



1. Project Data

Project ID P157141	Project Name RSHDP II	
Country India	Practice Area(Lead) Transport	
L/C/TF Number(s) IBRD-89390	Closing Date (Original) 29-Mar-2024	Total Project Cost (USD) 237,471,835.07
Bank Approval Date 29-Mar-2019	Closing Date (Actual) 31-Dec-2024	
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	250,000,000.00	0.00
Revised Commitment	237,471,835.07	0.00
Actual	237,471,835.07	0.00

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2. Project Objectives and Components

a. Objectives

According to the Loan Agreement (LA, p.5) and the Project Appraisal Document (PAD, paragraph 17), the Project Development Objective (PDO) of this INDIA: Rajasthan State Highways Development Program II Project was: "to build the capacity for better management of State Highways and to improve traffic flows in Selected State Highways in the State of Rajasthan."

This review will assess project performance against this PDO parsed into two sub-objectives:



- to build the capacity for better management of State Highways
- to improve traffic flows in Selected State Highways in the State of Rajasthan

For the first one, the objective is to better manage State Highways, for which capacity building comprises the contributing activities.

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

Yes

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

No

c. Will a split evaluation be undertaken?

No

d. Components

There were **five** components:

1: Operationalization of the Rajasthan State Highways Authority (RSHA) (US\$3.5 million at appraisal, US\$3.46 million, actual). This component was to finance training and technical assistance to strengthen RSHA by installing effective governance structures, and implementing management systems that cover human resource, procurement, financial, and risk management.

2: State Highways Improvements (US\$227.8 million at appraisal, US\$231.96 million, actual). This component was to finance construction works and supervision of state highways and major district roads using two modalities: (i) Engineering, Procurement, and Construction (EPC) Contracts for upgrading 472 km of roads with five-year maintenance, and (ii) Public-Private Partnership (PPP)-Hybrid Annuity Mode (HAM) for upgrading roads that would have 10-year operation and maintenance (O&M), private financing, and pilot digital highways using Intelligent Transportation System (ITS).

3: Institutional Strengthening (US\$3.9 million at appraisal, US\$3.66 million, actual). This component was to finance training and technical assistance in business processes and systems, that would develop an online project management system (e-PMS) and smartphone applications; finalize and implement the Road Asset Management System (RAMS); design and implement a communications strategy; and enhance staff capacity of the Public Works Department (PWD) and Rajasthan State Highways Authority (RSHA).

4: Road Safety (US\$10.0 million at appraisal, US\$7.07 million, actual). This component was to finance training and technical assistance in road safety management, develop and operationalize the Road Accident Database Management System (RADMS), pilot the speed management program on 100 km of high-risk corridors, conduct road safety surveys, develop long-term road safety strategies, and identify and remediate black spots.

5: Project Management Support (US\$4.8 million at appraisal, US\$3.39 million, actual). This component was to finance training and technical assistance to strengthen the PWD's PPP Division to implement



Components 2 through 5 and comply with the World Bank policies and procedures in financial management, procurement, safeguards, and reporting.

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

Project Cost: The original total project cost was US\$250 million. The project had disbursed US\$237.5 million by the time the project closed. The balance was cancelled.

Financing: The International Bank for Reconstruction and Development (IBRD) financed this loan.

Borrower Contribution: The government committed to contribute US\$125.6 million. According to the Bank team, the government disbursed the equivalent of US\$106.28 million or 31percent of the total reported project expenditure.

Dates: The Board approved the project on March 29, 2019, and it was made effective on October 14, 2019. The Mid Term Review (MTR) was conducted on September 27, 2022. The project was originally to close on March 29, 2024. After the following four restructurings, the project was extended twice to close on December 30, 2024, nine months later than planned.

- On August 10, 2020, to remove certain loan withdrawal conditions, simplify the verification process, and amend pertinent Legal Covenants.
- On March 17, 2023, to adjust the scalability and associated incentives of two Disbursement Linked Indicators (DLIs) to accelerate the achievement of targets. These indicators were (i) contracts for roads transferred to RSHA; and (ii) length of project-financed roads. During this restructuring, amendments were made to the LA to reallocate targets between spending categories and finance civil works contracts that use the Hybrid Annuity Model (HAM) (originally intended to be financed with the public private partnership financing under a PPP-HAM model).
- On May 16, 2024, to extend the closing date for the first time from March 29, 2024, to September 30, 2024.
- On September 26, 2024, to extend the closing date a second time, from September 30, 2024, to December 30, 2024, to complete contracted activities.

SPLIT RATING: The PDO was unchanged throughout the project period. Certain adjustments were made in the methodology associated with the incentives for DLIs, but the nature, scope, and ambition of the project remained constant. According to the ICR, the initial target was adjusted per the updated transition strategy adopted by the government. This revision was associated with the PDO indicator defined in the PAD as - “Met when RSHA has signed contracts for upgrading/ rehabilitating/ construction/ maintenance of 5000 km of highways by taking over the management, per the government-approved Transition Strategy, of existing contracts or signing new contracts from PWD and other agencies.” The initial target of 10,000 km to be taken over or signed by RSHA was not part of the scope and served as a proxy for indicating the institutionalization of RSHA. No revision to the PDO or any key outcomes warranted a “split evaluation” of the outcome (ICR, footnote 3). Therefore, split rating of the outcome will not apply.

3. Relevance of Objectives



Rationale

Context: Rajasthan is one of the largest states of India. It covers nearly 10 percent of the total area of the country and by 2018 was occupied by about 75 million people or about five percent of India's total population. The Government of Rajasthan (GOR) identified investments in critical infrastructure such as roads and highways would exploit the full potential of the state's agriculture and agro-based industries, mining and minerals processing, tourism, and handicrafts and cottage industries. The state's Public Works Department (PWD) was responsible for about 70 percent of the state's road network consisting of state highways, rural, and village roads. PWD managed road construction using its own Project Implementation Units (PIUs) or using special purpose vehicles such as the Rajasthan State Road Development Corporation (RSRDC) or the Road Infrastructure Development Company of Rajasthan (RIDCOR). Inaccurate road assets information led to inefficient allocation of resources and poor road maintenance. The sector's institutional framework needed to be modernized. PWD initiated a road asset management system (RAMS), a geographic information system (GIS)-based asset register with physical conditions, maintenance and rehabilitation costs, and other information. As a public administrative unit of the State, PWD did not have the mandate to mobilize external resources or establish accountability to users. The government adopted the Rajasthan State Highways (RSH) Act of 2014 that created a Rajasthan State Highways Authority (RSHA) as a corporate body that would manage the state's road network. The Act mandated that RSHA regulate traffic, improve safety, and mobilize resources through investments or corporate borrowings. The Act also allocated 50 percent of the State Road Fund (SRF) revenues for the development and maintenance of state highways.

Country Plans: The PDO was relevant to the government's plan to increase connectivity, enhance quality and improve road maintenance in Rajasthan. The PDO was relevant to the government's move to earmark SRF for state highways, its commitment to a strategic transition plan regarding RSHA and its planned implementation of RAMS. The project's objectives to "build capacity for better management of state highways and to improve traffic flows on selected state highways" remain relevant to strategic objectives of the national and state governments' five-year plans which include: (i) strengthening public sector institutions, (ii) developing and maintaining national and state roads, and (iii) leveraging private sector financing in Rajasthan. By upgrading road infrastructure to facilitate better traffic flow and connectivity, and promoting sustainable maintenance, the objectives also align with the broader strategy to promote economic growth through improved infrastructure with private sector participation.

World Bank Country Partnership Framework (CPF): The PDO was highly relevant to India's priorities at national and sectoral levels. The project was approved in 2019, and the World Bank's FY18–FY22 India Country Partnership Framework (CPF) remained applicable at closing. The PDO was relevant to the objectives of the CPF to support the government in its pursuit of policies to: (i) strengthen implementation capabilities of public sector institutions, (ii) address connectivity constraints by developing and maintaining national and state roads, and (iii) strengthen the framework for private sector participation using innovative Public-Private Partnership (PPP) contracting and risk mitigation enhancement instruments. These efforts were in line with CPF's emphasis on leveraging technology and innovation to drive development outcome.

World Bank Experience in the Country, the State, and in the Sector: The World Bank has been involved in the road sector in Rajasthan for over 10 years. Various projects and programs such as the Rajasthan Road Sector Modernization Project (P130164) increased road connectivity and maintenance throughout the state. Previous World Bank projects and Advisory Services and Analytics (ASAs) in the region also focused on enhancing the infrastructure and management of state highways. The World Bank was well positioned to be an informed partner in the government's continuing effort to modernize its road



sector. The recently appraised Bank-financed Rajasthan Highways Modernization Project (RHMP) is informed by the achievements of this project.

Overall, the PDO level was appropriate. Full operationalization of a new agency is an adequate outcome within the scope and timetable of this project. The relevance of the objective is rated High.

Rating

High

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

To build capacity for better management of state highways.

Rationale

Theory of Change (TOC): No TOC was prepared at appraisal. One was prepared at closing, replicating the results chain presented in the PAD. According to the TOC, the 2014 Rajasthan Highways Act created the Rajasthan State Highways Authority (RSHA) to actively manage all of Rajasthan state's highways. "Actively managed" means that RSHA has taken over the management of highways per the government-approved Transition Strategy. RSHA would then sign contracts for upgrading/ rehabilitating/ construction/ maintenance of existing or new contracts from PWD and other agencies. Training and technical assistance was to operationalize this agency. Using Disbursement-Linked Indicators (DLIs) as part of the IPF financing instrument was innovative. The DLI served as incentive to push stakeholders to achieve agreed upon targets. For example, to operationalize RSHA, funds would be disbursed when targets for officially establishing the RSHA have been met, making available adequate funding when compliance with the earmarking of SRF resources for state highways, network management system, service level agreement of the RSHA, and RSHA taking over the management of state highways have been achieved. A technical audit consultancy firm was hired to independently verify and certify the achievement of these DLIs. Two outcome indicators– the length of state highways RSHA would manage and receiving its mandated share of State Road Fund resources earmarked for State Highways – were appropriate outcomes given the scope of the activities, resources available, and implementation period.

Input was to be the financing of the training and technical assistance to ensure that RSHA becomes fully functional.

Output was to be the organizational chart, staffing plans, investments plans, campaigns to inform users of RSHA rules and regulations, road asset management system, and investment plan.

Outcome would be RSHA having a fully functional board to effectively manage state roads and highways and its receipt of State Road Funds to develop and maintain these assigned state roads. An initial proxy target of 10,000 km that was not part of the scope was corrected during the 2023 restructuring when a target of 5,000



km of state roads and highways that RSHA would manage was established to indicate the institutionalization of RSHA. The government established this target in the approved Transition Strategy. Legislation earmarked 50 percent of State Road funds so that a new agency, RSHA, can implement development and maintenance of highways. Improvements in management practices of a sector (roads) that involve conscious decisions and choices, behavioral changes, procedural changes, and tangible actions constitute a valid set of outcomes for a capacity building project that aims to better manage state highways.

Critical Assumptions, if realized, would enhance the achievement of this outcome. These included (i) the government had the political will to operationalize the RSHA; (ii) the Public Works Department (PWD) was willing to transfer control of state highways to RSHA; (iii) the government was willing to apply economic and social prioritization criteria to road investment decisions; and (iv) the police and other authorities would use the systems to enforce and recommend improvements to achieve traffic safety.

Overall, the TOC provided a causal link between the inputs, output, and expected outcomes and the critical assumptions to achieve the stated PDO. The outcome indicators as formulated were properly scaled to measure the achievement of the capacity building PDO and are acceptable final outcomes given the scope of activities, resources, and timeframe of this project.

OUTPUTS:

*Under the Operationalization of the Rajasthan State Highways Authority RSHA, the following outputs were **achieved** as targeted:*

- The RSHA organizational structure and staffing plan were approved.
- The public was notified of the rules and regulations governing the RSHA.
- Chairperson and seven Board members were appointed.
- Hired a minimum of 60 percent each of RSHA management and technical staff.
- Produced the Road Asset Management System (RAMS) on June 21, 2024.
- RSHA training plan.

Under the RSHA Board actions, the following output was not achieved: RSHA Board prepared an investment plan that includes a coherent business strategy, business model, investment plan, and service level agreement. The plan was being finalized at closing. The target of having the Board approve this plan was **not achieved**. The follow-on Rajasthan Highways Modernization Project (RHMP) was expected to implement this plan.

OUTCOMES: The RSHA was operationalized as targeted. This corporatized highway agency is one of India's first state-level entities to manage highways.

- RSHA actively managed 5,300 State Highways (SH) at closing. The target was **achieved**.
- RSHA received its mandated share of 50 percent of State Road Fund resources earmarked for state highways (the target of 50 percent was **achieved**).

The efficacy of the project to achieve this objective is rated **Substantial**. The adoption and implementation of capacity-building measures that included reviewing options, making choices, turning decisions into policies, and behavioral as well as procedural changes, were appropriate final outcomes for a capacity-building project. The incentive framework based on DLIs provided sufficient allocation to be effective in moving



forward the actions such as RSHA approving the organizational structure and plan, appointing the Chair, board members, and 60 percent of the of the staff, and using RAMS data to prepare annual maintenance plan for the roads managed by PWD and RSHA to achieve a fully functional RSHA. However, the training plan could not be implemented until a full staff complement is in place.

Rating

Substantial

OBJECTIVE 2

Objective

To improve traffic flows on selected state highways in the state of Rajasthan.

Rationale

Theory of Change: Training and technical assistance were provided to implement the Road Asset Management System (RAMS) to improve traffic flows on selected state highways. These inputs would be expected to help RSHA adopt and use the Road Accident Database Management System (RADMS), implement the speed management program, conduct iRAP surveys, prepare a Safer Roads Investment Program, and adopt a long-term Road Safety Strategy. The relevant authorities would use RADMS to monitor motorists' compliance with speed limits and produce actionable data, thus reducing the incidence of crashes. According to the TOC prepared at closing, RSHA and the Public Works Department (PWD) would use RAMS and other road network planning tools to allocate resources to upgrade targeted roads and highways according to their highest economic and social returns using two kinds of contracts – the Engineering, Procurement, and Construction (EPC) and Hybrid Annuity Model (HAM) contracts. Disbursement linked indicators (DLIs) were used to provide incentives to achieve the length of rehabilitated highways that incorporate safety elements, by targeting the development and implementation of the RADMS to indicate achievement of road safety. A technical audit consultancy firm independently verified and certified the achievement of these DLIs. The PDO outcome indicator was appropriately expressed as reducing travel time while using these upgraded roads based on the scope of the investments.

Inputs: would include the financing of training and technical assistance and the financing of the upgrading of selected roads. The Ministry of Road Transport and Highways developed RADMS. A parallel Bank-financed “Integrated Road Accident Data (iRAD) System” was also developed. The government rolled out the iRAD system nationwide in March 2021.

Outputs: were to be the length of the improved roads, the various systems to be rolled out for use by relevant authorities, and the various training programs, virtual conferences, technical studies and reports and on international road asset management, road asset valuation, and other road system features that would inform the design of roads to be improved and its safety enhancements. However, the measure of some indicators, such as those linked to the ITS, road safety, and climate resilience, were not clearly defined, not accompanied by targets, and hence, its achievement could not be assessed. The 2023 restructuring increased the target of one output – length of roads to be rehabilitated – from 766 to 881 km.

Outcome: was to be the reduced travel time for cars traveling on the rehabilitated roads. The 2023 restructuring reduced the target to a 10 percent reduction in the average travel times for cars. The adoption of



a road safety strategy, and implementation of a speed management program over 60 km were appropriate outcomes.

Critical Assumptions: same as under the first objective.

Overall, the PDO was formulated at an appropriate outcome level. The causal link between the inputs, outputs and expected outcomes were sufficiently established. The incentive framework based on DLIs worked effectively since the expected outcome was achieved as output targets were met to release disbursements. (revise)

OUTPUTS:

*Under Institutional strengthening, the following output targets were **achieved**:*

- An electronic project management system (e-PMS) was developed, achieving the original target. The Bank team clarified that the e-PMS is a single, integrated system covering all project corridors.
- An electronic system for monitoring Resettlement Plans (e-RAP) was developed (Baseline was Manual and paper base data collection, no online monitoring system, target was that RAP data for all the eleven project corridors would be developed, target was achieved).

*Under Improved Traffic Flows the following output targets were **exceeded** or **achieved**:*

- Rehabilitated 917 km of Roads were (the original target was 766 km and the increased target was 881 km)
- EPC contracts for 598 km of roads were executed (the original target was 588 km and the reduced target was 332 km)
- PPP-HAM contracts for 319 km were executed (the original target was 294 km and the reduced target was 144 km)
- Equipment and training associated with 92 digital technology solutions on project financed roads were procured (target was procurement of 110 technology solutions)

*Under Road Safety, the following outputs were **achieved** or **partially achieved**:*

- The national Government of India launched iRAD on January 13, 2021, and implemented in the State of Rajasthan on March 13, 2021 (the original target of establishing RADMS and making it operational was achieved).
- Road safety strategy was developed, as targeted.
- Speed Management Program was developed to be used in 60 km with the remaining work (40 km) was to be completed by end-2025 (the original target of 100 km was **partially achieved**).

OUTCOME:

- Cars travelling across all project highways experienced a 32 percent reduction in travel times (original target of 10 percent was **exceeded**).
- 73 percent of women perceived an improvement in safety along project corridors (the target of 40 percent was **exceeded**).



- 72 percent of employees confirmed that they were aware and 81 percent of them were comfortable with approaching the Internal Complaints Committee - (the target of 50 percent was **exceeded**).
- ITS applications were deployed on 92 km initially and later scaled up to 331 km
- The Speed Management Program was implemented in 60 km with its use the remaining 40 km to be made by end-2025 (the original target of applying the program on 100 km was **partially achieved**).

OVERALL, the efficacy of the project to achieve this objective using reduced target is rated **Substantial**. The project implemented comprehensive multi-sectoral RADMS, RAMS, e-PMS, and e-RAP systems that led to the outcome of reducing travel time in traffic. DLIs were effectively used since disbursements were made when targets were met and served as incentives to trigger the adoption of the various systems and policies to achieve the expected outcome.

Rating
Substantial

OVERALL EFFICACY

Rationale

The overall efficacy of the project to achieve both objectives is rated Substantial. The efficacy of the project to achieve the first objective is rated Substantial after achieving most of the outcome indicators. The adoption and implementation of capacity-building measures were adequate final outcomes for a capacity-building objective. The efficacy of the project to achieve the second objective is rated Substantial because the outcome was achieved. The DLIs were effectively used as incentives to achieve targets for the outputs and outcome of the project.

Overall Efficacy Rating

Substantial

5. Efficiency

Economic Efficiency. At appraisal, the project team conducted a cost benefit analysis (CBA) using the Highway Development and Management Model 4 (HDM-4) tool. The tool was applied to the 11 identified project highways. The economic internal rates of return (EIRR) and net present values (NPV) varied with the road surface conditions and traffic volumes on each state highway. The team estimated that traffic was to uniformly grow at 5 percent per year for all categories of vehicles over 25 years. A discount rate of 12 percent was used. The overall NPV for the full program of 11 roads was estimated at Rs 16,171 million with an EIRR of 18.7 percent; for six roads EPC package the NPV was estimated at Rs. 12,826 million with an EIRR of 19.1 percent; and for five roads HAM package, the NPV was estimated at Rs. 2,345 million with an EIRR of 17.1 percent. When GHG emissions were included in the calculation, the overall NPV increased by Rs. 364 million. A few



roads showed slightly lower EIRRs for a pessimistic scenario when benefits were reduced, and costs were increased by 20 percent.

The project team conducted an ex-post economic analysis using the same HDM-4 tool, comparing ‘with’ and ‘without’ the project scenarios of road improvements over a 25-year period, adjusting for costs, phased implementation, and traffic growth. Other factors were included, such as reduction in vehicle operation costs (VOC), savings in travel time, reduction in accident costs, and reduction in CO2 emissions. At closing the NPV was estimated at Rs20,742 with an EIRR of 19.8 percent. According to a sensitivity analysis, even with a 20 percent reduction of yearly benefits the project would generate EIRRs of greater than 12 percent.

Administrative and Operational Efficiency. This loan used 19 disbursement linked indicators (DLIs) in three broad categories: operationalization of Rajasthan State Highway Authority (RSHA); highway improvements; and road safety improvements to ensure that the objective was achieved. Using DLIs as part of the IPF financing instrument was innovative. COVID-19 pandemic with its prolonged lockdowns and mobility restrictions delayed initial implementation Restructuring provided corrective measures that overcame a slow disbursement rate of less than 25 percent by the mid-term. Legislative amendments to the eligibility rules for appointing RSHA board members under the Rajasthan State Highway Act plus lack of qualified candidates led to delays. The PWD principal secretary was eventually appointed as chairperson to meet target. The project completed all major activities at closing and disbursed 94 percent of the total loan even as the project closed nine months later than originally planned.

On balance, while considering delays, the project’s economic worth leads to a substantial rating for efficiency.

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	✓	18.70	91.12 <input type="checkbox"/> Not Applicable
ICR Estimate	✓	19.80	97.67 <input type="checkbox"/> Not Applicable

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

6. Outcome

The relevance of the PDO is rated High. The efficacy of the project to achieve the first and second objective is rated Substantial. Given that the PDO was to better manage state highways by building capacity, and to improve traffic flows, the final outcomes were appropriate for a capacity-building project intended to operationalize a newly created agency. The targets of both output and outcome indicators were either exceeded or achieved against revised targets that were adjusted during restructuring to align more closely with the



Transition Strategy. The overall efficacy of the project to achieve the objectives is rated Substantial. Efficiency is rated Substantial. The outcome is rated Satisfactory.

a. **Outcome Rating**
Satisfactory

7. Risk to Development Outcome

The following pose risks to development outcome:

- **Technical risk.** There is a moderate risk that systems and processes that the project introduced, such as iRAD, RAMS, e-PMS, e-RAP, and other planning tools, may not be updated to address software and hardware obsolescence. To mitigate this risk, the RSHA and the government have built in 10-year long-term O&M measures in the civil works construction contracts financed by the project. In addition, the upcoming World Bank-supported Rajasthan Highways Modernization Project (RHMP) will be using the newly developed systems to sustain project outcomes.
- **Financial Risk.** There is a moderate risk that there will be insufficient resources available to make the RSHA operate in the long term. The legislated earmarking of 50 percent of receipts from the State Highways Fund mitigated this risk.
- **Governance risk.** There is a moderate risk that a fully functional and operational RSHA may be given additional functions to deliver beyond its mandate. This risk is mitigated by maintaining a professional board.
- **Exposure to natural disasters.** This is a moderate risk. Environmental and atmospheric changes have increased the frequency and intensity of natural hazards that may negatively affect the road improvements completed under this project. This risk is mitigated by including a 10-year O&M provision in the road contracts and the incorporation of mitigating measures in the design of these road improvements.

8. Assessment of Bank Performance

a. **Quality-at-Entry**

The World Bank team designed the project to align with the strategic priorities of the government following the 2014 Rajasthan State Highway Act (RSHA). The Bank team supported the government's plan to strengthen state infrastructure and enhance institutional capacity for safe transport. Technical, financial, and economic aspects were adequately addressed. The Bank team provided expertise in road sector policy, management, and financing; and prepared a market sounding study, an institutional reform plan, and an operationalization roadmap. The Bank team recognized that the Public Works Department (PWD) had sufficient engineering capacity but identified gaps in contract management and procurement. The Bank team introduced Disbursement Linked Indicators (DLIs) within the project's monitoring and evaluation (M&E) system to serve as incentives to achieve the planned institutional reform. These 19 DLIs served as incentives to achieve specific targets at various implementation points that would



operationalize a new institution, promote road safety, and improving roads. The Bank team introduced modern asset management tools and innovative contracting models, which incorporated maintenance obligations. The Bank team mitigated substantial institutional capacity risks through targeted support, training, and guidance on World Bank procurement standards. However, lack of experience in preparing large-scale road projects using the EPC/HAM models and the associated safeguard requirements led to procurement delays. These delays led to re-submitting the project to the Screening Committee of the Department of Economic Affairs for approval.

The quality of Bank performance at entry is rated Satisfactory with minor shortcomings.

Quality-at-Entry Rating

Satisfactory

b. Quality of supervision

The World Bank task team conducted 12 Implementation Support Missions (ISM) and technical visits over the five-year project period, including virtual ones during COVID 19. The Task team hired technical experts and sponsored knowledge exchange events to target technical capacity gaps of staff from implementing agencies in international road asset management, road asset valuation, ITS, contract management, environment & social safeguards, and accounting. Operationalizing RSHA was delayed, and the Bank team hired an institutional development consultancy to ensure a comprehensive and effective transition strategy. The technical support led to the approval of the organization structure, appointment of key members, approval of a staffing plan, formulation of regulations, development of a business model and financial arrangements. The Bank team facilitated the hiring of a technical audit consultancy firm to independently verify and certify the achievement of DLIs. The technical audit consultancy firm confirmed the compliance with these DLIs to release funds for the implementing entity as output and outcome targets were achieved. The Bank team restructured the project four times to facilitate implementation progress and achieve results by addressing the shortcomings in defining the DLIs, its scalability to facilitate disbursements, and unforeseen administrative processes.

The quality of Bank supervision is rated Satisfactory.

Quality of Supervision Rating

Satisfactory

Overall Bank Performance Rating

Satisfactory

9. M&E Design, Implementation, & Utilization



a. M&E Design

The operation's Theory of Change (TOC) articulated the causal link between inputs, outputs and expected outcomes. The results framework included three outcome indicators and 19 output indicators; all subject to independent verification prior to disbursement to incentivize the institutionalization of the RSHA and the execution of its mandate. All indicators were specific, relevant, and time bound. The Disbursement Linked Indicators (DLIs) provided incentives for actions to be undertaken by the government to operationalize RSHA. This meant that decision points were allocated sufficient resources to serve as incentive in moving decisions forward - from appointing Board members, chair and technical staff, the Board adopting its organizational chart, to communicating its policies to end users, ensuring funds were available, to adopting and implementing asset management systems and investment plans. The measure of some indicators, such as those linked to the ITS, road safety, and climate resilience, were not clearly defined, not accompanied by targets, and hence, its achievement could not be assessed. For example, the metric on "Implementation of digital technology solutions (km)" did not assess the functionality or utility of the technologies to be adopted.

b. M&E Implementation

The Rajasthan State Highway Authority (RSHA) relied on a Project Management Consultant (PMC) to implement the M&E system as designed. An Independent Technical Audit Consultant (TAC) verified the achievements of the DLIs, including integrated performance audits covering engineering designs, management of E&S issues, procurement, quality assurance, compliance with loan and contract conditions, and works supervision. The implementing agencies relied heavily on the PMC consultant to implement project monitoring and may not have capacity to sustain effective monitoring systems for road management (ICR, paragraph 51). The follow-on RHMP may mitigate this risk.

c. M&E Utilization

M&E data informed management and the World Bank of project progress. M&E data was used to design corrective measures adopted in the four restructurings to facilitate the resolution of implementation challenges.

M&E Quality Rating

Substantial

10. Other Issues

a. Safeguards

Environmental Safeguards: The project was categorized as "B" and required Partial Assessment because of potential site-specific adverse environmental and social impacts. The following safeguards policies were triggered: OP/BP 4.01 (Environmental Assessment), OP/BP 4.04 (Natural Habitats), OP/BP 4.36 (Forests), OP/BP 4.11 (Physical and Cultural Resources), and OP/BP 4.10 (Indigenous Peoples), OP/BP 4.12 (Involuntary Resettlement). At appraisal, an ESMF/RPF was prepared and disclosed on the government and the Bank websites. Completed individual road-specific Environmental and Social Impact Assessments



(ESIAs) were disclosed on the government website. The project complied with Bank environmental requirements (ICR, paragraph 55). RSHA/PWD and PMC took corrective actions to improve implementation of environmental management as required. Concerns raised were related to: (i) deployment of adequate Environment and Safety personnel; (ii) regulatory (forest) clearances/permissions; (iii) plant site management; (iv) rainwater harvesting structures; (v) borrow area management; (vi) pollution control/waste management; (vii) enhancement works; (viii) tree plantation; (ix) drainage works; (x) resource use/recycling/reuse; and, (xi) worksite safety/OHS management. Completing tree plantation works and some corrective actions on completed structures were delayed but resolved over time. Green Highway initiatives using recycled materials, waste and soil overburden, low energy materials, climate resilient concrete and bitumen mixes, tree plantation initiatives, and redevelopment of borrow areas to water bodies, contributed positively to the environment. The project delivered green innovations along the road corridors to achieve climate benefits including: (i) lining trees along 6.17 km of roads to capture carbon emission ("green tunnels"); (ii) saving 292 trees by optimizing road alignment design; (iii) planting 89,492 new trees along the corridors; (iv) installing rain water harvesting structures, (v) adding 17 new water retention ponds by redeveloping borrow areas, which benefited adjacent farming communities; (vi) conserving top soils; (vii) reusing construction material systematically; and (viii) recycling waste at work sites.

Social Safeguards: The project triggered OP/BP 4.12 (Involuntary Resettlement) because the project activities involved land acquisition and resettlement. The project team hired a nongovernmental organization (NGO) to implement the Resettlement Action Plan (RAP). The project complied with the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act (RFTCTLARR) of 2013 Act and the World Bank Environmental Social safeguard (ICR, paragraph 56). The project team prepared a Resettlement Policy Framework. They also prepared an SIA, a Social Management Plan, and an RAP for each of the three priority corridors. In accordance with the state rules for linear projects, land will be acquired through a negotiated settlement. All payments and resettlement will be completed before handing over land to the contractors. Ten of the 13 roads required the acquisition of 188.4 ha of land. At closing, 963 of the 1,205 non-title holders were relocated and compensated. Grievance redressal was conducted using approved mechanisms including the Sampark Portal, the PMC's GRM system, toll-free numbers, and the WB portal. Of the 374 grievances registered, 360 were redressed and 14 were pending resolution at closing.

b. Fiduciary Compliance

Financial management. The project complied with Bank financial management requirements (ICR, paragraph 58) using the Integrated Financial Management System (IFMS) for real-time processing of online payments, enhancing financial oversight, and reducing delays. All audit reports were submitted on time, of acceptable quality, and without unaddressed audit observations. The Bank team identified a few issues such as the government's delayed release of payments due to a shortage of funds at the state level and confusion over budget allocation during the project's early implementation period.

Procurement. The project complied with the World Bank procurement policies. The Independent Technical Audit Consultant (TAC) conducted the procurement on behalf of PWD. Most contracts were completed by the end of 2023 with some delays. Procurement delays were due to prolonged lockdowns during COVID. Mobility restrictions disrupted the implementation of three ongoing EPC contracts and delayed other procurement activities. In addition, a standardized bidding document for HAM contracts was developed one year later than planned, contributing to procurement delays. PWD staff



lacked experience in preparing large-scale road projects under the EPC/HAM and the associated safeguard implementation requirements that led to delays in awarding civil works contracts. The Bank team delivered training programs to enhance the procurement capacity of the PWD and RSHA. An online procurement process was adopted to improve transparency. Virtual conferences were conducted to sensitize bidders on these new types of contracts.

c. Unintended impacts (Positive or Negative)

d. Other

11. Ratings

Ratings	ICR	IEG	Reason for Disagreements/Comment
Outcome	Satisfactory	Satisfactory	
Bank Performance	Satisfactory	Satisfactory	
Quality of M&E	Substantial	Substantial	
Quality of ICR	---	Substantial	

12. Lessons

The project offered the following lessons, which have been slightly edited for brevity:

- **A clear roadmap and strong client ownership could facilitate the establishment of a new institution.** The operationalization of RSHA unfolded slowly despite the Bank’s structured approach, which included legal, corporate governance, and managerial/operational phases. Progress was hindered by delays in staffing appointments and in issuing the necessary regulations and rules. For future projects, institutional setup activities should begin early in the project cycle. This includes appointing leadership, finalizing standard operating procedures, establishing core systems, developing planning frameworks, and onboarding consultants. Early initiation of these steps is essential to ensure smooth implementation and to avoid downstream bottlenecks.
- **The mobilization of private capital could facilitate the implementation of innovative contract models.** With the newly introduced EPC/HAM contracting modality, the project demonstrated that there is significant potential to maximize finance for development by attracting private financing, especially through HAM. Given the lack of experience of the PIUs in implementing such contracts, the Bank should provide continued assistance and tailored training in contract management, including leveraging technology and digital tools for data-driven decision-making in areas such as prioritized development, road asset management, and project monitoring.



- **Targeted capacity building could enhance private capital mobilization using innovative contract models.** The EPC and HAM modalities were innovative contract models introduced in this project to attract private financing, especially through HAM. However, implementing entities had no prior experience managing large scale contracts of these types. The Bank teams delivered targeted training at appraisal but may need to intensify targeted training using data-driven tools to strengthen contract management and enhance implementation capacity for these innovative models to deliver private capital mobilization.
- **IPF projects that include creating new institutions may find using DLIs useful to incentivize institutional changes.** This project was an IPF financing instrument. Disbursement Linked Indicators (DLIs) are normally associated with Program for Results (PforR) financing instrument. In this case, DLIs were used to achieve the operationalization of a new corporate road agency. Eligible expenditures are predefined. Disbursements are made against the satisfactory achievement of targets. Protocols in using an independent agency to verify achievement of indicators are agreed to beforehand. Carefully selecting a well-experienced technical audit consultancy firm is critical. A clearly defined incentive structure would mean matching adequate DLIs allocation to eligible expenditure needs to move the required change forward.
- **Early mitigation of anticipated challenges could help minimize or avoid land acquisition issues.** The EPC and HAM contracts faced challenges in land acquisition early on. These led to delays. A more initiative-taking approach to resettlements and project management may involve streamlining land acquisition early in the process to align with expected procurement timelines. This strategy may prioritize the timely handover of encumbrance-free land to contractors and concessionaires to facilitate project execution.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The report followed the guidelines, was concise, was internally consistent, and focused on results. The TOC prepared at closing gave a detailed overview of the project and provided the justification for the ratings reached. The report, including its annexes, particularly the clarifications from the government in Annex 5, the detailed assessment of efficiency in Annex 4, and changes made during the restructurings in Annex 7, were helpful in providing evidence to support the ratings achieved by the selected indicators. The report is candid, acknowledged shortcomings in adopting sufficient mitigating measures to address implementation risk, lack of outcome indicators, and M&E design. The lessons were clear, useful, and based on evidence from implementing the project. The ICR quality is rated Substantial.

a. Quality of ICR Rating

Substantial

