



1. Project Data

Project ID P130164	Project Name IN: Rajasthan Road Sector Modernization	
Country India	Practice Area(Lead) Transport	
L/C/TF Number(s) IDA-53100	Closing Date (Original) 31-Dec-2018	Total Project Cost (USD) 121,630,912.86
Bank Approval Date 29-Oct-2013	Closing Date (Actual) 31-Dec-2018	
	IBRD/IDA (USD)	Grants (USD)
Original Commitment	160,000,000.00	0.00
Revised Commitment	131,877,656.13	0.00
Actual	121,630,912.86	0.00

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2. Project Objectives and Components

a. Objectives

The Project Development Objectives (PDOs) were to “improve rural connectivity, enhance road safety and strengthen road sector management capacity of Rajasthan” (Financing Agreement page 5 and the Project Appraisal Document para 16).

The PDOs remained unchanged.



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

27-Jul-2017

c. Will a split evaluation be undertaken?

No

d. Components

The project had three components:

Component A: Rural Connectivity Improvement (appraisal estimate US\$197.0 million, of which US\$138.0 million was Bank financing; total actual cost US\$163 million, actual Bank financing US\$111.7 million). The project planned to finance the construction of about 2,500 kms of rural roads to provide connectivity to about 1,300 revenue villages with population between 250 and 499 people in the areas of the state not covered by the *Pradhan Mantri Gram Sadak Yojana* (PMGSY) or (National) Prime Minister's Rural Roads Program. This component would also introduce cost-effective low volume technologies. The roads would be built to a bitumen surface standard and would include all necessary bridges and cross drainage works to maintain year round connectivity.

Component B: Road Sector Modernization and Performance Enhancement (appraisal estimate US\$11.0 million, of which US\$7.7 million was Bank financing; total actual cost US\$4.0 million, actual Bank financing US\$2.8 million). This component would support the Roads Sector Modernization Plan (RSMP) in the following key areas:

- improvement of the policy framework;
- modernization of engineering practices and business procedures;
- sustainable asset management;
- institutional and human resource development of the Public Works Department (PWD);
- enhancing governance & accountability in PWD; and
- preparation of a pipeline of feasible projects for implementation.

Component C: Road Safety Management (appraisal estimate US\$15.0 million, of which US\$10.5 million was Bank financing; total actual cost US\$9.2 million, actual Bank financing US\$6.3 million). This component would support the strengthening of road safety management systems in Rajasthan with the objective of



reducing the number of fatalities and serious injuries from traffic accidents in the state. This was to be accomplished through:

- Safe Corridor Demonstration Program (SCDP);
- the establishment of a Road Safety Strategy;
- road safety education and awareness programs;
- road safety audits; and
- procurement of road safety equipment and related training materials for some ongoing initiatives.

The project also included incremental operating cost of US\$1.5 million.

Note: The total actual cost by component is not available in the ICR. The project team provided this information to IEG.

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

Project Cost: The actual project cost was US\$177.6 million, significantly lower than the appraisal estimate of US\$227 million. The ICR does not explain the reason why the actual project cost was 22% lower than the appraisal amount. The project team clarified that this was due to: (a) the strong devaluation during project implementation which resulted in lowering the project cost by 8%; and (b) the cancellation of some activities some activities that further reduced the project cost by 14%.

Financing: The actual credit amount was US\$121.6 million, lower than the appraisal commitment of US\$160.0 million.

At the time of project preparation, the project received US\$3 million as a Project Preparation Advance (PPA). Since the PPA was scarcely used (disbursement of only US\$2,277) at the time of restructuring, the undisbursed amount was reallocated to Category 1 activities (works and goods) (ICR para 18 and Restructuring Paper para 8c).

Borrower Contribution: The actual borrower contribution was US\$56.0 million, substantially lower than the appraisal commitment of US\$67.0 million. The state govt did not utilize full IDA credit for this project. The total unutilized funds at the time of project closing was XDR.20.26 million (approximately US\$29 million considering the devaluation).

Dates: The project was approved on October 29, 2013 and became effective on March 10, 2014. The project closed on December 31, 2018 as planned.

Split rating: The PDOs remained unchanged, but changes were made to the results framework. The indicator "increased percentage of core network in good/fair condition" was dropped because of lack of data on the condition of road network. This is not a good indicator as it measures the condition of the core network and not the rural roads improved under the project. To measure the road sector management



capacity a new indicator “Road Asset Management System was Operational” was added. However, this is still an output indicator and not an outcome indicator. In the circumstances a split rating is not appropriate.

3. Relevance of Objectives

Rationale

Context: Rajasthan is one of the largest states of India, covering nearly 10% of the total area of the country and about 5% of total population. However, it is one of the the low-income states of India. At appraisal in 2013, its per capita income (US\$943) was about 20% lower than the national average (US\$1,185). Rajasthan had a state road network of 193,017 km, including 7,260 km of national highways, 10,953 km of state highways, 9,900 km of major district roads, 25,033 km of other district roads, and 139,871 km of village roads. Road density, was only about 60 km per 100 square km, lower than the national average of 110 km. About 75% of the State’s population was rural and mainly dependent on agriculture for livelihood.

The capacity of the Public Works Department (PWD) to manage the road sector was weak. The gaps in road investment planning, engineering practices, and business processes were found to be hindering the overall capacity of the PWD to handle the state’s road network. There was a need to revamp the overall PWD structure, processes and practices.

Road fatalities in Rajasthan were above national average: the number of persons killed per 100 accidents in Rajasthan roads was about 40 compared to a national average of 29, and the state ranked fifth in the total number of fatalities in 2011, contributing to 6.5% of all fatalities in India.

Previous Sector Experience: The Bank has had a long engagement in India’s rural road sector in Rajasthan through the multi-state national *Pradhan Mantri’s Gram Sadak Yojana* (PGMSY) program and the Rural Roads Project (PAD para 13). This engagement had been in response to a clearly identified need and the state government’s priority to increase connectivity in rural areas throughout the state. According to the PAD (para 15), this project would also have synergy with other Bank funded operations such as National Highways Inter-connectivity Improvement Project and Rajasthan Agriculture Competitiveness Project.

Alignment with Bank Strategy: The project objectives were consistent with the Country Partnership Strategy (for the period FY13-17) which focused on three engagement areas: Integration, Transformation and Inclusion. Connectivity of people living in rural areas would achieve the goal of inclusion.

The project objectives continued to be relevant throughout project implementation. At completion, the project objectives were fully aligned with the Country Partnership Framework (CPF) FY18–22 focus area “investing in transport and connectivity infrastructure as a growth enabler”. In addition, the project objective to “strengthen road sector management capacity of Rajasthan” was fully aligned with the CPFs pathway “strengthening the public sector” for “Hows” of the World Bank engagement (para 31).

Alignment with Government and Rajasthan State Government Strategies: The project was highly relevant to India’s development priorities as stated in the 12th Five-Year Plan (2012-2017). The plan emphasized: (a) improved connectivity of villages with population 250 and above, (b) upgrading all



highways and district roads to all-weather roads, and (c) building missing links between other villages. The project was expected to help Rajasthan in implementing PGMSY. One of the main objectives of this type of program was to connect habitations in villages to main corridors and economic centers, through the provision of better-quality and safer road infrastructure.

In response to the greater need for high-quality infrastructure and better rural connectivity, the Government of Rajasthan's Industrial and Investment Promotion Policy (2010) also promoted widening of the state highways and upgrading of the secondary network.

The relevance of the PDO is rated **high**.

Rating

High

4. Achievement of Objectives (Efficacy)

OBJECTIVE 1

Objective

Improve rural connectivity.

Rationale

Theory of Change: The Theory of Change (ToC) was not a requirement at the time of project preparation. Based on the information in the PAD, the ToC is retrofitted. The project was built on the premise or assumption that physical investments in the rural roads (construction) in Rajasthan in conjunction with piloting of cost-effective technologies for upgradation and maintenance of rural roads would improve rural connectivity. This was to be measured through the outcome indicator "increased share of rural population with access to an all-season road".

Outputs

- The project constructed 2,334 km of roads, slightly lower than the original target of 2,500 km.
- The intermediate indicator "Cost effective technologies piloted for road design and construction and upgradation/maintenance of existing gravel roads" was partially achieved, with 61 km completed at project closure compared to the original target of 100 km. An additional 67 km was completed at the time of the writing of ICR (ICR para 27).
- The project introduced a Project Assessment Tool (PAT) to the Project Management Consultant and the engineers at the Public Works Department. This tool was useful in increasing the frequency of senior engineers' site visits, thereby improving the quality of works. It also ensured better management of environmental and social safeguards and the health and safety of workers on site.



Outcomes

The project provided connectivity to 1,300 villages as targeted. At project closure, 80.8% of the rural population had access to an all-season road achieving the target of 81% (baseline was 67%).

Rating

Substantial

OBJECTIVE 2

Objective

Enhance road safety.

Rationale

Theory of Change: The establishment of a Road Safety Strategy, implementation of Safe Corridor Demonstration Program (SCDP) and road safety education and awareness programs, and building the capacity for road safety audits, was expected to improve road safety. This would be measured through a reduction in annual fatality count on the model road safety corridor.

Outputs

- The Road Safety Policy was prepared by the Road Safety Cell created under the project. The ICR reports (para 32) that some of the priority actions highlighted in the action plan were implemented but does not provide any details.
- Road safety audits were carried out for 1,025 km of project roads and roads linking the project roads.
- Road safety awareness campaigns were successfully implemented by non-governmental organizations (NGOs) (hired through the project) in different sub-regions (Jaipur, Udaipur, etc.). However, these were completed only a few months prior to the project closure.
- The intermediate indicator "Model road safety corridor(s) developed' was not achieved. The *Deeg-Alwar-Behror* section (114 km of State Highway 14) was selected for the Safe Corridor Demonstration Program (SCDP). The SCDP was one of the key project activities aiming at demonstrating the positive impact of adequate and site-specific road safety measures to reduce road accidents and fatalities. However, by project closure the associated works and goods had not been procured (ICR para 33).

Outcomes

Road safety was not improved. The outcome indicator "a reduction in annual average fatality count of road users on model road safety corridors' was not achieved. In 2018, the actual count of fatalities was 61, negatively exceeding the target of 30 (baseline was 46).

Rating



Negligible

OBJECTIVE 3

Objective

Strengthen road sector management capacity of Rajasthan.

Rationale

Theory of Change: The project would support the Roads Sector Modernization Plan (RSMP) through the improvement of the policy framework, modernization of engineering practices and business procedures, and institutional and human resource development of the Public Works Department (PWD). These activities were expected to strengthen the road sector management capacity of Rajasthan.

Outputs

- A report on Human Resources policies and procedures was developed in March 2017. By the time of the writing of the ICR, the key recommendations were under discussion.
- The Road Sector Policy was revised, and the Financing Strategy was developed. However, the Policy/Strategy has yet to be approved by the Cabinet.
- The 'Computerization of key business processes in the Public Works Department' was not completed.
- The development and deployment of the Road Asset Management System (RAMS) was not completed. The contract for the System Providing Consultant (SPC), responsible for the development of the system, was signed on August 2, 2018, just a few months before project closure. By project closure, the data collection services (network condition assessment required for the system development and use) had not been procured (ICR para 38).
- A report on modernizing the business practices of the Public Works Department was prepared by the consulting firm Deloitte in September 2017. However, the recommendations have not been implemented.
- An Integrated Financial Management System (IFMS) was adopted for the entire state.

Outcome

The project did not strengthen the road sector management capacity as most activities for achieving this objective were either not initiated or partially completed. The Road Asset Management System was not operationalized. New engineering and business procedures to strengthen the road sector institutional capacity were not adopted.

Rating

Negligible



OVERALL EFFICACY

Rationale

The project made a substantial contribution to improving rural connectivity throughout Rajasthan. However, the project was not successful in enhancing overall road safety and strengthening road sector management capacity of the state of Rajasthan. The overall efficacy is rated modest.

Overall Efficacy Rating

Modest

Primary Reason

Low achievement

5. Efficiency

Economic Efficiency: At appraisal, economic analysis was carried out on a sample of Phase 1 roads (513 roads covering 510 villages representing about 1227 km). The following benefits were considered: (a) increase in household income through agriculture and non-agriculture based activities; (b) additional employment benefits; and (c) traffic related benefits such as savings in Vehicle Operating Cost (VOC) and savings in travel time. Both the economic rates of return (ERR) and modified ERR (assumes that the returns from the investment only yield the opportunity cost of capital, both at 12%) were calculated along with associated Net Present Value discounted at 12% (EOCC). The base case ERR was 14% (PAD Annex 6 pages 66 and 69).

Ex-post ERR was calculated using the appraisal methodology and included the 2,400 km roads completed under the project. These roads provided connectivity to 1,300 villages. The ex-post ERR was 15.9%. The ICR (page 42) explains that although both the construction costs and maintenance costs increased about 20%; the benefits of value of time (VOT) savings decreased about 20%, and the benefits generated by additional employment decreased 3.3%; the drastically increased vehicle operating cost (VOC) savings of almost 80% and increased income per capita of almost 50% due to rural road connectivity resulted in better returns of the investment.

The ICR notes that about 70% of civil works were completed by January 2015, that is, within one year after contract signature, and about 90% of civil works were completed by March 2016, within two years of project implementation (ICR para 26).

Regarding Components B and C, which accounted for 12% of the total project costs, civil works experienced delays but were completed. However, the investments made in improving road safety management and in strengthening the institutional framework to modernize the sector were not achieved (because the Road Asset Management System was not operationalized; computerization of key business processes in the Public Works Department (PWD) was not completed; a report on modernizing the business practices of the PWD was prepared, however, the recommendations were not implemented), thus negatively affecting the overall efficiency of the project. (ICR para 11 and 43).

Overall, efficiency is rated **modest**.



Efficiency Rating

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	✓	14.00	0 <input checked="" type="checkbox"/> Not Applicable
ICR Estimate	✓	16.00	88.00 <input type="checkbox"/> Not Applicable

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

6. Outcome

The project objectives were highly relevant to the country and government strategies. The achievement of the first objective “improvement in rural connectivity” is rated substantial; while the achievement of the second objective “road safety enhanced” and the third objective “road sector management capacity of the state of Rajasthan strengthened” are rated negligible. The project efficiency is modest. Overall, the outcome is rated moderately unsatisfactory.

a. Outcome Rating

Moderately Unsatisfactory

7. Risk to Development Outcome

Institutional Risk. The risk that the achieved development outcomes will not be sustained is substantial. The project contributed to the improvement in rural connectivity. However, the road sector management capacity of the state of Rajasthan was not strengthened. The ICR notes (para 35) that the successful implementation of the new Road Asset Management System (RAMS) requires: (a) continuous dialogue with the relevant stakeholders (Finance Department, Public Works Department) to ensure their buy-in so that the introduction of the new system is not seen as an additional burden; and (b) the data collection services (network condition assessment) are functioning.

Financial Risk. The utilization of RAMs would also require allocation of appropriate maintenance budget. The maintenance budget needs were estimated at US\$800 million, compared to US\$278 million actually provisioned by the state. The current process for maintenance budget allocation is carried out by the Finance Department on a yearly basis without long-term planning. Consequently, the financial risk is high.



8. Assessment of Bank Performance

a. Quality-at-Entry

The project was designed to support the Government's PMGSY. It was fully aligned with the Bank and country priorities. The project preparation was inadequate. The project could have benefitted from additional preliminary studies to showcase the relevance of proposed project activities to achieve specific outcomes (such as the need to develop a proper Road Asset Management System) (ICR para 84). There was lack of endorsement by decision-makers. Most of the Project Preparation Advance was unspent. The safeguards identification was satisfactory. However, there were some shortcomings:

- The project design was inadequate. For example, the road safety component and related development outcomes could have been focused on rural roads only instead of highway corridors. The Road Sector Modernization Component required more implementation time and buy-in from key stakeholders.
- The results framework was weak. There was no indicator to measure the sub-objective "strengthening road sector management capacity".

Quality-at-Entry Rating

Moderately Unsatisfactory

b. Quality of supervision

The project had three different Task Team Leaders over the five years implementation period. Regular supervision missions including technical and site visits were carried out by the team and included transport experts as well as financial, procurement, and safeguards specialists, when necessary. The ICR reports (para 76) that the Aide Memoires were candid in documenting progress, delays, and challenges, as well as implementation progress and development outcome ratings.

The main shortcoming of supervision effort was the inaction regarding component 2 and 3. Even after the mid-term review identified that the achievement of the PDO was being adversely impacted by delays and non-completion of components 2 and 3, the team did not modify the scope of these components, changed the PDO, or extend the closing date.

Quality of Supervision Rating

Moderately Unsatisfactory

Overall Bank Performance Rating

Moderately Unsatisfactory



9. M&E Design, Implementation, & Utilization

a. M&E Design

To measure the first sub-objective “*improved rural connectivity*” the project included the following outcome indicators: (a) an increased share of rural population with access to an all-season road; and (b) increased percentage of core road network in good/fair condition as a share of the total classified network. The indicator “increased percentage of core network in good/fair condition” was not a good indicator as it measures the condition of core network and not the rural roads improved under the project. The project could have included international roughness index (IRI) for selected roads to demonstrate that good-quality roads were indeed provided through the project. It also included output indicators such as the number of rural people with access to an all-season road.

To measure the second sub-objective “*enhanced road safety*” the project included the following outcome indicator: a reduction in annual fatality count on model road safety corridors.

However, there was no outcome indicator linked to the third sub-objective “road sector modernization”.

b. M&E Implementation

The mid-term review found that it would take more time before the road asset management system under development would start to provide information on Rajasthan's road network condition (Amendment Letter to the Financing Agreement and Performance Monitoring Indicators page 3). Also, there was no existing data on the condition of the core road network. Therefore, the indicator “share of roads in good/fair condition” was dropped during restructuring (July 2017).

To measure the road sector management capacity a new indicator “Road Asset Management System was Operational” was added. However, this is still an output indicator and not an outcome indicator.

c. M&E Utilization

The ICR reports (para 65) that the project M&E findings were regularly shared with stakeholders through progress reports and the World Bank's Aide Memoires after each supervision mission. These reports contributed to the decision to restructure the project.

However, the M&E utilization had a major shortcoming. The increase in road fatalities during project implementation did not result in stronger actions by the client.

M&E Quality Rating

Modest

10. Other Issues

a. Safeguards



The project was classified as an Environmental Category “B” and the project was expected to have site-specific adverse environmental and social impacts. The following safeguards policies were triggered: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Forests (OP/BP 4.36), Physical and Cultural Resources (OP/BP 4.11), Indigenous Peoples (OP/BP 4.10), and Involuntary Resettlement (OP/BP 4.12). However, the degree of compliance with these safeguards is not properly addressed in the ICR.

Environmental Assessment (OP/BP/GP 4.01). The ICR does not report on the compliance with Environmental Assessment safeguards.

Natural Habitats (OP/BP 4.04). The PAD states (para 70) that the projects would not finance roads passing through designated protected areas, but the larger institutional development plan for the road sector in Rajasthan would need to address the issues of biodiversity management and appropriate strategies and mechanisms would have to be built into the institutional systems to ensure that the over-all network planning/development and road selection/construction takes into account such factors. Accordingly, the operational policies on Natural Habitats was triggered for the project.

The ICR does not report on the compliance with Natural Habitats safeguards.

Forests (OP/BP 4.36). The project encountered major issues relating to forest clearance. For the 26 roads requiring forest clearance (around 3% of total project roads), road works were initiated and completed before getting appropriate clearances for 8 roads (ICR para 56). This was in violation of the Bank’s policy. The Bank escalated this matter to higher level officials in the Department of Economic Affairs, Ministry of Finance; Principal Secretary, Public Works Department – Government of Rajasthan; Chief Secretary, Government of Rajasthan; as well as the Bank’s management. The ICR notes (para 71) that the Government of Rajasthan shall ensure that proper resolution is found, even if the project is closed.

Physical and Cultural Resources (OP/BP 4.11). The ICR does not report on the compliance with Physical Cultural Resources safeguards.

Indigenous Peoples (OP/BP 4.10). The ICR does not report on the compliance with Indigenous Peoples safeguards.

Involuntary Resettlement (OP/BP 4.12). The ICR notes that there were no major resettlement issues as most roads were built or upgraded in the right-of-way. Land acquisition was mainly handled through voluntary land donations (a common practice in Rajasthan). The mutation process (that is the actual transfer of the land title ownership and not just of the land use or destination) was difficult but was adequately managed through proper consultations with landowners (ICR para 70).

b. Fiduciary Compliance

Financial Management (FM): The ICR reports (para 73) that all audit reports were submitted, and the main concern raised in the reports was the lack of dedicated staff and financial management experts to handle financial management related issues.



Procurement: A procurement and contract management manual was prepared for the project (ICR para 72). Training on procurement was provided to procurement staff in all districts. There was lack of capacity in the Public Works Department to procure specialized equipment for the Police, Transport, and Medical Departments. Moreover, the coordination and collaboration with relevant departments was missing which led to the non-execution of a critical contract related to the deployment and installation of road safety equipment (ICR para 53). The works contract estimates were not based on market rate. This resulted in rebidding of one-third of the contracts (108 out of 328) (ICR para 54).

c. Unintended impacts (Positive or Negative)

d. Other

11. Ratings

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

12. Lessons

The ICR provided the following lessons (presented here with some minor modifications):

- **Lack of full endorsement of programs by the key decision makers at preparation can negatively affect project outcomes.** The introduction of new systems required endorsement from relevant stakeholders early on during implementation process to ensure ownership. For example, full operationalization of the Road Asset Management System (RAMS) did not occur by project closure because of the lack of buy-in from the Finance Department and the Public Works Department.
- **The implementation of efficient business processes is likely to benefit from additional preliminary studies.** Sound preparation before project approval with studies carried out to showcase the relevance of proposed activities to achieve specific outcomes (such as the need to develop a proper Road Asset Management System), is best practice. In-depth upstream discussions/workshops with the client – in particular the finance and technical departments, should also be considered for most projects.



- **The mutation process (that is the actual transfer of the land title ownership and not just of the land use or destination) for the donated land is difficult, so clear guidelines need to be developed.** Some commendable work was done in the project to make sure that the land ownership was legally transferred. This knowledge can be replicated in future projects in Rajasthan or possibly other states in India.

IEG's Lesson: To avoid cost and time overruns and contract administration issues, forest and other administrative clearances need to be in place prior to awarding contracts. The project experience shows that some of the road works were dropped due to forest clearance issues.

13. Assessment Recommended?

No

14. Comments on Quality of ICR

The ICR provides a candid analysis of the issues that affected project implementation and offers an insightful analysis of shortcomings at project preparation stage that affected the project's outcomes. It is results oriented and the quality of evidence is sound. Figure 2 is insightful as it highlights the major implementation gaps in what was achieved relative to the expectations. Overall, the quality of ICR is rated substantial.

- a. **Quality of ICR Rating**
Substantial