



## 1. Project Data

<b>Project ID</b> P114827	<b>Project Name</b> Second Gujarat State Highway Project	
<b>Country</b> India	<b>Practice Area(Lead)</b> Transport	
<b>L/C/TF Number(s)</b> IBRD-83130	<b>Closing Date (Original)</b> 31-Jan-2019	<b>Total Project Cost (USD)</b> 175,000,000.00
<b>Bank Approval Date</b> 13-Dec-2013	<b>Closing Date (Actual)</b> 31-Dec-2020	
	<b>IBRD/IDA (USD)</b>	<b>Grants (USD)</b>
Original Commitment	175,000,000.00	0.00
Revised Commitment	175,000,000.00	0.00
Actual	175,000,000.00	0.00

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## 2. Project Objectives and Components

### a. Objectives

According to the International Bank for Reconstruction and Development (IBRD) Loan Agreement (p.5) dated February 12, 2014 and Project Appraisal Document (p.5) dated November 7, 2013, the project objective is “to improve the capacity and enhance the quality and safety of road services for users of the core road network of state highways in Gujarat, through institutional strengthening, and efficient contracting and financing strategies.”



In this review, the project objective will be parsed as follows:

1. To improve the capacity of road services,
2. To enhance the quality of road services, and
3. To enhance the safety of road services for users of the core road network of state highways in Gujarat---- through institutional strengthening, and efficient contracting and financing strategies.

The project under review is a follow-on project to Gujarat State Highway Project (P010566), which was approved in September 2001 and closed in December 2007.

**b. Were the project objectives/key associated outcome targets revised during implementation?**

Yes

**Did the Board approve the revised objectives/key associated outcome targets?**

Yes

**Date of Board Approval**

13-Sep-2018

**c. Will a split evaluation be undertaken?**

No

**d. Components**

According to the Loan Agreement (pp.5-6) and the PAD (pp.7-9) project consisted of three components:

**A. Highway Improvement.** (Appraisal cost: US\$289.3 million including US\$21.00 million for physical and price contingencies; actual cost: US\$349.9 million)

This component consisted of two sub-components:

i. Input-Based Contracts

- a. Upgrading and rehabilitation of 435 kilometers (km) of state highways through Input-Based Contracts that included three years of maintenance period beyond completion of works; and
- b. Provision of support for land acquisition and resettlement, utility relocation, environmental management and supervision and quality assurance services.

i. Public-Private Partnerships and Output and Performance based Road Contracts

- a. Upgrading of 61 km of highways to four lanes through a pilot Public Private Partnership (PPP) Annuity-based Design-Build-Finance-Operate-Maintain Transfer (DBFOMT) Concession;
- b. Upgrading and subsequent maintenance and operation of 130 km of state highways through a pilot Output and Performance based Road Contract (OPRC), and



- c. Provision of support for land acquisition and resettlement, utility relocation, environmental management and supervision and quality assurance services.

**B. Sector Policy and Institutional Development.** (*Appraisal cost: US\$12.00 million; actual cost: US\$7.90 million*)

This component consisted of four sub-components:

- i. Strengthening Roads and Buildings Department (R&BD) operational capacity: This sub-component was to finance process-oriented improvements (including revision and introduction of new codes, manuals, and guidelines), enhanced human resources strategies (including technical training, development of management skills and strategic human resources planning), and information technologies-based interventions. These activities were expected to increase R&BD's capacity in eight critical areas, i.e., design-review, planning, road asset management, contract management, monitoring and evaluation (M&E), work zone and road safety, environment and social management (ESM), and grievance redressal.
- ii. Policy and Planning: This component was to finance activities to update the state's policy and framework for road classification and responsibility, development of a medium-term master plan for the state road network, and build capacity for better management of PPP contracts, road safety, and governance and accountability.
- iii. Knowledge Building: The sub-component was to support the state government's ongoing initiatives to better harness the potential at the Engineering Staff College and Gujarat Engineering Research Institute (knowledge-partner entities) and the development of two centers of excellence in road and bridge design innovations, and construction management. This support was to be through the preparation of "development blue-prints" for these knowledge-partner entities, through institution-specific studies. The "blue-prints" were to focus on mission and role, business plan and strategy, funding and collaborative linkages with government, other sector-stakeholders, and academic institutions.
- iv. Governance and Accountability Action Plan (GAAP): This sub-component was to finance the implementation cost of the GAAP including the costs of technical assistance and consulting services, training fees and training delivery costs, purchase of advanced technology and equipment, facilitation of advanced in-country and international exposure visits and initiatives on advanced roads sector topics, skills, and knowledge.

**C. Road Safety Management.** (*Appraisal cost: US\$22.00 million; actual cost: US\$13.00 million*)

This component consisted of four sub-components.

- i. Safe Corridor Demonstration Project: Multi sectoral interventions were to be implemented on two high volume and high safety risk 30 km corridors (from Dehgam to Bharuch and from Ankleshwar to Valia) for the demonstration of road safety best practices. This sub-component was to finance comprehensive road safety measures including infrastructure safety designs, road traffic police support activities, public awareness and social media campaign, and post-crash health care management aimed at reducing deaths particularly among vulnerable road users.
- ii. Enhancement of asset management system with safety attributes: This sub-component was to finance activities to fully integrate the findings of the road safety risk assessment surveys that were conducted in 2012 for 1,577 km of the core road network resulting in the enhancement of the road



safety module of the GRMS. This sub-component was also to finance the piloting of integrated periodic maintenance and safety enhancement contracts.

- iii. **Strengthening of GRMS:** Under this sub-component, the project was to provide support for policy changes on targeted high-risk issues, establishing a state crash database with road traffic police training, preparation for demonstration corridor program, and facilitating a state-wide lead agency for road safety management.
- iv. **Support to the Road Safety Steering Committee:** This sub-component was to provide financial support to the steering committee in the implementation of and technical assistance for the activities listed in the entries above.

### Revised Components

- At the first restructuring in September 2018, rehabilitation of three new road corridors was added to the project scope to utilize US\$44 million of the loan that was saved because of lower actual bids—23 percent below the amounts estimated at appraisal—and the depreciation of Indian rupee against the US dollar by 11 percent (ICR, p.16). The three corridors were the 60.4 km of road from Radhanpur to Chanasma, 66.8 km of road from Mehsana to Palanpur, including a 5 km long bypass at Mehsana, and 27 km of the highway from Vallabhipur to Ranghola.
- The Ankleshwar-Valia corridor was dropped from project scope because its status was changed from state highway to national highway, no longer under the jurisdiction of the State of Gujarat. However, the implementation of a new safe corridor between Gandhinagar and Indira Bridge was added to the project scope.

### e. Comments on Project Cost, Financing, Borrower Contribution, and Dates

**Project Cost:** The total project cost was originally estimated at US\$323.70 million, including US\$0.40 million for front end fee and physical and price contingencies of US\$21.00 million. In December 2020, the project closed with a total cost of US\$371.20 million. The project cost increased because of the increase of the project scope (see Revised Components above).

**Financing:** At appraisal, the IBRD loan was estimated at US\$175.00 million. The project disbursed the full loan amount. At project closing, private sector's contribution was at US\$37.40 million, as estimated at appraisal.

**Borrower's contribution:** At appraisal, the borrower's contribution was estimated at US\$111.70 million. At project closing, the borrower's contribution was US\$158.50 million. The borrower's contribution increased because of the increase in the project scope (see Revised Components above).

**Restructurings:** There were two project restructurings:

- **First Restructuring (Level 2 – September 13, 2018):** The project closing date was extended by 23 months from January 31, 2019 to December 31, 2020 to allow time for the completion of original project activities. The reasons for the project closing date extension were (i) delays in the procurement of innovative OPRC method, including consultancy services, which took 29 months because of no interest from consultancy firms in the first round and the withdrawal of the first ranked bidder in the second round; (ii) delayed acquisition of land in the project corridors, which took two years; (iii) delays in implementing the SCDP corridors that required rebidding because of their



innovative aspects in road safety; and (iv) the increase in the project scope (see Revised Components above). The end targets of the indicators in the results framework were revised up to accommodate the changes in the project scope, except two indicators. The target value of the indicator “Safety Demonstration Corridor complying with a minimum International Road Assessment Program (iRAP) star rating of 3 developed” was revised down from 30 km to 22 km because of the dropping of the Ankleshwar-Valia corridor (19 km) addition of Gandhinagar and Indira Bridge corridor (12 km). The target value of the indicator “Core Road Network (length) subject to multi-year combined maintenance and safety contracts” was revised down from 500 km to 341 km because of the dropping of 300 km works non-project financed road works, revision of the remaining 200 km to 186.5 km, and the addition 154.2 km under three new corridors (Restructuring Paper, Report No.: RES32179, pp.9-10).

- **Second Restructuring (Level 2 – December 17, 2020):** Because of the onset of the COVID-19 pandemic in March 2020 and the ensuing lockdown enforced by the central and state governments, the implementation of civil works slowed down. It was estimated that around US\$35 million would not have been disbursed at project closing because of project implementation slow-down. Therefore, at this restructuring, the project financing scheme was revised to allow 100 percent Bank financing—from 62 percent—of eligible expenditures of goods, works, non-consulting services, consultants’ services, and workshops and training (Category 1) for the first sub-component of Component A, and Components B and C with effect retrospectively from the date of loan signing in February 2014. This reallocation of funds allowed the project to have disbursed the full loan amount by project closing.

**Reasons for not undertaking a split assessment:** At the first restructuring in September 2018, the scope of the project expanded to utilize loan savings in the amount of \$44 million while the project commitments remained the same. Therefore, a split assessment of project’s outcome is not warranted.

**Dates:** The project was approved on December 13, 2013, and the loan agreement was signed on February 12, 2014. The project became effective on March 19, 2014. The Mid-Term Review was conducted in December 2016. The original closing date was January 31, 2019. It was extended by 23 months, and the project closed on December 31, 2020. The reasons for closing date extensions have been outlined in the first project restructuring entry above.

### 3. Relevance of Objectives

#### Rationale

The project objectives were and remain relevant to the country context. The “Sustainable Vision 2030 for Gujarat” of the Government of Gujarat aims at improving global competitiveness and socio-economic indicators of the state to make it one of the top two leading states in India. The Vision 2030 includes road improvement and connectivity within the state among its goals. The project objectives support these goals; hence, the achievement of the government’s Vision 2030. Gujarat has one of the fast-growing economies in India and requires more extensive road network to support economic growth. Connectivity to tribal areas is still weak because of insufficient road network. While the formulation of the project objective was more output-oriented rather than outcome-oriented, it was appropriately pitched for the development status and capacity in the state. Given the strong government commitment to the improvement of the road network and absence of any major fragility issues in the state, the expectation for the objective to be achieved was high.



The project objectives were aligned with the World Bank's strategy as defined in the Country Partnership Framework (CPF) for India, FY18-22. The project sought to address the development problem of insufficient road capacity, quality, and safety for economic growth and connectivity in the state. The project was to address this problem through the capacity expansion of the core road network, and the enhancement of the quality and safety of roads while introducing innovative financing and contracting schemes that allow private sector participation and strengthening the institutional capacity of the R&BD including road asset management. These objectives correspond to the CPF's (p.50) "Objective 2.3: Improve connectivity and logistics" under "Focus Area 2: Enhancing Competitiveness and Enabling Job Creation." The CPF (p.61) clearly states that the World Bank would continue supporting the improvement of "national and state highway systems, with greater emphasis on sustainable market-oriented institutional structures and asset management strategies." This approach is adequately reflected in the objective and the design of the project.

The World Bank had sufficient country and sector experience in India and Gujarat. The project was designed based on the experience gained, lessons learned, and results achieved during the implementation of the Gujarat State Highway Project (2001-2007). The project's approach was innovative for Gujarat's institutional capacity in the sense that, while providing finance for the road investments, it introduced innovative contracting and financing schemes for the construction and rehabilitation of roads and sustainability of the roads through the inclusion of multi-year maintenance periods in the contracts. The project outcome and objectives were more challenging compared to the earlier project.

Overall, the relevance of the objectives is rated High.

## **Rating**

High

## **4. Achievement of Objectives (Efficacy)**

### **OBJECTIVE 1**

#### **Objective**

To improve the capacity of road services for users of the core road network of state highways in Gujarat, through institutional strengthening, and efficient contracting and financing strategies.

#### **Rationale**

##### **Theory of Change of the Project**

The project's theory of change indicates that the project's inputs, i.e., IBRD loan, were to be used to finance the civil works for upgrading and rehabilitating core road network and the demonstration of a 30-km safe corridor. Part of these road works were to be implemented through innovative financing and contracting schemes to ensure sustainability of the roads through the inclusion of maintenance in the contracts and develop such financing and contracting capacity in the R&BD to be used in future projects. These activities would be expected to directly lead to the achievement of project outputs of roads upgraded and rehabilitated



and the demonstration of a safe road program. In turn, these outputs would be expected to result in the outcome of wider, good quality, and safer core road network in Gujarat resulting in reduced travel time, reduced average volume/capacity ratios, increase in the share of roads in good condition, and reduction in number of annual fatalities on the safe corridor.

Technical assistance support through technical, management and human resources training, preparation of new codes, manuals, and guidelines, and institutional capacity development was to be expected to lead to the development or improvement of capacities in road safety management, R&BD's operations, policy and planning, and knowledge building. These intermediate outcomes coupled with the development of efficient financing and contracting capacity under road works were to support the implementation of road works and ensure the sustainability of the development outcomes.

Overall, the causal pathways from inputs to expected results were valid and direct, and the results achieved could be attributed to the project's intervention. The results of the technical assistance activities would be expected to contribute to the efficient implementation of the road works and the sustainability of the road assets developed under the project. However, the critical assumption that there would be sufficient response from market on innovative contracts was overly optimistic given that such contracts were to be implemented for the first time in Gujarat.

## Outputs

- 423 km of roads are constructed. The target was 460.7 km.
- 292.80 km of roads are rehabilitated as targeted.
- Of the total 715.80 km of roads constructed or rehabilitated, 61 km was implemented under Design, Build, Finance, Operate, Maintain, and Transfer (DBFOMT) format, 103 km under Output and Performance-based Road Contracting (OPRC) and 117 km under Engineering, Procurement, and Contracting (EPC) contracts—all classified as innovative financing and contracting. The total length of roads under innovative contracts was 281 km. (The remaining works were implemented under traditional item rate contracts.) The target for the length of roads to be constructed or rehabilitated under innovative contracting was 318.16 km. The remaining 37.16 km of Mehsana-Sidhpur section was still under construction as of December 2021.
- The innovative financing and contracting mechanisms, i.e., DBFOMT, OPRC, and EPC, resulted in leveraging private sector financing for road construction. Hence, the fiscal burden of road construction on Government of Gujarat was lower. These contracting types included multi-year maintenance to ensure sustainability of road quality. Based on the positive experience with the implementation of these innovative financing and contracting mechanisms, the Government of Gujarat replicated DBFOMT in south Gujarat for a 101 km road and EPC in five new contracts. Pending the performance assessment of the on-going OPRC contracts, which suffered setbacks due to poor market response, the Government of Gujarat will decide whether to replicate this contracting mechanism (ICR, p.12).

## Outcomes

Two indicators were defined to measure road capacity improvement:

- **Reduced average travel time on project roads.**



At appraisal, the travel time for cars was 75 minutes for 50 km. The target was to reduce the travel time to 50 minutes. The achievement was 57 minutes.

At appraisal, the travel time for trucks was 85 minutes for 50 km. The target was to reduce the travel time to 65 minutes. The achievement was 67 minutes.

The reduction in travel times was lower than targets because of the addition of rumble strips and tabletop crossings to the road designs during implementation (ICR, p.10). Such road features slow travel speed but are expected to increase road safety. Increase in traffic on new and rehabilitated roads because induced demand was the other reason for lower reduction in travel times.

- **Reduced average volume/capacity (V/C) ratio on project roads.**

This ratio is used to estimate the relative level of congestion on a road. Traffic volume is defined as the number of vehicles that pass a point on a road on a particular lane in the same direction generally in one hour. Traffic capacity is defined as the maximum number of vehicles that can pass from the same point generally in one hour. A ratio less than 0.50 indicates low or no congestion. A ratio between 0.50 and 0.75 indicates moderate congestion and above 0.75, heavy congestion. At appraisal, the average V/C ratio for core road network in Gujarat was 0.33; congestion was low. At project closing, the ration dropped to 0.25 as targeted.

Overall, the expansion of roads and construction of new ones resulted in decreased travel time, but slightly higher than the targets set at appraisal, and decreased congestion further. The project's efficacy in achieving the project objective to improve the capacity of the core road network of Gujarat is rated Substantial.

**Rating**  
Substantial

## **OBJECTIVE 2**

### **Objective**

To enhance the quality of road services for users of the core road network of state highways in Gujarat, through institutional strengthening, and efficient contracting and financing strategies.

### **Rationale**

#### **Outputs**

- For outputs related to road rehabilitation and construction and a discussion of innovative financing and contractive mechanisms, please see the outputs listed under Objective 1.
- The outputs related to the implementation of the Governance and Accountability Action Plan (GAAP) were substantially delivered as planned, such as the new Road Policy, revision of the Gujarat Road Network Master Plan to a more comprehensive Gujarat Roads for Economic Empowerment and Transformation, training of 270 members of staff of R&BD, implementation of the Development Strategy of the Engineering Staff College and Staff Training College and the Gujarat Engineering



Research Institute and setting up of a Centre for Excellence, establishment of the E&S unit, and the ISO certification of the Staff Training College. The upgrading of the web-based Gujarat Road Asset Management System was delayed beyond project closing. Consultancy services for the development of the system were initially to be procured through the Gujarat State budget, but several procurement attempts failed. The contract could only be awarded on the project in April 2019.

### Outcomes

- The average roughness of the road surfaces was 1,758 mm per km, which is lower than the standard International Roughness Index of less than 2,000 mm/km indicating good road quality.
- Roads in good and fair condition as a share of total classified roads increased from a baseline of 43 percent to 81 percent. The revised target was 75 percent—original 60 percent. However, this indicator measured all project-financed and non-project-financed roads. At appraisal, the contribution of the project-financed roads (655 km) was estimated to be 10.16 percent points. At project closing, the project-financed roads' contribution (716 km) stood at 11.1 percent, higher than the estimate at appraisal but lower than the revised target of 12 percent (775 km) at the restructuring.
- At project closing, the length of the core road network subject of multi-year combined maintenance and safety contracts under innovative financing and contracting mechanisms was 281 km. The target was 340.66 km revised at the restructuring. This indicator indirectly measures the sustainability of road quality through maintenance. Achievement was around 82 percent because of the ongoing 22 km or road construction under the Safe Corridor Demonstration Projects (see Objective 2 below).
- The technical activities should be expected to increase the institutional capacity of the R&BD in road asset management and cooperation with colleges and research institutes resulting in better management and maintenance of the roads and the sustainability of road service quality, but the technical assistance outcomes were not adequately captured by the results framework.

Overall, the project's efficacy in achieving the project objective to enhance the quality of road services is rated Substantial as a result of the rehabilitation and construction of roads under the project and the inclusion of multi-year maintenance obligations in the innovative contracts. However, the outcomes of the technical assistance activities were not adequately captured.

### Rating

Substantial

## OBJECTIVE 3

### Objective

To enhance the safety of road services for users of the core road network of state highways in Gujarat, through institutional strengthening, and efficient contracting and financing strategies.

### Rationale

### Outputs



- For outputs related to road rehabilitation and construction, please see the outputs listed under Objective 1.
- For technical assistance activities, please see the outputs listed under Objective 2.
- At the time of the project evaluation in December 2021, the Safe Corridor Demonstration Projects (SCDPs) consisting of two projects with a total road length of 22 km were not completed. At the time of project evaluation in December 2021, the 10 km Bharuch-Dehgam corridor was in the post-completion testing. The other 12 km Gadhinagar-Indira Bridge corridor was to be completed in early 2022. Both corridors are expected to be operational within 2022. The construction and operationalization of the SCDPs could not be completed before project closing date because of delays in land acquisition in the corridors and rebidding of the SCDP contracts because of their innovative aspects in road safety. The lockdown announced by the central and state governments at various intervals since March 2020 because of the onset of COVID-19 pandemic also adversely affected the civil works resulting further delays.
- The M&E system for safety demonstration corridor was developed but could not be used since the SCDPs were not completed.
- The enhancement of the Gujarat Road Asset Management (GRAM) system could not be completed before project closing because of rebidding of the consultancy services. This is still a work in progress.

### Outcomes

- Since the SCDPs were not operational at the time of project evaluation in December 2021, the indicator 'number of annual fatalities on each safe corridor' could not be measured.
- Incomplete GRAM system could not be used for planning and budgeting decisions. Therefore, it currently does not contribute to the award of multi-year combined maintenance and safety contracts.
- The implementation plans of the ongoing 22.00 km of SCDPs comply with a minimum iRAP star rating of 3 as targeted at appraisal. But since the construction was incomplete, iRAP assessments could not be carried out.

Overall, project's efficacy in achieving the project objective to enhance safety of road service is rated Modest.

**Rating**  
Modest

## OVERALL EFFICACY

### Rationale

While there were some moderate shortcomings in the achievement of outputs and outcomes, the project was successful in the construction and rehabilitation of roads that resulted in an increase in core road network capacity and improvement quality. Therefore, the efficacy of the project in achieving Objectives 1 and 2 are rated Substantial. However, project's efficacy in achieving Objective 3 is rated Modest because of the delay in



the completion of the Safety Corridor Demonstration Projects and the non-achievement of the safety related outcomes. Overall, the project's efficacy is rated Substantial, with moderate shortcomings.

### **Overall Efficacy Rating**

Substantial

## **5. Efficiency**

### **Economic Analysis**

At appraisal, a “with project” and “without project” economic analysis was conducted to assess the economic internal rate of return (EIRR) and economic net present value (ENPV) of 492 km of selected road stretches. The analysis was based on the IRC: SP-30-2009 and the Updated Road Cost Study -2001. The main economic benefits considered by the analysis were (a) vehicle operating cost savings for vehicular traffic using project roads, (b) time savings for passenger and goods carried in transit, and (c) economic benefits due to improved road safety, such as reductions in crash fatalities, serious and minor injuries, and vehicle damage costs. Analysis period was taken as 20 years. The assumptions used in the analysis were sufficient, and the methodology was sound, except that project's impact on greenhouse gas emissions was not included in the analysis.

At project closing, an economic analysis was conducted based on the methodology used at appraisal with price adjustments and data from traffic surveys conducted in 2016 and 2021. Because of the road works that could not be completed before project closing (a part of the Bayad-Lunawada Corridor), the post-project EIRR and ENPV were calculated for 467 km of a road segment, 25 km less than the road segment used at appraisal.

The post-project economic analysis resulted in an EIRR of 51.9 percent compared to the EIRR of 35.1 percent calculated at appraisal. The ICR (p.16) states that the increase in the EIRR can be explained by lower costs of the construction contracts, and completion of some of the roads and DBFOMT contracts ahead of time. On the other hand, the ENPV calculated after project closing, i.e., Indian rupee 20.2 billion, was lower than the ENPV of Indian rupee 21.3 billion at appraisal. The ICR (p.16) states that the reason for a lower ENPV at project closing was lower than estimated traffic volumes because the economic slow-down caused by COVID-19 pandemic.

### **Financial Analysis**

At appraisal, a financial analysis was carried out for Mehsana-Himatnagar corridor, which was implemented under Design, Build, Finance, Operate, Maintain, and Transfer (DBFOMT) format as a Green Highway demonstration corridor (ICR, Annex 8, pp.54-55). The concessionaire was to receive an annuity as revenue. Concession period was taken as 12 years. Costs were assumed to be major maintenance, loan and interest payment, insurance premium, operating expenses, and taxes. The financial analysis at appraisal resulted in an equity Internal Rate of Return (IRR) of 15.07 percent, a payback period for equity of 1 year 3 months and an average debt service coverage ratio (DSCR) of 1.13.

A similar financial analysis was conducted at project closing based on actual data. This analysis resulted in a payback period for equity of 2 years 11 months, which is substantially longer than the estimate at appraisal, but



a DSCR of 1.93 and an equity IRR of 25.64 percent, both of which were better results compared to estimates at appraisal. The grant that was to be given as capital support to the investment in the first year of the operation of the road was given earlier during the construction period. This resulted in a reduction in debt burden and lower equity investment; hence, the DSCR and the equity IRR were higher while the payback period increased. Actual debt amount, interest rate, insurance premium, and operation and maintenance cost were lower than the estimates at appraisal and resulted in a better DSCR.

**Operational and Administrative Efficiency**

Project became effective within four months of the approval of the project. The depreciation of the rupee against the US dollar resulted in US\$44 million that was used to expand the project scope. The project made a good implementation start but because of issues related to land acquisition that took two years for some road segments, slow procurement of innovative contracts due to insufficient market interest, and the replacement of one of the SCDP corridors resulted in implementation delays. The project implementation was extended by 23 months to compensate for these delays and allow time for the completion of the works added to the project scope at the restructuring. However, project implementation slowed down significantly because of the onset of COVID-19 in March 2020. A second project closing date extension was considered to allow time for the completion of works and full disbursement of the loan, but it was agreed to increase the disbursement percentage of the Bank loan and close the project on its original closing date of December 31, 2020. The ICR (p.17) states that there was a turnover of four task team leaders during the seven-year implementation period, but evidence is insufficient that this had any adverse impact on the project’s efficiency. At the time of the ICR’s writing in December 2021, most of the project activities were completed and outputs were achieved, except the SCDP corridors.

**Efficiency Rating**

Substantial

a. If available, enter the Economic Rate of Return (ERR) and/or Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

	Rate Available?	Point value (%)	*Coverage/Scope (%)
Appraisal	✓	35.10	0 <input checked="" type="checkbox"/> Not Applicable
ICR Estimate	✓	51.90	0 <input checked="" type="checkbox"/> Not Applicable

\* Refers to percent of total project cost for which ERR/FRR was calculated.

**6. Outcome**

The project’s relevance to country context and the Bank strategy is High. The project’s efficacy in achieving the first two objectives to increase the capacity and enhance the core road network is rated Substantial, but Modest for the third objective to enhance road safety because the related outputs, hence, outcomes, could not be achieved due to the delays in carrying out the works. While there were some moderate shortcomings in



operational and administrative efficiency, the project's efficiency in achieving the objectives rated Substantial because of higher economic benefits at project closing.

Overall, the project's outcome is rated Moderately Satisfactory because of the modest rating for the project's efficacy in achieving the third objective.

**a. Outcome Rating**  
Moderately Satisfactory

## 7. Risk to Development Outcome

**Technical risk to the sustainability of roads assets created under the project is low.** The contracts signed under the project for the construction and rehabilitation of the road corridors include provisions about maintenance of the roads for periods between three and ten years. These provisions would be expected to ensure the routine and regular maintenance of the roads. The contractors have the technical capacities to maintain the roads.

**Financial risk to the sustainability of roads assets created under the project is moderate.** While the contracts include maintenance periods, maintenance of the roads depend on the availability of funds from the Gujarat Government. There is a moderate risk that because of the impact of COVID-19 pandemic on government finances, there may not be sufficient funds to be allocated for road maintenance.

**Natural disasters pose a low risk for the development outcomes.** Flash floods in 2015 and 2017, and the super cyclone "Tauktae," which hit the state in 2021, adversely impacted project implementation. Occurrence of such flash floods and cyclones may cause damage to the road network created under the project.

## 8. Assessment of Bank Performance

**a. Quality-at-Entry**

At project entry, the goal to improve the capacity and enhance the quality and safety of core road network in Gujarat State of India to support economic growth and address the major public health concern of deaths and injuries from road traffic crashes was of high strategic importance (PAD, pp.3-4). The project was a follow-on project to Gujarat State Highway Project (GSHP) and was built on the sectoral achievement of GSHP and the findings of the analytical works. However, the project preparation took five years to agree on the innovative aspects of the project following a discussion of different approaches including guarantees, and to obtain forestry clearance (extended statutory clearances) to avoid project implementation delays that were experienced in the first Gujarat State Highway Project. Given the economic development level of Gujarat, the project was designed to support innovative financing and contracting schemes in road construction, rehabilitation, and maintenance, and less on direct financing support to roads works. This was an innovative but overly ambitious approach because these innovative schemes were to be implemented for the first time in the state and more than 40 percent of the roads



were to be constructed or rehabilitated under these schemes. The implementation risks of these schemes and market interest were not adequately identified that led to multiple delays during implementation. While the PAD (p.12) states that adequate lead time (5 years) for project preparation would account for sound market consultations for project procurement, a market interest assessment was not undertaken, and mitigation measures to address the risk of insufficient market interest to innovative schemes were not effective (ICR, p.19). Economic aspects of the project were sound. Economic and financial analyses were based on appropriate assumptions, but the project's positive or negative impact on greenhouse gas emissions was not included in the analysis. The M&E design had shortcomings in capturing the achievement of project's road safety related outcomes (see 9.a M&E Design below). Fiduciary and safeguards arrangements of the project were adequate.

Because of moderate shortcomings in identification, preparation, and appraisal of the project, the quality-at-entry is rated Moderately Satisfactory.

### **Quality-at-Entry Rating**

Moderately Satisfactory

### **b. Quality of supervision**

Supervision missions were regularly held at an average two missions per year, supplemented by interim missions and technical visits, until the onset of COVID-19 in March 2020 after which the project team virtually supervised project implementation. There were four task team leaders during the seven-year implementation of the project. The performance reporting in the Implementation Status and Result Reports and Aide Memoires was candid and adequate. The project team's supervision of fiduciary and safeguard aspects of the project was adequate. The project team provided support to the project implementation unit and R&BD in identifying and addressing procurement and contract management related issues that adversely impacted project implementation such as finalization of procurement, termination of contractors, retendering and repackaging of contracts, improving contractors' performance, and deficiencies in designs and quality of construction. However, these efforts were insufficient for the completion of the SCDP corridors and the enhancement of road asset management system, which were delayed because of change of scope, rebidding of SCDP due to insufficient market interest to innovative safety measures, and the onset of COVID-19 in the last year of project implementation that was beyond the control of the project team. As a result of the inclusion of multi-year maintenance services in innovative contracts, the project team ensured adequate transition arrangements for regular operation and sustainability of roads after project closing. However, the project team did not adequately address the shortcomings in the M&E design during project implementation (see 9.b M&E Implementation).

The quality of supervision is rated Satisfactory with minor shortcomings.

### **Quality of Supervision Rating**

Satisfactory

### **Overall Bank Performance Rating**



Moderately Satisfactory

## **9. M&E Design, Implementation, & Utilization**

### **a. M&E Design**

The project objectives were clearly specified but the expected results, i.e., improved capacity and enhanced quality and safety of core road network, were closer to the output level rather than outcome level. The causal chains in the theory of change were valid and direct, and the ToC was adequately reflected in the results framework, except the outcomes related to enhanced road quality and safety. The results framework did not have indicators sufficiently capturing these outcomes while other indicators were sufficient to encompass increased road capacity. The results framework did not sufficiently capture the outputs and outcomes of the technical assistance activities in capacity building. Intermediate results indicators were broadly adequate to capture the contribution of the project's components and outputs in road construction and contribution toward achieving project results, hence, project objectives. The indicators were mostly specific, measurable, relevant and timebound, except the outcome-level indicator of 'roads in good and fair condition as a share of total classified roads' that captured the achievements under non-Bank financed construction and rehabilitation works. Baseline data for indicators were available before project implementation start. M&E design and arrangements were adequately embedded institutionally. R&BD had experience and sufficient capacity to collect data under the M&E design. Consultants were to support R&BD and the PIU in M&E.

### **b. M&E Implementation**

The PIU, R&BD and the consultants measured and reported the indicators regularly. Their attention to effective M&E implementation was satisfactory. The progress of activities in each component was monitored through a web-portal and mobile-based applications. A quarterly project progress report was prepared by the PIU and findings were shared with other stakeholders. Some indicators were revised in line with the change in the project scope and according to the findings during mid-term review. However, the weaknesses in adequately capturing the project's impact on the enhancement of road quality and safety, and the outputs and outcomes of the technical assistance activities were not sufficiently addressed. The methodology used in the collection of data was sound, such as the volume/capacity ratio or the reduced average travel time on project roads. The Data were reliable and of good quality. Given the experience and capacity of the road sector institutions in Gujarat, it is highly likely that the M&E functions and processes will be sustained after project closing.

### **c. M&E Utilization**

M&E findings were reported quarterly to the stakeholders. The restructuring of the project can be attributed to the M&E findings that some project activities were delayed and that there were savings because of low contract costs that can be used to expand the project scope. While some indicators did not adequately capture the project's expected outcomes, M&E data were sufficiently analyzed and used to provide evidence of achievement of outcomes as opposed to only providing evidence of application of inputs or achievement of outputs.



Overall, the M&E quality is rated Modest because of shortcomings in the quality of the indicators in fully capturing the project outcomes.

## M&E Quality Rating

Modest

## 10. Other Issues

### a. Safeguards

The project was classified as Category A under Environmental Assessment (OP/BP 4.01) and triggered the Physical Cultural Resources (OP/BP 4.11), the Involuntary Settlement (OP/BP 4.12), Indigenous Peoples (OP/BP 4.10) and the Forests (OP/BP 4.36) safeguard policies.

**Environmental Assessment (OP/BP 4.01):** R&BD prepared a detailed Environmental Assessment for the proposed project. The environmental impact of the construction and rehabilitation of 775 km of roads was expected to be significant because of possible removal of roadside trees, adverse impact on local drainage and water sources during construction, adverse impact on roadside shrines, and construction related Environment, Health, and Safety impacts. These documents were disclosed on the Bank's InfoShop and in Gujarat by R&BD.

During implementation, environmental management and implementation was effective. Measures were sufficient in ensuring workers' health and safety such as informational and warning signage, well ventilated labor camps, provision of clean drinking water and sanitation, cooking gas cylinders for workers, HIV/AIDS training, electricity safety at camps, insulation mats, high visibility vests, personal protective equipment, guards on moving machines, and barricading unsafe areas at camp sites. Sufficient measures were taken to minimize the adverse impact of the construction activities on environment, such as debris and waste disposal, cleaning of natural drains along the roads, compensatory plantation, tree saving, and ground water recharge structures. Overall, the project was compliant with the Environmental Assessment safeguard policy provisions.

**Involuntary Settlement (OP/BP 4.12):** The project triggered this policy because of 730 households, 23 hectares of private and 7 hectares of government land, and 304 privately owned structures, mostly shops, were to be affected by the road widening and strengthening works. A Resettlement Policy Framework and Resettlement Action Plans (RAPs) for each eight road widening corridors were prepared and disclosed in the Bank's InfoShop and in Gujarat by R&BD on their website. During project implementation 14.4 ha of land was acquired, of which 11.51 ha was private. For monitoring and documentation of resettlement and compensation processes, an e-RAP was developed and used. The ICR does not report any issues regarding compliance with this safeguards policy, but lengthy land acquisition process resulted in project implementation delays and adversely affected project's efficiency. The acquisition of land in the eight corridors took two years. Notification of acquisition was issued in January 2017 according to the local legal provisions, but the notification for the award of compensation could only be issued in February 2019. Grievance mechanisms were established to receive complaints about resettlement and compensation



issues, such as district-level Grievance Redressal Committees, correspondence by mail, and directly through the Executive Engineers on sites.

**Indigenous People Settlement (OP/BP 4.10):** The project triggered this policy because some corridors were to pass through tribal areas. An Indigenous People's Development Plan was prepared and disclosed. The plan included measures to support the indigenous people, such as compensation for project affected people, work opportunities, road safety programs, facilitation and linkages to the existing government programs. The ICR does not provide information about the implementation of this safeguard policy.

**Forests (OP/BP 4.36):** The ICR does not provide information about the implementation of this safeguard policy, but states that "the project largely complied with the requirements of the environmental safeguard policies triggered" (ICR, p.23) and forest clearances were almost completed for most of the packages at the start of project (ICR, p.27).

**Physical Cultural Resources (OP/BP 4.11):** Some religious structures affected by the project were relocated with the cooperation and participation of the local communities. The project team confirmed that the project was compliant with the requirements of this safeguards policy.

## **b. Fiduciary Compliance**

### **Financial Management**

PIU submitted interim financial reports quarterly without delays. Internal and external audits were qualified in their opinions, and the PIU addressed these qualifications promptly, such as simplification of financial management arrangements, use of government treasury systems, availability of experienced and qualified accounting staff, and effective oversight and control by the PIU through internal audit reports (ICR, p24). Project funds were fully accounted for by the time of project evaluation. The ICR does not report any misuse of funds associated with the project, or any issues with counterpart funding or flow-of-funds arrangements. The project's financial management was rated satisfactory throughout project implementation.

### **Procurement**

Project implementation was delayed because of procurement related issues. Lack of market interest to innovative financing and contracting, including consultancy services, resulted in retendering of the bids. After the revision of the bid documents for innovative financing and contracting packages with greater stakeholder participation, procurement was successfully completed (ICR, p.24). Because of the onset of COVID-19, some goods contracts could not be contracted. The ICR does not report any issues regarding compliance with the World Bank's procurement guidelines.

## **c. Unintended impacts (Positive or Negative)**

None.



**d. Other**

A Gender Development Strategy and Gender Action Plan were prepared. These were to ensure women’s participation, welfare, safety, and security. Women-friendly facilities were implemented such as safe bus stops and designated sanitary facilities for women at workers’ camps. Trainings were given to increase awareness about and prevention of gender-based violence and HIV/AIDS at camp sites. Vulnerable households including households headed by women were identified for the provision of livelihood assistance. According to the impact evaluation survey, the average monthly income of women in the project area increased from Indian rupee 2,875 to 4,704.

The project supported the construction of various public facilities to meet community needs, such as bus stops, pedestrian facilities for safe movement across and along the roads, noise barriers, solid waste management plantation of trees, protection of water points, provision of cattle crossing points, and solar lights in the affected areas for safety at night.

**11. Ratings**

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Moderately Satisfactory	Moderately Satisfactory	
Bank Performance	Moderately Satisfactory	Moderately Satisfactory	
Quality of M&E	Substantial	Modest	The M&E quality is rated Modest because of the shortcomings in the quality of the indicators to fully capture the project outcomes.
Quality of ICR	---	Substantial	

**12. Lessons**

Two lessons are taken from the ICR with some modification of language.

**Insufficient market interest to innovative financing and contracting schemes can significantly delay project implementation and critically affect the achievement of project objectives.** The project introduced innovative financing and contracting schemes that were to be implemented for the first time in Gujarat. At appraisal, it was assumed that market interest would be sufficient. However, contrary to the expectations, the market was not sufficient even for the related consultancy services. Some contracts had to be bid multiple times resulting in project implementation delays. Some road works could not be completed by the original closing date (COVID-19 pandemic, too, adversely affected project implementation in 2020). Although project preparation took five years, a market interest assessment was not conducted during appraisal.



**A modified-annuity type PPP contract for road works can reduce the financial burden on government finances while ensuring sustainability of roads in the medium-term.** Sixty-one kilometers of highways between Mehsana and Himatnagar was upgraded to four lanes through a pilot PPP Annuity-based Design-Build-Finance-Operate-Maintain-Transfer (DBFOMT) concession. This contract facilitated private sector participation and investment in public works maximizing finance for development while reducing financial burden on the Government of Gujarat. Furthermore, the inclusion of maintenance in multi-year periods should be expected to ensure the sustainability of road assets developed under the project.

### 13. Assessment Recommended?

No

### 14. Comments on Quality of ICR

The ICR provides a detailed overview of the project. It is candid, accurate and aligned to the project development objective. The ICR, including its annexes, presents an appropriate base to support the achievements reported; the M&E data, notwithstanding its shortcomings, are used to provide evidence of achievement of the outputs and outcomes. The ICR is mostly internally consistent; the logical linking and integration of the various parts of the report is adequate. The lessons are based on evidence and analysis and respond to the specific experiences and findings of the project. The report is also consistent with the Bank guidance with regards to ratings and the performance narrative with some gaps, such as the lack of discussion about the adequacy of the project team's supervision of SCDPs, completion of which was delayed beyond project closing. Economic and financial analyses are presented in detail. Annex 11 is very useful to understand the achievements of the technical assistance activities. However, the ICR does not report the implementation of the Forests safeguard policy. Although project activities were revised, the ICR does not provide information about these revisions under the Revised Components section. As a minor inconsistency, paragraph 12 of the ICR states that the PDO and the outcome targets remained unchanged throughout the project's lifetime, but the changes to the indicators made at the first restructuring are explained in the following paragraph 13.

Overall, the Quality of the ICR is rated Substantial.

#### a. Quality of ICR Rating

Substantial

