Document of
The World Bank

Report No.:70678-IN

PROJECT PERFORMANCE ASSESSMENT REPORT

India

GUJARAT STATE HIGHWAY PROJECT (IBRD-45770)

KARNATAKA STATE HIGHWAYS IMPROVEMENT PROJECT (IBRD-46060)

And

ASSESSMENT OF ANALYTIC AND ADVISORY ACTIVITY

INDIA ROAD TRANSPORT SERVICE EFFICIENCY STUDY (P075079)

June 28, 2012

IEG Public Sector Evaluation
Independent Evaluation Group

Currency Equivalents (annual averages)

Currency Unit = Indian Rupee (INR)

1995	US$1.00	Rs.32.43
1996	US$1.00	Rs.35.43
1997	US$1.00	Rs.36.31
1998	US$1.00	Rs.41.26
1999	US$1.00	Rs.43.06
2000	US$1.00	Rs.44.94
2001	US$1.00	Rs.47.19
2002	US$1.00	Rs.48.61
2003	US$1.00	Rs.46.58
2004	US$1.00	Rs.45.32
2005	US$1.00	Rs.44.10
2006	US$1.00	Rs.45.31
2007	US$1.00	Rs.41.35
2008	US$1.00	Rs.43.51
2009	US$1.00	Rs.48.41
2010	US$1.00	Rs.44.72
2011	US$1.00	Rs.53.01 (as of December 2011)

Abbreviations and Acronyms

EMU	Environmental Management Unit
ERR	Economic Rate of Return
FIDIC	Fédération Internationale des Ingénieurs-Conseils
FY	Fiscal Year
GDP	Gross Domestic Product
GOG	Government of Gujarat
GOI	Government of India
GOK	Government of Karnataka
GSHP	Gujarat State Highway Project
ICR	Implementation Completion and Results Report
IDS	Institutional Development Strengthening
INR	Indian Rupees
IRI	International Roughness Index
KPWD	Karnataka Public Works Department
KRDCL	Karnataka Road Development Corporation Ltd
KSHIP	Karnataka State Highways Improvement Project
M&E	Monitoring and Evaluation
MDR	Major District Roads
NGO	Non Governmental Organization
NH	National Highway
O&M	Operation and Maintenance
PAD	Project Appraisal Document
PPP	Public-Private Partnership
R&BD	Roads and Buildings Department
R&R	Resettlement and Rehabilitation
SH	State Highway
TA	Technical Assistance

Fiscal Year

Government: April 1—March 31

Director-General, Independent Evaluation	:	Ms. Caroline Heider
Director, IEG Public Sector Evaluation	:	Mr. Emmanuel Jimenez
Manager, IEG Public Sector Evaluation (Acting)	:	Ms. Martha Ainsworth
Task Manager	:	Mr Ramachandra Jammi

Contents

This report was prepared by Ramachandra Jammi, who assessed the project in November 2011. The report was peer reviewed by John Riverson and panel reviewed by Peter Freeman. Romayne Pereira provided administrative support. Murahari Reddy, Consultant, joined the Karnataka portion of the mission.

Boxes

Tables

Principal Ratings

Gujarat State Highway Project (IBRD-45770)

Evaluation Criteria	*ICR**	*ICR Review**	*PPAR*
Outcome	Highly Satisfactory	Highly Satisfactory	Highly Satisfactory
Risk to Development Outcome	Negligible to Low	Negligible to Low	Negligible to Low
Bank Performance	Satisfactory	Satisfactory	Satisfactory
Borrower Performance	Highly Satisfactory	Highly Satisfactory	Highly Satisfactory

Karnataka State Highways Improvement Project (IBRD-46060)

Evaluation Criteria	*ICR**	*ICR Review**	*PPAR*
Outcome	Satisfactory	Satisfactory	Moderately Satisfactory
Risk to Development Outcome	Moderate	Moderate	Moderate
Bank Performance	Satisfactory	Satisfactory	Moderately Satisfactory
Borrower Performance	Satisfactory	Satisfactory	Moderately Satisfactory

Road Transport Service Efficiency Study (P075079) – Analytical and Advisory Activity

Evaluation Criteria	*Rating*
Results	Moderately Satisfactory
Relevance	Moderately Satisfactory
Quality	Satisfactory
Dialogue	Moderately Satisfactory

* The Implementation Completion and Results Report (ICR) is a self-evaluation by the responsible Bank department. The ICR Review is an intermediate IEG product that seeks to independently verify the findings of the ICR.

Key Staff Responsible

Gujarat State Highway Project (IBRD-45770)

Project	*Task Manager/Leader*	*Division Chief/ Sector Director*	*Country Director*
Appraisal	Guang Z. Chen	Vincent Gouarne	Edwin R. Lim
Completion	Alok N. Bansal	G. George Tharakan (Acting)	Isabel M. Guerrero

Karnataka State Highways Improvement Project (IBRD-46060)

Project	*Task Manager/Leader*	*Division Chief/ Sector Director*	*Country Director*
Appraisal	Fabio Galli	Jonathan Kamkwalala	Edwin R. Lim
Completion	Ke Fang	G. George Tharakan (Acting)	Isabel M. Guerrero

Road Transport Service Efficiency Study (P075079)

Project	*Task Manager/Leader*	*Division Chief/ Sector Director*	*Country Director*
Appraisal	Zhi Liu	Guang Z. Chen	Michael F. Carter
Completion	G. George Tharakan	Guang Z. Chen	Michael F. Carter

IEG Mission: Improving World Bank Group development results through excellence in evaluation.

About this Report

The Independent Evaluation Group assesses the programs and activities of the World Bank for two purposes: first, to ensure the integrity of the Bank's self-evaluation process and to verify that the Bank's work is producing the expected results, and second, to help develop improved directions, policies, and procedures through the dissemination of lessons drawn from experience. As part of this work, IEG annually assesses 20-25 percent of the Bank's lending operations through field work. In selecting operations for assessment, preference is given to those that are innovative, large, or complex; those that are relevant to upcoming studies or country evaluations; those for which Executive Directors or Bank management have requested assessments; and those that are likely to generate important lessons.

To prepare a Project Performance Assessment Report (PPAR), IEG staff examine project files and other documents, visit the borrowing country to discuss the operation with the government, and other in-country stakeholders, and interview Bank staff and other donor agency staff both at headquarters and in local offices as appropriate.

Each PPAR is subject to internal IEG peer review, Panel review, and management approval. Once cleared internally, the PPAR is commented on by the responsible Bank department. The PPAR is also sent to the borrower for review. IEG incorporates both Bank and borrower comments as appropriate, and the borrowers' comments are attached to the document that is sent to the Bank's Board of Executive Directors. After an assessment report has been sent to the Board, it is disclosed to the public.

About the IEG Rating System for Public Sector Evaluations

IEG's use of multiple evaluation methods offers both rigor and a necessary level of flexibility to adapt to lending instrument, project design, or sectoral approach. IEG evaluators all apply the same basic method to arrive at their project ratings. Following is the definition and rating scale used for each evaluation criterion (additional information is available on the IEG website: http://worldbank.org/ieg).

Outcome: The extent to which the operation's major relevant objectives were achieved, or are expected to be achieved, efficiently. The rating has three dimensions: relevance, efficacy, and efficiency. *Relevance* includes relevance of objectives and relevance of design. Relevance of objectives is the extent to which the project's objectives are consistent with the country's current development priorities and with current Bank country and sectoral assistance strategies and corporate goals (expressed in Poverty Reduction Strategy Papers, Country Assistance Strategies, Sector Strategy Papers, Operational Policies). Relevance of design is the extent to which the project's design is consistent with the stated objectives. *Efficacy* is the extent to which the project's objectives were achieved, or are expected to be achieved, taking into account their relative importance. *Efficiency* is the extent to which the project achieved, or is expected to achieve, a return higher than the opportunity cost of capital and benefits at least cost compared to alternatives. The efficiency dimension generally is not applied to adjustment operations. *Possible ratings for Outcome:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Risk to Development Outcome: The risk, at the time of evaluation, that development outcomes (or expected outcomes) will not be maintained (or realized). *Possible ratings for Risk to Development Outcome:* High, Significant, Moderate, Negligible to Low, Not Evaluable.

Bank Performance: The extent to which services provided by the Bank ensured quality at entry of the operation and supported effective implementation through appropriate supervision (including ensuring adequate transition arrangements for regular operation of supported activities after loan/credit closing, toward the achievement of development outcomes. The rating has two dimensions: quality at entry and quality of supervision. *Possible ratings for Bank Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Borrower Performance: The extent to which the borrower (including the government and implementing agency or agencies) ensured quality of preparation and implementation, and complied with covenants and agreements, toward the achievement of development outcomes. The rating has two dimensions: government performance and implementing agency(ies) performance. *Possible ratings for Borrower Performance:* Highly Satisfactory, Satisfactory, Moderately Satisfactory, Moderately Unsatisfactory, Unsatisfactory, Highly Unsatisfactory.

Preface

This Project Performance Assessment Report, prepared by the Independent Evaluation Group (IEG), evaluates two transport projects, the *Gujarat State Highways Project (2000-07)* and the *Karnataka State Highways Improvement Project (2001-07),* and a major analytical product for the road sector in India, the *Road Transport Service Efficiency Study (2006)*.

The two projects are among twelve state-level transport projects supported by the Bank in the past fifteen years covering Assam, Andhra Pradesh, Himachal Pradesh, Kerala, Mizoram, Punjab, Orissa, Rajasthan, Tamil Nadu, and Uttar Pradesh. Both the Gujarat and Karnataka projects involved upgrading, strengthening, and maintenance of state highways, and institutional strengthening of road sector agencies through technical assistance. Land acquisition and resettlement issues were important in both projects.

The two projects were selected for assessment because they had similar objectives and were implemented in provinces with comparable populations and lengths of highway networks, though they differed in some respects including institutional capacity, and the scale of land acquisition and resettlement issues. The Bank's task management responsibilities were managed from the Bank's headquarters for the Gujarat project and from the Bank's country office in New Delhi for the Karnataka project. The findings on sustainability of outcomes from the projects are also likely to be a useful input into the forthcoming IEG evaluation of sustainable infrastructure services and the World Bank Group.

The *Road Transport Service Efficiency Study* is one of several important analytical products prepared by the Bank for India's transport sector over the last fifteen years. It directs attention to the importance of addressing regulatory, institutional and technical issues in improving road transport efficiency as a complement to the large investments that are being made in the country in developing road infrastructure.

IEG prepared this report based on an examination of the relevant Project Appraisal Documents (PADs), Implementation Completion and Results Reports (ICRs), legal agreements, project files and archives, as well as other relevant reports, documents, memoranda and working papers. An IEG field mission visited India during November 2011. Discussions were held with Bank staff in Washington, DC and in New Delhi, and government officials in New Delhi and in Gujarat and Karnataka states. The mission discussed the projects' experience and the effectiveness of Bank assistance with other stakeholders including road users and project affected persons. Extensive site visits were undertaken in both the states covering several segments of roads addressed under the two projects. The visits also covered selected project affected persons as well as structures that were impacted and rehabilitated by the projects.

The mission expresses its appreciation for the generous time and attention given by the Borrower and all concerned parties. A list of persons met by the mission is in Annex E.

Following IEG practice, copies of the draft report were to government officials and implementing agencies for their review but no comments were received.

Summary

This Project Performance Assessment Report assesses the development effectiveness of two transport projects in India, the *Gujarat State Highways Project (2000-07)* and the *Karnataka State Highways Improvement Project (2001-07)*; and a major analytic product for the country's road sector, *Road Transport Service Efficiency Study (2006)*.

The objective of the Gujarat project was to "assist Gujarat in enhancing the state capacity for effective and efficient road infrastructure planning and management and maximizing the existing road infrastructure asset utilization through priority investments and increased funding for maintenance in the road sector." The Karnataka project objective was "improving the state's core road network." The *Road Transport Service Efficiency Study* addressed non-infrastructure factors that impair the efficiency of road transport services in the country and made recommendations for long-distance passenger bus services, the trucking industry, and the motor insurance sector.

Building the institutional capacity of Roads Agencies. The Gujarat Project has helped the state's roads agency (Roads and Building Department) to improve its capacity for the planning and maintenance of road infrastructure. The progress made in various aspects of institutional development – planning, procurement, data collection and analysis using a Road Management System, contract management and quality control, and environmental and social safeguards – has been largely mainstreamed into the Roads and Building Department. Administrative efficiency has shown steady and impressive improvement. Physical targets under the project for road improvement and related outcomes were achieved in a highly cost-effective and efficient manner and have been demonstrably sustained beyond project completion. Several state governments and road agencies have shown interest in learning from Gujarat's experience from the project.

Under the Karnataka project, actions initiated through the Institutional Development and Strengthening action plan showed mixed results. The capacity of the Karnataka Public Works Department for contract management improved significantly. Awareness and capacity for implementing environmental and social safeguards was enhanced. A Geographic Information System (GIS)-based database for the road network is now substantially populated and posted on the Public Works Department website. Greater progress needs to be made in expanding and utilizing this Road Information System, which is crucial for the systematic planning and management of the state's road network. More progress also needs to be made in e-procurement, human resource management, and implementation of a revised departmental code. Overall, the gains made on the institutional front have yet to extend significantly beyond the Project Implementation Unit to the rest of the Public Works Department at project completion. The follow-up project, Karnataka State Highways Improvement Project II which commenced in 2011 builds upon the institutional development and strengthening actions initiated under this project.

Sustaining the project-led gains in institutional capacity and road quality. The improvements in the quality and service outcomes of project roads have been largely maintained over the last five to seven years in Gujarat, and steadily budgetary provision

has been made for their sustainability through periodic maintenance. A road user survey, as well as feedback to the IEG mission from beneficiaries confirms improvements in road quality, driving comfort, reduction in travel time, and easier access to services. The additional provision of service roads in several places has facilitated greater use of mechanized equipment and easier transportation of agricultural inputs and produce. The upgrading of priority roads under the project has also increased the state's ability to attract public-private partnership schemes in future road expansion and maintenance. The project appears to have benefited from state-wide governance initiatives that have had a mitigating impact on 'rent-seeking' behavior by supervisory staff and staff of central agencies/departments concerned with permissions and clearances.

At completion, the Karnataka project's outcome targets relating to the quality of project roads were met. A majority of the project roads display acceptable levels of road quality in terms of the International Roughness Index. However, 5-7 years after upgrading/rehabilitation, some of the project roads are beginning to show signs of distress. Superior planning efforts and adequate maintenance funding will be needed to prevent further deterioration that may soon require expensive rehabilitation. The study on the establishment of a Road Fund to ensure long-term availability of funds for road maintenance was completed as planned and is now being pursued under the follow-on project launched in 2011. Road safety across the state has improved in terms of accident-related fatalities per 10,000 registered vehicles during the project period and beyond, though the gross number of fatalities continues to rise. Institutional improvements – including capacity for planning, management, and the Road Information System – need to be consolidated and carried forward. Several of these issues have already been incorporated in the follow-on project.

The crucial impact of borrower commitment on project outcomes. The Gujarat project's outcomes have benefited from the state government's commitment to the project and its overall administrative and governance initiatives. With this support, the Roads and Building Department was able to complete practically all the road works planned under the project, despite the unprecedented demands placed on it in the aftermath of a devastating earthquake (2001). The Roads and Buildings Department leadership also succeeded in fostering a collaborative and productive relationship with the contractors and engineers.

The Karnataka project also benefited from government commitment and support. But project outcomes could have been strengthened through greater support for the project's institutional development goals. Greater coordination between the concerned state government departments and the implementing agency might have speeded up and facilitated the process of shifting utilities, land acquisition, and resettlement and rehabilitation, as well as the pilot initiative on road safety. The implementing agency could have made greater progress in deploying the Road Information System for systematic planning and management of the road network. There is scope for developing a more collaborative relationship with contractors and engineers.

Value added by the Bank. The Bank's support throughout the project in facilitating the transfer of knowledge are favorably acknowledged by the officials of both state governments. Discussions with Gujarat's Roads and Buildings Department officials

suggest that they see a lot of value in associating with the World Bank as a window to the latest knowledge and practices in road sector management and the Bank's international experience. The roads agencies in both states credit the Bank with having raised their awareness and capacity for implementing environmental and social safeguards.

The initial capacity of the roads agencies in the two states and the different lengths of exposure to new knowledge and practices through Bank projects (the Karnataka project was the first dedicated World Bank project for the roads sector in the state, while the Gujarat project was the second roads sector project in that state) partly contributed to the relative differences in the outcomes for the two projects. In terms of Bank supervision, the Gujarat project was managed from the Bank's headquarters, while the Karnataka project was managed primarily from the country office. The locus of supervision did not appear to make a significant difference in terms of timeliness, frequency, or quality of interaction with the borrower. However, lending costs were two-and-a-half times higher for the Gujarat project, partly because of additional work necessitated by the nearly two-year delay between project appraisal and effectiveness. Supervision costs for the Gujarat project were higher compared to the Karnataka project by a margin of 30 percent partly due to higher travel costs.

The *Road Transport Service Efficiency Study* addressed selected issues that might reduce potential benefits to long-distance road transport services in India, from the large investments being made in the nation's highways. The study made recommendations on regulatory policy for inter-city passenger transport safety, rationalization of highway toll rates and taxes, incentives for using multi-axle trucks that would reduce transport costs and road damage, removing tariff controls, and allowing competition in the motor insurance sector. Though these issues have been the subject of ongoing policy dialogue and reports within India, this study aimed to add value through an in-depth study for selected states, surveys and interviews of key stakeholders, and case studies of China and Pakistan as comparator countries. Lack of political will at the central and state government levels remains a barrier to taking tough decisions on the issues addressed by the study. However, the study remains current in that it has been referenced by some recent research work and prominent publications.

Ratings

The Gujarat project is rated **high** in terms of relevance of the project development objective and design, achievement of objectives, and efficiency. In terms of development outcome, the Gujarat project is rated **highly satisfactory**. Risk to development outcome is rated **negligible to low**. Borrower performance is rated **highly satisfactory** while Bank performance is rated **satisfactory**.

The Karnataka project is rated **substantial** for relevance of the project development objective and design, **substantial** for enhancing the quality of the core state highway network, **modest** for improving network management and road safety, and **substantial** for efficiency. Development outcome is rated **moderately satisfactory** and risk to development outcome is rated **moderate** due to some shortcomings in the performance of institutional, maintenance, maintenance funding, and safety initiatives. Borrower performance and Bank performance are rated **moderately satisfactory.**

The strategic relevance and ownership of the "Road Transport Service Efficiency Study" is rated **moderately satisfactory**. However, the quality of the additional information and analysis from the study is considered **satisfactory**. The dissemination and dialogue for the study as well as the results from the study are rated **moderately satisfactory**.

Lessons

- **The physical and financial sustainability of a road network hinges on the road agency's capacity to undertake needs-based and timely implementation of road improvement and maintenance works. This enables optimal use of available funds, and avoids greater costs of repair in the future.** Gujarat has been able to consolidate its capacity for planning road works to a greater extent than Karnataka, and this is reflected in difference in the condition of selected project roads, 5-7 years after project completion.

- **Institutional and administrative capacity-building should be carried out in step with the readiness of the target agency to internalize it.** In retrospect, institutional reforms in the Karnataka project could have been attempted in a phased and incremental manner, allowing time for them to be integrated with wider operations, and obtaining the support of key government departments.

- **As road agencies evolve from being providers of roads services to 'managers' of increasingly outsourced functions, it is essential that core competencies are retained and strengthened to ensure sustainable management of the road network.** These core competencies cover planning, technical design, road management systems, contract management and environmental and social safeguards.

- **The roads agency should lead the way in creating a productive working relationship with other entities involved in the implementation of roads projects.** A culture of partnership and cooperation was demonstrated in Gujarat between the Roads and Buildings Department, road works contractors and supervising engineers which minimized disputes and speeded up implementation.

- **Decentralization of the Bank's project leadership and supervision does not appear to confer any significant advantage over the task leadership based at headquarters.** Feedback from the road agencies in Gujarat and Karnataka suggests that the locus of Bank task management did not make a significant difference in terms of response time and attention span.

- **A knowledge product that seeks to cover a subject that has already been well studied must provide clear justification of its likely added value.** The *Road Transport Service Efficiency Study* added value from surveys and interviews of stakeholders and gathering the experience of comparator countries. The study served to renew policymakers' attention to politically challenging issues facing operators of freight trucks and passenger bus services, and the motor insurance sector.

Caroline Heider
Director-General
Evaluation

1. Background and Context

1.1 This Project Performance Assessment Report evaluates two transport projects, the Gujarat *State Highways Project* (2000-07) and the *Karnataka State Highways Improvement Project* (2001-07), and a major analytical product for the road sector in India, the *Road Transport Service Efficiency Study* (2006). The two projects were selected for assessment because they had similar objectives for improving roads and road sector management, and were implemented in states with comparable populations and lengths of highway networks. However, they differed in some respects, including institutional capacity of the roads agencies, the scale of land acquisition, resettlement issues, and the location of the Bank's supervision team (headquarters-based and country-based, for Gujarat and Karnataka respectively). The findings on sustainability of outcomes from the projects would also be a useful input into the forthcoming IEG evaluation of sustainable infrastructure services and the World Bank Group. The *Road Transport Service Efficiency Study* is one of several important analytical products prepared by the Bank for India's transport sector over the last fifteen years and sought to complement the large investments that are being made in the country in developing road infrastructure.

1.2 Rapid economic growth in India during the last 10-15 years has stimulated an increasing demand for improving the quality of road infrastructure across the country including the states of Gujarat and Karnataka. Apart from the national highways and rural roads, this has brought into focus the shortcomings in quality and capacity of the existing state highway networks and the several funding and institutional issues that impede their development.

1.3 With the central Government increasingly focused on national highways and rural roads, the state highway subsector depends on the state governments for funding the upkeep of its highways and related institutional development. The larger portion of state funding, however, goes to rural roads because of the increasing need to address rural development issues. As a result, state governments have looked to external sources of funding, and more recently, the private sector, to fund state highways. Apart from the World Bank, the Asian Development Bank and the Government of Japan have been the principal sources of external funding for state highways projects.

1.4 India's total road network is estimated at 3.3 million kilometers – the third largest in the world[1] – and carried 65 percent of the freight and 80 percent of passenger traffic in the country in 2010.[2] It includes a primary network consisting of national highways, a secondary network comprising state highways and major and other district roads; there is also a tertiary network of rural or village roads. In broad terms, the central government is responsible for the construction and maintenance of National Highways, while the state and local governments are responsible for the secondary and tertiary networks within their jurisdictions.

[1] The largest road networks in the world are in the U.S.A and China, with 6.6 and 4.0 million kilometers, respectively. Source: International Roads Federation. http://www.irfnet.org

[2] Ministry of Road Transport and Highways, Government of India. morth.nic.in.

1.5 The national highways account for 2 percent of the country's road length and carried 40 percent of traffic in terms of vehicle-kilometers travelled in the year 2009. State highways and district roads together form 13 percent of the road network and also carry 40 percent of the traffic. Rural roads cover the remaining 85 percent of the road network and serve 20 percent of the traffic.[3]

1.6 The Gujarat State Highways Project and the Karnataka State Highways Improvement Project focus on the states' secondary road networks, in particular on state highways. The projects commenced in 2000-01, at a time when both the states were showing strong economic growth and were facing growing demands for better road infrastructure.

1.7 Gujarat, located in the west of India, has an area of 196,024 square kilometers and a population of 60.4 million. An industrially advanced and high growth state, Gujarat contributes about 7 percent of India's Gross Domestic Product (GDP) and is considered a leader in pursuing economic reforms. The state GDP grew at 10.2 percent per annum during 2002-07, a pace higher than the national average (Table 1). Of the entire country, Gujarat accounts for 39 percent of total industrial output, 67 percent of petrochemical production and 20 percent of exports. The state has been pursuing economic reforms across many sectors, including fiscal policy, power, and education, and private sector participation in infrastructure. The private sector has played a crucial role in shaping reforms in various sectors. Gujarat has been a pioneer in complementing these reforms with better governance initiatives.

1.8 Karnataka, located in the southwest of India, has an area of 191,791 square kilometers and a population of 61 million. Considered a middle-income state, it has one of the fastest growing and more vibrant economies in the country. Major contributors to economic growth in the state are manufacturing and service sectors, accounting for 26 percent and 55 percent of the whole country during the year 2006-07. Karnataka is the knowledge and technology hub of India, where many domestic and international software and information technology firms have located in Bengaluru, the capital city. Karnataka's mining and quarrying sector has also enjoyed a boom in recent years due to the increased global demand for raw materials. However, economic activities are largely concentrated in a few cities with Bengaluru and Mysore accounting for 37 percent of the State GDP. Only six out of the 29 districts in the state had a GDP per capita higher than the state's average for 2007-08. Karnataka needs to improve its infrastructure, including roads, if it is to overcome the existing wide regional economic disparities and make economic growth more inclusive.

[3] Ministry of Road Transport and Highways, Government of India. morth.nic.in.

Table 1: Gujarat and Karnataka: Area, Population, GDP Growth

	Gujarat	***Karnataka***	***INDIA***
Land Area (Square kilometers)	196,024	191,791	3,287,240
Population (millions; 2010)	60.4	61.1	1,210
GDP per capita at current prices (2010-2011)	INR 60,946	INR 75,115	INR 53,331
GDP growth at Constant Prices (2005-6 to 2010-11) (percent)	10.3	8.7	8.6

Source: censusindia.gov.in/2011; india.gov.in; planning commission.nic.in

1.9 The length of state highways in the two states is nearly 20,000 kilometers each (Table 2). The district road network in Gujarat (31,134 km) is about 60 percent of that of Karnataka (50,037 km). The percentage of state and district roads that are paved in the two states percent are also significantly higher than the national average of 58 percent. In Gujarat and Karnataka, only about 16 percent and 8 percent, respectively, of State Highways and Major District Roads are of two-lane or higher standard.

Table 2: Selected Road Network Indicators (kilometers) (2011)

	Gujarat	Karnataka
National Highways	3,229	3,958
State Highways	18,556	22,078
District Roads (Major and 'Other')	31,134	50,037
Extent of Paved Road (percent)	91	68
State highways and district roads with at least two lanes (percent)	16	8

Source: Roads and Buildings Department, Gujarat; Public Works Department, Karnataka

1.10 In the years leading to approval of the projects, strong economic growth and a rapid rise in vehicle ownership[4] in both states were placing pressure to augment the existing capacity and quality of their road networks. In the case of primary and tertiary networks, the situation started to improve after the Government of India introduced two important programs, the National Highway Development Program in 1998 and the Prime Minister's Rural Roads Program in 2000. These programs, which are partly funded through the Central Road Fund, have substantially increased the resources allocated for the improvement of the National Highway and Rural Roads networks in all states, including Gujarat and Karnataka. In contrast, the secondary network (state highways and major district roads) continued to suffer from consistent under-funding and weak capacity of the state road agencies.

[4] More recently, during 2001-2006, vehicle ownership has grown at an average annual rate of 11 percent, 15 percent and 13 percent in Gujarat, Karnataka, and India, respectively. (Source: National Bureau of Statistics, India)

1.11 In Gujarat, the World Bank has been involved previously in the roads sector through the Gujarat Rural Roads Project (1987-1996).[5] The Government of Gujarat has over the years taken several measures to strengthen government policies, institutions and procedures for better governance that have impacted all sectors including the roads sector. It has been harnessing information and communication technologies to improve the efficiency and transparency citizen-based services – notable among these are the computerization of land records, and state-wide attention on grievances through regular meetings of administrators at the sub-district, district, and state levels. Simultaneously, Gujarat has also implemented an Integrated Workflow and Document Management System for automating government functions and processes. The Roads and Buildings Department,[6] whose responsibilities include managing the state highway network, uses the e-procurement system in the state for all works valued at higher than US$1 million, irrespective of the source of funding. According to the Gujarat Vigilance Commission, procurement-related complaints have decreased significantly with the advent of e-procurement. Gujarat is also considered to be the first state in the country to have made e-Governance functional in all its municipalities and municipal Corporations.

1.12 The Government of Karnataka has also adopted reforms to improve the quality of governance and service delivery that include simplification of procedures and e-governance, productivity, integrity and accountability in administration and decentralized and participatory governance. Other reforms have targeted public transport provision and parking management. Several public sector units have also been privatized or restructured. The Karnataka Public Works Department is responsible for the state highways and major district roads.[7] It managed the project through a Project Implementation Unit located within the Public Works Department. Separately, the Karnataka Road Development Corporation Limited, which was established in 2002, is responsible for the core network outside the scope of externally sourced funds. Thus, the Public Works Department and the Road Development Corporation are together responsible for the core road network improvement, and after these works are completed, the roads are transferred back to the Public Works Department for maintenance.

1.13 The World Bank was in a unique position to respond to the challenges and opportunities faced by Gujarat and Karnataka in improving their state highway networks by: (a) providing the critical long-term capital needed to support infrastructure development for accelerated economic growth, (b) using its lending and advisory capabilities to leverage the institutional and policy reform process, and (c) ensuring that

[5] Gujarat Rural Roads Project (IDA: US$120M; Credit 1757-IN: 1987-1996).

[6] The Roads and Buildings Department is in charge of about 74,000 kilometers of roads, including a number of bridges and besides its responsibilities for public buildings in the state. National highways are owned and financed by the Government of India's Ministry of Road Transport and Highways (MORTH); the Roads and Buildings Department supervises works executed on national highways behalf of the Ministry. All other categories of roads in the state are owned and financed by GOG, albeit with external funding assistance in some cases (e.g. in the case of PMGSY funding for rural road improvements).

[7] In addition the Karnataka Public Works Department also looks after National Highways passing through the state on behalf of Ministry of Road Transport, Government of India. The Public Works Department manages about 70, 965 kilometers of the road network, excluding national highways.

social and environmental concerns would be fully reflected in project design and implementation.

2. Gujarat State Highways Project

Objectives, Design, and Relevance

OBJECTIVES

2.1 The project development objective of the Gujarat State Highways Project, as stated in the Loan Agreement,[8] was to "assist Gujarat in enhancing the state capacity for effective and efficient road infrastructure planning and management and maximizing the existing road infrastructure asset utilization through priority investments and increased funding for maintenance in the road sector."

DESIGN

2.2 The planned project cost of US$533 million was to be financed by an IBRD loan of US$381 million and a counterpart contribution of US$152 million equivalent from the Government of India. The project consisted of the following components:[9]

- **Component 1: Widening and Strengthening of State Highways** (estimated total cost: US$415.0 million; actual: US$304.4 million). This component would help increase the carrying capacity and structural strength of part of the core state road network[10] through the widening and strengthening of about 800-900 kilometers of high priority state highways.

- **Component 2: Land Acquisition and Relocation and Resettlement Expenditures** (estimated total cost: US$2.0 million; actual: US$8.4 million). This component would finance the payments to project-affected persons for the replacement value of assets acquired, infrastructure facilities and resettlement sites, Relocation and Resettlement entitlements including allowances, training, and monitoring and evaluation expenditures. The amount financed would be net of the land acquisition costs and cash compensation payable by the state to the project-affected persons under the state's Land Acquisition Act.

- **Component 3: Periodic Maintenance of State Highways** (estimated total cost: US$68.0 million; actual: US$59.2 million). This component would help reduce the

[8] The Project Appraisal Document (PAD) has a slightly different wording, but is identical in intent.

[9] The description of the components is slightly different in the Loan Agreement and the Project Appraisal Document, but overall, there is no material difference. The Loan Agreement version is used here.

[10] The core network is the network of all roads necessary to provide basic connectivity to defined population centers

periodic maintenance backlog of the State by funding the overlaying, resealing and minor rehabilitation of about 1,000 kilometers of state highways.

- **Component 4: Design and Supervision of Civil Works Contracts** (estimated total cost: US$32.0 million; actual: US$30.8 million). Internationally experienced supervision consultants would be procured to supervise the widening and strengthening component (Component 1) of the project. They would have full responsibility as the "engineer" on site as per International Federation of Consulting Engineers[11] (FIDIC) conditions. Internationally experienced consultants would be used for the techno-economic feasibility and engineering preparation of the project. Experienced consultants would also be used for preparation of bid documents and oversight of periodic maintenance works.

- **Component 5: Institutional Strengthening, Technical Assistance, Training, and Equipment** (estimated total cost: US$12.0 million; actual: US$5.1 million). This component would fund consultant services and technical assistance required to implement the Institutional Development Strengthening action plans designed to strengthen the Roads and Buildings Department's role as the "manager" of Gujarat's road network. The training needs envisaged under the Project would focus on the planning and management of the state road network with particular emphasis in the areas of procurement, construction and maintenance management of the existing network. Equipment would be procured under this component for Department's office and laboratory modernization and road management systems. This component would also include the procurement of equipment to monitor pollution and noise emissions along main arterial routes.

- **Component 6: Pre-investment Studies** (estimated total cost: US$4.0 million; actual: US$0.48 million). This component would fund the techno-economic feasibility and detailed engineering studies required for a possible follow-up project.

2.3 Six earthquake-damaged bridges were added to Component 1(Road Widening and Strengthening) after the major earthquake that struck Gujarat on January 26, 2001.[12] Also under Component 1, a road length of 22 kilometers was added to one of the contracts (GSHP-12).[13] The fourth annual periodic maintenance program was added to Component 3 (Periodic Maintenance of Highways). All newly-added works were funded from savings under the project as a result of lower-than-expected civil works unit costs and a slight depreciation of the Rupee against the US dollar during the early stages of project implementation.

---

[11] The *Federation International des Ingenieurs Conseils* (FIDIC) publishes the Multilateral Development Bank Harmonised Edition of the Construction Contract on behalf of Participating Banks, including the World Bank.(www.fidic.org)

[12] The earthquake registered 7.7 on the Richter scale, the second most intense ever recorded in India, killed nearly 20,000 people, and left 600,000 people homeless (en.wikipedia.org/wiki/2001_Gujarat_earthquake, accessed on April 21, 2012)..

[13] Component 1 was carried out through 14 contracts, GSHP-1 to GSHP-14, covering road segments that totaled 886 kilometers.

2.4 The Roads and Buildings Department had overall responsibility for project implementation. A Project Implementation Unit was established to manage project preparation and implementation activities on a day-to-day basis. The Project Implementation Unit was headed by a Special Secretary and Chief Engineer assisted by a number of technical staff. A high level Gujarat Government Tender Committee was responsible for procurement decisions and for overseeing the approval of civil works and consultant contracts.

RELEVANCE

2.5 ***Relevance of the project development objectives is rated High***. The objective was very relevant to the state's developmental needs in the roads sector, and was aligned with the Bank's Country Assistance Strategies at project approval (1997; 2001) as well as the more recent Country Partnership Strategy (2009-12). At approval, the Bank's strategies targeted the reduction of infrastructure constraints for economic growth through modernizing roads sector institutions; improving asset management performance, and supporting the state's overall socio-economic and development goals. More recently, through the Country Partnership Strategy, the Bank has emphasized knowledge and lending solutions that match the needs of a middle-income country/state by promoting state-level reforms in the road infrastructure sector; mobilizing increased outlays for investment and maintenance of road infrastructure; and facilitating private sector involvement in engineering, construction, and maintenance.

2.6 The project's objectives were also aligned with the three main drivers of reforms in Gujarat's roads sector since the early 1980s, namely the Gujarat Road Development Plan (1981-2001); a state cabinet-endorsed 'state road policy' released in 1996; and the Gujarat Infrastructure Agenda: Vision 2020. The objectives remained highly relevant to Government of India's Tenth and Eleventh Five-Year Plans (2002-2007; 2007-11) which have emphasized improvements in infrastructure, including improving the quality and productivity of the transport network for rapid economic growth and poverty reduction.

2.7 ***Relevance of project design is rated High***. The project design appropriately and comprehensively addressed the state's priority needs for improving its core road network. The two physical components for periodic maintenance, and widening and strengthening of the state's highways, addressed the urgent needs of raising the utilization of prioritized road segments. This was complemented by a component for land acquisition and compensation for project-affected persons that precedes the commencement road works. Because the Roads and Buildings Department was new to implementing the Bank's environmental and social safeguards, this component included training and transfer of knowledge through consultants.

2.8 The remaining components addressed institutional capacity building across all key functional areas – planning, roads asset management, technical design, information systems, procurement, contractor management, and monitoring and evaluation – through an institutional strengthening action plan. The institutional components fed directly into the objective of enhancing the capacity for effective road infrastructure planning and management. The project design has evolved from the Bank's wider experience in other

states in India as well as in other countries. Overall, the project's design was consistent with the development objectives.

MONITORING AND EVALUATION DESIGN

2.9 Monitoring and Evaluation (M&E) design included appropriate indicators for both parts of the objective. In respect of enhanced effectiveness and efficiency of planning and management, the project used two outcome indicators for which baseline data and targets were provided – reduction in the maintenance backlog and the ratio of administrative cost to capital/maintenance expenditures. Output indicators covered the implementation of agreed institutional strengthening and modernization action plans and training about 500 staff of the Roads and Buildings Department through appropriate training schemes.

2.10 In respect of maximizing asset utilization, the outcome indicators were reduction in travel time, for which a baseline value and target were provided, and the increase in road traffic, for which no specific baseline figures were provided. The output/intermediate outcome indicator was the length of high priority state highways improved to a 'good standard' International Roughness Index (IRI) less than 4.0 meters/kilometer), for which the default baseline was that none of the roads met this standard at the start of the project. Two other indicators proposed in the project appraisal document – economic rate of return, and the level of maintenance funding did not belong in the M&E design. With hindsight, other intermediate outcome indicators could have been devised to track capacity-building efforts such as mainstreaming the use of the Road Management System for planning the department's work program as well as prioritized and need-based deployment of maintenance funds.

Implementation

2.11 ***Force majeure events caused delay during implementation.*** Project appraisal was completed on March 23, 1998, but due to nuclear sanctions against India that followed soon after[14], the project was approved nearly two and an half years later on September 5, 2000, and became effective on November, 28, 2000. A few months after the loan became effective, Gujarat was hit by a devastating earthquake that killed 20,000 people and caused extensive damage to the state's infrastructure, including roads and bridges. The loan closing date was extended twice, for twelve months each time, and the loan finally closed on December 31, 2007. The first extension was to complete work on the damaged bridges from the earthquake, and the second extension was required because of the delays in civil works construction caused by the unusually prolonged monsoon rains in the summers of 2005 and 2006. The 2001 earthquake also delayed the institutional component, as the Roads and Buildings Department and the state government had to concentrate on post-earthquake emergency reconstruction of roads and buildings. The loan's two-year extension enabled completion of all the planned civil works, and implementation of most of the capacity building and institutional development efforts envisaged at appraisal. The institutional strengthening component (component 4) used only US$5 million against the planned US$12 million, the rest of the

[14] The sanctions followed soon after India's nuclear tests in May 1998.

requirements being met through state funds, and also savings from a favorable exchange rate as well as efficient procurement. In respect of component 6 for pre-investment studies, only $0.48 million was used during the project against the planned US$4 million. This was because the studies continued beyond project completion, and the remaining expenditure was covered by state government as well as the strategic options study for the proposed follow-up project. An amount of US$101 million of the loan was cancelled at the request of the borrower in three installments between June 2004 and June 2006. The delays in implementation of land acquisition and the resettlement action plan pointed out by the Bank's Quality of Supervision Assessment (QSA6) after the mid-term review in March 2002 were satisfactorily resolved by December 2004.

2.12 ***Project activities were completed at significantly lower than expected costs***. Against an estimated project cost of US$533 million the cost at completion was US$408 million; the Bank loan amount was reduced from US$381 million to US$280 million. The reduced cost of the project was mostly attributable to: (a) lower-than-expected civil works costs in part due to significant competitive cost reductions; and (b) depreciation of the Indian Rupee against the US dollar since project appraisal, which ranged between 10 percent and 25 percent over the project period.

2.13 ***A collaborative relationship was maintained between the Employer (Roads and Buildings Department), Engineer and Contractor***. Highly professional conduct by the three contracting parties – the employer (Roads and Buildings Department), the engineers and the contractors helped in the smooth implementation of road works and minimized contractual disputes. The project experienced only seven disputes in the fifteen upgrading works contracts, of which only two cases were referred to arbitration and none was referred to the court. Only six out of the fifteen upgrading works contracts had an upward variation order, whereas the remaining nine were completed lower than the contract prices. The sound collaborative relationship between the different parties was confirmed by the mission through discussions with representative engineers and contractors, and Bank staff. They agreed that the state government made a substantial effort to improve the dispute resolution system and inculcate a culture of cooperation among the three contractual entities. Mandatory monthly meetings were held between the Contractor and the Engineer, and payments were processed in a timely manner. Feedback from interviews suggests that there was active encouragement of dispute prevention and 'across the table' resolution,

2.14 ***There was continuity of Staff in both the Bank and Government teams***. Most of the team members from the implementing agency and the Bank remained in place from project inception and throughout the extended implementation period. This promoted continuity and rapport in the working relationship between the Bank and the client, while building strong ownership and commitment to the project among the Roads and Building Department staff.

SAFEGUARDS

2.15 The project was classified as Category "B" under the Bank's environmental and social safeguards framework and triggered its Environmental Assessment and Involuntary Resettlement policies. An Environmental Assessment, Environmental

Management Plan, and a Resettlement Action Plan were prepared and disclosed appropriately to the public as required. Environmental issues that were identified included: restoration of borrow[15] areas; proper disposal of solid and liquid wastes from construction camps; compensatory planting of trees; proper management of construction camps and maintenance depots; minimizing dust, accidents and vehicular damage; and compliance with air, noise, and emission standards. In respect of land acquisition, a key social issue was to ensure assistance and support to vulnerable and affected squatters and encroachers in re-establishing their shelter and livelihood opportunities.

2.16 ***Overall, environmental safeguards were implemented in a satisfactory – and in many instances – in an exemplary manner.*** Environmental and forestry clearances were obtained in a timely manner after discussions and follow-up with the concerned departmental authorities. More than 8,500 trees were saved by altering the centerline of the road or cross-section or by retaining them on the edges of embankments. Compensatory forestation was undertaken by planting two million saplings, as against 165,000 trees that were cut during construction, and the survival rate is reported to be in an acceptable range, though no specific numbers were available. The mission was shown sections of compensatory forestation during site visits.

2.17 Compliance reports from the Environmental Management Unit and the Bank's supervision mission confirm that environmental safeguard measures were carried out in a satisfactory manner. Soil contamination was prevented by providing interceptors, trays, and sand bed filters that clean the water from the construction sites. Suitable areas for direct disposal from site were identified with the help of local authorities. Debris was recycled for construction work, especially asphaltic debris for village roads, access roads, and low lying commercial and community areas. Local authorities provide support to Borrow area restoration, clearings site of debris and vegetation, dismantling of diversions, safe disposal of scarified bituminous surfaces, and the restoration of demobilized labor camps. Topsoil preservation was carried out through proper stripping and stacking.

2.18 Apart from planned environmental measures, some additional actions were also carried out that helped to minimize impacts on endangered animals in a wildlife sanctuary, and to develop borrow pits as water bodies. Elsewhere, earth from de-silting and deepening of ponds was used to create 21 mounds that have attracted nesting birds over the years (Box 1).

[15] 'Borrow pit' is a construction/ civil engineering term used to describe an area where material (usually soil, gravel or sand) has been dug for use at another location.

Box 1. Going beyond compliance with Environmental and Social Safeguards in Gujarat

Officials of the Roads and Buildings Department displayed strong commitment to the spirit of environmental and social safeguards, and carried out tasks that sometimes went well beyond mere compliance.

An especially noteworthy effort was made on the Viramgam-Halvad corridor, where the potential impacts on endangered animals from the nearby Wild Ass Sanctuary were minimized by constructing four underpasses to allow the animals access to water sources. A 'food garden' of plants favored by the animals was created inside the sanctuary to minimize the movement of animals. Elsewhere, earth from de-silting and deepening of ponds was used to create 21 mounds that now serve as nesting areas for many important migratory and local bird species, including flamingoes, pelicans, herons, storks, cranes, and waders. On another count, the project encouraged the development of water bodies in borrow areas, an effort that materialized in 125 out of 460 borrow pits. The mission visited one such borrow pit converted into a pond near Aithore village, where gently sloping extraction of soil has been carried out to prevent soil erosion, and to allow livestock to use it as a water source.

Roads and Buildings Department staff introduced the mission to households of five different affected persons and their families in the GSHP 9A segment. These families have been given fully constructed houses that are a huge improvement over the makeshift shelters used by the families prior to the project. The affected persons appreciated the efforts of the Department officers for having successfully managed the sensitive matter of integrating them with the existing residents in the area. The mission visited sites where small temples that were close to the road were relocated outside of the right-of-way with mutual agreement and reconstructed in a nearby accessible place (Samiyala village) or relocated and rehabilitated (Siddhpur village). The mission was informed that around 13 similar places of worship had been relocated during the project with the agreement of the local people. On the Mehsana-Palanpur road, a well was retained and the road alignment was changed to accommodate local people's needs to collect water.

Source: IEG mission results.

2.19 ***All required social safeguards actions were satisfactorily completed after overcoming some delays in the beginning.*** In the initial project years, 2002-2004, there were delays in implementing the resettlement action plan, as noted by the Bank's mid-term review, other supervision missions, and a quality of supervision assessment carried out by the then Quality Assurance Group of the World Bank.[16] This was due to delays in making top-up payments (the difference between replacement cost and compensation paid under the Land Acquisition Act[17]) for private land acquisition and providing permanent resettlement to the displaced households to different extents in the three phases of road works. This was in turn mainly due to the state government's lack of experience at that time with the Bank's safeguard policies, and because practical standards for payments that conformed to the Bank's guidelines had not yet been established. In response to the Bank's assessments, the Environmental Management Unit within the Roads and Buildings Department developed suitable procedures and held

[16] Quality of Supervision Assessment 6 (QSA6).

[17] The Land Acquisition Act of India, 1894, allows the government to acquire privately held land for public purposes.

several consultation meetings with all the stakeholders to expedite and complete the resettlement action plan by December 2004. At the end of the process, land acquisition for the project (53 hectares) was smaller than had been identified at appraisal (65 hectares). Similarly, 28 percent fewer households were affected than had been anticipated at appraisal (891 households against 1,253). The lower impacts are due to the efforts made by the Roads and Buildings Department to explore options to minimize the impacts through adjustments in the alignments and reducing the corridor of impact width wherever possible. The final land acquisition and resettlement costs were US$8.4 million, about four times the estimated at appraisal (US$2 million), but still only about 2 percent of the final project cost of US$408 million. The land acquisition and resettlement costs were higher than anticipated due to price increases since appraisal and greater valuation of compensation requirements realized in practice.

2.20 An independent resettlement impact assessment by a non-governmental organization, the Rural Development and Management Institute, Ahmedabad, found that the project has not caused any significant adverse impacts on the livelihoods of affected persons. Additionally, the study shows that the living and economic conditions of affected persons have improved. Fifteen families that had lost their homes that ranged from 8 to 15 square meters in size were provided with larger homes of 20 to 25 square meters with better water and sanitation facilities, and separate bathrooms and toilets. Fifty-nine families were entitled to training but twenty of them preferred compensation in kind such as livestock. Of the families that opted for training, feedback from a sample size of 60 percent showed that about half the respondents were earning an additional 500-1000 per month at the end of the project. The post-project average family income for project affected persons was INR5,380 (US$110) against INR3,661 (U$75) in the base line and INR4,744 (US$95) for the control group.

2.21 The mission conducted site visits to different segments of road works, and verified documentation of affected persons, applicable entitlement categories[18] for compensation, and the actual compensation paid. The sites were chosen by the mission to provide wide coverage, subject to the time available for the visits. [19] Beneficiaries were chosen by the Roads and Buildings Officials based on reasonable access and availability. The mission met with beneficiaries with a variety of entitlements, and received confirmation from th e beneficiaries that they were satisfied with their settlement, which in some cases exceeded their expectations. One affected person was below the poverty line with an income of INR 2000 per month (approximately US$40) when his small roadside business was displaced by the project. He was given Rs. 7000 (approximately US$140) for alternative training in radio and television repair. The beneficiary reported that his economic situation was better than before displacement. In the same area, another affected person used to own a roadside bicycle repair shop that was shifted to the opposite side. He was given formal training for cycle repairs and continues his business on the other side of the road and supplemented his income by

[18] The entitled categories cover provision of shelter, rental assistance, shifting assistance, vocational training, and subsistence grants. Each affected person was paid based on applicable categories and eligible amounts.

[19] The visits covered areas covered by contracts GSHP-1 (Sarkhej – Viramgam); GSHP-6 (Mehsana-Palanpur); GSHP-8 (Ladvel-Dakor); and GSHP-9 (Vadodara-Jambusar).

selling tea and snacks. He also reported that his income improved after rehabilitation works were completed. The mission visited the households of five different affected persons and their families in the GSHP 9A segment whose living conditions have also improved greatly after resettlement (Box 1). Several places of worship that fell in the right-of-way were handled with sensitivity and relocated with mutual consent and with improved facilities.

FINANCIAL MANAGEMENT

2.22 ***Financial management was adequate after experiencing initial problems***. The Roads and Buildings Department was familiar with the Bank's financial reporting, accounting and auditing requirements from its experience with the Gujarat Rural Roads Project. The State Highways Project attempted to build upon this by implementing a computerized Project Financial Management System capable of providing timely and reliable information to monitor progress in achieving the project's objectives. After initial problems (lags in data entry; lack of compatibility with annual reporting; and excessive dependence on consultants for data inputs and system operations) the System was installed at division offices and the central office, and its operation was taken over by trained finance staff. Financial management arrangements are reported to be continuously satisfactory from mid-2005 until the loan was closed, and no qualified audits were reported.

2.23 ***Procurement of works, goods and equipment, consulting services and training components was carried out in accordance with the Bank's guidelines***. The widening and strengthening of civil works were procured through international competitive bidding and implemented in three phases, with the majority of contracts in packages of US$10-40 million. The bidders for these civil works were pre-qualified in accordance with Bank guidelines. The periodic maintenance of civil works was procured through national competitive bidding in packages of US$1-5 million. The Roads and Building Department performed its procurement role efficiently and proved proficient in preparing tenders, evaluating bids, and awarding contracts. The upgrading works contracts were signed at an overall 18 percent lower price than the estimated costs, a significant measure of the project's procurement efficiency. Moreover, only six of the fifteen upgrading works contracts had an upward variation in contract price during implementation, whereas the remaining nine have been completed at lower than contract price, reflecting adoption of efficient contract management and cost control measures during implementation.

Achievement of the Objectives

2.24 This report assesses the two major outcomes pointed to in the statement of objectives: (1) "to enhance the capacity of Government of Gujarat for the *effective and efficient planning and management* of road infrastructure", and (2) "*maximize existing road infrastructure asset utilization* " (outcomes in italics). The outcome indicators for part (1) are to reduce the ratio of administrative cost to capital/maintenance expenditures by 10 percent by the end of the project and to achieve an International Roughness Index (IRI) <4 meters/kilometer on project roads. The outcome indicators for part (2) of the PDO were reduction of travel time (10 percent for the 1,900 kilometers of roads covered by the project), and reduction in maintenance backlog (20 percent on all state highways.)

ENHANCING THE STATE'S CAPACITY FOR EFFECTIVE AND EFFICIENT ROAD INFRASTRUCTURE PLANNING AND MANAGEMENT. ***Rated High*.**

2.25 The objective of enhancing the state's capacity for road sector management was pursued mainly through the Institutional Strengthening Action Plan, (i) moving towards a 'whole-of-network' approach to monitoring and planning for roads development and maintenance; (ii) strategic organizational changes and newly defined responsibilities including a policy and planning function; (iii) initiating systematic road condition data collection and information technology-based tools for maintenance planning and programming; (iv) improving capacity for environmental and social safeguard compliance through a new environmental management unit; (v) enhancement of the Roads and Buildings Department's financial management capabilities with the operational Project Financial Management System; (vi) greater provision for training for Roads and Buildings Department officers; and (vii) preparation of procedure manuals[20] to streamline standards and procedures.

2.26 The project has helped the Roads and Buildings Department to lay greater emphasis on road network management, planning and policy as compared to its focus on traditional execution of civil works. The project succeeded in meeting or exceeding most of its key output targets and performance indicators with respect to physical road works as well as in building institutional capacity.

2.27 ***Outputs*.** A Policy and Planning Unit was set up in the Roads and Buildings Department with the responsibility for preparing annual budget plans for the department by using a computer-based Gujarat Road Management system. A Highway Design Unit was also created. The Department benefited from working with experienced international consultants through transfer of knowledge and skills in technical and procurement matters, and in the management of consultants and civil works contracts.

2.28 The Gujarat Road Management System is a complex system consisting of several modules/systems that need to be continually populated with data. The *Road Information System*, which defines the nodes and links of the network and basic road characteristics had gathered this data for the state's highways and district roads at project completion, and is presently in an advanced stage of covering rural roads. The *Pavement Management System* is designed for technical and financial analyses for multi-year road work's programming and optimization under budget constraints. and is being used for the Roads and Building Department's annual and five year plans. The *Bridge Management System* is geared towards preventive maintenance of bridges, and is presently in the form of a catalogue of bridge condition with photographs. The system continues to be populated with more details to improve its utility. The *Traffic Information System* is fully functional and is being used as intended to produce forecasts of average annual traffic. Axle-load data and origin-destination data are collected intermittently by the Traffic Information System in the course of preparing projects. The *Environment and Social Information System* has been populated, but more attention and resources need to

[20] Quality system manual for the Roads and Buildings Department; Model Quality assurance Plan for a Project; Construction Supervision Manual: Road Maintenance Manual: Quality Control Test Procedures Manual

be committed for use as necessary when new projects are initiated. The *Budgeting and Programming System* is set up to use Highway Design and Maintenance software (HDM-4) to prioritize expenditures and generate a multi-year works programs, or using a decision-tree method to generate a one-year works program. The *Routine Maintenance Management System* is designed to improve the quality of routine maintenance through standardization of activities, and its impact on efficient expenditure on routine maintenance in the process of filtering to the level of field offices. The *Accident Information System* requires greater coordination with the police department. The effectiveness of the *Monitoring and Evaluation System* relies on regular updating of data, and more incentives need to be created for field officers to enter details into the system on a periodic basis.

2.29 Several Roads and Bridge Department staff were trained on road management systems. Some of these staff supervise external consultants on the Road Management System while senior officers provide overall guidance.

2.30 The project helped to refurbish and strengthen the Staff Training College,[21] which imparts training to state public works engineering staff, in terms of physical and professional resources. An annually updated three-year rolling training program was launched. A multi-phase manager development program was initiated for middle-level staff for the new and evolving responsibilities in Gujarat's road sector environment. Overall, over 1, 500 Roads and Bridges Department staff, representing over 75 percent of the professional staff were trained during the project's lifetime, exceeding the target of 500. The training covered contract management/procurement, monitoring and evaluation, environmental and social safeguards functions and management, project management, planning, finance, quality control/management, and, more recently, e-procurement/e-governance. The pace of training is being sustained because of the general emphasis placed on training by the state government through mandating that 1.5 percent of a department's budget be set apart for this purpose, which is considered a unique development among Indian states.

2.31 A Human Resource Development post was created in the Roads and Bridges Department. These duties are presently assumed by the Chief Engineer in the project implementation unit, assisted by the Staff Training College. A number of initiatives have resulted from this collaboration but progress needs to be made in preparing job specification/descriptions as a pre-cursor to performance appraisal, career planning and programs for training and development.

2.32 Much of the gains in capacity-building have been sustained through ensuring continuity of trained and experienced staff in the project implementation unit. While staff has been rotated since the project closed due to the relatively lower scale of activity, staff with experience in the key planning, design, and safeguards functions has been retained at appropriate levels. The policy and planning work is gradually being outsourced. These functions are supervised at the level of the Chief Engineer in the Project Implementation Unit.

[21] The mission, activities, and achievements of the Staff Training College are provided in their website (stc.gujarat.gov.in), though website requires to be updated.

2.33 The Environmental Management Unit was staffed adequately and performed well during the project. A state-wide 'Social and Environment Management Policy and Guidance' was prepared under the project, and is now applied to all investment projects undertaken by the Roads and Buildings Department. Presently, the environmental and safeguards function is undertaken by officers in addition to other duties, and is overseen at the Chief Engineer's level. The bulk of the environmental and social safeguards work has been now outsourced as part of feasibility and design work for new projects.

2.34 ***Outcomes.*** The Project Planning Unit set up under the project functioned well during the project period and was able to prepare subsequent budget plans for 2007 and 2008 based on the computer-based Gujarat Road Management system. This is a significant achievement for effective and efficient road planning and management, compared to the past practice by which all the budget plans were prepared manually, with less emphasis on data support and analysis.

2.35 The Roads and Buildings Department displayed an impressive and consistent increase in administrative efficiency during the project period and beyond. The administrative cost in the capital maintenance and maintenance budget was reduced by almost half from 30 percent at project approval to 15.7 percent at project completion. The figure for 2011 shows a further decrease to 11.5 percent[22] indicating an impressive and continued improvement in administrative efficiency beyond the project. Interviews conducted during the mission suggest that the increased administrative efficiency can be attributed partly to the capacity improvement during the project, apart from the financial discipline maintained by the Roads and Building Department as well as state government oversight. While the Roads and Buildings Department's work program and budget have grown manifold since the beginning of the project, there has also been a steady decline in the numbers of both professional and casual workers. The number of professional workers has declined from 11,075 in 2004 to 9,381 in 2010, and the number of casual laborers declined from 10,621 in 2000 to 8,338 in 2010. These numbers are seen as another indicator of an overall increase in agency's administrative efficiency, although to some extent it also reflects the outsourcing of some functions.

2.36 According to the presentation given to the mission, the core modules of the Gujarat Road Management System – Road Management System, Pavement Management System, and the Budgeting and Programming System – are operational. The Pavement Management System is being used for the Roads and Building Department's annual and five year plans. Together with inputs from the Traffic Information system, these systems are used to produce a prioritized program of works, subject to budget constraints. It already provides a stronger basis for making budget estimates for maintenance funding and conducting constructive dialogue with the state's finance department. An example of road condition data collected by the Road Management System for several road segments (including some visited by the mission) are given below in Table 3. Currently, a prioritized program of works is produced annually, using available road condition data and different budget assumptions. This approach has helped to prioritize and commit

[22] For the financial year 2011, the administrative cost of Roads and Buildings Department was Rs. 5760 million against a capital/maintenance expenditure was Rs. 45050 million. (Source: Roads and Buildings Department)

resources to roads based on traffic growth and other relevant parameters. Officials also cite a request from the ministerial level for road condition data underpinning budget estimates, which is unprecedented. Taking all these aspects into consideration, IEG's assessment is that the component systems of the Road Management System are being mainstreamed into the management of the road network in Gujarat.

Table 3. Gujarat Road Management System: Sample Road Condition Data

Road Segment	***International Roughness Index (IRI) (meters per kilometer)***
Vataman - Pipli	3.49
Viramgam - Dhangandhra	3.67
Vadodara - Padara – Jamusar	4.18
Surat - Olpad	3.66
Surkhej - Viramgam	3.60
Rajkot - Morbi	3.80
Rajkot - Jamnagar	3.57
Mehsana - Palanpur	3.79
Ladvel - Dakor	3.86
Jamnagar - Khambhaliya	3.72
Halol - Godhra	4.24
Godhra - Shamlaji	2.96
Dhoalaka - Bagodara	3.65
Dakor - Godhra	3.83
Bharuch - Dahej	4.02
Dhangandhra - Halavad	3.23

Source: Roads and Building Department, Government of Gujarat
Note: Period of observation: October 2011 to February 2012

2.37 Gujarat achieved strong results in reducing the maintenance backlog for state highways during the project and has kept up this trend in the years after project completion. The maintenance backlog for state highways was halved from 10,000 kilometers at the start of the project to 5,000 kilometers at project completion, including a contribution of 1,900 kilometers reduction by the project. More recent figures confirm that as of 2010, 1,700 kilometers of state highways were pending for maintenance (resurfacing). Against that figure, 1,290 kilometers were resurfaced in 2011.

2.38 ***Other outcomes.*** There has been a high degree of interest shown by other states to learn from various aspects of Gujarat's experience in the roads sector. In this connection, Roads and Buildings Department has received visits from road sector officials (and in a few cases, political leaders) from the states of Maharashtra, Kerala, Madhya Pradesh, Mizoram, Orissa, and Bihar. Visits from Chhattisgarh and Assam were arranged by the Bank's task team.

MAXIMIZING THE EXISTING ROAD INFRASTRUCTURE ASSET UTILIZATION. *Rated High*.

2.39 ***Outputs.*** Priority investments for the road infrastructure asset base were chosen through the 'whole-of-network' approach of monitoring and planning. The targets for

upgrading and rehabilitating roads were met or exceeded (nearly 900 kilometers upgraded against a target of 873 kilometers and about 1,000 kilometers improved/widened as targeted).

2.40 In nominal terms, the budget allocation for routine and periodic maintenance almost doubled between 2001-02 and 2008-09, through this increase may be smaller in real terms. (Table 4). Feedback from Roads and Buildings Department officials suggests that the government is in a position to meet the estimated budget needs for routine and periodic road maintenance. With the goal of securing long term sustainability of road maintenance financing, the task of establishing a Road Fund[23] had been included in the Institutional Action Plan of the project. However, the increasing availability of funds from state, national and private sector sources in successive years has shifted the focus from building a consensus on the Road Fund. However, given the continued strong demand for road infrastructure development and extension in the state, the issue of the Gujarat Road Fund has been included in the new Vision 2020 document of the state government. The outlay for routine and periodic maintenance has increased consistently in nominal terms from 2001-02 to 2008-09.

Table 4: Gujarat: Routine and Periodic Maintenance Outlay for Roads

Year	***Indian Rupees (million)***	***Approx. US$ million***
2001-2	3,090	65
2002-3	2,820	58
2003-4	2,920	63
2004-5	3,650	81
2005-6	3,280	74
2006-7	5,940	131
2007-8	5,700	138
2008-9	6,110	140

Source: Roads and Building Department, Government of Gujarat

2.41 ***Outcomes.*** The quality of project roads has been maintained at a 'good' quality (IRI < 4.0 meter/kilometer). The average car/truck/bus speed increased from 50 km/h to 60 km/hour on project roads implying a reduction in travel time of 16 percent. Traffic growth on roads that received periodic maintenance averaged 6.3 percent annual growth during the four-year period after completion of works. For roads that were widened and upgraded, the average growth in traffic ranged between 1 percent to over 10 percent in the first three years after construction.

2.42 The mission selected four contracts for site visits out of fourteen in the project, to make a balanced assessment of the current status of project roads. The sites were selected to provide wide regional coverage subject to time available. The contract sites were Sarkhej-Viramgam (GSHP-1; 47.5 km); Mehsana-Palanpur (GSHP-6; 55.4 km); Ladvel- Dakor (GSHP-8; 63.7 km); and Vadodara-Jambusar (Contracts GSHP 9A; 9B; 92.8km). In general all the road segments that were visited displayed good surface and

[23] A Road Fund is a financial mechanism dedicated to road maintenance and financed by specific earmarked tax revenues, and overseen by an independent Road Fund Board.

riding quality. In most cases, the shoulders have been kept clear, and vegetation growth on the sides of the roads has been managed well. Road signs and markings in most cases are clear and visible, though they are showing signs of wear in a few spots. This points to good construction quality and attention to proper drainage.

2.43 Prior to the implementation of the project, a survey conducted on the roads subject to periodic maintenance showed that the roughness of the pavement was in the range of International Roughness Index (IRI) 6 to 20 meters/kilometer and on roads subject to widening and strengthening it was at 6.5. The desirable level is 4.0 meters/kilometer or lower. After the completion of the project the roughness was recorded at about International Roughness Index (IRI) 4 meters/kilometers on roads which received periodic maintenance, and International Roughness Index (IRI) 1.5-2.2 meters/kilometers on roads which were widened and strengthened. The latest figures for several road segments covered by the project show an International Roughness Index (IRI) less than 4.0 for most segments. (Table 4).

2.44 Reduction in travel time. After the completion of periodic maintenance on the roads, the following average speed of travel was recorded: 50 km/h (against 35 km/h on the roads in their pre-project condition) on the 1st– and 2nd-year roads, and 60 km/h (against 40 km/h on the roads in their pre-project condition) on the 3rd– and 4th-year roads. This implies that travel time of the road users has been reduced by 30 percent on the 1st and 2nd-year roads and 33 percent on 3rd and 4th-year roads. The average speed of light motor vehicles on roads improved under the Widening and Strengthening Component was recorded in the range of 60-65 km/h and on some clear straight stretches cars can achieve a speed of 80-100 km/h. This contrasts with 35-40 km/h prior to the project, and sometimes 20 km/h on several severely deteriorated road stretches. Though no speed measurements have been made of heavy vehicles on the roads under either project component, the observations of the Roads and Buildings Department's engineers indicate that heavy vehicles are also able to cruise at higher speeds than before, staying in the left-hand lane and allowing more overtaking opportunities for faster light vehicles. The traffic count surveys conducted on the roads have recorded the average annual growth rate of 6 percent on the roads that received periodic maintenance. The survey conducted on the roads improved under the Widening and Strengthening Component also showed traffic growth, which was significant on some roads and moderate on others. No systematic compilation of data is available for travel times on project roads since project completion. The mission's conversations with roads users during site visits confirmed that travel times have reduced considerably since the road improvements have been completed. A typical piece of anecdotal evidence comes from truck drivers using the Mehsana-Palanpur road. They indicated that a stretch of this road that took about two and an half hours to cover before upgradation now takes a little over an hour.

2.45 ***Other outcomes***. The improved quality of project roads has created a demand from other quarters of the state for roads of similar quality. There are signs that local politicians are responding to this demand. Feedback from interviews with officers of Roads and Building Department suggests that experience with the State Highway Project may have influenced the adoption of the 10 meter road width standard for the state government's program for state highways, the Pragati PathYojana, for nine-high speed

corridors to connect tribal, coastal, industrial, and rural areas with mainstream areas, The project has helped improve port connectivity (Annex B Table 2).

2.46 Another major outcome has been to develop the capacity of contractors by an order of magnitude. Packaging of works in variable sizes has helped develop industry capacity by providing opportunities to all categories of contractors, including local contractors, and enabling contactors to graduate to larger contracts from satisfactory execution of smaller ones. The project helped contractors to invest in advanced equipment, and avail of expertise and training from the project's expert consultants and Roads and Bridges Department staff. Several contractors have grown from handling contracts of between INR10-80 million to contracts of INR 250-1000 million.

2.47 The improved quality of roads under the project increases the scope for attracting private sector interest in public private partnerships in the provision of road infrastructure. This can potentially result in greater efficiency and the inflow of private investment can reduce the pressure on the government's resources, which can then be directed towards improving roads that have less potential for public private partnerships.

2.48 Gujarat has seen a steady growth in vehicle ownership in the ten years after project effectiveness, with the number of vehicles more than doubling during the period. In absolute terms, road-linked fatalities per capita have increased over the same period by 42 percent. In both these respects Gujarat has mirrored the experience for all of India. However, in terms of fatalities per 10,000 vehicles, Gujarat's performance as of 2010 (6.32) is significantly better than for India as whole (10.6). (Table 5).

Table 5. Trends in Vehicle Growth and Road Fatalities: India; Gujarat

Year	*Fatalities per 100,000 population*		*Fatalities per 10,000 vehicles*		*Population ('000)*		*Registered Motor Vehicles ('000)*	
	INDIA	*GUJARAT*	*INDIA*	*GUJARAT*	*INDIA*	*GUJARAT*	*INDIA*	*GUJARAT*
2001	7.9	8.88	14.7	8.18	1,028,610	50,700	54,991	5,499
2002	8.1	9.88	14.4	8.49	1,045,547	51,594	58,924	6,010
2003	8.1	9.94	12.8	8.02	1,062,388	52,504	67,007	6,508
2004	8.6	10.15	12.7	7.65	1,079,117	53,429	72,718	7,087
2005	8.7	10.12	11.7	7.04	1,095,722	54,371	81,502	7,817
2006	9.5	11.13	11.8	7.15	1,112,186	55,330	89,618	8,622
2007	10.1	12.28	11.8	7.28	1,128,521	56,306	96,707	9,497
2008	10.5	12.34	11.4	6.87	1,144,734	57,298	105,353	10,289
2009	10.8	11.98	10.9	6.35	1,160,813	58,309	114,951	10,999
2010	11.36	12.65	10.6	6.32	1,179,839	59,337	126,049	11,873

Source: Ministry of Road Transport and Highways, Government of India; Gujarat Socio-Economic Review: 2004-2010, Government of Gujarat; National Crime Records Bureau, GOI and World Bank analysis.

2.49 A road user satisfaction survey administered at the end of the project to people in four sectors – agriculture, education, health and business showed a variety of benefits arising from more comfortable driving conditions, higher speed, reduction in travel time and costs, and increased availability of commercial vehicles. These benefits included:

increased use of mechanized equipment for cultivation and easier transportation of agricultural inputs; easier access to raw materials; improved access to preventive and health care facilities.

2.50 Senior officers of the Roads and Buildings Department who worked on the project told the mission that the Bank had added a "lot of value" to their understanding and implementation of safeguard polices for environmental and social management. Similarly, several PIU field staff that the IEG mission met during site visits acknowledged their increased awareness and understanding of the need for complying with environmental and social safeguards. WB's task team and especially its social and environmental staff came in for praise from Roads and Buildings Department officials for their persistent efforts in overcoming initial skepticism and reluctance among Roads and Buildings Department staff as well as contractors and engineers towards safeguard policies, and ultimately ensuring that the policies were implemented in letter and spirit. Similarly, contractors with whom the mission had discussions acknowledged that the Bank's safeguard specialists and Roads and Buildings Department staff helped to raise their awareness in this respect. All parties felt that safeguards provisions were being mainstreamed into their regular work.

Efficiency

2.51 ***The efficiency of the project in meeting its objectives is rated High***. The combined economic rate of return (ERR) for the first two project components (Widening and Strengthening, and Maintenance) was estimated at appraisal at 44 percent, with a net present value of $838 million (equivalent to $1,066 million at 2007 prices), while the revised ERR at the completion of the project was 57 percent, with a net present value of $1,107 million at 2007 prices. The benefits from the institutional strengthening component were difficult to quantify, and hence were not included in the economic evaluation of the project at either appraisal or completion. However, both the environmental mitigation measures and relocation and resettlement costs were fully incorporated in the calculation of the ERRs at appraisal and completion for component 1 (Widening and Strengthening). Overall, the economic analysis carried out at project completion used assumptions similar to that at project appraisal.

2.52 The higher than expected ERR at project completion was due to the increase in benefits from higher than expected traffic growth, and significant cost reduction in Component 1 (road widening and strengthening). Traffic growth on roads that received periodic maintenance averaged 6.3 percent annual growth during the four-year period after completion of works. For roads that were widened and upgraded, the average growth in traffic ranged between 1 percent to over 10 percent in the first three years after construction. At project appraisal, an average growth rate of between 4 and 11 percent was forecast for all projects in the initial year, which was expected to remain below an average annual increase of 8 percent during 2002-7, and stabilize thereafter. Apart from the favorable exchange rate during the early years of the project, the cost reduction was achieved by the state government's commitment to reducing costs through making robust cost estimates, developing a highly competitive market for contractors, tight management

of contracts by the Roads and Buildings Department, as well as robust oversight by the Finance Department.

2.53 The design and supervision of civil works as well as the institutional strengthening and technical assistance tasks were carried out within the range of costs estimated at appraisal. In terms of time, practically all institutional development activities were either completed or well advanced at project completion, and in many cases carried forward beyond that stage.

Ratings

OUTCOME

2.54 ***Overall project outcome is rated Highly Satisfactory***. The project objectives in respect of both physical improvements of roads as well as institutional development were appropriate to the needs of the state's roads sector. The project design was robust and realistic in taking into account the state's commitment to the project and its institutional endowments. Most outputs of the complex institutional strengthening and development plan were completed resulting in strong outcomes including a reduction in road maintenance backlog and improvement in administrative efficiency. The physical objectives of the project were achieved in terms of upgradation, rehabilitation and maintenance. Major outcomes of road quality including reduction in the roughness index and travel time were achieved. Efficiency of the project was high in terms of the high economic rates of return and cost savings of about 18 percent in physical works. Based on *High* relevance of the objectives and *High r*elevance of design, and *High* achievement of both objectives, and *High* efficiency, the overall outcome of the project is rated *Highly Satisfactory*.

RISK TO DEVELOPMENT OUTCOME

2.55 ***The risk that the achieved development outcomes will not be sustained is rated Negligible to Low***. The state government and the implementing agency, the Roads and Building Department, continue to display strong commitment to the development of the roads sector. At the government level, this is reflected in the important role for roads and highways in the Gujarat Infrastructure Agenda: Vision 2020. The government's commitment is also reflected in the steady increase in funds for the roads sector over the years (Table 6) as well as the funds for periodic and routine maintenance in particular (Table 4). The Roads and Buildings Department has also maintained continuity in areas of institutional improvement including planning, procurement and contractor management. The gains from improvement in environmental and social safeguards management have been mainstreamed into the implementing agency. Furthermore, structure and processes for overall public sector governance and more particularly in the road sector have continued beyond the project period.

2.56 The gains in institutional capacity from the project have been sustained due to the broad continuity in the composition of the project implementation unit beyond the project and provision and an orderly rotation of staff since project completion. From the mission's discussions with the Roads and Buildings Department officials, engineering

consultancy firms and contractors, the knowledge and experience gained from the project has been mainstreamed in the implementing agency. This track record provides a good basis to the ongoing efforts in the institutional capacity building and sustainability agenda for the roads sector.

Table 6. Gujarat Roads: State Budget and World Bank Loan/grant vs. Expenditure

	State Budget		*World Bank Loan/Grant*		*Expenditure*	
Year	*INR million*	*US$ million*	*INR million*	*US$ million*	*INR million*	*US$ million*
2001-2	5,600	115	1040	21	4,700	97
2002-3	7,670	165	1920	41	6,600	142
2003-4	7,970	176	3640	80	7,410	164
2004-5	7,370	167	3870	88	6,630	150
2005-6	11,200	247	4310	95	9,630	213
2006-7	10,430	252	2550	62	8,970	217
2007-8	12,920	297	910	21	9,240	212
2008-9	16,260	336	250	5	14,940	309

Source: Roads and Building Department, Government of Gujarat

2.57 The implementing agency has also demonstrated a high level of commitment and ownership by launching a long term financing options study, using its own resources.

BANK PERFORMANCE

Quality at Entry

2.58 ***The quality at entry for the project is rated Satisfactory***. At the identification and preparation stages, the Bank's team collaborated productively with the state government's proactive project preparation activities at entry. The task team took care to conduct careful and thorough preparatory work particularly because this was the Bank's first highway sector project in Gujarat. The project design applied lessons from other states of India and other countries in the region, and made a detailed review of the engineering aspects of the physical components, environmental and social factors, and financial management. Emphasis was placed on encouraging competitive tendering and improving procurement and governance practices. Much time was spent on ensuring robust and realistic cost estimates for civil works in coordination with the implementing agency. M&E design was adequate and provided appropriate outcome indicators for both the objectives of the project.

2.59 This was the second Bank-financed transport project in the State after the Gujarat Rural Road project (1987-1996) and built upon that prior experience, including lessons from IEG's performance assessment of that operation (IEG 1996). Preparation of the project also benefited from technical assistance through the States' Road Infrastructure

Development Technical Assistance Project (1991-1996).[24] The key lessons that were taken into account from these and other relevant projects included early attention to comprehensive planning; institutional strengthening measures; procurement actions; inter-agency coordination and ownership; full site preparation; and the integration of environmental management in project planning and design.

2.60 The project was prepared in a participatory manner with several workshops and discussions that brought together all relevant stakeholders. An important aspect of these consultations was to facilitate the formulation of the Institutional Strengthening Action Plan (ISAP) to help the transformation of the Roads and Buildings Department from a "provider" of services to a "manager" of road infrastructure. The main risk perceived risk at appraisal was that inadequate maintenance funding might impede efforts to reduce the maintenance backlog. In practice, the state government fulfilled its commitment to increase maintenance funding by significant increments annually throughout the project period and beyond.

Quality of Supervision

2.61 ***The Bank's quality of supervision during the project is rated Satisfactory***. The Bank's supervision missions were carried out at regular and frequent intervals and fielded teams with a good skill mix. There were 17 supervision missions between FY2001 and FY2007, facilitating frequent interaction and detailed attention to issues. Many Bank team members remained associated with the project throughout its implementation and were fully aware of the project history and the capacity of the implementing agency, allowing them to provide quick and appropriate advice.

2.62 The mid-term review in 2002 discussed the qualitative aspects of performance, making allowance for the delays in physical works caused by the major earthquake of 2001. However, the deviation from the intermediate targets for end-2002 was not clearly assessed by the mid-term review mission.

2.63 The Quality of Supervision Assessment conducted by the Bank's Quality Assurance Group in August 2004[25] rated the overall quality of supervision as moderately satisfactory. It rated procurement, financial management, legal and environmental aspects as satisfactory. However, due to persistent problems of compliance with the resettlement action plan since May 2004, supervision of social aspects of the project was rated moderately unsatisfactory. In response, the Bank's team quickly improved its support to solve this problem, and compliance with social safeguard policies was fully achieved by December 2004, thanks to repeated consultation meetings with the stakeholders. In their feedback to the mission, Roads and Building Department officials also noted the important role played by the Bank's safeguards specialists in raising

[24] The objective of the States' Road Infrastructure Development Technical Assistance Project was to assist sixteen participating states including Gujarat and Karnataka in the preparation of high priority road investments aimed at Bank financing, while promoting policy reforms in the provision, financing and maintenance of road infrastructure. This project, too, was the subject of an IEG Performance Assessment. (IEG 2005.)

[25] Quality of Supervision Assessment 6 (QSA6).

awareness of safeguard issues in the implementing agency and their guidance and persistence in ensuring that environmental and social measures were carried out in a satisfactory manner.

2.64 Feedback to the mission from Roads and Buildings Department staff and management indicates that World Bank staff was generally open-minded, helpful and flexible, and balanced local conditions with solutions that were based on experience in other countries. For instance, the Bank originally favored large contract packages to attract capable contractors. The Roads and Building Department considered the packages too small to attract international bidders and too large for local contractors. In the case of one large package, only five contractors were prequalified, and the lowest bid was 27 percent higher than the engineer's estimate, with an overall spread of 2 percent between the bids. The Bank agreed with the Roads and Building Department's suggestion that the contract be split and re-bid. The smaller contracts were won by contractors who had not been able to prequalify earlier, and the job was finally completed at less than the engineer's estimates.

BORROWER PERFORMANCE

Government Performance

2.65 ***The Gujarat government's performance is rated Highly Satisfactory***. The state government committed substantial resources ($7 million) for project preparation under the States' Road Infrastructure Development Technical Assistance Project (1991-1996), without any assurance at that time that the project would go ahead. The state government also funded the pre-feasibility study focusing on the investment needs of the core state highway network in 1994 and the preparation of the Strategic Options Study to identify roads for improvement. During project implementation, the government's close monitoring of the procurement process and expenditures helped to avoid any cost-overruns and also contributed to substantial project savings. The Finance Department consistently followed up with the Roads and Buildings Department to provide justification for expenses. Throughout the project there was active involvement of and access to the Roads and Bridges Department executive and senior officers of the Gujarat state government.

2.66 Overall, the state government sustained a high degree of readiness and commitment to begin implementing certain preparatory activities (such as studies, designs; and required clearances) from prior to the project launch, regardless of the two-year delay in loan negotiations and approval. The project stayed on track and did not require restructuring despite the two-year suspension due to nuclear sanctions beginning June 1998, and the devastating earthquake of 2001. During the project, there was a generally cooperative relationship between the various governmental stakeholders including the forestry department, utility agencies, and the finance department, and realistic work plan targets were established for each entity.

2.67 A recently published assessment of the Gujarat road sector suggests that the project benefited from improved processes to mitigate the 'rent-seeking' behaviors of supervisory staff and staff of central agencies/departments that are involved with

permissions, approvals, and payments (Bandyopadhyay and Stankevich 2011). Among these features was the use of e-procurement for contracts greater than INR 1 million (approximately US$20,000) irrespective of source of funding, as required by the state government. According to the Gujarat Vigilance Commission, a government body that investigates corruption charges, procurement related complaints have generally decreased with the advent of e-procurement including for the roads sector. Gujarat has also implemented an on-line mechanism for release of sanctioned funds up to the level of field officers, avoiding delays and difficulties in timely disbursement of contractor's bills and discharging other financial commitments. Key management mechanisms that provide scope for greater accountability and control, including the Integrated Workflow and Document Management System (IWDMS), provided accessible, transparent information on the state of progress and are being used to pinpoint the sources of delay. The state government's policy of generally keeping staff for at least three years in professional, technical and administrative positions before being rotated to other positions is a positive factor worthy of emulation in other Indian states and elsewhere.

Implementing Agency Performance

2.68 ***Implementing agency performance during the project is rated Highly Satisfactory***. The implementing agency – the Roads and Buildings Department – managed the project in a professional manner, paying attention to quality and costs. The Roads and Buildings Department benefited from strong and committed leadership and support from the relevant government departments. Continuity of staff postings in the Roads and Buildings Department was a positive contributory factor to the outcomes of the project. The agency was proactive in making arrangements during project preparation, including the timely completion of studies and designs. Careful design and cost review at the pre-bidding stage helped to lower the costs of road works. Strong contract management was demonstrated by the Roads and Buildings Department and helped to minimize delays and keep implementation within the contractually stipulated time-frame. The agency also succeeded in fostering a collaborative and productive relationship with the contractors and engineers, which was reflected in the smooth implementation of road works and minimal contractual disputes.

2.69 The project paid due attention to environmental management during planning and implementation. Good practices were followed for public involvement and consultation. The state government showed commitment to implementing environmental and social safeguards policies by setting up an Environmental Management Unit in the Roads and Buildings Department headed by a Superintending Engineer and staffed by environmental and social safeguard staff who worked with the engineers and contractors. During the project period, this arrangement helped coordination with Bank missions on safeguards issues, enforcement of agreed measures, and follow-up on pending issues. The Environmental Management Unit prepared and delivered training for consultants, contractors and Roads and Buildings Department field staff, through workshops as well as field-based exercises. Environmental Management was also included as a separate training module in the Staff Training College.

2.70 The Roads and Buildings Department showed its commitment to addressing environmental and social issues through the successful establishment of the

Environmental Management Unit which proved to be a well-managed project-level institutional arrangement. The Environmental Management Unit conducted supervision and monitoring of safeguards measures and established an acceptable supervision and reporting system for the purpose. The Environmental Management Unit pursued forestry and environmental clearances in consultation with relevant agencies and successfully collaborated with the concerned departments. The project followed a policy of retaining non-interest bearing sums of money from contract payments as a disincentive to contractors against non-compliance with contract clauses for environmental safeguards. A coordination mechanism was developed between the Roads and Buildings Department and the forestry department through the Environmental Management Unit. Overall, the creation of Environmental Management Unit worked well in implementing safeguards requirements during the project and this arrangement may be considered for other states in India with similar projects and safeguards issues.

2.71 Over the project period, the Roads and Buildings Department enhanced its capacity for construction supervision and gained confidence in managing and taking ownership of the road network. The mission's discussions with Project Implementation Unit and other Roads and Buildings Department staff indicated that the learning and experience from the project has had a positive learning impact on Department staff beyond the Project Implementation Unit.

MONITORING AND EVALUATION

2.72 **M&E Implementation**. The mid-term review in 2002 discussed the qualitative aspects of performance, making allowance for the delays in physical works caused by the major earthquake of 2001. However, the deviation from the intermediate targets for end-2002 was not clearly assessed by the mid-term review mission. The Roads and Buildings Department began collecting data on performance indicators in 2004 and the findings were discussed with the Bank team periodically from December 2004 onwards. A series of Performance Assessment and Beneficiary Surveys was conducted by the Roads and Buildings Department in November 2005 and December 2007, which provided feedback on road quality, performance, and road user satisfaction.

2.73 **M&E Utilization**. Discussions with the Roads and Buildings Department officials and task team members suggest that qualitative and quantitative data from periodic progress reports were used to track progress of project activities and to take measures to speed up implementation. Beginning in 2004, data for performance indicators provided feedback on outputs and outcomes and served the purpose of a feedback mechanism. Overall, the Quality of M&E is rated *Substantial.*

Annex B. Other Tables

Table 1. IBRD/IDA Commitments in Gujarat and Karnataka States since FY2000			
Project Name	IBRD/IDA commitment (US$ million)	Approval FY	Closing FY
Gujarat State Highways	381	2001	2008
Gujarat District Primary Education	16	2002	2005
Gujarat Emergency Earthquake Reconstruction	443	2002	2009
Karnataka Rural Water Sanitation and Environmental Situation	92	1993	2001
Karnataka State Highways Improvement	360	2001	2008
Karnataka First Economic Restructuring Loan/Credit	150	2002	2001
Karnataka Rural Water Supply and Sanitation II	152	2002	2013
Karnataka Structural Adjustment Loan II	100	2001	2002
Karnataka State Health Systems Development (02)	350	1996	2004
Karnataka Urban Water Supply Improvement	40	2004	2011
Karnataka Municipal Reform	216	2006	2012
Karnataka Panchayats Strengthening	120	2006	2012
Karnataka Health Systems	142	2007	2012
Karnataka Watershed Development	100	2001	2009
Karnataka Wind Power	13	2010	2014
Karnataka State Highway Improvement II	350	2011	2017

Table 2. Gujarat State Highways Project: List of corridors/sections that enhance connectivity to Ports			
Contract	**Corridor**	**Port**	**Remarks**
GSHP-1	Sarkhej-Viramgam	Kandla	Sarkhej-Vataman, Phase I
GSHP-12	Viramgam-Halvad		Viramgam-Halvad Phase II B
GSHP-3	Rajkot-Falla	Bedi	Rajkot-Falla, Phase I
GSHP-11	Jamnagar-Khambhaliya		Falla-Jamnagar (to Khambhaliya), Phase II B
GSHP-9B	Bharuch-Dahej	Dahej	-
GSHP-13	Bagodra-Dholka	Dholera	-
	Wataman-Pipli		-
GSHP-14	Surat-Olpad	Magdalla	-
	Sachin-Magdllla		-
Road Maintenance Component (RMC)			
RMC - 7	Dholera - Bhavnagar	Bhavnagar, Dholera	-
RMC - 8	Mahuva - Rajula	Pipavav	-
RMC - 10	Pipli - Dholera	Dholera	-
RMC - 15	Vapi - Daman	Daman	-
RMC - 17	Bhavnagar - Trapaj	Bhavnagar	-

Source: Roads and Buildings Department, Government of Gujarat.

Annex C. Criteria for Rating Analytic and Advisory Activities

Rating	*Results*	*Strategic Relevance and Ownership*	*Quality*	*Dialogue and Dissemination*
HS	Meets to a high extent to a high extent **both** of the following criteria: • Impact on government programs and/or the broader development dialogue in the country • Impact on the design of the Bank's program and/or the subsequent CAS.	Meets to a high extent **all** of the following three criteria: • Addresses a key development constraint and is coherent with the country assistance program • Delivered at the right time in relation to key decisions • Evidence of strong interest by government, development partners, or civil society and/or evidence of active engagement of government agencies or local institutions in conducting the work	Meets to a high extent **all** of the following six criteria • Use of appropriate knowledge and analytic techniques. • Analysis of existing and/or new local data • Effective use of cross-country comparisons and global experience[a] • Evidence of clear understanding of local institutions and context. • Clear and actionable recommendations. • Subjected to adequate peer review and client feedback	Meets to a high extent **all** of the following three criteria: • Evidence of appropriate dissemination • Report reaches effectively the right audiences through appropriate targeted distribution and events. • Evidence of sustained engagement
S	• Substantial impact on both of the criteria OR substantial impact on one and high impact on the other	• No more than minor shortcomings in any of the three criteria	• No more than minor shortcomings in any of the six criteria.	• No more than minor shortcomings in any of the above areas.
MS	• Substantial or higher impact on one criterion, modest or no impact on the other.	• Moderate shortcomings in no more than 2 criteria and no more than minor shortcomings in the third OR major shortcomings in one criterion but no more than minor shortcomings in the other two.	• Moderate shortcomings in no more than 2 criteria and no more than minor shortcomings on the remainder OR major shortcomings in one but no more than minor shortcomings in others	• Moderate shortcomings in no more than two of the above criteria and no more than minor in the third OR major shortcomings in one criterion but no more than minor shortcomings in the other two
MU	• At least modest impact on one criterion, modest or no impact on the other	• Moderate shortcomings in all 3 criteria OR major shortcomings in 1-2 criteria and no worse than moderate shortcomings in the remaining criteria	• Moderate shortcomings in half or more of the criteria with no more than minor shortcomings in the others OR major shortcomings in fewer than half of the criteria with no more than moderate shortcomings in the others	• Moderate shortcomings in all 3 criteria OR major shortcomings in 1-2 criteria and no worse than moderate shortcomings in the remaining criteria.
U	• No impact on either criterion.	• Major shortcomings in all three criteria	• Major shortcomings in majority of above criteria	• Major shortcomings in all three criteria.
HU	• Negative impact on one or both of the criteria	• Severe shortcomings 2 or more of the criteria	• Severe shortcomings in half or more of the criteria	• Severe shortcomings in 2 or more of the criteria

Note: HS – Highly Satisfactory; S – Satisfactory; MS – Moderately Satisfactory; MU – Moderately Unsatisfactory; and U – Unsatisfactory, HU – Highly Unsatisfactory /a As appropriate, contingent on the nature of the analytic work.

Annex D. Assessment of the Road Transport Service Efficiency Study

FY/Project ID/Report No.	*Country Director*	*Sector Manager*	*Task Manager*	Cost (US$)	Format
FY2006 P075079; No. 34220	*Michael F. Carter*	*Guang Z. Chen*	*At initiation: Zhi Liu* *At completion: George C. Tharakan*	*Concept Paper indicates an estimated cost of US$366,000, of which US$54,000 was financed by TF051481-UK-DFID.	Sector Study Issued on November 1, 2006 84 pages Downloadable from World Bank external website

Background

The Bank has produced several important Economic and Sector work (ESW) products in the transport sector in India during the last ten to fifteen years with several clustered around FY2005. These products were intended to complement the substantial lending program commitments for the sector in the country (about US$1.2 billion since FY2000, see Annex B Table 1). The transport sector ESW products in India served several objectives: to stimulate thinking in policymaking circles at the center as well as the states; to fill gaps in data and knowledge in sectoral and sub-sectoral issues of importance; to promote interchange of ideas between different stakeholder groups; to bring in international experience; and to improve the relevance and design of the Bank's lending program. A list of the Bank's major ESW products for the transport sector in India in the last fifteen years is given below.

Transport Sector: Long Term Issues ; FY1995; Report No. 13192
India - Financing Highways; FY2005; Report No.30363
***Road Transport Service Efficiency Study*; FY2005; Report no. 34220**
Towards A Discussion of Support to Urban Transport Development in India: FY2005; Report No. 62610
Highway and Railway Development: FY2005; Report No. 62609
Indian Road Construction Industry : Capacity Issues, Constraints And Recommendations; FY2009; Report No. 46326
Ports and Shipping. (Ongoing Study)

The *Road Transport Service Efficiency Study* looked at the long-distance road transport industry in India, to identify inefficiencies that could reduce the benefits from the large investments being made by the Government in the nation's highway infrastructure. The study sought to assess the existing policy regime in the road transport sector in India, and identify measures to improve the functioning of road transport, in particular long-distance road transport, and to enhance its already enormous contribution (3.9 percent of GDP in 2005) to the workings of the Indian economy.

The Roads Transport Service Efficiency Study was initiated through a concept paper dated August 1, 2001. An initial workshop was held on January 8, 2003 in New Delhi, which brought together representatives from the central and state governments, state transport undertakings, trucker associations and user groups. The report was delivered to the client on December 29, 2004, fourteen months later than originally planned. The findings of the report were discussed in two workshops in February and March 2005, which brought together relevant stakeholders. The final report was issued as a sector study and is available to the public as report no. 34220 through the Bank's external website www.worldbank.org.

Overall Assessment

This study focused on three issues of importance to investments in highway infrastructure - the trucking industry, inter-city buses, and in view of its very important but largely unfulfilled role in enhancing road safety, the motor insurance industry. Indian Government was already working on some of these issues, most notably through the landmark Sundar Committee report of 1999 on the "Trucking Industry" in India. However, the Bank's study was expected to add value by identifying the scope for improvements in trucking industry policy through sample surveys of and interviews with key stakeholders, in-depth study of selected states, and comparison of the Indian road situation with that of China and Pakistan to draw relevant lessons. The designers of the study made a strong attempt to ensure client ownership. Based on the feedback obtained by this mission from respondents in the central and state governments, private sector, research institutions and industry associations, the study has served a useful purpose in raising awareness and serving as a credible input to policymaking in the three priority areas. However, there has not been much follow-up to the recommendations either by way of new government policy initiatives or as components of Bank projects. The study continues to be referred to and quoted by prominent journals and publications, underlining the continued relevance and validity of its recommendations.

A list of persons who were interviewed in assessing this study is given in Annex E

Ratings Summary (see Annex C for explanation of criteria)

Criterion	Rating	Comments
(A) Results	***Moderately Satisfactory***	Feedback from respondents suggests that the study added value by raising awareness of the issues and the required remedial measures in the media and among public interest groups, including NGOs. The study remains current in that it is referenced by recent research work and at least one prominent publication (*India: the Emerging Giant* by economist Arvind Panagariya) that has quoted and endorsed some of the study's recommendations at length. The study is only one – but significant – source of ideas for planners and policymakers. The findings of the study have the potential to be reflected in components and policy areas of Bank projects, but very little has been accomplished in this regard. In terms of influencing government policy, the main constraint is political will at the central and state government levels to take tough decisions to tackle the issues at hand.
(B) Strategic relevance and ownership	***Moderately Satisfactory***	At the inception of the study, the Bank had not previously examined government policies that govern the organization and functioning of the road transport carrier industry – policies that have a major impact on economic returns to huge investments in the sector. Given the Bank's continued heavy involvement in financing road infrastructure in the country, the study was relevant and timely. It was well-aligned with the Country Assistance Strategy (CAS) documents of 2001 and 2004 and the India Policy Review Document entitled "India: The Challenges Ahead" (2002). It continues to be relevant in terms of the Country Partnership Strategy (CPS) for India for 2009-2012 as well as the government's 11th Five Year Plan document (2006-2011), which gives priority to addressing policy issues for improving efficiency of road transport and the functioning of State Road Transport Undertakings/Corporations. The importance of the study was also underlined by the active participation of the central and State governments and other key stakeholders (such as organizations representing representatives of truck and bus operators, booking agents, brokers, and transport users) at the inception workshop. The Indian Government was already working on these issues, and had been using the landmark Sundar Committee report of 1999 on "Trucking Industry" as a primary guiding force in the development of trucking industry policy. The task team was able to convince the government of the study's relevance, especially in terms of the value-added from interviews and sample surveys of stakeholders and a comparative analysis with respect to China and Pakistan.
(C) Quality	***Satisfactory***	The study resulted in an in-depth examination of priority issues related to the low efficiency of the road transport sector in India. Special attention was given to the serious problem of overloading trucks, which damages roads for lack of axle load control, and to the problem of high subsidies for inter-city and rural bus services. The report came up with appropriate and actionable recommendations under each issue. It provides empirical evidence, and uses quantitative data (some of which was gathered by the study as well as new analyses and projections on existing data) to underpin its arguments. Significant value has been added from getting the views of the most important stakeholders – ultimate road users, shippers and passengers, and also in assessing the role played and value added by different actors (such as truck operators, brokers, agents, and insurance companies). In addition to examining issues relating to the central government's role, three representative states (Maharashtra, Karnataka and Uttar Pradesh) were chosen for the study, since many of the problems were seen to arise from the variation of regulations and sales/octroi taxes across different states. Moreover, two comparator countries were selected – China and Pakistan – to review how those countries have fared in dealing with the efficiency of the road transportation sector and to examine the lessons learned of relevance to India. The above features of the study provide evidence of efforts to provide a credible study supported by appropriate quantitative and qualitative analysis.
(D) Dissemination and sustained dialogue	***Moderately Satisfactory***	The team discussed the Concept Note with relevant stakeholders in a workshop at the inception of the study. The findings of the study were presented at seminars held in the context of the "Convention of Reforms in the Road Transport Sector" organized by the All India Confederation of Goods Vehicles Owners Organizations (ACOGOA) and the All India Bus Operators Confederation in February 2005 and the "Global Infrastructure Summit" organized by Federation of Chambers of Commerce and Industry (FICCI), in March 2005. Participants included Central and State Government agencies, NGOs, and various private sector organizations involved in the road transport sector. The feedback

		from these seminars was incorporated in finalizing the report which came out November 1, 2005. The Bank was able to get the media and public interest groups involved in the seminars and this has helped to add to the awareness of the issues in the sector. The study is referred to in technical papers as well as popular publications, confirming that the study's recommendations remain valid. A partial web search reveals that the study has been referred to by reports/papers from the Indian Council For Research on International Economic Relations (ICRIER), the Journal of Asian Public Policy, and the New Zealand Transport Agency . The main recommendations of the report are referred to at length in the 2008 popular publication, "India – the Emerging Giant".
CRITERION	(A) RESULTS	
	RESULTS INDICATORS	
Did the product have…		
…results objectives defined at inception?	**Yes.** The task was based on a clear Concept Note (August 1, 2001) discussed within the Bank and in a workshop organized in New Delhi (January 8, 2003), with the participation of stakeholders in relevant public and private sector organizations. The main objectives were defined as to (i) achieve a better understanding of the non-infrastructure factors that impair the efficiency of the road public carrier industry in India and thereby reduce the return on infrastructure investments; (ii) establish quantitative measures of the economic losses due to the major constraining factors; (iii) review the experience of other countries that have faced similar problems, identify their solutions, and assess the transferability of that experience to India; (iv) engage the Government of India and respective state governments, the transport operators, the shippers, and the passengers in a dialogue in search of an appropriate set of policy solutions.	
…indicators defined at inception?	**No.** There were no results indicators specified in the concept note. It can be reasonably concluded that the indicators implicitly were to inform policy decisions; mainstream road usage efficiency measures in Bank operations; and improve standards and procedures in state roads administrations, ultimately resulting in outcomes of improved road usage efficiency and vehicle usage efficiency. In retrospect, such a results chain could have been specified and indicators could have been defined, but attribution at every link of the results chain would have been difficult, given the multiple efforts in the government directed at the same issues as were examined by the study.	
…strategy to achieve results?	**Yes.** In terms of execution there was a clear strategy to obtain the views of the most important stakeholders – ultimate road users, shippers and passengers, as well as truck operators, brokers, agents, and insurance companies. Apart from the central government, three representative states (Maharashtra, Karnataka, Uttar Pradesh) were selected for dialogue; and two comparator countries – China and Pakistan – were selected for analysis. The study expected to translate the recommendations into policy actions, through stakeholder workshops and further dialogue with the government.	
	RESULTS ACHIEVED	
Did the country use the findings…		
…in policy, law, regulation or implementation?	**Perhaps.** In a significant judgment on November 9, 2005, the Supreme Court of India quashed the issuance of Gold Card/ Tokens by the State Governments permitting overloading of trucks in excess of prescribed weight limit. The Court mandated that the trucks found on roads carrying illegal excess load will have to offload the cargo crossing the legal weight limit. This judgment is expected to have multiple impacts on stakeholders in the trucking and automobile industry. (http://indiatransportportal.com/2011/12/overloaded-vehicles-face-strict-scrutiny/). Some respondents felt that the discussions during the study between stakeholders may have directly or indirectly affected this decision, though no specific evidence is offered.	
…in design of public expenditure?	**No.**	
…to raise stakeholder awareness?	**No.** Based on feedback from non-systematic interviews from the mission, there has been no discernible followup on the part of the country's institutions to further raise stakeholder awareness on the subject matter of the study.	
…to build a coalition for change?	**No.** There has been no discernible followup in this regard.	
…to build in-country capacity?	**No.** There has been no discernible followup in this regard.	
…to influence the donor community?	**No.** There has been no discernible followup in this regard.	

…to change institutions?	**No.** There has been no discernible followup in this regard.
Did the Bank use the findings…	
…in the design of development policy lending?	**No.**
…in the design of Bank lending products?	**No.** An examination of the Bank's lending portfolio after FY2005 does not reveal any specific components or sub-components that are focused directly on the subject matter of the study. Karnataka State Highways Project II and the proposed Gujarat State Highways Project II project (under preparation) have significant safety components that overlap with some of the study's considerations. However, the KSHIP II project appraisal document does not make any direct allusion to the study. Discussions with the task team suggest that the study did not specifically figure in the course of the Project Appraisal Document preparation, though it was considered broadly with other relevant economic and sector work.
…in Bank strategy formulation?	**No.** Discussions with members of the task team and a review of bank strategy documents did not reveal any specific impact on Bank strategy formulation.
…in subsequent knowledge products?	**To some extent outside the Bank.** A non-comprehensive web search shows that the study is referenced in other research output produced within the country. (e.g. September 2008. Ganguli, Debjani. *Logistics Services Under Indo-EU TIA* External Consultant, ICRIER Project Coordinator Arpita Mukherjee Senior Fellow, ICRIER Final Report, Indian Council For Research on International Economic Relations.)
…to inform country strategy?	**No.** Discussions with members of the task team and a review of bank strategy documents do not show any evidence that the study informed the Bank's country strategy.
Is there evidence that results are sustainable?	Not clear in this context.
Did the Bank or client assess the product's impact on results?	**No.**
Discussion of Results: The study added value by raising awareness of the issues and the required remedial measures in the media and among public interest groups, including NGOs. But the study has not had a significant impact on policy makers in the key relevant Ministry (Shipping, Roads, Transport, and Highways). According to members of the task team, the Bank's intention was to translate the study's recommendations into triggers for tranche releases in proposed future transport projects, but his has not yet been done. Political and government commitment are necessary to move things forward in a situation where State governments in India have varying regulations and tax regimes regarding sales and octroi taxes affecting road transport.	
CRITERION	***(B) STRATEGIC RELEVANCE AND OWNERSHIP***
	RELEVANCE
Did delivery of the product come in time to affect relevant government policy or Bank decisions?	**Yes.** However, this study was not alone in addressing the issues at hand. Several other studies or working groups had taken up one or more of the issues covered by the study, notably the 1999 Sundar Committee Report on the "Trucking Industry" in India.
Was the topic identified as "development constraint or opportunity" in…	
…the relevant Country Assistance Strategy?	The subject matter of the study was relevant to the emphasis on infrastructure services in the CAS documents of 2001 and 2004 and the Country Partnership Strategy (CPS) for India for 2009-2012.
…previous Analytic and Advisory Activity work?	**No.**
…particular projects?	**No.**
…particular	**No.**

evaluations?	
...policy dialogue with clients?	**Yes.** The subject matter of the study was actively perceived as being of importance by all stakeholders.
…donor coordination?	**Possibly Yes.** No specific evidence forthcoming from discussions with member of the task team or with respondents.
Under conditions of difficult dialogue, did the product…	
…focus on long-term issues for better receptivity to Bank input?	**Not Applicable.** There were no difficulties in pursuing the dialogue with the government. Rather the issue was with followup action which has been slow for a variety of reasons including inherent administrative complexities and insufficient political will.
…address sector issues in areas where there is more receptivity to Bank input?	**No.**
…address country issues in a regional or global context?	**Yes.** The study looked at the relevant experience of China and Pakistan as comparator countries, though this was not under conditions of difficult dialogue.
	OWNERSHIP
Is product part of overall Analytic and Advisory Activity program to which the authorities have contributed or agreed?	**Yes.** The Study is covered as part of the work program in the CAS (2004), though it is not mentioned in the 2001 CAS.
Did the client request or commission the specific product?	**No.** The client did not take the initiative for this product perhaps because a number of previous studies by the government as well as the Asian Development Bank and other organizations within and outside the country had addressed the same issues previously. However, task team members suggest that client interest increased as the study got underway following the attempt to get the participation of all stakeholders for the study, focusing on three specific areas in the road transport sector, and making a comparative study of China and Pakistan in these matters.
Did the client cover some or all of the costs?	**No.** The possibility of co-financing with the Government of India or state governments was never entertained as an option.
Did the key decision makers (as distinct from technical specialists) collaborate with, discuss or provide feedback on the product?	**Yes.** Members of the task team received collaboration from key decision-makers. They also gave feedback through several meetings and discussions as well as the stakeholder workshops organized at the start and end of the study.
Did a local institute, academy, consulting firm or government agency help to…	
…define the scope of the work?	**Yes**. To support a fully participatory process, assist in problem identification, and encourage consensus building throughout the study, the first of two workshops engaged all the key players (transport users, government, truck and bus operators, booking agents and brokers through their respective associations, the automotive manufacturers, and, of special importance, representatives of the shippers.
…plan and design the work?	**No**. Planning and design of the project was carried out primarily by the task team based on the inputs at the initial consultation.
…carry out the work?	**Yes.** The study draws on a number of background papers prepared by Clell Harral, Ian Jenkin, John Terry, Richard Sharp, Eugene Gurenko, Consulting Engineering Services, Inc.(CES), and the Asian Institute of Transport Development (AITD) for axle overloading and lack of enforcement of controls. It also relies on two complementary studies carried out for China by Jianfei Zhang, currently Director General of the Ministry of Communications China and for Pakistan by Sardar M.Humayun Khan, for international comparisons. Asian Institute of Transport Development, Delhi.
...analyze the results and write the report?	**No.** The analysis and write-up was mainly carried out by task team.
…formulate	**No.** The analysis and write-up was mainly carried out by task team.

conclusions and recommendations?	
…provide peer review or comments on the draft report?	**No.**
…organize workshops or discussions about the findings?	**Yes.** The findings of the study were presented at seminars held in the context of the "Global Infrastructure Summit" organized by FICCI in March 2005 and the "Convention of Reforms in the Road Transport Sector" organized by the All India Confederation of Goods Vehicles Owners Organizations (ACOGOA) and the All India Bus Operators Confederation in February 2005. The feedback from these seminars was incorporated in finalizing the report.
Discussion of Strategic Relevance and Ownership: Given the Bank's continued heavy involvement in financing road infrastructure in the country, the study was relevant and timely. It was well-aligned with the Banks strategies for India as outlined in its CAS (2001 and 2004) and CPS (2009-12), as well as India's Five Year Plan document (2006-2011). The importance of the study was also underlined by the active participation of the central and State governments, and other key stakeholders (organizations representing representatives of truck and bus operators, booking agents, brokers and transport users, etc.) at the inception workshop. The Government of India was already working on these issues, and had been using the landmark Sundar Committee report of 1999 on "Trucking Industry" as a primary guiding force in the development of trucking industry policy. Yet, the task team was able to convince the Government of India of the study's relevance, especially in terms of the value-added from interviews and sample surveys of stakeholders, and a comparative analysis with respect to China and Pakistan.	
CRITERION	***(C) QUALITY***
	QUALITY OF CONTENT
Did the product…	
…include appropriate knowledge (i.e. make use of current and relevant knowledge from both inside and outside of the Bank)?	**Yes.** The study drew heavily upon a number of studies that have been carried out by the Bank and Government of India that have been listed in the references section of the study. Prominent among them are the Report of the Sundar Committee on Trucking Operations (2009) and B. Debroy and P.D. Kaushik, *Barriers to Inter-State Trade and Commerce—The Case of Road Transport*, Report Prepared by the Rajiv Gandhi Institute for Contemporary Studies for the National Committee to Review the Working of the Constitution (c.2001).
…cite relevant examples of practice or research from other countries in the region?	**Yes.** The study drew upon lessons from a review of road transport development in Pakistan.
…cite relevant examples of practice or research from other regions?	**Yes.** The study drew upon lessons from a review of road transport development in China.
…discuss the specific institutional and policy context for the issue in this country?	**Yes.** Much of the initial portion of the study is devoted to the specific institutional and policy context for the issues covered by the study for the country.
…collect and analyze existing local data?	**Yes.** The study draws upon existing data including that related to variation of regulations and sales/octroi taxes across the three states selected for the study.
…generate new evidence?	**Yes.** In the course of the study, sample surveys were carried out to get a clearer understanding of the quality, costs, and regulation of road transport services and also to assess the role played, and value added, by different actors such as truck operators, brokers, agents, and insurance companies.
…include recommendations?	**Yes.** The study came up with several findings/recommendations for the Trucking Industry (12 findings; 6 recommendations), Inter-City Bus Services (7; 3), and Motor Insurance (4; 4)
Do the recommendations include specified actions to be taken by specified actors (including non-	**Yes.** Each of the recommendations is aimed at one or more of the central government, state governments, bus and truck operators and their associations and the motor insurance industry.

Bank)?	
Was the product team staffed with the appropriate expertise (including consultants)?	**Yes.** The study team was staffed with experienced technical transport staff and transport economists at the senior and lead level. Reputed consultants were engaged for preparation of background papers and for conducting surveys.
Did the product receive appropriate managerial attention?	**Yes.** The concept note review meeting was chaired by the Transport Sector Manager for South Asia. The Country Director did not participate in the meeting. Participation from the Country Director might have given the study a higher profile.
Did the product receive sufficient budget?	**Yes.** The management had made available adequate resources for the study and it was carried out within the budget (actual expenditure was US$326,109 against a budgeted amount of US$366,300, in spite of the two-year delay in completing the study.)
	REVIEW OF CONTENT
Was the draft peer reviewed by appropriate experts?	**Yes.** The peer reviewers – Paul Amos, Asif Faiz and Graham Smith, all highly experienced transport specialists - were well selected and provided perceptive comments on the draft.
Were the peer review comments taken into account as appropriate?	**Yes.** The peer reviewers' comments were taken into account in by the task team as evidenced by the minutes of the decision meeting.
Was the feedback from the client about the product incorporated into the final version?	**Yes.** Client feedback was amply to the extent of participation of government representatives in two dissemination workshops and the feedback was incorporated into the report.
Discussion of Quality: The report provides empirical evidence, (some of which was gathered by the study as well as new analyses and projections based on existing data) to underpin its arguments. Significant value was added by getting the views of the most important stakeholders; examining issues relating to the central government's role and three representative states (Maharashtra, Karnataka and Uttar Pradesh) ; and drawing lessons from comparator countries (China and Pakistan). The report came up with appropriate and actionable recommendations under each issue. Overall the result was a credible study backed by well-researched evidence and supported by appropriate quantitative and qualitative analysis.	
CRITERION	***(D) DISSEMINATION AND SUSTAINED DIALOGUE***
	INITIAL DISSEMINATION
Was the product…	
…made available in the local language?	**No.** Given the main audience for the study, his may not have been crucial.
…made available on a website?	**Yes.** The original report can be downloaded for free from the Bank's external site.
…discussed with senior policy makers?	**Yes.** The draft report was discussed with senior officials from the Ministry of through two dissemination workshops.
…presented at a workshop, conference, seminar or on-line discussion?	**Yes.** The findings of the study were presented at seminars held in the context of the "Global Infrastructure Summit" organized by the Federation of Chambers of commerce an Industry (FICCI) in March 2005 and the "Convention of Reforms in the Road Transport Sector" organized by the All India Confederation of Goods Vehicles Owners Organizations (ACOGOA) and the All India Bus Operators Confederation in February 2005.
…covered in the general or specialized media?	**Yes.** The report received wide coverage in the media at the time of dissemination. The report is cited in some detail in the popular publication "India: The Emerging Giant" by Arvind Panagariya (2008),
	SUSTAINED DIALOGUE
Did the product serve as an input to a sustained engagement with the client through…	
…policy dialogue?	**Partly.** There is evidence of follow-up dialogue on issues relating to overloading of trucks as part of prominent safety components being included in projects that have been recently approved (Karnataka State Highway Improvement Project II) and a project under preparation (Gujarat State Highway Project II).
…sustained workshops and	**No.** There were no sustained dedicated workshops and discussions with stakeholders on the issues raised by the study, beyond initial dissemination.

discussions with stakeholders beyond initial dissemination?	
…lending products (Bank and non-Bank)?	**Partly.** Addressing the overloading of trucks is expected to form part of prominent safety components being included in projects that have been recently approved (Karnataka State Highway Improvement Project II) and a project under preparation (Gujarat State Highway Project II).
…technical assistance (formal or informal)?	**Partly.** Addressing the overloading of trucks is/is expected to be included in the recently approved Karnataka State Highway Improvement Project II and Gujarat State Highway Project II which is under preparation.
…programmatic instruments?	**No.**
…other means?	**No.**
Discussion of Dissemination and Sustained Dialogue: The team discussed the Concept Note with relevant stakeholders in a workshop at the inception of the study. The findings of the study were presented at seminars held in the context of the "Convention of Reforms in the Road Transport Sector" organized by the All India Confederation of Goods Vehicles Owners Organizations (ACOGOA) and the All India Bus Operators Confederation in February 2005 and the "Global Infrastructure Summit" organized by FICCI in March 2005 and Participants included Central and State Government agencies, NGOs, and various private sector organizations involved in the road transport sector. The feedback from these seminars was incorporated in finalizing the report which came out November 1, 2005. The Bank was able to get the media and public interest groups involved in the seminars and this has helped to add to the awareness of the issues in the sector. The study is referred to in technical papers as well as popular publications, confirming that the study's recommendations remain valid.	

Annex E. List of Persons Met

(in alphabetical order of first name)

Gujarat State Highways Project

Roads and Buildings Department, Government of Gujarat

D.K. Solanki, Superintendent Engineer, Project Implementation Unit (World Bank)
H.D. Vala, Chief Engineer (Roads and Buildings) and Additional Secretary
P.P. Vakharia, Chief Engineer (World Bank)
R.K. Chauhan, Officer on Special Duty(SP)
S. Pandya, Executive Engineer, Roads and Buildings Department
Samir Raval, Deputy Executive Engineer
Sandeep Vasava, Chief Engineer (Panchayat) and Additional Secretary
Satyanarayansingh S. Rathore, Principal Secretary

Contractors, Design and Information Technology Consulting Firm Representatives

Abhilash Singh, Regional representative (West), EGIS India Consulting Engineers Private Limited Gandhinagar 382 001
Kishor Viramgama, Chairman and MD, Backbone Enterprises Limited
Neeraj Kumar, Project Manager, Larsen and Toubro Ltd.
Sagar Deshmukh, Chief General Manager, LEA Associates South Asia Private Limited, Consulting Engineers and Planners, Gandhinagar

Project Affected Persons - Various

Karnataka State Highways Improvement Project

B. Ravish, Assistant Engineer, KSHIP Sub-Division, Tumkur
B.H. Anil Kumar, I.A.S, Managing Director, Karnataka Road Development Corporation Ltd. (KRDC), Bengaluru and Chief Project Officer, KSHIP II.
H.S. Prakash Kumar, Chief Engineer and Project Director, KSHIP II.
K.S. Krishna Reddy, Chief Engineer, National Highway Zone, Bengaluru
M.D. Nadaf, Executive Engineer (Environment), Karnataka State Highways Improvement Project, Bengaluru.
N.C. Solanki, Director (Projects-I), National Rural Roads Development Agency (NRRDA), Ministry of Rural Development, Government of India, New Delhi
R. Prasad, Superintending Engineer, Bengaluru
Rajendra Kumar, Executive Engineer, KSHIP Division, Tumkur,
Ramesh, Assistant Engineer, KSHIP Sub-Division, Raichur
Ravi Betta, Assistance Executive Engineer, Information Technology Cell, KPWD, Bengaluru,
S. Kinni, Executive Engineer, Bengaluru
Sadashiva Reddy B. Patil, Chief Engineer, C&B South, Bengaluru
Syed Kamaluddin, Assistant Executive Engineer, KSHIP Sub-Division, Deodurg
V. Srinivas, Executive Engineer, KSHIP Sub-Division, Raichur

Contractors, Consulting Firms

K. Srinivasa, Business Development Manager, Pixel Softek Private Limited, Bengaluru
Naveen R. Shetty, Managing Director and CEO, RNS Infrastructure Limited, Hubli, Karnataka

Project Affected Persons at the the Ariginamara rehabilitation camp - various

Economic and Sector Work- "Road Transport Service Efficiency Study"

Arpita Mukherjee, Professor, Indian Council for Research on International Economic Relations (ICRIER), New Delhi
B.N. Puri, Member Secretary, National Transport Development Policy Committee (NTDPC), Planning Commission and Principal Advisor(Transport), Planning Commission, New Delhi
Bakul Dholakia, Director, Adani Institute of Infrastructure Management, Ahmedabad
C. Kandasamy, Additional Secretary General, Ministry of Road Transport and Highways, Government of India, New Delhi
Chittranjan Das, Secretary-General, All India Confederation of Goods Vehicles Owners' Associations and General Secretary All India Bus Operators' Confederation, New Delhi
H.M. Shivanand Swamy, Professor and Associate Director, Centre for Environmental Planning and Technology (CEPT), Ahmedabad
Parvesh Minocha, Director, Feedback Infrastructure services Private Limited, Feedback Infrastructure Services Private Limited, Gurgaon, National Capital region of Delhi
Raghav Chandra, I.A.S, Joint Secretary, Ministry of Road Transport and Highways, Government of India, New Delhi
Rajiv Yadav, I.A.S., Member (Administration), National Highways Authority of India, Ministry of Road Transport and Highways, Government of India, New Delhi
Vinayak Chatterjee, Chairman, Feedback Infrastructure Services Private Limited, Gurgaon, National Capital region of Delhi

World Bank

Alok Nath Bansal, Senior Transport Economist (retired), New Delhi Office
Arnab Bandyopadhyay, Senior Transport Engineer, SASDT, New Delhi Office
Ben Eijbergen, Lead Transport Specialist, SASDT, Washington D.C.
Binyam Reja, Senior Urban Transport Specialist, SASDT, Washington D.C.
G. George Tharakan, Lead Transport Specialist (retired)
I.U.B Reddy, Senior Social Development Specialist, SASDT, New Delhi Office

Details of page no 28 to page no 63 pertains to Karnataka State Highways Improvement Project, hence not included in the report