationale for the strategy; and
- (ii) changes in the subsectors, and development needs where evident.

9. The evaluation included a technical study to assess the effectiveness with which projects in the transport sector, primarily in roads and highways and in rail, were being implemented. For roads and highways, the study identified the bottlenecks in the way of ongoing projects and their causes. It also assessed compliance with approved road standards (including adequacy of intersections; safety measures [e.g., crash barriers, warning signs, and special provisions for roadworks], public transport stops, parking for heavy goods vehicles, and traffic control devices);<sup>2</sup> provisions for pedestrians (including safe-crossing facilities); nonmotorized transport; and the effectiveness of access control measures on national highways. The environmental reports guiding ADB's projects were also assessed in the technical study.

<sup>2</sup> Including traffic signals, signs, and road markings.

10. The National Highways Authority of India (NHAI) has embarked on a major expansion exercise in the national highway subsector. To assess the financial sustainability of the National Highway Development Program (NHDP), the evaluation included a financial study to assess the pipeline of capital investment and operation and maintenance requirements. This pipeline was compared with the available funding in the form of fuel cess and other government allocations as well as private funds (taking into account the prospects for further private sector growth and expansion). Experiences with private sector participation were analyzed.

11. A socioeconomic assessment in selected rural areas of India was done to evaluate socioeconomic changes such as livelihood patterns; industrial development; road safety; environmental issues; HIV/AIDS cases; access to market areas, community centers, and education and health facilities; and effects on farmgate prices. The assessment was limited to changes in the road subsector (national roads, state roads, and rural roads); the rail subsector was excluded. Completed and ongoing road projects funded by ADB and the Government were assessed. The intent was to assess the wider changes in the road subsector rather than ADB projects only, on the assumption that non-ADB projects would be similar to ADB projects and would generate similar socioeconomic changes.

12. The socioeconomic assessment was based on focus group discussions and key informant interviews. However, no traffic count studies were conducted. The assessment used Madhya Pradesh as a sample area for “with project” and “without project” comparisons of rural roads and state roads. The relative effects of improved connectivity and access for the local communities were reviewed. The rationale for selecting the various subsectors for this assessment is summarized below:

- (i) National highways contribute significantly to the national economy, and indirectly affects the local economy through industrialization, greater economic mobility, and wider opportunities.
- (ii) State highways affect the regional economies and act as critical links between the rural economies and the state and national economies.
- (iii) Rural roads have significant localized impacts by providing access to the remote rural communities and farmers, and bringing them into the economic mainstream in the country.

13. Table 2 gives details of the roads assessed. The study used the Surat-Manor Tollway Project (Loan 1747) in Gujarat as sample national highway. For state roads and rural roads, Madhya Pradesh was used as the sample area because:

- (i) It has witnessed a major rural roads program as well as a major state roads program, both financed by ADB.
- (ii) The state has districts (Betul and Chindwara) that have witnessed a high level of road improvement activities as part of rural road and state road programs.
- (iii) These districts also have areas with almost no interventions; these could provide a control area.

**Table 2: Road Sections Covered by the Study**

Type of Road	State	District	Source of Funding	Name of Road Section Covered
National highway (NH)	Gujarat and Maharashtra	<ul style="list-style-type: none"> <li>• Surat</li> <li>• Navsari</li> <li>• Valsad (in Gujarat)</li> <li>• Thane (in Maharashtra)</li> </ul>	ADB	<ul style="list-style-type: none"> <li>• NH8: Surat Manor Tollway Project</li> </ul>
State highway (SH)	Madhya Pradesh (MP)	<ul style="list-style-type: none"> <li>• Betul</li> <li>• Chindwara</li> <li>• Khandwa</li> <li>• Harda</li> </ul>	ADB MP State Roads Project and Government	<ul style="list-style-type: none"> <li>• SH: Multai-Chindwara (ADB)</li> <li>• SH: Khandwa-Harda</li> <li>• SH: Khandwa-Icchawar</li> </ul>
Rural road	MP	<ul style="list-style-type: none"> <li>• Betul</li> <li>• Seoni</li> <li>• Dewas</li> <li>• Harda</li> </ul>	ADB RRS-I Project and Government PMGSY	26 villages under the PMGSY program and 24 villages without any road connectivity

ADB = Asian Development Bank, PMGSY = Pradhan Mantri Gram Sadak Yojana, RRS = rural road sector.  
Source: Operations Evaluation Mission.

14. The rationale for using the Surat-Manor toll road in Gujarat is as follows:
  - (i) The toll road was recently completed with ADB financing.
  - (ii) The toll road has been developed as a commercially viable national highway in line with several other programs of NHAI.
  - (iii) The toll road can be identified as a distinct project connecting centers of economic activity.
  
15. The Operations Evaluation Mission gathered information through:
  - (i) Interviews and in-depth discussions with key stakeholders in the sector, including:
    - (a) officials at the Ministry of Shipping, Road Transport, and Highways;
    - (b) officials of the Department of Economic Affairs and Planning Commission;
    - (c) officials of NHAI;
    - (d) officials of the Ministry of Rural Development in Delhi and their representatives in the rural road development authorities in the states of Madhya Pradesh and Chhattisgarh;
    - (e) officials of the state highway authorities in the states of Madhya Pradesh and Chhattisgarh that had received ADB loans, including the Madhya Pradesh Road Development Corporation and the public works departments in both states;
    - (f) officials of the Maharashtra State Road Development Corporation, whose road development program has had negligible foreign external assistance;
    - (g) officials of the Ministry of Railways, Indian Railways and its state-owned special-purpose vehicle for the ADB rail project (Rail Vikas Nigam Limited, as well as consultants appointed by ADB to monitor the rail reform program and consultants hired for the accounting reforms for the Indian Railways;
    - (h) officials of the Department of Shipping (within Ministry of Shipping, Road Transport, and Highways) and the Indian Ports Association;

- (i) officials of the Inland Waterways Authority of India;
  - (j) officials of financial institutions interested in investing in private sector participation and build-operate-transfer projects at both the national and state levels;
  - (k) build-operate-transfer operators involved in the design, construction, and maintenance of national highways, state highways, and bridges;
  - (l) development partners, including the World Bank, Department for International Development of the United Kingdom, and JBIC;
  - (m) ADB transport specialists at ADB headquarters in Manila and at the India Resident Mission in New Delhi; and
  - (n) consultants and contractors involved with national, state, and rural road projects.
- (ii) Focus group discussions with representatives of transport user groups, including rural communities affected by connectivity and accessibility afforded by roads (see [v] below).
  - (iii) Inspection of selected assets, such as national highways and state highways built under the NHDP with ADB financial support, build-operate-transfer highways and bridges, and rural roads.
  - (iv) Review of documentation, including the five-year plans of the Government with policies and programs for the transport sector and other sectors; ADB reports such as country strategies and programs, appraisal reports, reports and recommendations of the President, project completion reports, TA completion reports, project performance evaluation reports, back-to-office reports, and annual reports; minutes of transport portfolio review meetings; consultants' reports; and reports and studies prepared by other development agencies active in the sector.
  - (v) Technical study of ADB-funded transport projects to assess their adherence to standards, workplans and schedules, quality requirements, potential impacts, and expected outcomes; financial study to assess the sustainability of the NHDP and state road development programs; and socioeconomic study of selected rural communities (with and without road or highway access) in states and districts, to evaluate how the availability of roads affects people's quality of life and livelihood, and to identify the key factors that constrain households without an all-weather road connection.

16. The evaluation of ADB's assistance program met with several methodological challenges. First, the evaluation hoped to differentiate the performance of ADB-financed projects from that of transport sector projects in general. Although such a distinction is not always possible, this evaluation tries to highlight the differences found. Efforts were also made to distinguish between the impact of external factors, e.g., the Asian financial crisis, and that of policy and management errors. Second, the task of assessing ADB's assistance over the last 3 decades was complicated by the variation in the performance of ADB-supported projects over time. Third, the evaluation goes beyond project-level evaluations like those in project performance evaluation reports (which assess the performance of individual projects) by assessing the potential cumulative impact of the projects on the achievement of important sector goals, e.g., reliable and affordable transport services, a financially viable transport sector, better safety, and, directly and indirectly, poverty reduction.

17. Although the few project completion reports and project performance audit reports on transport projects in India provided useful information for the evaluation on project implementation and initial operation, their usefulness for the evaluation was limited for two

reasons. First, the assessment of the economic returns of the projects by project completion reports and project performance audit reports disclosed the overly optimistic appraisal forecasts. But since the evaluation did not conduct any traffic studies, these economic analyses could not be updated to reflect the intervening changes.<sup>3</sup> Second, projects may perform well individually and attain high success rates, yet cumulatively fail to achieve the main sector goals, either because the sector goals are too ambitious or the individual projects have limited relevance to their achievement. The evaluation, therefore, tried to draw information from a variety of other sources besides project completion reports and project performance audit reports. It also relied on site visits and more updated information on the performance of the sector and ADB-supported projects to reach a balanced assessment.

18. Table 3 gives the broad evaluation framework that guided the evaluation.

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<sup>3</sup> Even if the evaluation had included traffic studies of the completed projects, the economic benefits would have been hard to trace to specific transport projects because there have been other interventions in the projects themselves or in the project area.

Table 3: Evaluation Framework

Evaluation Criteria	Areas of Evaluation	Major Indicators and Areas of Consideration	Sources of Information	Data Collection/Analysis Methods
A. Relevance of ADB assistance to transport sector development in India and the development goals of the country	1. Were ADB's strategies relevant to evolving circumstances in India? 2. Did the transport sector strategy in the CSPs change with these circumstances? 3. Did ADB's interventions support essential sector policy and institutional reforms?	<ul style="list-style-type: none"> <li>Economic reform milestones</li> <li>Macroeconomic assessment of policies and financial management in the sector</li> <li>Changes in ADB's strategy</li> <li>Critical development trends and key indicators to the transport sector</li> </ul>	<ul style="list-style-type: none"> <li>Economic sector reports</li> <li>Country economic reports</li> <li>CSP</li> <li>Government reports</li> <li>Thematic reports</li> <li>Key stakeholders</li> </ul>	<p><b>Applicable to all areas for evaluation under "Relevance"</b></p> <ul style="list-style-type: none"> <li>Desk review of relevant documents</li> <li>Interviews with ADB staff</li> <li>Key informant interviews with government officials and key stakeholders</li> <li>Focus group discussions</li> </ul> <p>Key stakeholders included people affected by the selected projects (Madhya Pradesh), researchers, consultants, NGOs, infrastructure financing banks, contractors, transport operators, and rail freight users</p>
	4. Did ADB's strategies respond to the transport needs perceived by the central and state governments, and by other development partners?	<ul style="list-style-type: none"> <li>Transport sector priorities (Government's and ADB's)</li> <li>ADB's institutional development initiatives</li> <li>Consistency with stakeholders' objectives</li> <li>Appropriateness of TA projects</li> </ul>	<ul style="list-style-type: none"> <li>As mentioned above</li> </ul>	
	5. Were ADB's activities and strategies harmonized with those of other development partners?	<ul style="list-style-type: none"> <li>Coordination with activities and strategies of other development partners</li> <li>Appropriate project/program designs</li> </ul>	<ul style="list-style-type: none"> <li>ADB reports including RRP, CSPs, CSPUs</li> <li>Development partners and government</li> </ul>	<ul style="list-style-type: none"> <li>Discussions with development partners and government staff</li> </ul>
B. Likely efficacy	Are ADB's project designs likely to achieve the intended outcomes, in light of the perceived effectiveness of the projects/programs?	<ul style="list-style-type: none"> <li>Fulfillment of stated objectives for completed projects and subprojects</li> <li>Feasibility of achieving objectives in view of current progress</li> </ul>	<ul style="list-style-type: none"> <li>ADB status reports, BTORs, and other such reports</li> <li>Key stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Desk review of relevant documents</li> <li>Rapid technical assessment of selected project sites (in Madhya Pradesh)</li> <li>OEM and field observations</li> <li>Key informant interviews with</li> </ul>

Evaluation Criteria	Areas of Evaluation	Major Indicators and Areas of Consideration	Sources of Information	Data Collection/Analysis Methods
				government staff, observers, development partners, and other stakeholders
C. Process efficiency	Did/Do ADB's operations in the transport sector (i) provide effective support to the Government in implementing the projects? (ii) ensure efficient procurement?	<ul style="list-style-type: none"> <li>Economic analyses of completed projects</li> <li>Timeliness and adequacy of counterpart funding</li> <li>Cost-effectiveness in generating outputs</li> <li>Procurement and implementation issues</li> </ul>	<ul style="list-style-type: none"> <li>PCRs and PPARs</li> <li>Government agencies</li> </ul>	<ul style="list-style-type: none"> <li>Desk review of relevant documents</li> <li>OEM and field observations</li> </ul>
D. Sustainability	Are the planned outputs likely to be sustained?	<ul style="list-style-type: none"> <li>Institutional capacity to make available adequate funding and other resources</li> <li>Financial viability of operating entities</li> <li>Government ownership and commitment to programs and projects</li> <li>Pricing (for rail subsector)</li> </ul>	<ul style="list-style-type: none"> <li>Data from NHAI, ADB, and development partners</li> <li>Progress reports</li> <li>IR reports</li> </ul>	<ul style="list-style-type: none"> <li>Financial study to assess the pipeline of capital investment and O&amp;M requirements for national highways</li> <li>Discussions with IR</li> </ul>
E. Lessons for future ADB assistance to the transport sector in India		<ul style="list-style-type: none"> <li>Recurring issues in transport projects</li> <li>Trends in subsectors</li> <li>Comparisons with other similar countries</li> </ul>	<ul style="list-style-type: none"> <li>ADB status reports, BTORs, and other such reports</li> <li>Key stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Desk review of relevant documents</li> <li>Rapid technical assessment of selected project sites (in Madhya Pradesh and Chhattisgarh)</li> <li>OEM and field observations</li> <li>Key informant interviews with government staff, observers, development partners, and other stakeholders</li> </ul>

ADB = Asian Development Bank, BTOR = back-to-office report, CSP = country strategy and program, CSPU = country strategy and program update, IR = Indian Railways, NGO = nongovernment organization, NHAI = National Highways Authority of India, O&M = operation and maintenance, OEM = Operations Evaluation Mission, PCR = project completion report, PPAR = project performance audit report, RRP = report and recommendation of the President, TA = technical assistance.

Source: Operations Evaluation Mission.