

India : Madhya Pradesh Rural Connectivity

1. Project Information

Project ID:	P000020	Instrument ID:	L0020A
Member:	India	Region:	Southern Asia
Sector:	Transport	Sub-sector:	Roads
Instrument type:	<input checked="" type="checkbox"/> Loan:140.00 US Dollar million <input type="checkbox"/> Guarantee	Lead Co-financier (s):	World Bank
ES category:	B	Borrowing Entity:	Ministry of Finance, India
Implementing Entity:	Madhya Pradesh Rural Road Development Authority (MPRRDA)		
Project Team Leader:	Anne Ong Lopez		
Responsible DG:	Rajat Misra		
Responsible Department:	INF1		
Project Team Members:	Jyosyula Siva Rama Krishna Sastry, OSD - Environment & Social Development Specialist; Liu Yang, Project Counsel; Rui Xiang, OSD - Financial Management Specialist; Guoping Yu, OSD - Procurement Specialist; Chang Tian, Project admin		
Completed Site Visits by AIIB:	Aug, 2018 Feb, 2019 Mar, 2021 Virtual mission with WB (lead financier): March 15-19, 2021 May, 2022 Virtual mission with WB (lead financier): May 4-29, 2022		
Planned Site Visits by AIIB:	Feb, 2023 planned from Feb 12 to 18		
Current Red Flags Assigned:	0		
Current Monitoring Regime:	Regular Monitoring		
Previous Red Flags Assigned:	0		
Previous Red Flags Assigned Date:	2022/06		

2. Project Summary and Objectives

The objectives of the project are "to improve durability and enhance resilience to climate changes of the gravel surfaced rural roads in Madhya Pradesh while building the capacity of the state to manage its rural road network and road safety". These objectives are expected to be achieved by upgrading the gravel surfaced roads to a sealed surface standard; providing additional road linkages to villages with potential for economic growth; enhancing the rural road asset management system; developing a road accident data management system and road safety improvement program; and supporting road design, construction/implementation, and road asset management. The objectives are aligned with the Bank's priorities of enhancing economic growth and sustainability through infrastructure investment.

3. Key Dates

Approval:	Apr. 11, 2018	Signing:	Jun. 24, 2018
Effective:	Jul. 17, 2018	Restructured (if any):	
Orig. Closing:	Mar. 15, 2023	Rev. Closing (if any):	

4. Disbursement Summary (USD million)

Contract Awarded:	456.00	Cancellation (if any):	0.00
Disbursed:	106.24	Most recent disbursement (amount/date):	0.63/Jan. 10, 2023
Undisbursed:	33.76	Disbursement Ratio (%) ¹ :	75.89

5. Project Implementation Update

Most ongoing activities are expected to be completed by March 2023 except primarily for Component C2 (i.e., engineering works on Safe Corridor Demonstration Programme, urban corridors, and blackspot improvement) which entails that the closing date may have to be extended to complete the remaining works. Nonetheless, the project progress is consistent with around 76.1% of the loan disbursed within 54 months of implementation. The progress of civil works remains satisfactory with respect to the provision of physical connectivity i.e., 91.80% of works completed under A1 and 79.14% of works completed under A2 in Component A. The progress on institutional strengthening activities and road safety particularly related to the pilot community participatory road safety program has been stepped up by the implementing agency to complete all procurement activities by March 2023.

Components	Physical Progress	Environmental & Social Compliance	Procurement
Component A: Component A.1: Road Upgrading, Construction and Maintenance (USD123.00 m)	As of Dec 31, 2022, 91.80% of the sanctioned length (10,277 out of 11,194 kilometers) has been completed. This progress includes 2,045 km (19.89%) which have been upgraded using waste plastic (about 6430.47 tons) technology.	Respirable Dust Monitoring: End-line assessment done on 96 roads. After BT, the dust concentration for the selected roads is below 100µg/m ³ for PM ₁₀ which is the limit prescribed by India Central Pollution Control Board (CPCB). Enhancements: Through consultation and involvement with the local communities during the execution of works, several small and local mitigation and environmental enhancement works have been implemented. They include (i) provision of ramps/extended approaches to utility centers; (ii) improvement of cattle troughs, wells, hand pumps, and other water sources; and (iii) safety	Total Packages: 742(11194 kilometers) Awarded Packages: 742 (11194 kilometers) Completed Packages: 492 (10277 kilometers)

¹ Disbursement Ratio is defined as the volume (e.g. the dollar amount) of total disbursed amount as a percentage of the net committed volume.

		<p>provisions within settlements and near sensitive receptors, amongst other provisions.</p> <p>Labor generated by construction: In the period between January 2018 and September 2022, the project has provided work to 45,098 laborers comprising 27,339 men and 17,719 women. No fatalities have been reported arising from construction works.</p> <p>Indigenous people: 326 roads with a total length of 716 km have been taken up across 61 tribal blocks, benefiting a total population of 122,135 people as per Census 2011 figures. Free Prior and Informed Consent (FPIC, WB) was conducted in these tribal villages and broad community consent was obtained. In 266 roads in tribal villages, enhancements in form of approach roads (7.8 km) connecting key infrastructures such as schools (toilet, kitchen, etc.); religious places, Anganwadi, primary health center, and Panchayat, have been provided.</p> <p>Women Self-Help Group in off-carriageway maintenance: Five roads totaling 16 km in three districts piloted. Five SHGs involving 54 women in three tribal districts are engaged and the experience has been very positive. Based on this success, MPRRDA is replicating this practice in two more packages in Dhar and also mainstreaming this in post-five and post-ten-year routine maintenance funded under state programs.</p>	
Component A.2: Provision of Alternate Connectivity (USD12.00 m)	As of Dec 31, 2022, 79.14% of the sanctioned length (425 out of 537 kilometers) has been completed. This includes 53 km using cement concrete and 19 km using waste plastic technology.	As above	Total Packages: 79 packages (537 kilometers) Awarded: 79 packages Completed Packages: 58 (425 kilometers)

<p>B. Institutional Development B1: Rural Roads Asset Management System (RRAMS)</p>	<p>7 Rural Road Network Management Units (RRNMUs) have been set up in Bhopal, Ujjain, Indore, Rewa, Jabalpur, Gwalior, and Sagar under MPRRDA for regional asset management planning and monitoring.</p> <p>The RRAMS system has been developed and all related trainings have been completed. The system is comprehensive, web-based and GIS-enabled. The application includes various modules i.e., Road Information System, Bridge Information System, Traffic Information System, Pavement Management System, Project Information System, Accident Information System, Right of Way Features Information System, Web-GIS, report module including Linear Referencing Management System and System Admin tools.</p> <p>Also, a mobile application for data collection and uploading has been developed.</p> <p>Pilot Data Collection on rural roads of about 5,000km length was completed and after necessary validation data has been uploaded to the RRAMS application. Further data collection for 18,000 km high volume roads is ongoing.</p>	<p>Improvements suggested to include environmental and social attributes in the RRAMS. Information/module on environmental aspects, including roads constructed using new technologies and alternative construction materials, proximity from environmentally protected areas like national parks and wildlife sanctuaries, avenue plantations, road furniture, etc. are incorporated in RRAMS.</p>	<p>A RRAMS consultant was engaged to study the gap between RRNMU and the existing rural roads asset management system; suggest a suitable and customized RRAMS that provides a systematic process for maintaining, upgrading, and operating assets; and assist MPRRDA in implementation.</p> <p>The consultant completed the project task and activities assigned in Nov 2022. Further 1-year warranty period is in progress.</p> <p>Procurement of data collection consultant is ongoing for 18000 km of high-volume roads. Bids were invited for 3 lots: One lot has been awarded and bids are being floated for 2 more lots. Procurement will be completed no later than March 2023</p>
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	<p>RRAMS application is currently deployed in test server and security auditing has been completed by the MAP_IT (State Data Centre), application hosting in Client server at MAP_IT is in progress.</p> <p>RRAMS's end-user training program, core application training and Annual Maintenance Plan preparation using HDM-4 are being conducted.</p> <p>Various reports such as Data Collection Strategy, Institutional Framework report, Maintenance Needs Report for year-1 and Project and Program Development Effectiveness Report etc. are prepared and submitted by the consultant.</p>		
<p>B2: Strengthening Design, Research and Quality Assurance Capacity</p>	<p>Strengthening design: A Design cell has been established at MPRRA.</p> <p>Professional expert from Center for Road Research Institute (CRR) New Delhi is engaged to conduct training on bridge and payment design. Payment design training was conducted in Nov 9-11, 2022. Remaining trainings on bridge and payment design are scheduled in Jan and Feb 2023.</p> <p>Research Capacity: There is a dedicated staff led by a chief</p>	<p>Training courses through reputable institutions are recommended in climate resilience, green technologies.</p>	<p>The procurement of design software is initiated through JAM to strengthen the design unit.</p> <p>The laboratory equipment list is finalized and bids are invited.</p> <p>All procurement activities under this component will be completed by January 2023</p>

	<p>engineer, and a full-fledged modern laboratory has been established.</p> <p>Training and Capacity Building: 92 experienced training faculty are enlisted. 15 training modules have been developed. Trainings have been imparted to 2,860 participants in 94 batches. Training needs analysis has been conducted on 1,379 staff members in 13 key functional areas.</p> <p>An E-learning management system (e-LMS) has been developed by MAP IT (state agency) and 6 modules have been uploaded on the website. Remaining 9 modules are in progress and will be uploaded on the website by mid-Feb 2023.</p>		
C. Road Safety Management Capacity Development C1: Development of Road Accident Database Management System (RADMS)	<p>Ministry of Road Transport and Highways (MoRTH) launched the IRAD (integrated road accident database) in January 2020 for all states (including Madhya Pradesh) and accident reports were generated for 1.30 Lacs until Nov. 30, 2022 by the police department through that system. Training on use of system also imparted by NIC to all concerned department on use of the system.</p>	<p>Consultations with relevant stakeholder agencies is being done to identify the additional roll-out requirements for the community mobile application.</p>	<p>MPPRDA opted to use MoRTH's IRAD with customization for Madhya Pradesh. MPPRDA has engaged a road safety consultant for all road safety activities including but not limited to customization of IRAD software for the state.</p>
C2: Pilot Comprehensive Road Safety Program (PCRSP) C2.1: Road Safety Engineering	<p>Dhar, Indore and Datia are identified as the pilot districts under the PCRSP. The implementation of different activities</p>	<p>Preparation of DPRs and Bid Documents was completed for (i) black spot improvement, (ii) model urban streets design for 3 cities/towns, and (iii) one road under SCDP. As per suggestion (i)</p>	<p>The PCRSP Consultancy firm was appointed in March 2021.</p> <p>Procurement of engineering works – (i)SCDP work</p>

<p>(Technical Assistance, Road Safety Engineering Interventions) C2.2: Enforcement (Technical Assistance, Equipment for Road safety Engineering) C2.3: Post-Crash Emergency Management (Technical Assistance, Equipment and Trauma Care Facilities) C2.4: Road Safety Education and Awareness</p>	<p>under the program are progressing. Work on Safe Corridor Demonstration Programme (SCDP), urban corridors and blackspot improvements are ongoing; district-wise comprehensive Road Safety Action Plans, road safety trainings and enforcement trainings were finalized; a campaign plan on road safety was rolled out; post-crash trainings for health workers were completed in Dhar and in progress in Indore and Datia.</p> <p>All activities under this component is expected to be completed by June 2023.</p>	<p>consultations with key stakeholders and environmental analysis/assessment for said works (scope varies for the three categories) were conducted and documented and, (ii) preparation of Environmental Management Plan were completed and shared with Bank, along with the necessary inclusion in the Bid Documents, as appropriate to the specific context. Scope of work has been done.</p> <p>Social Impact Assessment was conducted on SCDP and Urban Streets, including analyses of options to avoid/minimize impacts and consultations with all stakeholders particularly affected people and the broader community. All efforts were made to avoid/minimize impacts on assets – land, structures, and other property.</p>	<p>awarded (ii) urban corridors bids invited and received for one package (Indore and rest yet to be received) (iii)blackspot improvement-bids are being invited and all procurement will be completed by Jan 2023.</p> <p>All other procurement packages related to enforcement, awareness campaigns, and post-crash care are awarded. Procurement of medical equipment is in progress and procurement for enforcement equipment for police department is being taken up. All procurement will be completed by Feb 2023.</p>
<p>D. Design, Implementation and Project Management Support</p>	<p>Project Management Consultant (PMC) is in place since June 2017, and their services have been extended to support MPRRDA in project implementation. Project Implementation Consultant (PIC) was deployed in February 2018 to assist PIU and PMC for effective monitoring and enhanced coordination.</p> <p>As a project management tool, e-Marg is being used as a monitoring and payment gateway for the roads under different stages of maintenance. GEOREACH (geomatics-based rural roads enterprise application for connection</p>	<p>PMC support for MPRRDA relates to the following: Radio program: Jahan Pade Qadam Saavdhani Har Dum, an awareness program on Road Safety and COVID 19 – Health and Safety Measures for enhancing Self Protective Behavior for the staff and workers engaged in rural road construction sites.</p> <p>Behavior change communications: Communications around behavioral changes towards - better road maintenance, improved road safety, reduced road damages, avoided road congestions are being conducted in 5 roads of Dhar district.</p> <p>Education: Raising awareness to laborers and the communities on HIV/AIDS. Thus far, 41990 persons including 25347 males and 16643 females have been sensitized. 2950 Marg Mitras support the designated PIU officer to help keep the roads clean.</p>	<p>PMC is on board since June 2017 and their services have been extended until June 2023.</p>

	<p>habitations) is also used as an online monitoring system adopted by MPRRDA for monitoring the physical and financial progress of the project.</p>	<p>Labor participation: Contractors were sensitized on gender issues and it was suggested they employ women in road construction work.</p> <p>Students: Preliminary statistics show positively that MPRCP roads have provided confidence and opportunity for girls to bike to high school, in a broader spectrum it has scaled up the attendance level and also inspire more girls to continue with schooling. Data has been collected and consolidated for 3,805 roads. 83% girls are shifting from walking to biking.</p> <p>Enhancements: Developed a format to consolidate data and record the incurred cost in extending the facility of convenient mobility to the village.</p> <p>Training on Environmental, Health and Safety (ESHS) Management: 165 officials (Assistant Managers/ Designated Safeguard Officers/ consultants) have been trained on environmental management.</p>	
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Financial Management:

MPRRDA continues to provide timely and accurate financial information. Unaudited Interim Financial Reports are submitted in a timely manner to facilitate frequent drawdown of funds. Overall, the project progress is consistent with 76% of the loan disbursed. The external audit report for FY2020-21 has also been timely submitted with a clean audit opinion issued on the financial statements of the project. The report was deemed to be acceptable to WB and AIIB. The audited financial statement for FY 2021-22 with the original deadline for submission on Dec 31, 2022 has been overdue now, as informed by MPRRDA. However, the audited report is being finalized and expected to be submitted by February 2023. Project closing: Approximately two months remain in the project and progress is being monitored. Considering the slightly delayed progress of the activities in the C2 component (Pilot Community Participatory Road Safety Program), MPRRDA may need to extend the closing date to complete the remaining works. The Bank informed about the project closing procedures, the submission due date of the withdrawal application and the incurrence of the Project-related eligible expenditures. MPRRDA agreed to abide by the deadlines.

6. Status of the Grievance Redress Mechanism (GRM)

Grievances Redressal (GRM) cells are functional at the PIUs' level. All project villages have GRCs established. Thus far, the project has redressed all 318 grievances – of which 238 and 80 grievances have been resolved at PIU and village level committees respectively. Nature and type of grievances received include clogged drain, water logging,

culvert, issues relating to the contractor's work, theft of caution board, community clashes, etc.

7. Results Monitoring (please refer to the full RMF, which can be found on the last page of this PIMR)

The information was provided by the client on December 2022 as well as on Jan 10, 2023 during the project progress meeting with AIIB.

Remarks:

Project Objective Indicators	Indicator level	Unit of Measure	Cumulative Target Values															Frequency	Responsibility	Comments							
			Baseline		2018		2019		2020		2021		2022		2023		End Target										
			Year	Value	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Year				Target	Actual					
Annual maintenance cost per km	Project	USD	2018	1000	1000		0		0		750		750		750			750		Annual	MPRRDA and Supervision Consultants	The baseline value is derived from maintenance expenditure of sample gravel roads candidate for upgrading under the project. Actual maintenance expenditure is collected from completed project road after the first year of maintenance is completed on sample (about 10 percent) project roads. Gravel road maintenance INR 3.46 lac per km for 5 yrs. (i.e., 922 USD/yr); BT road maintenance INR 2.39 lac per km for 5 yrs (i.e., 637 USD/yr).					
Roughness index (m/Km)	Project	Meter	2018	7	7		3.2-3.7		3.5		2.67-3.78		3.5		2.67-3.78		3.5		2.67-3.78		3.5		3.5		Annual	MPRRDA	Data is collected from sample (about 10 percent) project roads before and after upgrading using a vehicle mounted roughness measurement device immediately before and after major monsoon season. These sample roads will represent the 10,000 km roads included under component A.1. Roughness conducted in 400 gravel roads of 52 districts where minimum 4.43 and maximum 14.68 IRI was recorded. After B.T. roughness conducted on 240 roads where minimum IRI 2.67

New road construction (multiple connectivity)	Project	km	2018			691				150	170	250	255	110			510	Quarterly	MPPRDA	New road construction completed for 425 km.
Length of roads on which alternative surfacing technology piloted	Project	km	2018				785	500	1108	1000	1889	600	2065				2100	Annual	MPPRDA and supervision consultants	Cumulative
Rural population connected by all-weather paved roads	Project	Number	2018	35,000,000	35,000,000		150,000	682,000	600,000	370,000	600,000	1,347,033	150,000	724,740			36,500,000	Annual	MPPRDA	Total population connected : 37,506,688
Percentage of high school girls shifting from walking to biking to schools	Project	Percentage	2018	10	10								83				80	Annual	Consulting firms and MPPRDA	Data has been collected and consolidated for 3805 roads.
Dust concentration in the ambient air along the Project roads	Project	Microgram /m3	2018	0	0		Baseline survey completed	0	PM10 measurement on bituminous road has been done. The end target to be fixed.	0	Maximum value was achieved in Neemuch 91.98, and Minimum was Khandwa 49.92, mean value of PM10=66.77	0		0			0	Once after each of the sample roads are completed	MPPRDA through a firm	End line assessment done on 96 roads. Maximum Value was achieved in Neemuch 91.98 and Minimum was Khandwa 49.92 and mean value of PM10 is 67.56 before BT. Maximum Value was achieved in Katni 76.61 and Minimum was Chhindwara 40.98 and mean value of PM10 is 57.34 after BT.

Number of Women's Self-Help Groups (SHGs) engaged in post construction maintenance contracts	Project	Number	2018	0	0			2	A tri-partite agreement is signed between PIU, SRLM (State Rural Livelihood Mission), and SHG.	5	5	5	5	5			Quarterly	MPPRDA	Self help groups identified and socio economic profiling of the two additional SHG group completed. Identification of remaining four SHGs with SRLM is in progress.
Number of women participating in road maintenance within SHG	Project	Number	2018	0	0			20	N/A	50	N/A	50	54	50			Annual	MPPRDA	
Rural roads asset management system developed	Project	N/A	2018	No comprehensive network based asset management system	No comprehensive network based asset management system		Procurement of system definer (SD) consultant for RRAMS advanced	Consultant for the gap analysis of RAMS is on board.	(i) SD consultant in place and defining the RRAMS system requirements; (ii) Procurement of System Pr	(i) RRAMS developed and data for 10,000 km of rural roads entered and RRAMS tested; (ii) Procurement	Consultant for gap analysis hired but could not be mobilized due to the challenges of Covid-19. TOR		RAMS developed and data for 5000 km of rural roads entered and RAMS tested	GIS based network data and information collected for about 116,000 km rural roads			Annual	MPPRDA	(ii) Procurement of data collection consultant being done. And bids invited for collection of data for 18000 km of high volume roads.
Design and research unit established in MPPRDA	Project	N/A	2018	No design and research unit in MPPRDA	No design and research unit in MPPRDA			Organizational structure, staffing plan and functional manual prepared	RCTRC (MPPRA) and design cell have been established in Walmi, Bhopal.	Design unit set up and becomes operational	List of activities for further strengthening of the design & research cell to be prepared		Ongoing process for software procurement, laboratory equipments, and e-LMS.				Annual	MPPRDA	A functional design and research unit is in place
Number of Gram Panchayats reporting on road traffic crashes	Project	Number	2018	0	0					100	N/A	400	N/A				Annual	Home Department, Traffic Police Directorate	Citizen App has yet to be developed under MORTH's IRAD.
Number of crash locations/blackspots/junctions/pedestrian facilities improved	Project	Number	2018	0	0					25		25	In the Pilot Phase total 3 districts have been taken Indore,				Annual	MPPRDA, Traffic Police	In total 16 black spots have been identified by PTRI in these

														Dhar and Datia.										districts. One SCDP in dhar and 3 urban street in each district. Bids are being invited for improvement of black spot. SCDP work awarded. 1 Urban Street work awarded. Bidding in process for 2 urban street works.
Number of MPRRDA's staff trained	Project	Number	2018	0	0		110	50	125	107	40	232	15	262	10				300	Annual	MPRRDA		43 trainings on engineering and quality aspects of rural roads have been conducted . With 30-35 staffs joining in each training, target is overachieved.	
Training on WB procurement policies, contract management and quality assurance	Project	Number	2018	0	0		50	30	25	30	25	60		110					100	Annual	MPRRDA			
Staff trained on environmental and social safeguards	Project	Number	2018	0	0		50	10	50	50		165							100	Annual	MPRRDA			
Staff in the new design unit trained on alternative design and construction technologies	Project	Number	2018	0	0		10	27	15	10				37 Staff trained in Hyderabad and more will be trained					25	Annual	MPRRDA			
Staff trained on design software	Project	Number	2018	0	0				25										25	Annual	MPRRDA		Training scheduled in Feb 2023.	
Citizen satisfaction index	Project	Number	2018	0	0		1.5				3.5	2.33			3.5				3.5	At mid-term	MPRRDA through a		Mid Term Satisfactor	

