



Validation Report

Reference Number: PCV: IND 2008-57
Project Number: 23251
Loan Number: 1274
November 2008

India: National Highways Project

Operations Evaluation Department

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
BME	–	benefit, monitoring, and evaluation
EA	–	executing agency
EIRR	–	economic internal rate of return
MOST	–	Ministry of Surface Transport
NHAI	–	National Highways Authority of India
PCR	–	project completion report
PIU	–	project implementation unit
SDR	–	special drawing rights
TA	–	technical assistance
TCR	–	technical assistance completion report

NOTE

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

Key Words

india, adb, asian development bank, highways, roads, lessons, operations evaluation department, performance evaluation

Director	H. Hettige, Operations Evaluation Division 2, Operations Evaluation Department (OED)
Team leader	N. Singru, Evaluation Specialist, Operations Evaluation Division 2, OED
Team members	R. Lumain, Senior Evaluation Officer, Operations Evaluation Division 2, OED C. Roldan, Senior Operations Evaluation Assistant, Operations Evaluation Division 2, OED

PROJECT COMPLETION REPORT VALIDATION

A. Basic Project Data		PCR Validation Date:	November 2008	
Project and Loan/Grant Number:	23251 1274-IND		Approved	Actual
Project Name:	National Highways Project	Total Project Costs (\$ million):	308.80	302.79
Country:	India	Loan/Grant (\$ million) (SDR equivalent):	245.00	231.87
Sector(s):	Transport/Roads and Highways	Total Cofinancing (\$ million):	0.00	0.00
ADB Financing (\$ million):	ADF:	Borrower (\$ million):	63.80	70.92
	OCR: \$245.0	Beneficiaries (\$ million):		
Cofinanciers:		Others (\$ million):		
Approval Date:	29 Nov 1993	Effectiveness Date:	20 Jun 95	4 May 95
Signing Date:	22 Mar 1995	Closing Date:	31 Dec 99	10 Feb 03
Project Officers:	Name:	Designation:	From	To
	R. Hennes	Project Engineer, IWTC	1998	1999
	P. Pattison	Senior Project Implementation Officer, INRM	2000	2001
	T. Kandiah	Principal Investment Programs Officer, INRM	2002	2002
	A. Akanda	Principal Transport Specialist, INRM	2002	2003
Evaluator: Quality Control Reviewer:	T. F. Jones, Consultant N. Singru, Evaluation Specialist, OED2	Director:	H. Hettige, OED2	

B. Project Description (summarized from the report and recommendation of the President)

- (i) **Rationale and expected impacts.** The National Highways Project (the Project) aimed to (a) assist the Government in carrying out needed road improvements in major transport corridors; (b) improve the institutional capability through transfer of implementation responsibility for national roads to the Ministry of Surface Transport¹ (MOST) and, by the fourth quarter of 1994, to the National Highways Authority of India (NHAI); and (c) increase industrial employment, thereby indirectly reduce poverty. The Project also strove to maintain the momentum already achieved on policy issues and quality of construction.

Following a review of needed road development in India, highway sections proposed for improvement were selected for study by the Government and the Asian Development Bank (ADB). These sections, which had arisen from the national highway improvement plan that emerged from a fact-finding mission in December 1991, comprised a total of 1,520 kilometers (km) distributed over 21 high-priority subprojects. Their selection was based on criteria partly simulating economic return calculations, such as industrialization, traffic volume, and road condition. In conjunction with the Government and on the basis of field observations and a screening matrix including this criteria, the mission then ranked the proposed subprojects and reduced the list of highway sections for study to 820 km distributed over 14 subprojects. The results of the subsequent feasibility studies, undertaken by domestic consulting firms guided by ADB-financed consultants under technical assistance (TA) project 1678-IND from December 1992 to May 1993, showed that all sections studied were feasible, with the economic internal rate of return (EIRR) ranging between 23% and 43%.²

The selection of project highway sections was based on merit (i.e., EIRR, existing road capacity utilization, and degree of industrialization) as well as on degree of project preparation and the

¹ Since renamed the Ministry of Shipping, Road Transport, and Highways.

² ADB. 1992. *Technical Assistance to India for Third Road*. Manila (TA 1678-IND, for \$250,000, approved on 26 March).

absence of significant problems related to environmental clearance and land availability for right-of-way. This process resulted in the selection of about 330 km of high-priority sections, mainly for widening to four lanes and strengthening of the existing carriageway. The sections for widening in Haryana, Rajasthan, Bihar, and West Bengal complement the four-laning projects of ADB and the World Bank financed under the Second Road Project (1990) and the National Highway Project (1985), while the Andhra Pradesh sections complement with the Overseas Economic Cooperation Fund's (OECF) proposed National Highway 2 Improvement Project. The improvements envisaged were to increase the transport capacity of the existing facilities, which support the industry sector, and thereby increase employment and indirectly reduce poverty. All project highway section improvements were included in the Eighth Plan. In conjunction with the Project and at the Government's request, three advisory TA projects were also provided: (a) road safety (TA 2001-IND),³ (b) environmental management of road projects (TA 2002-IND),⁴ and (c) technical standards for highway concrete structures (TA 2003-IND).⁵ The Project was thus fully within ADB's operational strategy for India (Section C [iv]).

- (ii) **Objectives or expected outcomes.** The Project's main objectives were to (a) assist the Government's efforts to improve the national highway system, particularly supporting the industry sector in the five project states;⁶ (b) lower transport costs in the project areas and facilitate more efficient movement of goods and passengers; (c) increase employment in the industry sector in the five states, made possible by the highway improvements including capacity augmentation; (d) upgrade the Government's institutional and implementation arrangements and construction supervision by a combination of international and domestic consultants working with MOST as the client; and (e) improve road transport operations.
- (iii) **Components.** The Project covered the improvement of five national highway sections, totaling about 330 km in five states (footnote 6). The improvements included widening to four lanes (234 km) and strengthening of the existing pavement with an asphaltic concrete pavement. The consulting services for construction supervision of civil works under the Project were to be carried out by an appropriate combination of international and domestic consultants.
- (iv) **Outputs.** The civil works for the road improvements were implemented as envisaged at appraisal, except for delays and a major change in the project scope, which involved upgrading about 65 km of roads from a two- to a four-lane carriageway, including the 17 km Eluru Bypass, as warranted by traffic along the affected sections of National Highway (NH) 5.

C. Evaluation of Design and Implementation (project completion review [PCR] assessment and validation)

- (i) **Relevance of design and formulation.** At appraisal and completion, the Project is assessed as highly relevant and is consistent with the Government's overall development objectives and ADB's strategy for the road subsector.

³ ADB. 1993. *Technical Assistance to India for Road Safety*. Manila (TA 2001-IND, for \$210,000, approved on 29 November).

⁴ ADB. 1993. *Technical Assistance to India for Environmental Management of Road Projects*. Manila (TA 2002-IND, for \$240,000, approved on 29 November).

⁵ ADB. 1993. *Technical Assistance to India for Technical Standards of Highway Concrete Structures*. Manila (TA 2003-IND, for \$350,000, approved on 29 November).

⁶ The five states include Andhra Pradesh, Bihar, West Bengal, Haryana, and Rajasthan. Bihar state was divided in 2002, and the road section under the Project now lies in Jharkhand. However, to avoid confusion, the road section is still referred to in the project completion review as being in Bihar to enable comparison with the appraisal report.

- (ii) **Outputs and costs as envisioned during appraisal as compared to actual costs and achievement of outputs; reasons for any deviation.**

Table 1: Project Cost at Appraisal and Actual

Project Component	Appraisal Estimate (\$ million)			Actual (\$ million)			Ratio ^a
	Foreign	Local	Total	Foreign	Local	Total	
A. Base Cost							
1. Right-of-Way	0.00	0.30	0.30	0.00	0.50	0.50	1.67
2. Civil Works ^b	83.70	125.60	209.30	104.76	157.14	261.90	1.25
a. Contract 1 NH8							
Gurgaon–Kotputi	32.36	48.54	80.90	32.03	48.05	80.08	0.99
b. Contract II NH2							
Raniganj–Panagarth	16.00	24.01	40.01	19.67	29.51	49.18	1.23
c. Contract III NH2							
Banwa Adda–Bararkar	16.91	25.36	42.27	18.22	27.34	45.56	1.08
d. Contract IV NH9							
Nandigama–Vijayawada	6.40	9.61	16.01	7.08	10.61	17.69	1.10
e. Contract V NH5							
Vijayawada–Eluru	12.03	18.08	30.11	27.76	41.63	69.39	2.30
3. Construction Supervision	7.70	6.30	14.00	6.09	4.98	11.07	0.79
4. Incremental Administration	0.00	1.00	1.00	0.00	1.19	1.19	1.19
Subtotal (A)	91.40	133.20	224.60	110.85	163.81	274.66	1.22
B. Contingencies							
1. Physical	4.90	7.00	11.90	0.00	0.00	0.00	0.00
2. Price	9.50	22.80	32.30	0.00	0.00	0.00	0.00
Subtotal (B)	14.40	29.80	44.20	0.00	0.00	0.00	0.00
C. Interest and Other Charges during Construction	40.00	0.00	40.00	28.13	0.00	28.13	0.70
Total (A+B+C)	145.80	163.00	308.80	138.98	163.81	302.79	0.98

NH = national highway

^a Calculated as the ratio of actual project cost to appraisal cost estimate.

^b The final bill for some of the civil works contracts are being reviewed, and arbitration proceedings are under way.

Sources: Asian Development Bank reports and the National Highways Authority of India.

The loan was designed to cover about 60.9% of the local cost. Between 1995 (the year of the Loan Agreement) and 2003 (the year the loan was closed), the Indian rupee was devaluated by about 50%, in effect making the contract components denominated in rupees about 50% cheaper in US dollar terms. This resulted in loan savings and an overall project cost of 98% of the appraisal estimate. The rapid growth of traffic on NH5, specifically the section covered by Contract V, warranted widening from two to four lanes and the inclusion of the Eluru Bypass, which increased the cost by 2.3 times. Otherwise, component costs were not significantly out of line with appraisal estimates considering the delays in implementation and increasing costs due to inflation.

- (iii) **Project cost, disbursements, borrower contribution, and conformance to schedule (as relevant to project performance).** Project costs were not out of line as mentioned above, but disbursements were slower than envisioned at appraisal due to implementation delays. But once the Project actually commenced, disbursements followed a relatively typical pattern. There were several reasons for delays, including (a) delays in the start of prequalification due to late preparation of bidding documents, (b) delays in handing over the Project to NHAI from MOST, (c) delays in the award of civil works contracts due to nine cases of litigation, (d) slow start of civil works, (e) delays in land acquisition, (f) design deficiencies, (g) late approval of a change of scope for Contract V, (h) delays in approval of contract variations, and (i) delays in clearing encumbrances from the right-of-way. Delays in project implementation translated into lost benefits and often higher costs. The Project was completed in June 2002 compared with an appraisal estimate of October 1998, a 44-month delay. The first loan extension approved in May 1999 was to allow the civil works contracts to be completed by the end of 2001. Contracts I–IV were completed from January to October 2001. The delay in completion of Contract IV was partly due to a major change in project scope. A second loan extension was approved in December 2001 to complete Contract V, which was mostly completed in June 2002.

- (iv) **Implementation arrangements, conditions and covenants, and related TA.** Implementation arrangements were as envisaged at appraisal. MOST was the Executing Agency (EA) for the Project. Once NHAI became operational in 1995, administration of the Project was assumed by the NHAI, but MOST retained responsibility for overall project coordination. NHAI was given the appropriate authority to approve relatively minor change orders only in 2000 after ADB intervention. This authority was passed on to the project directors at the project implementation units (PIUs), as previously they had to be referred to MOST for final approval. NHAI set up an appropriate set of PIUs but had some difficulty staffing them in the early stages of implementation.

The Government and the EA generally complied with the standard loan covenants with some exceptions. In all, 13 major loan covenants were complied with, two were partly complied with, and three were not complied with. There was partial compliance with the covenants related to (a) the use of weigh-in-motion equipment procured under ADB- and World Bank-financed road projects to complement axle load enforcement, and (b) suitable efforts to encourage the use of multi-axle vehicles. The electronic weighbridges were used for statistical purposes but not for enforcement. This changed in 2005 when the Supreme Court of India banned overloaded trucks. According to the PCR, enforcement of axle load control still needs to be strengthened. The Ministry of Finance has taken steps to encourage the use of multi-axle vehicles, mainly through lowering excise duty on them.

The stipulated expansion of the ADB-financed Pavement Management System for implementation nationwide did not take place. However, a similar covenant under a later ADB-financed road project was complied with, so this covenant could be considered as complied with even though it required considerable time for implementation. Covenants related to the submission of PCRs and benefit, monitoring, and evaluation (BME) reports were not complied with, although several timely requests were made by ADB. NHAI did not submit the project completion and BME reports on the basis that the supervising consultants were demobilized and the loan was prepaid in February 2003. It submitted contract completion reports for only two of the five contracts.

The Project had three associated TA projects (Section B[i]). Although no TA completion reports were prepared at the time, the projects were completed and considered *successful*. The TA completion reports were prepared as part of the PCR.

- (v) **Performance of the Borrower and EA.** The Government was the Borrower, and MOST was the EA. As envisaged, NHAI was established and acted as the Implementing Agency. NHAI initially had difficulties staffing its PIUs and gaining authority to approve needed variations and contract revisions. This authority was gradually attained, and NHAI's implementation performance subsequently improved. Government approval of the major change of scope involving Contract V required 16 months, causing an extension of the loan closing date. Other avoidable delays are described in Section C (iii). Additionally, the Borrower failed to meet some important covenants as described in Section C (iv). Finally, at the time of PCR preparation in 2007, the final bill for some civil works contracts were still being reviewed, and arbitration proceedings were still ongoing. Although much improvement to NHAI's capabilities was noted, the various delays and lack of compliance with covenants led the PCR to rate the performance of the Borrower and the EA as *partly satisfactory*. This Evaluator agrees with the rating.
- (vi) **Performance of ADB.** The Project was administered and supervised from ADB headquarters before being transferred to the India Resident Mission in October 1999. Five different ADB project officers were involved in the administration of the Project. A total of 14 review missions, three disbursement missions, and a midterm review were undertaken during the almost 9 years that the Project was active. As a result, ADB was proactive in preparing necessary approvals and helping to solve administrative and technical issues. The subject PCR was drafted more than 4 years after project completion. Preparation of the PCR by ADB was delayed by nonsubmission of the PCR and BME reports by the EA. ADB eventually undertook preparation of the PCR based on available information. Overall, the performance of ADB was *satisfactory*.

D. Evaluation of Performance (PCR assessment and validation)

- (i) **Relevance.** The relevance of the Project is considered *high*, as the Project was and still is consistent with the Government's overall development objectives and ADB's country strategy for the road subsector. In 1998, the Government announced a major program to upgrade 13,000 km of national highways to a four-lane standard. This has since been expanded to other sections of the national highway network.
- (ii) **Effectiveness in achieving outcome.** The PCR rated the Project as *effective*, and this appears to be true. It has helped to improve important links of the national highway system, enhanced the efficiency of moving goods and people, and lowered vehicle operating costs. Vehicle speeds increased, and travel times have been reduced. Where needed, the Project was adjusted to accommodate growing traffic demands through widening and bypass construction. Institutions have been developed, and improved capacity to undertake future projects has expanded. Other benefits expected to be achieved could not be fully verified as the EA did not undertake BME studies.
- (iii) **Efficiency in achieving outcome and outputs.** The Project is rated as *highly efficient* with an overall EIRR of 25.3% compared with the 37.2% at appraisal. All highway sections were estimated to have EIRRs ranging from 19.4% to 34.0%. The differences between the reevaluation and appraisal figures are mainly due to (a) revisions in the economic costs derived from actual costs, (b) the longer construction periods caused by delays in implementation, and (c) a lower-than-expected traffic growth rate.
- (iv) **Preliminary assessment of sustainability.** Sustainability of the Project is rated as *likely*. NHAI has been contracting out highway maintenance to the private sector. Other arrangements are being made for the highway stretches being widened or to be widened under the build–operate–transfer contracts that include routine and periodic maintenance. Although the use of overloaded trucks on national highways is forbidden, enforcement is lacking and needs to be monitored and strengthened or else the maintenance requirement may exceed the resources available.
- (v) **Impact (both intended and unintended).** An initial environmental examination was prepared at the time of the feasibility studies and whenever realignment was proposed. The examination found that there would not be any adverse environmental effects since the improvements were almost entirely within the right-of-way. Also, it was reported that the contractors followed environmentally sound construction practices. The PCR mission noted that drainage had been improved and that there was no discernable noise, air pollution, or soil erosion problems.

BME was not carried out as expected, but the PCR mission noted that incomes of those engaged in businesses near the highways had increased and that the quality of life had generally improved. Employment and improved accessibility for local residents was improved judging by the increased number of passenger buses in most of the project areas.

The Project was approved before ADB's *Involuntary Resettlement Policy (1995)* was formulated. For scope changes where realignment and land acquisition were involved, ADB requested that NHAI prepare a short resettlement plan, which was acceptable.

E. Overall Assessment, Lessons, and Recommendations (validation of PCR assessment)

- (i) **Overall assessment.** Overall, the Project is considered *successful* on the basis of the quantitative assessment of its relevance, effectiveness, efficiency, and sustainability. It achieved its main objectives of improving the national highway network and contributing to institutional development.
- (ii) **Lessons.**
 - (a) The provisions in the bid documents must be made more rigorous to ensure that contractors provide the committed technical and financial resources for project implementation to help ensure that contracts are finished on time and with good quality.

(b)	Projects should generally be in an advanced stage of preparation before loan approval to ensure early loan effectiveness and to avoid delays during implementation.
(c)	When a new implementing agency such as NHAI is created, it takes time for the institution to be fully staffed and for the necessary authority and other powers to be identified and granted.
(iii)	Recommendations.
(a)	The issue of axle overloading should be followed up and rigorous enforcement encouraged by ADB through ongoing and future projects.
(b)	Given the experience gained on this Project, future project preparation should recognize the need to have the Project in an advanced stage of preparation before loan approval. Also, given expected delays on the part of contractors and government approval practices, more realistic implementation schedules could be prepared. ⁷

F. Monitoring and Evaluation Design, Implementation, and Utilization (PCR assessment and validation)

Implementation witnessed appropriate supervision, review, and monitoring by the supervision consultants, NHAI, and ADB. The corrective actions suggested to the contractors were helpful in resolving issues and improving their performance. However, it would have been useful to put into place a project performance monitoring system, which should have been developed during project processing to monitor the project impact at completion and during project operations. The EA did not undertake BME studies. The project completion and BME reports were not submitted on the basis that the supervision consultants had been demobilized and the loan had been prepaid in February 2003 (Section C [iv]).

G. Other (e.g., safeguards, including governance and anticorruption; fiduciary aspects; government assessment of the Project, as applicable) (PCR assessment and validation)

Safeguards were complied with. Corruption does not appear to be a major issue. Fiduciary aspects appear to have been well handled.

H. Ratings	PCR	OED Review	Reason for Disagreement/Comments
Relevance:	Highly relevant	Highly relevant	
Effectiveness in Achieving Outcome:	Effective	Effective	
Efficiency in Achieving Outcome and Outputs:	Highly efficient	Highly efficient	
Preliminary Assessment of Sustainability:	Likely	Likely	
Borrower and EA:	Partly satisfactory	Partly satisfactory	
Performance of ADB:	Satisfactory	Satisfactory	
Impact:	Positive	Positive	
Overall Assessment:	Successful	Successful	
Quality of PCR:		Satisfactory	

⁷ See the PCR for ADB. 2007. *Project Completion Report. India: Surat–Manor Tollway Project*. Manila (Loan 1747-IND) as an example of the positive effect of having adequate time for preconstruction activities

I. Comments on PCR Quality

The PCR is well written, complete, and in line with the above criteria. A few specific comments on the PCR follow.

- (i) The PCR mentions that litigation helped to delay implementation and that arbitration is ongoing, but it would have been useful to understand how this situation could be avoided or mitigated in the future.
- (ii) Para. 44 of the PCR states, “no specific level of reduction of vehicle operating costs was set as a target at appraisal.” Appendix 17 of the report and recommendation of the President does show a table of vehicle operating costs for “with” and “without” the Project.
- (iii) The fourth outcome in the PCR’s Appendix 1, “increase industrial employment”, could better be characterized as a project impact.
- (iv) The PCR’s Appendix 2 shows figures under contingency that do not seem to tally with data given in the basic data.
- (v) PCRs, as appropriate, need to be prepared soon after project completion, usually 12–24 months after project completion (PAI 6.07). In this case, the PCR was prepared more than 4 years after the loan closing date.

J. Recommendation for OED Follow-Up

No follow-up action is required.

K. Data Sources for Validation

- (i) PCR, report and recommendation of the President, legal documents;
- (ii) Management review meeting and staff review committee documents and summary record of discussion of ADB’s Board of Directors;
- (iii) Board reports and other progress reports;
- (iv) project administration memorandum and list of archived documents;
- (v) supervision reports, including the most recent midterm review or progress reports, and back-to-office report of the PCR mission; and
- (vi) Operations Evaluation Department evaluations of previous projects, including the recent Sector Assistance Program Evaluation and PCR reviews.

REGIONAL DEPARTMENT'S RESPONSE TO THE PROJECT COMPLETION REPORT VALIDATION REPORT

On 5 August 2008, Director, OED2, Operations Evaluation Department (OED), received the following comments from the India Resident Mission, South Asia Department.

We have reviewed OED's earlier draft project completion report validation report circulated to us on 3 July 2008 and its final draft sent to us for review on 31 July 2008. We appreciate that the comments we made to OED on the earlier draft have been adequately incorporated in the final draft. Therefore, we have no formal comment to make on the final draft.