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Report No: ICR00001251

IMPLEMENTATION COMPLETION AND RESULTS REPORT  
(IBRD-47190)

ON A  
LOAN  
IN THE AMOUNT OF US\$240.0 Million

TO  
INDIA  
FOR THE  
ALLHABAD BYPASS PROJECT

January 28, 2010

Sustainable Development Department  
India Country Management Unit  
South Asia Region

## **CURRENCY EQUIVALENTS**

(Exchange Rate Effective December 31, 2009)

Currency Unit = Indian Rupee (Rs)  
INR1.00 = US\$0.022  
US\$1.00 = INRs.46.54

## **FISCAL YEAR**

April 1 – March 31

## **ABBREVIATIONS AND ACRONYMS**

ABP	Allahabad Bypass Project
CAG	Comptroller and Audit General
EA	Environmental Assessment
EMP	Environmental Management Plan
GoI	Government of India
GTRIP	Grand Trunk Road Improvement Project
ICR	Implementation Completion and Results Report
NHAI	National Highways Authority of India
NHDP	National Highway Development Program
O&M	Operation and Maintenance
PAD	Project Appraisal Document
QAG	Quality Assurance Group
RAP	Resettlement Action Plan
R&R	Resettlement and Rehabilitation
TNHP	Third National Highway Project

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**INDIA**  
**Allahabad Bypass Project**

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MAP – IBRD 32658

<b>A. Basic Information</b>			
Country:	India	Project Name:	Allahabad Bypass Project
Project ID:	P073776	L/C/TF Number(s):	IBRD-47190
ICR Date:	04/05/2010	ICR Type:	Core ICR
Lending Instrument:	SIL	Borrower:	GOVERNMENT OF INDIA
Original Total Commitment:	USD 240.0M	Disbursed Amount:	USD 229.9M
Revised Amount:	USD 229.9M		
<b>Environmental Category: A</b>			
<b>Implementing Agencies:</b> National Highways Authority of India			
<b>Cofinanciers and Other External Partners:</b>			

<b>B. Key Dates</b>				
Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	01/29/2002	Effectiveness:	03/15/2004	03/15/2004
Appraisal:	04/21/2003	Restructuring(s):		06/10/2009
Approval:	10/14/2003	Mid-term Review:	12/31/2006	02/19/2007
		Closing:	06/30/2009	06/30/2009

<b>C. Ratings Summary</b>	
<b>C.1 Performance Rating by ICR</b>	
Outcomes:	Moderately Satisfactory
Risk to Development Outcome:	Moderate
Bank Performance:	Moderately Satisfactory
Borrower Performance:	Moderately Satisfactory

<b>C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)</b>			
Bank	Ratings	Borrower	Ratings
Quality at Entry:	Moderately Satisfactory	Government:	Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Moderately Satisfactory
<b>Overall Bank Performance:</b>	Moderately Satisfactory	<b>Overall Borrower Performance:</b>	Moderately Satisfactory

<b>C.3 Quality at Entry and Implementation Performance Indicators</b>			
<b>Implementation Performance</b>	<b>Indicators</b>	<b>QAG Assessments (if any)</b>	<b>Rating</b>
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	Moderately Satisfactory
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA):	None
DO rating before Closing/Inactive status:	Satisfactory		

<b>D. Sector and Theme Codes</b>		
	<b>Original</b>	<b>Actual</b>
<b>Sector Code (as % of total Bank financing)</b>		
Other social services	7	3
Roads and highways	93	97
<b>Theme Code (as % of total Bank financing)</b>		
Infrastructure services for private sector development	40	40
Injuries and non-communicable diseases	20	20
Other financial and private sector development	20	20
Other social development	20	20

<b>E. Bank Staff</b>		
<b>Positions</b>	<b>At ICR</b>	<b>At Approval</b>
Vice President:	Isabel M. Guerrero	Praful C. Patel
Country Director:	N. Roberto Zaghera	Michael F. Carter
Sector Manager:	Michel Audige	Guang Zhe Chen
Project Team Leader:	Simon David Ellis	Zhi Liu
ICR Team Leader:	Simon David Ellis	
ICR Primary Author:	Kek Choo Chung	

## **F. Results Framework Analysis**

### **Project Development Objectives** (from Project Appraisal Document)

The development objectives of the project are: (1) reduce transport constraints on national economic activity; and (2) improve institutional capabilities to manage road programs, assets, and services on a more commercial basis.

**Revised Project Development Objectives (as approved by original approving authority)**

The development objectives of the project are: (1) reduce transport constraints on national economic activity; and (2) improve institutional capabilities to manage road programs, assets, and services on a more commercial basis.

**(a) PDO Indicator(s)**

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 1 :</b>	Travel time along project corridor			
Value quantitative or Qualitative)	4-5 days for trucks for one way travel between Delhi and Kolkata	Reduced by 30%		2 - 3 days
Date achieved	09/05/2003	12/31/2008		06/30/2008
Comments (incl. % achievement)	The project contributed to meeting the specified target			
<b>Indicator 2 :</b>	Truck operating cost along project corridor			
Value quantitative or Qualitative)	Rs. 11 per truck km	Reduced by 10% in real terms		Rs. 19
Date achieved	09/05/2003	12/31/2008		11/30/2009
Comments (incl. % achievement)	Truck operating costs have increased but these figures are generated from HDM-4 and affected by increases in the price of trucks and other inputs and differences in the computation methodology.			
<b>Indicator 3 :</b>	Road user responsiveness mechanism			
Value quantitative or Qualitative)	No road user responsiveness mechanism in place	Road User satisfaction surveys are conducted periodically (two-yearly) and survey results used in the planning and operation functions		Two road user surveys have been undertaken with latest report in November 2009.
Date achieved	09/05/2003	12/31/2008		11/15/2009
Comments (incl. % achievement)	Two surveys have been undertaken which reflect positive reactions from road users. The first survey did highlight road user recommendations that fed back into design changes for the operation.			

**(b) Intermediate Outcome Indicator(s)**

Indicator	Baseline Value	Original Target Values (from approval documents)	Formally Revised Target Values	Actual Value Achieved at Completion or Target Years
<b>Indicator 1 :</b>	Reduced travel time due to construction of 85 km long partially access controlled 4-lane National Highway bypassing the city of Allahabad			
Value (quantitative or Qualitative)	Travel time through the city is about 2 hours 30 minutes	One hour		One hour and five minutes.
Date achieved	09/05/2003	12/31/2008		11/30/2009
Comments (incl. % achievement)	This figure is an average of car, bus and truck travel speeds and nearly meets the target.			
<b>Indicator 2 :</b>	Operation and Maintenance (O&M) for national highways carried out under performance-based contract to private operator			
Value (quantitative or Qualitative)	NIL	O&M for selected national highways carried out under performance-based contract to private operator		4304 km on private contracts under CMU and 808 km under BoT contracts.
Date achieved	09/05/2003	12/31/2008		11/30/2008
Comments (incl. % achievement)	Good progress has been made in contracting out maintenance by NHAI but this success cannot be attributed to this project.			
<b>Indicator 3 :</b>	Number of accidents and fatalities per 1000 km of national highway			
Value (quantitative or Qualitative)	Not available	Reduced on project road to the levels significantly below the state average		Not available
Date achieved	11/11/2005	12/31/2008		11/30/2009
Comments (incl. % achievement)	At the time of writing the project road has only been open to traffic for a few months and data is not yet available.			

**G. Ratings of Project Performance in ISRs**

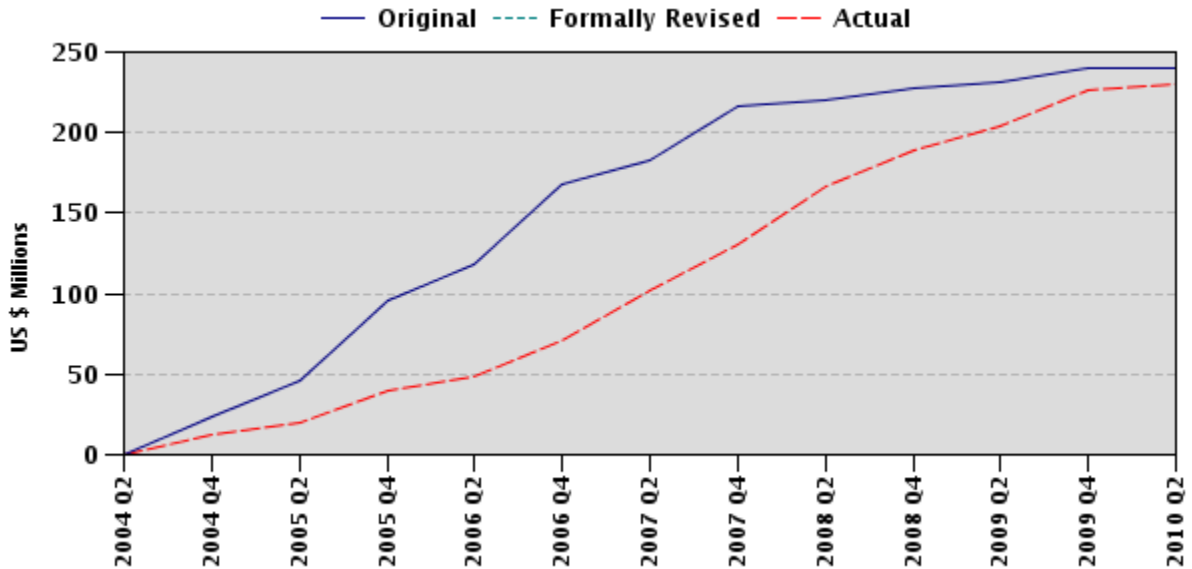
No.	Date ISR Archived	DO	IP	Actual Disbursements (USD millions)
1	11/14/2003	Satisfactory	Satisfactory	0.00
2	05/13/2004	Satisfactory	Satisfactory	12.40
3	11/10/2004	Satisfactory	Satisfactory	12.40
4	05/05/2005	Satisfactory	Satisfactory	34.60
5	11/11/2005	Satisfactory	Satisfactory	46.42

6	05/30/2006	Satisfactory	Moderately Satisfactory	63.96
7	12/04/2006	Satisfactory	Satisfactory	101.73
8	04/02/2007	Satisfactory	Satisfactory	118.74
9	09/26/2007	Satisfactory	Satisfactory	151.81
10	04/17/2008	Satisfactory	Satisfactory	176.04
11	10/14/2008	Satisfactory	Satisfactory	189.18
12	05/04/2009	Satisfactory	Satisfactory	207.23
13	06/25/2009	Satisfactory	Satisfactory	220.55

## H. Restructuring (if any)

Restructuring Date(s)	Board Approved PDO Change	ISR Ratings at Restructuring		Amount Disbursed at Restructuring in USD millions	Reason for Restructuring & Key Changes Made
		DO	IP		
06/10/2009		S	S	214.84	

## I. Disbursement Profile





## **1. Project Context, Development Objectives and Design**

*(This section is descriptive, taken from other documents, e.g., PAD/ISR, not evaluative)*

### **1.1 Context at Appraisal**

*(Brief summary of country and sector background, rationale for Bank assistance)*

*Country and Sector Background.* The Allahabad Bypass Project (ABP) was one of three Bank loans that supported the upgrading of National Highway 2 (NH2) between Delhi and Kolkata, the other two being the Third National Highway Project (TNHP) approved in June 2000 and the Grand Trunk Road Improvement Project (GTRIP) approved in the same month the following year. At the time the program was launched, India's economy was growing at a rate of 8%. Prospects for growth were strong. The country's transport system, however, was deficient, and by international standards, highly inefficient. Over 90% of the national highways were two-lane or narrower roads. Economic losses from congestion and poor roads were estimated at 120 to 300 billion rupees a year.

Recognizing that infrastructure bottlenecks constituted one of the major constraints to poverty reduction and private sector-led growth, the Government of India (GoI) launched the National Highway Development Program (NHDP), aiming to upgrade 13,000 km of core national highways by 2007. The national highway network accounted for about 1.8% of the total road network but carried more than 40% of the total traffic. Totalling some 51,000 km, the highway network has been divided into two parts: NHDP (13,000 km) and non-NHDP (45,000 km). The National Highways Authority of India (NHAI), established in 1998, was entrusted to manage the NHDP. The non-NHDP part remained with the Ministry of Road Transport and Highways which had been responsible for the national highways mainly through state public works departments.

TNHP, which consisted of the upgrading of some 470 km of the NH2 from two to four lanes, was the first project in the NDHP to be implemented with Bank financing; the GTRIP which upgraded the remaining section of the NH2 (420 km) was the second. The construction of the Allahabad Bypass which would pass through Uttar Pradesh, Bihar and Jharkhand which were among the less developed states in India completed the Bank's support for the upgrading of the NH2.

Upgrading of NH2 was a priority development in the NHDP and was mooted in the context of a sector that was described in the Project Appraisal Document (PAD) as facing:

- (a) Serious road capacity constraints on the core national highway network: Steady economic growth over the past decade had seen traffic on the highways increasing at an average rate of 7.5%.
- (b) Poor management of road infrastructure services: The level of service on national highways was being degraded by mixed traffic of fast and slow vehicles and encroachment activities on the right-of-way especially of traffic passing urban and semi-urban centers.

- (c) Inadequate institutional capacity for the development, management and operation of national highways: While the need for an expressway system was recognized, previous studies and proposals did not go beyond the conception stage.
- (d) Limited private sector participation in road financing: Private sector financing in infrastructure development was evolving but was confined mainly to the Build, Operate and Transfer (BOT) model. Other modalities of public-private participation needed to be tested.

*Rationale for Bank Involvement.* The Bank with its knowledge of effective institutions, policies, financing and implementation mechanisms in other parts of the world, and experience with economic, social and environmental analyses of developmental works acquired through years of assisting developing countries in infrastructure development, many of which were in India, was in a position to add value to GoI's efforts in improving its national network of highways. Many of the procedures practices that were adopted in the preparation and implementation of the TNHP and the GTRIP in procurement, engineering, environment, land acquisition, resettlement, construction supervision and dispute resolution could be refined and applied to the ABP. In addition, the Bank could mobilize technical expertise in examining and testing new approaches in highway management and operation. With the resources available, the Bank has been supporting the NHAI's institutional development and facilitating the exchange of information between central government, states and the private sector. The Bank's involvement in the ABP was a logical extension of its support of the NHDP and was in line with its Country Assistance Strategy (CAS) for India in which a key objective was the removal of highway infrastructure bottlenecks that constrained poverty reduction and private-sector led growth.

## **1.2 Original Project Development Objectives (PDO) and Key Indicators (as approved)**

The development objectives of the project were: (1) reduce transport constraints on national economic activity; and (2) improve institutional capabilities to manage road programs, assets, and services on a more commercial basis.

Key indicators for monitoring the achievement of objectives included:

- (a) Travel time along project corridor.
- (b) Truck operating cost along project corridor.
- (c) Private sector participation in the operations and maintenance of national highways.
- (d) Road user responsiveness.

## **1.3 Revised PDO (as approved by original approving authority) and Key Indicators, and reasons/justification**

There were no revisions of the original project development objectives and key indicators.

## **1.4 Main Beneficiaries**

The main beneficiaries of the project were users of the national highways, the city of Allahabad, and rural areas directly served by the project highway. The benefits were mainly in the form of reduced transport costs and travel time, increased accessibility to markets resources and social

services, improved security against economic shocks through alternative jobs, and job opportunities from the civil works during the implementation of the project and its maintenance upon its completion.

### **1.5 Original Components (as approved)**

The loan of US\$240 million approved on October 14, 2003 was mainly to finance the construction of a 4-lane accessed controlled highway from near the village of Kokhraj to the town of Handia, a distance of about 84.7 km. The new highway which would be a section of the NH2 would bypass the city of Allahabad. The original components of the project, stated in the Loan Agreement, were:

#### Part A: Bypass Construction

1. Implementation of civil works for the construction of a 4-lane divided carriageway, including service roads and a 4-lane bridge across the Ganga river.
2. Provision of technical advisory services for the supervision of civil works.
3. Implementation of a program of Resettlement and Rehabilitation (R&R) and environmental management activities as set forth in the Resettlement Action plan (RAP) and Environment Management Plans (EMPs), including:
  - (a) Provision of technical advisory services to support implementation of R&R activities, and training and monitoring activities;
  - (b) Procurement of R&R and EMP-related goods; and
  - (c) Implementation of R&R works, and environmental management and mitigation works ancillary to civil works.

#### Part B: Corridor Management

Implementation of a corridor management program, including:

- (a) Recruitment of a corridor management operator under a performance based contract for the operations and maintenance of a selected stretch of the national highway; and
- (b) Procurement and installation of toll collection and automatic traffic management systems along the selected stretch of the national highway.

#### Part C: Institutional Strengthening

To undertake independent and periodic surveys of road users and road sector stakeholders during the project period, to determine the level of their awareness, involvement and satisfaction with the delivery, management and operation of national highways by NHAI.

### **1.6 Revised Components**

Part B: Corridor Management was dropped from the project in light that:

- (1) O&M contracts were being implemented in other parts of the national highways system with the NHAI's own funds; and
- (2) the procurement of the Advanced Traffic Management System (ATMS), originally meant to be funded under this component, necessitated a deferment pending the extension of the project highway from four to six lanes.

The amount of US\$16.07 million of the loan set aside for the Corridor Management component was reallocated to the Bypass Construction component upon the request of the NHAI which had been endorsed by the Government of India, raising the allocation for the Bypass Construction component from US\$191.45 million to US\$207.52 million.

The changes were approved by the Regional Vice President on June 10, 2009.

### **1.7 Other significant changes**

*(In design, scope and scale, implementation arrangements and schedule, and funding allocations)*

There were other changes in the design, construction schedule and funding which may be considered significant. These included:

- About 10% of the alignment of the bypass was modified due to difficulties in land acquisition.
- Land acquisition was more extensive than originally estimated. The acreage of land that had to be acquired exceeded the original estimate by some 17%.
- More crossings and underpasses than provided for in the Detailed Project Report had to be constructed to accommodate demands from local villagers seeking improved connectivity to their communities.
- Two truck lay-bys were not constructed due to difficulty in acquiring land.
- Civil works had to have their contracts extended by one and a half to three and a half years.
- Some US\$10.07 million of the loan was not disbursed and was cancelled at Loan closing.

## **2. Key Factors Affecting Implementation and Outcomes**

### **2.1 Project Preparation, Design and Quality at Entry**

*(including whether lessons of earlier operations were taken into account, risks and their mitigations identified, and adequacy of participatory processes, as applicable)*

*Soundness of Project Preparation and Design:* Project preparation benefited from experiences gained from previous highway projects. Lessons learned from the TNHP and the GTRIP which were still on-going when the ABP was under preparation shaped the design of the ABP. In particular, the preparation of ABP took into account:

- (i) Weaknesses in financial management, environment, and social safeguards identified during the preparation and implementation of past projects.
- (ii) The need for stronger processes to be adopted.

- (iii) A disbursement schedule reflecting that work in the first stage of construction would be low in value with high-value work materializing towards the later stage.

The project also benefited from design improvements such as rigid pavements, limited access, combining cross drainage and pedestrian crossings, the use of fly ash in embankment construction, the integration of social and environmental safeguard features, and the carrying out of alternative design analyses in which six alternatives were studied in detail for the bypass alignment and three alternative bridge designs were developed.

The project was prepared as a component of the overall upgrading of the NH2 with the bypass at Allahabad constructed for the purpose of relieving congestion at that city constituting the final part in the program of increasing the capacity of the highway from Kolkata to Delhi, the other two parts being the TNHP and the GTRIP both of which were still under implementation. Physical developments along the corridor were integrated as a continuous whole with overlapping components in all three projects. The development objectives stated in both the Loan Agreement and the PAD for the ABP were similar to those of the TNHP and the GTRIP. The indicators selected for monitoring and evaluating the performance of the ABP were designed for evaluating the performance of the whole of the NH2 from Kolkata to Delhi rather than for the bypass that was to be constructed. Similarly, institutional capacity improvements funded by the loan were designed to apply to the national highway network with elements that were similar to those found in the TNHP and the GTRIP.

The design of the main component of the project was straightforward and procurement packages and readiness for the first year of implementation were sound. Design for the corridor management part of the project was less well developed as evidenced by a lack of consistency between the Loan Agreement and PAD in the description of works. The development objectives were probably over ambitious given the investments and program of institutional strengthening envisaged.

*Adequacy of Government Commitment:* The NHAI had a strong team in the headquarters and on-site for the preparation and implementation of the TNHP and the GTRIP. Five on-site Project Management Units (PMUs) were functional along the entire stretch of NH2 between Agra and Barwa Adda. The PMU in charge of the implementation of two construction contracts (totaling 115 km) under the TNHP was made responsible for the preparation of the ABP. To avoid overloading this PMU, a separate PIU which included a manager for environment and relocation and rehabilitation was later set up to undertake the preparation of the ABP.

*Risk Assessment:* Overall the risks identified and mitigation measures implemented were sufficient and appropriate. However, while it was recognized that a key factor would be the NHAI's capacity to maintain and efficiently operate the newly created road assets, no specific measure to mitigate the risk was offered. Similarly the financial sustainability of the development was not adequately assessed.

*Quality of Entry:* QAG rated the quality at entry as moderately satisfactory. This was mainly due to the disconnect between the ambitious institutional objectives and the limited scope of activities in the project to support them, the difficulty in mitigating risks of policy reversals on

the issues faced by the sector, and by the inadequate analysis of the financial risks associated with the tolling arrangements.

## **2.2 Implementation**

*(Including any project changes/restructuring, mid-term review, Project at Risk status, and actions taken, as applicable)*

The NHAI was the implementing entity for the bypass construction, corridor management component and road user surveys. Its capability to implement the project, including environmental and social safeguards policies, had been strengthened through the preparation and implementation of the TNHP and the GTRIP. A strong team was mobilized including three managers, a deputy general manager and a general manager. At the field an on-site project implementation unit (PIU) supervised the implementation of the project. A high level State Project Coordinating Committee in Uttar Pradesh which had been functional for the TNHP and the GTRIP was retained to facilitate land acquisition, resettlement, utility shifting, tree cutting and re-plantation. The execution of the tasks related thereto rested with the NHAI.

The project was implemented at a cost of US\$340.55 million, about 6.8% more than the revised estimate of US\$299.01 after allowing for the dropping of the Corridor Management component from the Project (US\$21.19 million inclusive of contingencies) from the original estimate (PAD) of US\$320.20 million. Civil works pertaining to the construction of the bypass at US\$301.36 million exceeded the original estimate (US\$240.42 million) by about 25%. However, savings were achieved in construction supervision (US\$4.56 million), land acquisition and utility reallocation (US\$3.07 million) and resettlement and rehabilitation assistance (US\$11.77 million) resulting in a net cost variation of US\$41.54 million. The component for institutional strengthening was implemented without any cost difference.

Completion of the project (except for some remaining works on pavement repairs, service roads, bund construction and tree planting) was within the initial time frame for implementation and the project closed on time. Some of the features of implementation by component are as follows:

### **Bypass Construction**

Project implementation started well. Prior to loan approval on October 14, 2003, the contract for the construction of the Ganga Bridge (Contract ABP1), one of three major civil works contracts in the Project, was awarded on August 21, 2003 and work started on September 24, 2003. This was soon followed by the award of contracts of the two other major civil works for the construction of the carriageway, ABP2 for 38.98 km and ABP3 for 44.7 km, on December 20, 2003. Despite the good start all three civil works contracts required extensions ranging from one and half to three and a half years. Many of the delays were attributed to the types of issues facing most civil works contracts in India most notably problems with land acquisition:

- Contractors' start-up was slow due to delays and uncertainties in handing over sites that were free of encumbrances.

- The construction of the highway and service roads took place in a terrain with many complex obstacles. The alignment crossed three railway lines, three state highways and over three districts where agriculture was the mainstay of the local population. Irrigation facilities were extensive; relocation was significant, affecting 14,062 families, 12,198 title holders and 110 villages.
- Land acquisition was slow due to the mismatch between geographical surveys and cadastral surveys, inaccurate information and particulars on land ownership, lengthy negotiations over compensation and delays in payment of compensation.
- The acreage of land required for the project was greater than estimated by some 17%. The transfer of some 117 hectares of government land took time. The end result was contractors were not able to have the land they needed for the construction of the bypass in a timely manner. The delay in making land available in particular resulted in the delay to the completion of service roads, the interchange, and the guide bund.
- Delays and difficulties in land acquisition resulted in the need to make modifications in the alignment of the bypass leading to the loss of time and the increase in construction cost. There were numerous contract variations. On contract ABP3 alone, the number of underpasses increased from 17 to 24; pipe culverts went from 35 to 52. Overpasses were reduced from 5 to 2.

These delays happened despite the embedding in the Bypass Construction component a comprehensively developed Resettlement Action Plan (RAP) based on an equitable and transparent policy on resettlement and rehabilitation (R&R). Non-governmental organizations (NGOs) were engaged and became an integral part of the institutional arrangement for implementation of the RAP. NGOs played a critical role in creating awareness of health and safety issues and helped to resolve grievances during regular community visits and meetings in conjunction with the staff of the project implementation unit.

#### Summary of execution of major contracts

<b>Contract No: Scope of works</b>	<b>Start date</b>	<b>Original completion date</b>	<b>Revised completion date</b>	<b>Status at loan closing date</b>
ABP1: Construct bridge over Ganga River (1.1 km)	Sep 24, 2003	Mar 23, 2006	Nov 10, 2007	Handed over to client on Oct 4, 2008
ABP2: Construct highway from 158 km to 163.27 km and from 164.28 km to 198.km (38.99 km)	Jun 9, 2004	May 30, 2006	Sep 30, 2009	Main carriageway substantially completed; 610 m of service roads and another 20% of guide to be completed.
ABP3: Construct highway from 198 km to 242.71 km (44.71 km)	Nov 4, 2004	May 30, 2006	Jul 31, 2009 for main carriageway Sep 15, 2009 for other works	Main carriageway substantially completed; service roads 90% completed

## **Corridor Management**

The implementation of the Corridor Management component was to consist of (1) the recruitment of a corridor management operator under a performance based contract for the operation and maintenance of a section of the national highway; and (2) the procurement and installation of the ATMS along the selected stretch of the national highway. A lack of clarity over the future management arrangements for NH2 meant that this component was dropped from the project. The difficulty arose because of the decision to upgrade the road from a four lane to six lane highway and the discussion to offer the upgrade and subsequent operations to a public private partnership. A final decision was made in June 2009 to drop the implementation of the whole of the component and the amount allocated for it was re-allocated to the component for the construction of the bypass with the agreement of the Bank.

## **Institutional Strengthening**

This component consisted of the funding of independent and periodic surveys of road users and road sector stakeholders during the construction period to determine the level of awareness, involvement, and satisfaction with the delivery, management and operation of national highways by the NHAI. Two surveys were planned and executed.

Early action was taken to finalize the preparation and implementation of the component. The first Road Users Satisfaction Survey (RUSS) was conducted in 2006 and the second in September 2009. The RUSS covered the whole of the Golden Quadrilateral and yielded findings that helped to improve project implementation. These findings included the desire for more bridges and crossings for improved connectivity, fencing in populated areas to prevent people crossing the highway indiscriminately, the provision of emergency contact telephone numbers, requests for information on the use of funds collected from tolling, and expressions of irritation over pot-holes, poor driving, headlight beams, lack of roadside amenities, and leakage of revenue in toll collection.

### **2.3 Monitoring and Evaluation (M&E) Design, Implementation and Utilization**

*Design:* Indicators designed to monitor and evaluate the outcome/impact of the project applied to the whole of NH2 from Delhi to Kolkata rather than to the Allahabad Bypass per se. Two other major Bank initiatives in support of the development of NH2 (TNHP and GTRIP) were on-going when the design of the ABP was finalized and indicators to monitor and evaluate the performance of the ABP were more or less in common with the indicators designed for the two on-going projects. While these outcome indicators may be appropriate in relation to the total investments for upgrading the NH2 into a four-lane highway, the performance of the NH2 could be affected by factors external to the performance of the Allahabad Bypass. It would have been useful to have indicators to assess reductions in travel times as a result of through-traffic vehicles using the newly constructed bypass.

*Implementation:* The implementation of the project was monitored through quarterly progress reports and regular Bank review missions. A mid-term review of the implementation was undertaken in February 2007. Output indicators were adopted to monitor the performance of



project implementation for each of the components. Spelt out clearly in the PAD, these output indicators monitored contracts execution in terms of delivery times, costs and safety at work sites; delivery of entitlements to project affected families and restoration of common property resources as and when planned; the execution of EMPs in accordance with contract clauses; and the carrying out of road user satisfaction surveys on a regular basis.

Certain actions required of the borrower and the executing entity regarding arrangements for implementation and the submission of reports were also covenanted in the loan and project agreements. Measures to monitor and evaluate the performance of project implementation were comprehensive and adequate.

*Utilization:* Indicators that monitor the achievement of PDOs also serve the function of evaluating the utilization of the highway at the end of the project. No specific arrangement for monitoring was outlined beyond the end of the project.

## **2.4 Safeguard and Fiduciary Compliance**

*(Focusing on issues and their resolution, as applicable)*

*Environment:* The initial screening and preparation of an environmental assessment (EA) for the project was undertaken as part of the THNP preparation but following the decision in 2001 to construct the bypass through another loan, a separate EA was carried out and a stand-alone Environmental Management Plan (EMP) was prepared for each of the three contract packages. The main environmental issues were: (a) unavoidable conversion of fertile agricultural land for the right of way; (b) potential impediments to local ground level and drainage; (c) removal and re-location of community assets; (d) possible adverse impacts on aquatic flora and fauna in the Ganga; and (e) dust noise and other nuisances associated with construction activities. Measures to mitigate possible adverse impacts that were technical in nature were built into the various contracts and monitored through progress reports and Bank review missions in the course of project supervision. Induced development issues were addressed through regular collaboration and dialogue with the local and state authorities. Environmental monitoring was adequate and helped to prevent a degradation of the local environment and well-being of the community.

*Social:* Critical to the achievement of the social development outcomes was a comprehensively developed RAP that was comprehensively executed. The RAP which addressed land acquisition and other potential adverse social impacts for the project contained the institutional arrangements and specified the roles and responsibilities for implementation, monitoring and evaluation as well as an entitlement framework. R&R policy and plan were widely disseminated and considerable efforts were expanded to ensure the participation of project affected persons (PAPs) in all stages of R&R implementation. Comprehensive monitoring indicators and reporting formats were developed and included in the RAP. Three district level committees were set up to facilitate land acquisition and RAP implementation. The Environment and Social Unit at the NHAI head office coordinated the resettlement activities. External evaluators were appointed to provide an independent annual assessment of progress made to meet the objectives of the resettlement and relocation plan and program. R&R activities required considerable and constant attention, often calling upon the ingenuity of staff responsible to overcome difficulties, resolve grievances and lessen hardship. In all these, the PIU played a significant role in the

successful implementation of the R&R plan. NGOs played a useful part in helping to implement the RAP. It may be pointed out that the delays in land acquisition were caused by factors outside the control of field staff implementing the RAP and the delays could have been worse if not for their efforts. (See Annex 5 for a more detailed account of implementation of social safeguards.

One outstanding issue relates to the compensation of people who may lose land due to future erosion associated with the guide bund at Ganga Bridge. Preliminary agreement has now been reached that the NHAI, through their operation and maintenance contractor, would annually (post monsoon) monitor the relative position of the right bank in the influence area for 5 years. This will be done with reference to permanent control points established on the edge of the existing river bank and suitably geo referenced to the bridge abutment and the right guide bund. The NHAI would also monitor the highest annual discharge passing through the bridge site to assess the flow velocity and any impact a possible increase in flow velocity would have on the erosion of the entrapped land. This assessment will be based on the expert opinion of an experienced and mutually acceptable (NHAI and Bank) hydrologist. The monitoring report will be shared with the Bank by end of each calendar year. The framework / methodology would be widely disseminated to the potentially affected community. It has also been agreed that the compensation paid to the farmers to mitigate any impact on land loss during the monitoring period would strictly follow the entitlement framework agreed for the project. The Bank would continue to undertake limited supervision during the monitoring period. The Bank would also reserve the right to invoke the suitable legal remedy in case any loss of land in the influence area identified during the monitoring period is not adequately compensated. It is currently anticipated that a final agreement on the monitoring framework, as explained above, will be reached by end March 2010.

*Financial Management:* The timeliness of audit reports was found to be an issue despite NHAI having been involved in the implementation of the TNHP and the GTRIP since 2000; otherwise NHAI's financial management systems were found to meet the Bank's financial management requirements. To strengthen audit reporting, provisions were made for a separate audit of the Project Implementation Unit (PIU) at Allahabad and for a firm of chartered accountants to undertake an internal audit in accordance with International Standards of Accounting. The statutory external audit would be done by Comptroller and Auditor General (CAG).

*Procurement:* Procurement arrangements were well defined. Contract packaging was straightforward and no significant problem was encountered during implementation.

*Compliance with Covenants:* Compliance with covenants was monitored through project review missions and quarterly progress reports. The degree of compliance was moderately satisfactory. While most covenants had been complied with, the NHAI was found to be lacking in its commitment to comply with the requirement of the Project Agreement to furnish each year a report on condition of the NHAI road network and projected future user costs, including the projected condition of its assets and forecast levels of maintenance. Annual accounts were often furnished late and auditors' qualifications were not responded to in a timely manner. In addition, indicators for monitoring the outcome of the project were only partially furnished.

## **2.5 Post-completion Operation/Next Phase**

*(Including transition arrangement to post-completion operation of investments financed by present operation, Operation & Maintenance arrangements, sustaining reforms and institutional capacity, and next phase/follow-up operation, if applicable)*

*Post-completion Operation:* At the time of the Bank's ICR mission in September 2009, the main highway was substantially complete and two lanes had been opened to traffic while some finishing works were still on-going on the other carriageway. Overall road safety and corridor management warranted further improvement to cope with the high speed access controlled nature of the facility. Trucks were observed to be parked on the shoulder of the carriageway posing a safety hazard, converting some of the verges between the service road and main carriageway into formal truck stops should be seriously explored to mitigate this hazard. The Right-of-Way fencing was also breached at few locations and squatters were sighted.

Post completion maintenance of the bypass during the Defect Liability Period (up to one year of the handing over of site) would be the responsibility of the civil works contractors. The NHAI planned to widen the bypass from four lanes to six lanes under the BOT model. The concessionaire for the bypass section of the highway would take care of the maintenance during the concession period. The timing for further upgrading has not been determined and may be a few years away. However, a feasibility study for the development is now underway.

With regard to the long term operations of the highway the modalities are still to be finalized. At the time of writing, the NHAI is yet to make a decision on the toll charges and when the tolling would start. There is also the question of the eventual six laning of this highway and the mechanisms for financing and operating this expansion. NHAI are planning to invite the private sector to invest and there is an on-going feasibility study to look at the viability of this approach. Given that it has been decided to six lane this section before the current highway has fully opened there should have been better planning in terms of staged construction. The main highway sections were designed to accommodate additional lanes but many of the structures including the Ganga bridge were not designed to do so.

*Next Phase:* The next phase of development involving the NH2 would be the upgrading of the highway from four to six lanes. Given that the financial sustainability is affected by revenue from toll charges, and toll collection is apparently being deferred until the next phase of upgrading of the highway, financing of the operating and maintenance costs of the bypass would require further examination.

## **3. Assessment of Outcomes**

### **3.1 Relevance of Objectives, Design and Implementation**

*(To current country and global priorities, and Bank assistance strategy)*

The development objectives of the project were: (1) reduce transport constraints on national economic activity; and (2) improve institutional capabilities to manage road programs, assets, and services on a more commercial basis. These objectives are considered to be highly relevant to the current national priorities and Bank assistance strategy.

The objectives of the project are fully consistent with Bank's CAS for India in which priority is given to the removal of infrastructure bottlenecks to help sustain rapid and inclusive growth, improve service delivery and focus on innovative public-private sector participation in infrastructure development.

The stated development objectives for the ABP were probably over ambitious given that the project consisted essentially of the construction of a 84.7 km highway for the purpose of bypassing the city of Allahabad. However, the construction of the Allahabad Bypass, was a part of the program to support the upgrading of NH2 into a four-lane high quality highway of international standard. Taken in this light, the development objectives were relevant. Upgrading NH2 would reduce the time and cost of travel between Delhi and Kolkata.

The Allahabad Bypass does not have any truck lay-bys although two large ones were included in the design. These were not constructed due to difficulties in acquiring the land. Conceivably, if one or two are located at appropriate places along the bypass, or margin lands between the main carriageway and service road at certain locations are used effectively as truck parking areas, truckers may not want to stop and wait on the shoulder and therefore increase the operational safety of the highway.

### **3.2 Achievement of Project Development Objectives**

*(Including brief discussion of causal linkages between outputs and outcomes, with details on outputs in Annex 2)*

#### **Objective 1: Reduce transport constraints on national economic activity.**

The improvement of the Allahabad Bypass section has reduced journey times in the project corridor from two and half hours to just over one hour. When considered that this link forms part of the overall NH2 corridor journey times have reduced from 4-5 days before improvements started to 2-3 days now. In addition, the design of this project providing a bypass to a major urban area will have the joint impact of reducing urban congestion and reducing travel times on the main NH2 corridor. Modeling of truck operating costs shows that cost per kilometer have gone down by 30% compared to the without project scenario. The project has therefore met its development objectives of reducing transport constraints on national economic activity.

The lack of proper corridor management may erode these benefits over time if operations and maintenance are not attended to, a sustainable tolling regime is not introduced or if traffic safety issues are not addressed. However, the road user surveys under the project show that road users generally have a favorable perception of the benefits that would accrue from their use based of the findings of the first RUSS.

#### **Objective 2: Improve institutional capacities to manage road programs, assets and services at a more commercial basis.**

The project was designed with a Corridor Management component that contained two measures to contribute towards this objective: (a) the procurement of performance-based contracts from

the private sector to operate and maintain selected sections of the national highway network; and (b) the procurement and installation of toll collection systems and automatic traffic management systems. With the deletion of this component from the project, the contribution that the project per se contributed towards the achievement of this objective would at best be negligible. However, from an institutional point of view, the NHAI had entered into numerous transactions with the private sector to manage and operate sections of the national highways and these would help to improve the NHAI's capacity to manage road assets and services at a more commercial basis. In any event, the activities prescribed for the component were modest and the impact of the component is debatable even if all the activities in the component were completed as designed.

It is evident, from the results of the first RUSS that the NHAI has been successful in providing highway infrastructure and that it had implemented projects with the speed and the effectiveness generally appreciated by the users. About 96% of the respondents felt that the condition of highways has improved and the highways were perceived to have delivered benefits like reduction in travel time, fuel consumption and maintenance cost.

### **3.3 Efficiency**

*(Net Present Value/Economic Rate of Return, cost effectiveness, e.g., unit rate norms, least cost, and comparisons; and Financial Rate of Return)*

Calculating the economic rate of return on the project has been complicated because the road has only just opened allowing very little time for traffic to build up. In addition, the tolling regime for the road has not been agreed making it difficult to calculate likely diversion rates. However, given these limitations the economic rate of return (ERR) at ICR for the project has been estimated at 15.7 percent given actual traffic levels of 11,000 PCU. This compares with figures at appraisal estimated at 31.83 percent for the ERR given a traffic level of 23,000 PCU. The reasons for the lower ERR at ICR are both lower than estimated traffic levels and higher than estimated construction costs.

### **3.4 Justification of Overall Outcome Rating**

*(Combining relevance, achievement of PDOs, and efficiency)*

Rating: Moderately satisfactory

The rating of the overall outcome of the project takes into account the relevance of the investments, the quality of the design, the performance of project implementation, and the achievement of the development objectives. Based on these factors, the overall outcome is rated moderately satisfactory.

On the positive side, the project has provided the NHAI a new high quality four-lane highway with driving and safety features that far exceed those of the existing road. To the extent that the bypass relieves congestion at Allahabad and enables a faster speed of uninterrupted travel, the project contributes towards the reduction of transport constraints on economic activity on the Delhi-Kolkata corridor.

However, the project itself has had little contribution towards achieving the objective of improving institutional capabilities to manage programs, assets and services on a more commercial basis as the project, designed specifically to contribute towards this objective, was subsequently dropped.

The indicator for monitoring the achievement of this objective is increased private sector participation in the operations and maintenance of national highways. During the course of implementation of the project, the NHAI entered into a number of road concessions for the development, operation and maintenance of the network but it cannot be claimed that the project has made any contribution towards this achievement. At the time of writing of the ICR, the NHAI has not taken any action to procure a private sector participant to manage operate and maintain the bypass.

The design of the means and measures by which the project would contribute towards institutional strengthening was modest consisting only of road users' surveys to determine the level of satisfaction with the delivery, management and operation of national highways by the NHAI. Measures for implementation under the Corridor Management component were also being implemented in other highway projects funded by the Bank and this might have led to the perception that implementing them in the project had lesser priority as they were being addressed in other projects. In addressing issues related to corridor management on a project specific basis, the management of and operation of the bypass upon its completion was given insufficient attention.

There was no credible evaluation of the financial justification of the bypass as a vehicle for investment. By failing to establish the extent of the commercial viability of the project, the opportunity to demonstrate the potential reward of financing and participating in such highway development in India by the private sector was not captured.

### **3.5 Overarching Themes, Other Outcomes and Impacts**

*(If any, where not previously covered or to amplify discussion above)*

#### **(a) Poverty Impacts, Gender Aspects, and Social Development**

The justification for the project was the economic and social benefits that the four-lane NH2 would provide in the form of improved transport efficiency, better road safety, better access to markets and resources, and improved social interaction of the areas served by the highway with other parts of the country. The benefits would extend beyond the areas directly affected by the project. For the project areas, the bypass would facilitate movement of goods and enhance people's access to jobs services and markets. Better markets and more jobs would increase rural income and contribute to poverty reduction. The design and implementation of the project took cognizance of the need to avoid, mitigate and minimize social impacts. The key to ensure the achievement of the desired social development outcomes was the well designed and well implemented RAP.

#### **(b) Institutional Change/Strengthening**

*(Particularly with reference to impacts on longer-term capacity and institutional development)*

GoI commitment to improving institutional capabilities to manage road program, assets and services was never in doubt. The Inter Ministerial Committee Report on the restructuring of the National Highways Authority of India (March 2008) was a demonstration of the concrete action that had been taken to strengthen the NHAI. Numerous contracts involving the private sector became involved in the operation and maintenance of the national highway network were concluded. Because of GoI's strong commitment and the various measures taken by the NHAI, the objective of improving institutional capacities to manage road program, assets and services will likely be achieved. Such measures, however, were executed outside the domain of the project.

**(c) Other Unintended Outcomes and Impacts (positive or negative)**

There was no unintended outcome or impact.

**3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops**  
*(Optional for Core ICR, required for ILI, details in annexes)*

Not applicable.

**4. Assessment of Risk to Development Outcome**

Rating: Moderate

The risk to development outcome is moderate. The bypass is basically a section of the NH2. With the completion of the improvements to the whole of the highway, the time and cost of travel on the highway will be reduced. However, given the uncertainty of the impact of a tolling regime and the lack of a credible arrangement for corridor management, there are some longer term sustainability risks for this bypass section. To a large extent, the toll rate will influence the extent in which through-Allahabad traffic would be diverted to the bypass but there may be other factors why traffic would enter and pass through Allahabad by choice.

On the longer term, given the measures taken by GoI and the NHAI at institutional capacity building on a sector-wide basis, the risk to development is reduced.

**5. Assessment of Bank and Borrower Performance**  
*(Relating to design, implementation and outcome issues)*

**5.1 Bank Performance**

**(a) Bank Performance in Ensuring Quality at Entry**  
*(i.e., performance through lending phase)*

Rating: Moderately satisfactory

Overall, the performance of the Bank in ensuring quality at entry is rated moderately satisfactory. Although, the loan funded essentially the construction of the bypass, the purpose and justification of the bypass were not sufficiently articulated. Indicators were designed to monitor the performance of the whole of the NH2 from Kolkata to Delhi rather than of the bypass and these indicators while appropriate in the context of the whole highway are affected by externalities that are beyond the scope of influence of the bypass.

The project design benefited from the introduction of lessons from previous projects and this streamlined implementation and allowed the project to finish on time. The design of the Corridor Management component could have been better designed perhaps with the performance-based contracts for operations and maintenance targeted at the project road. Arrangements for post completion operation and maintenance of the bypass seemed not to merit adequate attention.

Quality at entry was also rated moderately satisfactory by QAG.

#### **(b) Quality of Supervision**

*(Including of fiduciary and safeguards policies)*

Rating: Satisfactory

The quality of Bank supervision was satisfactory. Field supervision missions were regular and focused on the timely completion of work. Issues that emerged during implementation were attended to efficiently and promptly. Compliance with safeguard and fiduciary policies was monitored closely.

#### **(c) Justification of Rating for Overall Bank Performance**

Rating: Moderately satisfactory

Overall, despite the satisfactory rating for quality of supervision, Bank performance is rated moderately satisfactory due to the quality of the project at entry.

### **5.2 Borrower Performance**

#### **(a) Government Performance**

Rating: Satisfactory

Sector-wise, GoI's performance in improving institutional capabilities to manage road programs, assets, and services on a more commercial basis has been strong. Measures taken in pursuit of this objective included the setting up of an Inter Ministerial Committee for the restructuring of NHAI on June 24, 2005, to formalize the proposal of the Committee on Infrastructure for restructuring the NHAI. In the process, feedback and comments from various government departments, academic, financial institutions, etc. were taken into consideration. GoI has also expressed its support for the NHAI's business model of outsourcing to the private sector the bulk of its development, management, operation and maintenance of its assets. On the negative side



the government, at the state and national level, could have done more to support a more organized handover of the project highway to the operational phase including the confirmation of the tolling arrangements.

### **(b) Implementing Agency or Agencies Performance**

Rating: Moderately satisfactory

Overall the implementation of the civil works component of the project was satisfactory. Using the experience and expertise developed for the TNHP and GTRIP projects, NHAI mobilized a strong team including three managers. At the field an on-site project implementation unit (PIU) supervised the implementation of the project. A high level State Project Coordinating Committee in Uttar Pradesh which had been functional for the TNHP and the GTRIP was retained to facilitate land acquisition, resettlement, utility shifting, tree cutting and re-plantation. Although there were delays with the execution of individual contracts many of causes were outside the influence of the PIU. Ultimately the project completed within the original loan period with the contracts substantially complete.

However, the dropping of the corridor management component substantially diminished the institutional impact of the project. The lack of a planned transition from the implementation to operations phase will have a detrimental impact on the utility of the highway. NHAI also failed to comply with the covenant in the Project Agreement to furnish each year a report on the condition of the NHAI road network. The availability of other data required to monitor the achievement of the project's development objectives was also sub-optimal.

Overall it can be concluded that the implementation of the civil works component was well managed but the corridor management aspects of the project could have been managed better. That justifies an overall moderately satisfactory rating.

### **(c) Justification of Rating for Overall Borrower Performance**

Rating: Moderately satisfactory

Overall, the borrower's performance is rated moderately satisfactory. While at the sector level, GoI has taken concrete measures to improve the institutional capacity of the NHAI, at the project level, it appeared not to have exercised sufficient oversight on the implementation of the project. On the positive side, the outcome of the project was a high grade four-lane highway completed substantially without any extension of the loan closing date. The highway contained a number of innovative features both in terms of its design features and how the project was implemented. However, implementation of the Corridor Management component was given insufficient attention leading to a decision to delete the component when the loan was about to close. The NHAI did not respond in a timely way to the Bank task team's repeated requests to take early action to implement the component. The NHAI has also failed to make credible and timely arrangement for the operation of the bypass upon its completion.

## 6. Lessons Learned

*(Both project-specific and of wide general application)*

The preparation and implementation of the project provided lessons that may help to improve the execution of future projects.

- Non-completion of land acquisition and resettlement operations before the start of civil works was a major issue in the implementation of the ABP. Land required for the project should have been substantially acquired before the commencement of civil works to ensure that contractors are not impeded by insufficient land to progress the work. A well prepared Detailed Project Report (DPR) is essential for proper implementation of a project. In the ABP, shortcomings in the DPR led to changes in the alignment of the carriageway and consequent revisions to the resettlement and rehabilitation plan. A well prepared DPR with more accurate information on the amount and ownership of the land required would have reduced the delays in land acquisition and resettlement.
- However, innovative approaches to resettlement under the project did limit some of the delays. NGOs played a useful role in facilitating resettlement and rehabilitation if they were correctly selected and carefully monitored. The implementation of the R&R program in the project could conceivably have ended earlier if the services of the NGOs had not been prematurely terminated. The project benefited from active participation of project affected persons in all stages of R&R implementation including consultation at the initial stages of project preparation. Many measures to alleviate hardship emerged from regular contacts with the local communities. It was also found that informal discussions between community and PIU project staff were more effective than formal discussions in resolving grievances.
- Indicators designed to monitor the outcome of a project should reflect the performance of the specific investment rather than the outcome of a larger program for which the project contributes to only a part. The purpose of the Allahabad Bypass was to provide an alternative for through-traffic to bypass and relieve congestion at the city of Allahabad. The indicators selected to monitor the achievement of the investment evaluated the performance of the whole highway (980 km) from Kolkatta to Delhi for which the bypass was only a section (84.7 km).
- Measures that are to be implemented in a project should be clearly defined and be ready for execution upon the launching of the project. The Corridor Management component of the ABP suffered from a lack of clarity of the locations where the actions were supposed to be taken and also lack of specificity of the actions to be taken.
- More attention should be given to post-completion arrangements for the management and operation of an asset once the construction phase has finished. A clear plan should be in place for the handover of newly developed assets to the client. Use of the assets while some work is still in progress exposes the contractor and the client to litigation should accidents and damages occur.
- The use of fly ash in embankment construction has been proven to be technically viable and cost effective.

## **7. Comments on Issues Raised by Borrower/Implementing Agencies/Partners**

### **(a) Borrower/implementing agencies**

### **(b) Cofinanciers**

There were no cofinanciers in the project.

### **(c) Other partners and stakeholders**

*(e.g. NGOs/private sector/civil society)*

No comments were received from partners and stakeholders.

## Annex 1. Project Costs and Financing

### (a) Project Cost by Component (in USD Million equivalent)

Components	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
BYPASS CONSTRUCTION	296.30	337.85	114.02
CORRIDOR MANAGEMENT	21.20	0.00	
INSTITUTIONAL STRENGTHENING	0.30	0.30	100.00
<b>Total Baseline Cost</b>	317.80	338.15	106.43
Physical Contingencies	0.00	0.00	0.00
Price Contingencies	0.00	0.00	0.00
<b>Total Project Costs</b>	317.80	338.15	106.43
Front-end fee PPF	0.00		.00
Front-end fee IBRD	2.40	2.40	100.00
<b>Total Financing Required</b>	320.20	340.55	106.35

### (b) Financing

Source of Funds	Type of Cofinancing	Appraisal Estimate (USD millions)	Actual/Latest Estimate (USD millions)	Percentage of Appraisal
Borrower		80.20	100.55	125.37
International Bank for Reconstruction and Development		240.00	240.00	100.00

## Annex 2. Outputs by Component

Component	Planned Output (PAD, Sept. 2003)	Actual Output on Completion
By-pass construction at the northern outskirts of Allahabad city	A four-lane 84.7 km highway from Km158 of NH2 (near Kokhraj) to Km242.7.	A four-lane highway made up of the widening to four lanes of the existing two lane NH2 highway of 2.6 km and the construction of a new four-lane highway of 82.1 km.
Corridor management	(a) Procurement of private operators under performance based contracts for the operation and maintenance of the Ahmedabad-Vadora expressway or selected national highway stretches. (b) Procurement and installation of toll collection systems and automatic traffic management system (ATMS)	None under the Project. The component was formally cancelled in June 2009 in light that O&M contracts were being financed by NHAI with its own funds.  None under the Project. The NHAI deferred the implementation of the toll collecting systems and the ATMS in light of GoI's decision to expand the four-lane highway to six lanes.
Institutional strengthening	Periodic surveys of road users and road sector stakeholders	The first road users' survey was conducted in 2006, providing findings that helped to improve project implementation. The second survey was completed in September 2009 and the results were made available in November 2009.

**Annex 3. Economic and Financial Analysis**  
(Including assumptions in the analysis)

Category	Appraisal Economic	ICR Economic
Benefits (Rs. Million) <i>Reduced road users and maintenance cost</i>	37,443	17,380
Costs (Rs.million) <i>Road construction, R&amp;R, utility shifting and maintenance</i>	10,871	13,648
Net Benefits (Rs. Million)	26,572	3,732
ERR (percent)	31.83	15.7

**A. Assumptions**

	Appraisal	ICR
Highway Lifespan	30yrs	30yrs
Scrap value at the end	25%	25%
Discount Rate	12%	12%
Conversion factor for financial to economic costs	0.9	0.9
Road Condition	Without project case – maintained every five years but not improved	Without project case - maintained every five years.
Impact of Congestion	As per HDM III	As per HDM4.
Base Year Traffic	Most recent traffic count at appraisal.	From 2004 based on DPR and the current Survey for 2009 onward.
Traffic growth rates	Estimated based on elasticity To population and per capita Income of the area.	Same as used in ICR of TNHP and GTRIP since it is the same corridor.
Cost of construction	Rs.10871million at 2003 prices based on BOQ and rate analysis.	Actual cost Rs.13648 Million at 2009 prices.
Construction period	3 years	5 years
Maintenance cost	Based on HDM III	Based on HDM4.
Savings in road user costs	Reduced VOC, VOT for passenger and cargo time based on per capita income.	Same as at appraisal
Savings in maintenance cost		Based on NHAI

The economic analysis has been carried out for construction of road and bridges for the stretch of NH2 between Km. 158 and 245 bypassing Allahabad City. The bypass has been recently completed and opened to traffic. A number of surveys were carried out to collect data on vehicle-wise traffic on the bypass and the existing NH2, average speed on the two alternatives and the road condition of the NH2. Road condition data for the bypass was not collected since it is just completed.

## Methodology

The approach used for estimating the economic benefit of constructing the bypass to the NH2 at Allahabad is similar to used earlier at the time of preparing the project. In the 'without' scenario no upgrading of the existing NH2 has been considered and only its maintenance with periodic overlays have been considered. In the 'with' case construction of a new 4-lane bypass has been assumed with maintenance as required and the existing NH2 is subjected to regular and periodic maintenance. The by-passable traffic is diverted to the bypass and the traffic originating/terminating from/at Allahabad and along the NH2 has been assumed to ply on the NH2 only. HDM 4 was used to calculate the year-wise vehicle operating costs (VOC) at current prices, 2009 for both the bypass and NH2, whereas the initial feasibility study had used HDM III.

A second case where the by-passable freight traffic moving in the night, from 9 PM to 6AM has been allowed to move on the NH2 since the NHAI is planning to toll the new facility and the toll rates are quite high compared to what the users are willing to pay as determined earlier (Economic Feasibility Report of the Consultant). This would result in the trucks using the existing NH2 since there is no restriction on their movement through the city during the night.

*Traffic.* Classified vehicle count (CVC) was carried out at three locations on NH2, km185, km192 (city portion) and km217 for 3 consecutive days. CVC was also carried out before the start and after the end points of the bypass along with O-D to assess the by-passable traffic and the percent of such traffic using the bypass. The traffic at the three locations on NH2 is summarized below in the Table 1. The traffic at the end points of the bye-pass has been summarized in Table 2.

Traffic estimates on the bypass and NH2 in the feasibility report for the year 2009 were 23182 and 20321 PCU respectively. The NH2 traffic was the average of the three locations. The present traffic on the by-pass and the average of three locations on the NH2 is 11581 and 23821 PCU for similar fast moving vehicles respectively. This clearly indicates that the traffic has not grown as estimated in the feasibility report. Traffic at the two ends of the bypass was also collected in 2008 for ICR of TNHP and GTRIP. The number of trucks, specially 2-axle and LCV were about 70 percent higher than the current traffic. However, there was not much difference in the traffic volume of 3-axle trucks and MAVs. Since there was a downturn in the economy in 2008-09, the freight vehicles have declined in the last one year. The economy has started picking up again and therefore, the traffic growth rates adopted are the higher growth rates used for TNHP and GTRIP for this section is a part of the same corridor. The growth rates adopted for the bypass are as given below:

Vehicle type	Year	Car	Bus	Truck	2/3-wheeler
Kanpur-Varanasi	2009-2013	8.0	7.0	7.5	7.0
	Beyond 2013	7.0	6.0	7.0	6.5

The growth rates considered are lower than used in the feasibility study based on the past growth of traffic on the section. For the first 4 years traffic is assumed to grow at a higher rate since the traffic has declined during the last 2 years due to economic downturn. The traffic grew at a medium rate since the parallel NH is toll free and freight traffic has diverted to the alternate NH between Delhi and Varanasi.

**Table: Classified Vehicle Count – Average vehicles on NH2, November, 2009**

Vehicle type	Km 185	Km192	Km 217	Bypass
Car/Jeep/Van Private	1289	4180	5103	673
Three wheeler	3877	2814	3967	NA
Two wheeler	5381	8453	7721	NA
Mini bus	214	142	559	
Bus (Pvt/Pub)	398	247	821	36
School Bus	72	13	103	NA
LCV	254	483	517	324
2-axle truck	624	847	1292	1022
3-axle truck	242	236	1057	1927
MAV	58	28	149	362
Tractor	174	88	73	NA
Tractor trolley	42	70	110	NA
Cycle	2979	5860	4375	NA
Cycle rickshaw	70	63	61	NA
Animal/Hand cart	50	38	1	NA
Total ADT	18309	23571	25933	4344
Total PCU	21927	23785	34647	11743

*Value of Time.* At the feasibility the value of time was considered as Rs.57 per passenger-hr for car and Rs.45 per passenger-hr for bus. The value considered used 1.25 times the average earning of the passenger. These values are higher since the value of time for general travel is 25 to 35 percent of the average earning of passenger and only in case of business/work trip a factor of 1.25 is considered. On an average the value of time is considered at about 50 percent of the average earning of the passenger. In view of this, the value of time was corrected to Rs.23 per passenger-hr for car and Rs.18 per passenger-hr for bus. These values were increased by the average increase in per capita income in India since 2002 equivalent to 1.5 times for the year 2009.

*Benefits due to reduction in Accidents.* In the feasibility study it was assumed that the number of fatal and other accidents would reduce after the construction of bypass. However, data on fatal accidents on the four-laned highways do not support this assumption. Therefore, no benefit from reduced accidents has been considered.

*Vehicle Operating Costs.* VOC for each vehicle type has been estimated using HDM 4 for the level of traffic projected on each alternate road. For the bypass rigid pavement was considered while for NH2, flexible pavement was considered.



*Condition of NH2.* Roughness data for the NH2 from km158 to km 244 was collected using the ROMDAS vehicle. The roughness value ranged between 2500 mm/km to 3000 mm/km for 85 percent of the length and 3000 mm/km to 4000 mm/km for the rest. For the purpose of estimating VOC an average value of 2800 mm/km was considered.

*Costs.* The cost of the project increased by about 15 percent, in USD and Rupees term. Year-wise expenditure on the construction of bypass was converted into present prices, 2009, using the whole sales price index for construction. A factor of 0.9 was used to convert the financial costs to economic costs, same as in the feasibility report.

*Result.* The economic rate of return for the project was estimated at 15.7 percent as compared to 31.83 percent but only 21.6 percent if the cost went up by 15 percent. In case the traffic does not divert to bypass in the night hours, the ERR reduced to 11.8 percent. The major reason for the lower ERR is the actual traffic on the bypass of about only 11,000 PCU as compared to 23,000 PCU estimated in the feasibility report and the increase in cost.

## Annex 4. Bank Lending and Implementation Support/Supervision Processes

### (a) Task Team members

Names	Title	Unit	Responsibility/ Specialty
<b>Lending</b>			
Zhi Liu	Transport Economist	SASEI	Task Team Leader
A.K. Swaminathan	Highway Engineer	SASEI	Engineering
Anil Bhandari	Transport Specialist	AFTTR	Institutional Strengthening
Sujit Das	Highway Engineer	SASEI	Engineering
Sonia Chand Sandhu	Environmental Specialist	SASDI	Environment
Mridula Singh	Social Development Specialist	SASDI	Social Development
Arnab Bandyopadhyay	Highway Engineer	SASEI	Engineering
Tapas Paul	Environmental Specialist	SASDI	Environment
N. Raman	Procurement Specialist	SARPS	Procurement
Priya Goel	Financial Management Specialist	SARFM	Financial Management
Venkat Rao Bayana	Social Development Consultant	SASDI	Social Development
Piers Vickers	Transport Specialist	SASEI	Co-Task Team Leader
Ernst Huning	Short Term Consultant	SASEI	Institutional Development
Manmohan Singh Bajaj	Procurement Specialist	SARFP	Procurement
Isabel Chatterton	Financial Specialist	SASEI	Financial Management
Raj Soopramanien	Counsel	LEGES	Lawyer
Vikram Raghavan	Counsel	LEGES	Lawyer
Hyacinth Brown	Finance Officer	LOAAS	Finance Officer
Irene Christy	Program Assistant	SASEI	Task Team Member
Sangeeta Anand	Program Assistant	SASEI	Task Team Member
Rajesh B. Dongol	Program Assistant	SASEI	Task Team Member

### Supervision/ICR

Sangeeta Anand	Sr. Program Asst.	SASDE	Project Assistant
Harinath S. Appalarajugari	Environmental Spec.	SASDI	Environment
Venkata Rao Bayana	E T Consultant	SASDI	
Debabrata Chakraborti	Senior Procurement Specialist	SARPS	Procurement
Sonia Chand Sandhu	Sr. Environmental Spec.	SASDI	Environment
Sujit Das	Sr. Transport Engr.	SASDT	Engineering
Rajesh B.S. Dongol	Program Assistant	SASDO	Project Assistant
Parthapriya Ghosh	Social Development Spec.	SASDI	Social Development
Priya Goel	Sr. Financial Management Spec.	SARFM	Financial Management
Nupur Gupta	Transport Specialist	SASDT	
Gaurav D. Joshi	Environmental Spec.	SASDI	Environment
Sangeeta Kumari	Social Development Spec.	SASDI	Social Development
Tapas Paul	Sr. Environmental Spec.	SASDI	Environment
Rajesh Rohatgi	Sr. Transport. Spec.	SASDT	Engineering
Ritu Sharma	Program Assistant	SASDO	Project Assistant
Mridula Singh	Senior Social Development Spec	SASDI	Social Development
G. George Tharakan	Lead Transport Specialist	SASDT	Highways
Piers Antony Vickers	Sr. Transport. Spec.	SASDE	Team Leader

**(b) Staff Time and Cost**

Stage of Project Cycle	Staff Time and Cost (Bank Budget Only)	
	No. of Staff Weeks	USD Thousands (including travel and consultant costs)
<b>Lending</b>		
FY01	3	9.22
FY02	26	66.89
FY03	27	72.98
FY04	17	52.73
<b>Total:</b>	73	201.82
<b>Supervision/ICR</b>		
FY04	9	18.11
FY05	25	56.64
FY06	16	63.65
FY07	26	75.05
FY08	18	56.22
FY09	19	0.00
<b>Total:</b>	113	269.67

## Annex 5. Social Safeguards

### Plan and Implementation

The Allahabad Bypass (Bypass) starts at Km 158 of NH-2 near Kokhraj in Kaushambi District and ends at Km 242.708 of NH-2 at Paharpur in Allahabad district, with an overall length of about 84.708 km. The Bypass passes through three districts namely Allahabad, Kaushambi and Pratapgarh on an entirely new alignment involving acquisition of 974 hectares of land in 110 villages affecting a total of 14062 families including 12198 titleholders. The bypass alignment crosses Ganga River and thus involves the construction of a new bridge on it. The bypass alignment also crosses three railway lines, three state highways, five ODRs and three minor rivers. In the project influence area, agriculture is the mainstay of the people. The road alignment passes through plain fertile agricultural land with alluvial soils belonging to the Ganga and Yamuna river systems and has extensive irrigation facilities. Land holdings are generally small. Cultivation and working as laborers in big cities are the primary sources of income. Illiteracy is high and access to education, health and employment opportunities is limited.

The Resettlement Action Plan (RAP), despite delays in land acquisition and payment of compensation, has been implemented satisfactorily. The project has a widely disseminated R&R Policy and the process of compensation was well informed to the affected people. Project was largely successful in compensating at market rate and had provision of legal alternative procedures in calculating the same. This is reflected by the negligible number of disputes and court appeals for enhancement of compensation under the project. Entitlements to project affected families (PAFs) have been delivered and all community assets have been reconstructed and are in use. Around 90 percent PAFs utilized their compensation and assistance for the purpose of purchase of land and purchase of asset for income restoration. The construction of the Bypass has mainly impacted upon the agricultural land losers; therefore they were imparted orientation course on Agriculture Production Techniques and dairy farming through District Horticulture officer (DHO) & PCDF. However, Bank has expressed concern over the likely loss of private land belonging to 110 farmers entrapped between the guide bunds constructed on either side of river for the bridge over river Ganga. The NHAI is in the process of framing a suitable monitoring framework to assess the project impacts on the entrapped land between the two guide bunds and compensate the land owners accordingly.

Some of the lessons learnt under the project along with recommendations for future projects involving involuntary resettlement are listed below:

**Public Consultations.** Given the rural context, the project realized that extra efforts would be needed to ensure the participation of projected affected persons (PAPs) in all stages of R&R implementation. This would have to begin with consultations at the initial stage before the identification process for PAPs begins. Several rounds of community meetings were conducted by the NGO staff and the PIU staff. These meetings were directed at explaining the need for land acquisition, need for a bypass and the overall process that would be followed. Three seminars were conducted for key stakeholders of the project, civil society and representatives of PAPs and the PRIs. Establishment of public contact during preparation stage through consultations helped

the project in gaining acceptability of the project. In a rural context, women's participation in large meetings remains a challenge. However, since there was emphasis on ensuring female staff in NGOs, this problem was overcome. This also meant home visits to contact women and encourage them to attend the meetings. Community level events were also organized under the project in association with contractors, local health workers and NGOs to create awareness and preparedness on personal health and safety issues to address the enhanced risk of exposure to road accidents and HIV/AIDs. This practice should be replicated in other Bank funded projects set in the similar context.

**Land Acquisition and disbursement of entitlements.** The land for this project largely acquired through acquisition under the project has been carried out as per NH Act, 1956. However, in this project the quantum of land requirement which has been acquired is nearly 14 percent more than what was initially planned in the resettlement report resulting in increase in number of PAFs by 3.2 times against the estimates at the RAP preparation stage (Refer table 1). The variation in land acquisition during implementation can be attributed to outdated land records and sub-optimal quality of engineering designs. Necessary changes in designs during the project implementation stage to provide for additional pedestrian and vehicular underpasses as demanded by the roadside community and site specific adjustments to accommodate wider cross- drainage structures and way side amenities also resulted in requirement of additional land acquisition. The additional land identified during implementation was acquired through direct purchase at rates accepted already under LA process through a policy circular issued by the NHAI. This process was successful and effective in avoiding delays in handing over the sites to the contractor because the process of acquiring land through the prevailing acts cause delay and thus often leads to huge amount of contractual claim by the contractor. Updating of land acquisition plans based on ground truthing of the designs before initiating land acquisition process can help in avoiding delays in making the site available for construction. Having a dedicated PIU with land acquisition officials during preparation stage to ensure realistic designs and verification of LA Plans to this effect is recommended where the DPR preparation is outsourced.

The average time taken between declaration of award and payment of compensation has been 16-28 months and for more than 27 percent villages it was 29 to 36 months. Further the implementation of R&R activities is highly dependent on the pace of the competent authority's pace to declare award of compensation. For all the contract packages, the required land could not be acquired on time. Considering this, it can be said that land acquisition has been the critical issue in delaying the disbursement of entitlements to PAFs. Moreover, although the civil works have been substantially completed within the project period, the construction works could have been completed 12-15 months earlier if land acquisition process was not delayed. Some incentive base can also be explored for the Land acquisition department to expedite the process.

**Table 1: Impacts – Pre-project vis-à-vis Post-project**

<b>Packages</b>	<b>As per RAP*</b>	<b>At Project Completion**</b>
<i>ABP I &amp; II</i>		
Land Acquisition (Ha.)		
Title Holders (PAFs)	2019	8247
Non Title Holders (PAFs)	86	304
Total (PAFs)	2105	8551
<i>ABP III</i>		
Land Acquisition (Ha.)		
Title Holders (PAFs)	2218	5274
Non Title Holders (PAFs)	117	237
Total (PAFs)	2335	5511
Total (ABP I, II and III)	4440	14062

Source: \*Consolidation of Resettlement Action Plan of Allahabad Bye-pass of NH 2, DHV in association with MDP, March 2003.

\*\* Compiled from Micro Plans data base, NHAI, September 2009

**Involvement of Non Government Organisations.** Involvement of Non Governmental Organizations (NGOs) in RAP implementation as an extended arm of the project implementation unit was highly appreciated by the community in the project influence area. Two NGOs hired for the project were registered organizations with 7–8 professionals including land valuers, sociologists and community consultation experts. The NHAI supports this system in implementation of such R&R activities because of the soft skill sets such organizations bring in reaching the highly sensitive and vulnerable community. NGOs also played a critical role in creating awareness among the community on associated health and safety issues of the project such as HIV/AIDs, and First Aid etc. However, NGOs performance varied based on the experience of their deployment staff.

**Doorstep disbursement campaign.** A unique strategy evolved by the project has been the doorstep disbursement campaign. Realizing the difficulties PAPs may face in traveling to the Banks for receiving the R&R payments, it was decided to disburse the payments in the communities itself. This was a challenging and time-consuming process as it was decided that a team comprising revenue department staff, PIU staff, NGOs and the Banks staff would go from site to site for disbursement. It was also ensured that the PRI representatives, preferably the Sarpanch was available during these events. This strategy was widely appreciated by the PAPs and merits replication in other bank funded projects set in the relatively remote rural areas.

**Responsiveness to construction-induced problems.** The project was cautious and responsive to construction-induced concerns, especially the loss of access and enhanced risk to road side dwellings - temporarily and long-term. Regular checks by PIU staff on the contractors to ensure that temporary access paths were being created and embankment protection works were introduced to help ensure enhanced responsiveness to the local issues. Overall, about 21 underpasses were constructed to mitigate community severance and loss of access. Some of these were not envisaged during the design stage, but emerged from regular contact with the

communities. Considering that this practice achieved moderate success there is a need to rethink on the current strategy and make it more community driven.

**Accessibility of Project Implementation Unit staff led to resolution of grievances.** While there was a well-defined grievance mechanism in the RAP, this was not utilized in practice. Nevertheless, the PIU staff evolved various mechanisms to ensure that there was prompt response to the redress of grievances. Firstly, the contact numbers of the CROs and other PIU staff and NGOs were displayed at field sites. More importantly, regular community visits and meetings by the PIU staff, along with the NGO staff were very effective in resolving grievances as and when those were raised. This also helped in coming up with resolutions in consultation with the community. According to project staff, sometimes formal mechanisms become more time-consuming. Moreover, different mechanisms need to be evolved for redressing grievances in rural contexts. Thus, more community meetings and joint field visits with NGOs were found to be more effective. This practice would be worth adopting in project settings where community fears approaching government officials and have very little faith on the legal and judiciary system.

**Use of Family Tree Analysis for establishing ownership of land and early identification of Entitled.** Given the huge land acquisition requirements, displacement of people, complex and old land records, an upfront ownership identification process through 'Family Tree Analysis' was initiated. The serious constraint in land acquisition process is establishment of land ownership which gets complicated due to continuous fragmentation of land among growing and dividing family members. These divisions are seldom legalized resulting in serious mismatches between actual owners in possession and those available in records. To address and minimize this issue, NHAI through the NGOs has conducted upfront ownership establishment exercise through Family Tree Analysis. This has helped in identifying the actual owners at ground much in advance and establishing their data base which subsequently passed on to SLAO for his/her use in legalizing the actual owners. This has also helped in minimizing the disputes among the family members and facilitated understanding on their due share in the compensation and assistance amounts. This method is recommended in supplementing the effort of land administration department with low capacity to address large scale land acquisition requirement and early resolution of ownership disputes.

**Annex 6. Stakeholder Workshop Report and Results**  
*(if any)*

Not Applicable.



## **Annex 7. Summary of Borrower's ICR and/or Comments on Draft ICR**

### **ALLAHABAD BYPASS WORLD BANK PROJECT (LOAN NO. 4719-IN)**

#### **Implementation Completion Result Report**

##### **1. Brief on the project:**

Govt. of India received Loan assistance of World Bank for the construction of the new bypass at northern outskirts of Allahabad City under its Allahabad Bypass Project Loan Assistance Program. This 84.708 km. long project includes construction of the new access controlled four lane carriageway with service road on both sides, construction of cross drainage structures, providing traffic safety features, etc. The entire stretch lies in the State of Uttar Pradesh. The loan of US\$ 240 million was signed with World Bank on 16.12.2003 for Allahabad Bypass Project. Major part of the loan assistance is for Bypass construction works. The loan became effective on 15.03.2004 and was closed on 30.06.2009. The borrower is Govt. of India, Ministry of Finance, Dept. of Economic Affairs and National Highways Authority of India (NHAI), is the implementing agency for the project.

##### **2. Brief Description of the Project Objectives and Components**

The basic objectives of the project were to reduce transport constraints on economic activity and reduce transport costs along with the improvement of the institutional capabilities to manage road programs, assets and service. Overall scope of project included the following:

- **Construction of 84.708 km. long new bypass at northern outskirts of Allahabad City.**
- **Construction supervision with the help of international consultants.**
- **Corridor Management and Institutional strengthening.**

With the above objectives the project comprised of three components; 1) Bypass Construction, 2) Corridor Management, 3) Institutional Strengthening. The bypass construction component comprises of total three packages, one bridge package of length 1.011 Km. (ABP-1) and two road packages of 38.987 Km. (ABP-2) & 45.708 Km. (ABP-3) respectively.

##### **Project Component 1 (Bypass Construction) involves:**

- (a) Civil works for building the 84.7 Km. full access controlled, 4-lane divided carriageway including service roads, wherein a 1 Km. 4-lane bridge over the Ganga River, and environmental management including tree plantation.
- (b) Supervision of civil works.
- (c) Land acquisition, resettlement and utility relocation.
- (d) NHAI project management costs.

**\*Project Component 2 (Corridor Management) involves:**

- (a) Performance-based contracts to private operators for initial deficiency removal works and maintenance for 5 years.
- (b) Procurement of ATMS and user fee collection system.
- (c) Taxes on equipment.

(\*Project Component 2 (Corridor Management) for ATMS could not be implemented as the identified corridors for ATMS were proposed for 6-laning under NHDP Phase-V. This component was later shifted to component-1)

**Project Component 3 (Institutional Strengthening) involves:**

To fund independent and periodic surveys of road users and road sector stakeholders during the project period, to determine the level of their awareness, involvement and satisfaction with the delivery, management and operation of National Highways by NHAI.

**3) Assessment of the Achievement of Project Development Objective**

The main objective of the Loan i.e to Construct the by pass was achieved as per the target, with the following salient features.

- (i) Use of pond ash in embankment to the tune of 55 lakh cum.
- (ii) Construction of 4-lane divided carriageway in concrete pavement with a provision for extra lane on each carriageway towards median side.
- (iii) Construction of parallel Service Road on both sides of main carriageway as possible collector of local traffic and links to nearest underpass and overpass.
- (iv) Access controlled highway with the design speed of 100 kmph. with adequate safety measures
- (v) Provision of 32 number of Vehicular underpasses and 7 number of passenger under pass on OPR/important bituminous roads.
- (vi) Provision of 2 Grade separators on both ends of bypass for safe and uninterrupted movement of traffic in all directions.
- (vii) Provision of 3 interchanges where bypass crossing the National/State Highways (NH-24B), Allahabad-Lucknow; NH-96, Allahabad-Faizabad and SH-7, Allahabad-Jaunpur.

The bypass has considerably reduced the travel time on NH-2 in general and between Kanpur to Varanasi in particular, reduction in transport cost of goods, provided connectivity to the adjacent areas and has provided access to emergency services.

**4. Output of Project component:**

The target of 84.708 km. of project corridor was set for construction of new access controlled four lane road with service road on both sides, construction of cross drainage structures, providing traffic safety features, etc., including planting of trees (along full length) and satisfactory safety audit was achieved for total length of 84.708 km till loan closure date as on June 2009 (details are as per Annexure-I). Component wise achievements can broadly be summarised as under:

<b>Component</b>	<b>Output Indicators as given in PAD</b>	<b>Out Put at Completion</b>
1. Cost effective delivery of increased traffic capacity and improved quality on National Highways.	<b>1.1. Ex post ERR of project corridor above 20%.</b>	<b>Evaluation being done by the World Bank by way of economic analysis through a Consultant.</b>
	1.2. All civil work contracts delivered to time, budget, cost and safety constraints.	<b>Achieved with slight shifting as detailed in the progress report enclosed at Annexure-A</b>
	1.3. 100% delivery of entitlements to PAFs and restoration of common property resources as and when planned in RAP.	Completed
	1.4. All EMPs carried out in accordance with contract clauses.	Completed
	1.5. Level of users' satisfaction with the performance of road infrastructure on project corridor increased.	Users are satisfied
2. Improved road safety, maintenance and management of National Highways.	2.1. O&M for selected NH carried out under performance-based contract to private operator.	This component was dropped as part of the restructuring of the loan, due to the recent GoI decision for six-laning of these corridors.
	2.2. Number of accidents and fatalities per 1000 km of NH reduced on project road to the levels significantly below the state averages.	
3. Improved institutional capacity	Road user satisfaction surveys carried out on the regular basis.	Two road user satisfaction survey were carried out.

## **5. Impact of Institutional Development**

There were three Managers, a DGM and a GM posted on Allahabad Bypass Project. In addition to this, Supervision Consultant and Evaluation Consultant were also engaged for the project. The project has been monitored by these personnel satisfactory. Environmental mitigation measures have been taken care of according to the environmental management plan. There is no significant impact on flora and fauna as well as other inhabitations of the vicinity. A road user satisfaction survey has also been conducted during this period in two phases. The final outcome of the 2<sup>nd</sup>

survey is yet to be come from the consultant engaged whereas according to the out of the 1<sup>st</sup> survey the satisfaction level of the road users is quite high.

## **6. Justification of Sustainability of the Project Achievements**

Due to construction of bypass, traffic from Kanpur to Varanasi will go directly without entering Allahabad city. This will save time as well as money of the road users. As far as safety aspect is concerned this four lane divided carriageway will also meet out the safety aspects of the traffic. As far as collection of toll is concerned, it will be evaluated after starting the toll on the bypass. In the social aspect, it was aimed to alleviate the poverty & boosting the prosperity of PAFs through integrated and holistic approaches. The special importance has been given to socially and economically vulnerable group of Displaced Project Affected Persons, such as women headed households (WHH), the Scheduled Castes, Scheduled Tribes and the economically vulnerable group of people living below poverty line. All out efforts have been made to ensure the payment of compensation and assistance to the PAP for their acquired /affected assets to that much of amount which can replace their earlier assets based on market rate with a prime motive to restore and/or improve their livelihood. For this exercise the intensive efforts have been done to reach out the Project Affected Persons (PAPs) through exhaustive socio economic and household, base line survey and assessment of their needs through participatory appraisal. The PAFs have been consistently consulted for their Resettlement & Rehabilitation through focused group-discussions and through individual meetings. PAFs participation in Rehabilitation & Socio Economic Development has been invariably ensured at each stage of RAP implementation.

## **7. Arrangement for Operation and Future Maintenance of the Assets**

Civil Contractor will take care of the maintenance work during Defect Liability Period i.e. upto one year of the handing over of site. The Allahabad Bypass is planned to be widened upto six lane under NHDP Phase-V to be constructed through BOT (Toll) DBFO pattern. The Concessionaire will take care of the maintenance of road and other asset during Concession Period. In case of any deferment in taking up six laning of the stretch the maintenance shall be taken up with the engagement of suitable agencies as is being done at present for similar completed works through the Corridor Management Division of NHAI which exclusively is looking after the O&M aspects of completed stretches.

## **8. Evaluation of the Performance of the World Bank**

Overall performance of the bank was satisfactory. The project team focused on relevance, making sure that the project objectives were in line with the Bank's country assistance strategy and met the Government priorities. Similarly the assistance of the bank in project preparation was highly satisfactory. The bank assigned a highly qualified team with appropriate skill mix in the areas of Engineering, planning, highway construction, institutional development and training.

In supervision of the project also the bank's contribution was huge; the good approach in the identification of the problems and constructive advice of the banks team had a lot advantage in effective implementation of the highway project.

The assistance provided by the bank ensured quality at entry, supported at implementation through responsive supervision and ensured adequate transition arrangement for regular operation of the project.

## **9. Evaluation of the Performance of the Borrower and Implementing Agencies**

The fund borrowed from the International Bank of Reconstruction and Development (The World Bank) has adequately used on the project. The cost of the project has been increased due to delay in the construction of the project, which was due to false alignment in DPR, and due to this land acquisition process has to be carried out twice. Although there was some mismatch in the DPR and ground condition, the project has been completed the shortest possible time.

## **10. Lessons Learned**

At the completion of this project the following subjects came across which educated NHAI for the future projects.

- i) Comprehensive group insurance policy of PAPs for the project duration.
- ii) Capacity building of PIU, NGO and contractor's staff for welfare activities of contract labour through effective enforcement of labour laws, women empowerment statutory provisions, environmental and safety issue, etc.
- iii) Enlargement of role of DRB Consultant.
- iv) Posting of CRRO (social and environmental issues) having social background.
- v) Administration of regulated awarding.
- vi) Public Consultations at the stage of DPR preparation.
- vii) Involving the state administration in providing feedbacks to the DPR consultant for taking in to account all sorts of issues/pending grievances of the public being affected due to the project.
- viii) Provision of more vehicular under passes at an average interval of 4-5 km against 10 km in GQ and pedestrian underpass at interval of about 2-3 km.
- ix) Provision of more service roads.
- x) Solve the issues related to ROBs well in advances of the project award.
- xi) Peer Review of DPR.
- xii) Proof checking of design of major structures.

**Annexure-I****ALLAHABAD BYPASS PROJECT (ABP)**

<b>S. No.</b>	<b>Name of works and location four laning &amp; strengthening</b>	<b>State</b>	<b>Length (km)</b>	<b>Tendered Cost (INR crore)</b>	<b>Month of Commencement</b>	<b>Scheduled month of completion as per contract</b>	<b>Anticipated Date of Completion</b>	<b>Physical progress till loan closure date as on June 2009</b>	<b>Completed four lane length till loan closure date as on June 2009</b>
1.	Allahabad Bypass Contract I (Bridge) Km 158 to Km 159.02	UP	1.02	108.23	September 2003	March 2006	Completed		
2.	Allahabad Bypass Contract II Km 158 to 198	UP	39	446.99	June 2004	Dec 2006	June 2009	95%	39.00 (Road work fully completed except for guide bund work)
3.	Allahabad Bypass Contract III Km 198 to 242.708	UP	44.7	505.27	November 2004	May 2007	June 2009	92%	44.70 (Carriageway completed)

**Annex 8. Comments of Cofinanciers and Other Partners/Stakeholders**

Not Applicable.

## **Annex 9. List of Supporting Documents**

### **World Bank Documents**

1. Project Appraisal Document for the Allahabad Bypass Project, September 9, 2003
2. Loan agreement for the Allahabad Bypass Project, December 16, 2003
3. Project Agreement for the Allahabad Bypass Project, December 16, 2003
4. Amendment of Loan Agreement, June 25, 2009

### **Project Status Reports/Implementation Status and Results Reports**

PSR Sequence #1 (Nov.14, 2003) to ISR Sequence #13 (June. 25, 2009)

### **Aide-memoire/Management letters**

1. Preparation mission, August 27-September 6, 2001
2. Preparation mission, July 15-August 2, 2002
3. Appraisal mission, April 21-28, 2003
4. Supervision mission, October 28-November 17, 2003
5. Supervision mission, April 5-May 3, 2004
6. Supervision mission, April 11-26, 2005
7. Note on Financial Management, August 2005
8. Supervision mission, November 29, 2004-January 4, 2005
9. Supervision mission, December 1-27, 2005
10. Note on Financial Management, December 1-27, 2005
11. Safeguard Note, December 1-27, 2005
12. Environmental Note, December 1-20, 2005
13. Supervision mission, August 24-September 19, 2006
14. Midterm review mission, February 19-21, 2007
15. Interim review, March 9-17, 2007
16. Supervision mission, June 28-July 18, 2007
17. Supervision mission, October 9-11, 2007
18. Supervision mission, January 31-March 12, 2008
19. Note on Financial Management, June 2008
20. Supervision mission, October 30-November 20, 2008
21. Supervision mission, May 18-26, 2009.

### **Reports**

1. Restructuring of National Highways Authority of India, March 2008
2. Environmental Assessment Process Summary for Allahabad Bypass of NH-2, July 2003
3. Report on the Selection of alternative Sites for the Allahabad Bypass, March 1999
4. Design and Construction Review of National Highway Projects - Lesson Learned, June 7, 2007
5. Road Users Satisfaction Survey on the Completed Sections of the Golden Quadrilateral, July 29, 2005
6. Second Road Users Satisfaction Survey on the Completed Stretches of Four Golden Quadrilaterals-Draft Report, September 2009.



