### BASIC INFORMATION

#### A. Basic Project Data

<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID</th>
<th>Project Name</th>
<th>Parent Project ID (if any)</th>
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</thead>
<tbody>
<tr>
<td>India</td>
<td>P157141</td>
<td>Rajasthan State Highways Development Program II</td>
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<th>Estimated Board Date</th>
<th>Practice Area (Lead)</th>
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<td>18-Dec-2018</td>
<td>Transport &amp; Digital Development</td>
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<table>
<thead>
<tr>
<th>Financing Instrument</th>
<th>Borrower(s)</th>
<th>Implementing Agency</th>
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<tbody>
<tr>
<td>Investment Project Financing</td>
<td>Department of Economic Affairs, Ministry of Finance, Govt. of India</td>
<td>The State of Rajasthan</td>
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#### Proposed Development Objective(s)

The PDO is to build capacity for better management of state highways and to improve traffic flows on selected state highways in the state of Rajasthan.

#### Components

- Operationalisation of Rajasthan State Highways Authority
- State Highway Improvements
- Institutional Strengthening
- Road Safety
- Project Management Support
- Front End Fee

### PROJECT FINANCING DATA (US$, Millions)

#### SUMMARY

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Total Project Cost</td>
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<tr>
<td>Total Financing</td>
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<tr>
<td>of which IBRD/IDA</td>
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<tr>
<td>Financing Gap</td>
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#### DETAILS

World Bank Group Financing
The review did authorize the team to appraise and negotiate
B. Introduction and Context

Country Context

1. **During the past 20 years, Rajasthan has grown faster and achieved a greater poverty reduction than any other low-income state**. Rajasthan is India’s largest state in area (342,239 km, covering about 10 percent of total area of the country) and the seventh in population (approximately 75 million estimated in 2018, 5 percent of total population of the country). Its strong economic and social development performance reflects broad-based efforts towards policy reforms across sectors that have contributed to a more productive and diversified agriculture sector, higher investments in manufacturing, and substantial improvements in public service delivery. Over 2005-2012, Rajasthan’s poverty rate declined by 19.7 percentage points (from 34.4 to 14.7 percent), compared with the national decline of 15.3 percent over the same period. The state’s poverty reduction occurred in both urban and rural areas.

2. **The Government of Rajasthan has identified critical areas where the state has competitive advantage and has initiated several interventions and investments to exploit the full potential of agriculture and agro-based industries, mining and minerals processing, tourism, handicrafts and cottage industries.** These initiatives have been showcased at Investment partnership platforms such as Resurgent Rajasthan which have been instrumental in attracting private investment in many sectors including agriculture, manufacturing, IT, electricity, etc. The Government of Rajasthan’s plan to strengthen the productive sectors of the economy and maintain growth in the service sector will require sustained investments and rapid improvements including management of critical infrastructure such as roads, power etc.

Sectoral and Institutional Context

3. **A high-quality, sustainable road network with inclusive connectivity is essential to grow and diversify Rajasthan’s economic base of agriculture, manufacturing, and tourism, and to improve social services.** Rajasthan has a road network of 226,854 km, including 8,202 km of National Highways (NH), 15,438 km of State Highways (SH), 8,462 km of Major District Roads (MDR), 31,431 km of Other District Roads (ODR) and 163,320 km of Village/Rural Roads (data as of 2016). Overall road density in Rajasthan is relatively low, at 66 km per 100 sq km, compared to the national average of 148 km per 100 sq km, but this reflects the fact that nearly 40 percent of the state’s area consists of the Thar desert, with a very low population density. If the Thar desert area is omitted, the state’s average road density is about 100 km per 100 sq km, close to the national average, but still much lower than key states like Kerala, Punjab, Bihar, and Uttar Pradesh.

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1 Low-Income states in India include Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan and Uttar Pradesh.
2 About 75 percent of the state’s population lives in rural areas and depends on agriculture for its livelihood, however, contributing 24 % to state gross value added and manufacturing and services contributing about 30 and 45 percent respectively.
3 The state accounts for 10% of the milk, 35% of the wool and 10% of the meat produced in the country; it is the largest producer of wool and the 2nd largest producer of milk in the country (reference)
4 Rajasthan has about 65 varieties of minerals and accounts for more than 70% of India’s total mineral production (reference)
5 [http://resurgent.rajasthan.gov.in/](http://resurgent.rajasthan.gov.in/)
4. **State Highway development in Rajasthan is crucial to the success of national-level flagship programs.** The state has geographical advantage of being strategically situated near commercial and industrial hubs and ports. Nearly 39 percent of the Western Dedicated Freight Corridor (WDFC) passes through the State of Rajasthan, and about 60 percent of the State’s area falls under the project influence zone of the Delhi – Mumbai Industrial Corridor (DMIC), which makes Rajasthan an attractive destination for setting up industrial and support infrastructure units. In addition, 20 percent of the strategic network under the Government of India Bharatmala Pariyojana7 to improve efficiency of road traffic movements across the country, traverses the state. Timely improvement of the strategic state highway network (acting as feeder corridors) in the state would reduce the transport cost of interstate freight movement which render the state a preferred inland transit, thereby improving the competitive economic advantage that comes with the implementation of GST.

5. **Government funding of the road sector in Rajasthan is relatively low including continued trend of underfunding of ordinary maintenance relative to capital expenditures and is constrained by structural factors.** Though the Government of Rajasthan has been endeavoring to increase the budgetary support for the road sector in recent years, however, the expenditure on roads as a percentage of public expenditure in 2013-14 was 5.6 percent, twelfth out of a sample of fifteen states8, where the shares ranged from a high of 11.6 percent in Jharkhand to a low of 3.2 percent in Punjab. Financing of the road sector is dependent on the vagaries of yearly budgets and releases from the state treasury and the GoI. The allocations can vary significantly from year to year, making it difficult to undertake multi-year planning and asset management. In addition, there is no dedicated funding for road maintenance, nor is there a network-based system for efficient allocation of resources between asset creation and maintenance. Routine and period maintenance are carried out largely on an ad hoc basis through force accounts or small maintenance contracts, driven mainly by urgency rather than structured decision-making. In FY15-16, the budgetary allocation for non-plan expenditure was INR 450 crore (US$ 70 million) which addresses only 10% of the maintenance requirement. The Rajasthan State Road Fund (SRF), established under the Rajasthan State Road Development Fund Act 2004 and funded by a cess on motor fuels9, focused only on development of roads and did not have the mandate to cover their maintenance initially. The SRF has served primarily as a source of viability gap funding10 for Public-Private Partnerships (PPPs) in state highways. Finally, all money collected under Rajasthan’s Motor Vehicle Taxation Act accrues to the State’s consolidated fund. As a result of these factors that have contributed to years of under-investment in maintenance, many of the SHs and MDRs are in poor condition in terms of riding quality, geometry, pavement strength, drainage, and safety standards.

6. **Prospects for traditional toll-based PPPs are limited.** Rajasthan was one of the first states in India to engage the private sector to finance highways. Through the PWD, the Rajasthan State Road Development and Construction Corporation Ltd. (RSRDC)11, and the Road Infrastructure Development Company of Rajasthan

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7 It is an ambitious umbrella highway development project that focuses on optimizing the efficiency of road traffic movements across the country by bridging critical infrastructure gaps and improve Logistics Performance Index, creates jobs and provide an impetus to economic growth. Under phase 1 of this massive program, a total of around 34,800 km of roads at an investment of over INR 5.35 trillion would be constructed by 2022.
8 Road Sector Policy Study by ECORYS under RRSMP.
9 Rs. 1.75 per liter on petrol and Rs. 1.25 per liter on diesel.
10 Viability Gap Funding (VGF) is an approach in which a government grant is provided to support an infrastructure project that is economically justified but falls short of financial viability due to factors such as a long gestation periods and/or the inability to increase user charges to commercial levels.
11 RSRDC is government owned enterprise established under the Companies Act for undertakes works related to roads, bridges and buildings.
To support this huge investment in roads, the new agency—Rajasthan State Highways Development Authority (RSHA)—was created under the Rajasthan State Highways Act of 2014 as a corporate body for management of the state’s strategic road network with greater efficiency, accountability, autonomy and sustainability. The Act provides power to the Authority to regulate traffic and take other measures to improve safety and smooth flow of traffic on the highways.

9. **To focus on strategic network in the state, Government of Rajasthan launched Rajasthan State Highway Development Program (RSHDP) in FY14-15.** RSHDP is an ambitious plan of developing 20,000 km of state highways and major district roads through PPPs, requiring US$3 billion investment for the entire development. In the first phase of the program, 139 priority road corridors with a length of 9,038 km—selected on the basis of traffic levels and viability for private capital investments were identified. To support this huge investment requirement, state government has sought assistance from multiple development partners such as World Bank, Asian Development Bank, and Malaysian companies through CIDB Holdings (through Swiss Challenge Mode) which will be implemented under multiple phases. The feasibility studies for all these roads have revealed that the

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12 RIDCOR is a company developed as a joint venture between the Government of Rajasthan and Infrastructure Leasing & Financial Services Limited (IL&FS) in 2004 to implement ‘Mega Highways Project’ in the State.
traditional BOT-Toll PPP model would not be commercially viable and amenable for these corridors due to low traffic densities. However, there is potential to harness private investment and operational efficiencies in developing and operating such corridors through innovative models such as the EPC\textsuperscript{13} and hybrid-annuity.

10. **Despite efforts made in recent years including dedicated road safety fund\textsuperscript{14}, road safety remains a challenge in Rajasthan, as elsewhere in India.** Rajasthan is placed among the top ten worst performers in road safety in India, with 13.7 persons killed annually per 100,000 population.\textsuperscript{15} Although the state reported a slight reduction in road fatalities over the past two consecutive years, 2016 and 2017, a total of 22,112 crashes were recorded in 2017 in which 10,444 persons died and 22,071 sustained injuries. As per the 2016 accident data, the fatality rates for two-wheelers (including bicycles) of 29 percent and pedestrians of 8.6 percent indicate the vulnerability of these road user groups. According to the road safety management capacity review for the state conducted in 2017 under the Bank-financed RRSMP, the key systemic problems identified include absence of proper recording of crash data and scientific crash investigation leading to ad hoc road safety investment with limited outcomes on the ground, inconsistent speed limits or no speed limits, and lack of integration of infrastructure improvement with institutional and educational elements to maximize the synergies among interventions. In addition, institutionally road safety responsibilities are fragmented which leads to unclear accountability for results.

**C. Proposed Development Objective(s)**

Development Objective(s) (From PAD)

11. The PDO is to build capacity for better management of state highways and to improve traffic flows on selected state highways in the state of Rajasthan.

**Key Results**

12. The PDO indicators are as follows:

   (i) **Build capacity for better management of state highways:**
   
   • State Highways actively managed by RSHA
   
   • Share of State Road Fund resources earmarked for state highways

   (ii) **Improve traffic flows on selected state highways:**
   
   • Average travel times on project highways
   
   ▪ For heavy trucks
   
   ▪ For cars

**D. Project Description**

13. In order to provide incentives for achieving results, especially with regard to the modernization of highway

\textsuperscript{13} EPC is a contracting arrangement in which the contractor is responsible for design, procurement, construction, commissioning and handover of the project to the end-user or owner. This form of contract is covered by the FIDIC Silver Book.

\textsuperscript{14} Road safety initiatives have included state-wide education and awareness campaigns, training of police on enforcement, black spot improvements, and e-challan, a digital traffic enforcement system.

\textsuperscript{15} Population data used from the Census projections and accident data taken from MoRTH.
management, the lending instrument will be Investment Project Financing (IPF) with disbursement-linked indicators (DLIs). The totality of the US$250 million loan will be disbursed based on achievement of results linked to the DLIs (in addition to Statements of Expenditures).

14. The project will have six components:

**Component 1: Operationalization of the Rajasthan State Highways Authority**

15. The Project will support operationalization of the Rajasthan State Highway Authority (RSHA)\(^\text{16}\), in accordance with the provisions of the Rajasthan State Highways Act, 2014. The goal is to transform the management of the strategic road network through operationalizing a corporatized and efficient State Highways Agency in a manner to be accountable to the public for the services it delivers. The project will support activities including but not limited to institutional development including organizational structure and governance, human resource management framework, financing framework, corporate governance framework, accountability framework and procurement and contract management framework including environment and social safeguard management functions.

**Component 2: State highways improvements**

16. The project will support construction/upgrading/improvement of 766 km of state highways and major district roads at an estimated cost of US$398 million through two contract approaches explained below:

   a. **Subcomponent 2A: Upgrading and Maintenance through EPC Contracts.** This subcomponent will support civil works under EPC contracts for widening/upgrading/improvement of approximately 472 km of existing state highways and major district roads to two-lane/four-lane with granular/paved shoulders, including formation, realignment, new structures and pavement strengthening, fibre optic ducting, safety improvements, plus maintenance for a five-year period after the construction, while applying social and environmental safeguard measures.

   b. **Subcomponent 2B: Supervision of EPC Contracts.** This subcomponent will finance the services of one or more firms as “authority engineers” for supervision of EPC contracts.

   c. **Subcomponent 2C: Upgrading and Maintenance through PPP – Hybrid Annuity Mode.** This subcomponent will support civil works under PPP-Hybrid Annuity Mode (HAM)\(^\text{17}\) contracts for widening/upgrading/improvement of approximately 294 km of existing state highways and major district roads to two-lane/four-lane with paved shoulders, including formation, realignment, new structures and pavement strengthening, introducing intelligent transport solutions (ITS), safety improvements, applying social and environmental safeguard measures plus operation and maintenance for a period of ten years. The concession

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\(^{16}\) To help design this component, an institutional capacity assessment was undertaken by the Bank team in collaboration with the client, based on the “Institutional Development Routemap” (IDR) tool developed to promote a more programmatic, outcome-based approach to institutional development across WB financed transport projects.

\(^{17}\) Under the HAM contract, about 40 percent of the investment costs (including construction and financing) are met by government milestone construction payments, while the remaining share is met through private investment through debt and/or equity, which, in turn, is repaid by the government through semi-annual annuity payments to the developer over the life of the concession period. The developer also receives a regular Operations & Maintenance (O&M) payment which is subject to non-performance deductions if the road is not maintained to specified standards. The private party does not have to bear traffic and inflation risks.
will leverage private financing equivalent to about US$45 million in capital investment and O&M costs.

d. **Subcomponent 2D: Supervision of HAM Contracts.** This subcomponent will finance the services of one or more firms as “independent engineers” for supervision of HAM contracts.

e. **Subcomponent 2E: Piloting Digital Highways.** With the aim of making state highways safer and smarter, this subcomponent will finance the piloting and demonstration of the concept of Digital Highways [of approximate length of 100 km] through design and implementation of Intelligent Transportation System (ITS) applications in selected project highways such as Toll Management Systems and Control Center, Incident Detection and Management Systems using CCTV cameras, Variable Message Signs, Speed Management Systems using ANPR (license plate recognition) Speed Cameras, and Solar-powered Animal Crossing Warning System, among others.

**Component 3: Institutional Strengthening**

(i) **Subcomponent 3A: Strengthening Business Processes and Systems.** The project will finance:

a. The development of an online project management system (e-PMS), together with a companion smartphone application, to handle contract management, data reporting, quality control, invoicing, payments, and financial reporting electronically on a web-based platform.

b. The development of an online management information system for the implementation of Resettlement Action Plans (e-RAP), with the aim to enhance the transparency and accountability of the process. The geo-referenced MIS and a companion mobile app will be designed to track the progress of resettlement on a real-time basis and help project authorities to make informed decisions based on in-time evidence from the field.

c. Provision of training for PIU and PMU staff on these tools.

(ii) **Subcomponent 3B: Road Asset Management System and Network Planning Tool.** The project will finance

(i) the implementation of the road asset management system (RAMS) in RSHA and PWD being developed under the ongoing Bank-financed Rural Road Sector Modernization Project (RRSMP); (ii) the development of a linked system for future highway network expansion/upgrading and corresponding investment plans based on transport demand modeling; and (iii) strengthening the existing asset management cell in PWD and RSHA, including training, communication, and knowledge exchanges with other states and countries.

(iii) **Subcomponent 3C: Citizen Engagement and Accountability Mechanisms.** The project will finance the following mechanisms for citizen engagement and accountability:

a. A comprehensive communications strategy for all project beneficiaries and affected persons to be kept informed of activities and issues that concern them.

b. A Grievance Redressal Mechanism (GRM) to deal with problems raised by affected persons and serve as a conduit for soliciting inquiries, inviting suggestions, and increasing community participation.

c. User Satisfaction Surveys to obtain feedback on citizens' perceptions of the adequacy and efficiency of services provided under the project. The surveys will be administered three times during the life of the project: in year one to establish baseline, in year three to feed in to the mid-term review, and in the last year of the project to generate end-line data.
(iv) **Subcomponent 3D: Capacity Building.** The project will finance a program of training and capacity building for PWD and RSHA staff including international and domestic training course, study tours, workshops, international exposure visit, and knowledge exchanges.

**Component 4: Road Safety**

17. The road safety component will take a multi-sectoral approach to building the state’s capacity for road safety management, using both proactive and preventive methods.

(i) **Subcomponent 4A: Road Accident Database Management System (RADMS).** This sub-component will provide support to the Government of Rajasthan in developing and operationalizing a Road Accident Database Management System (RADMS) anchored at the Police Department with the capability of community-based road accident reporting and linkages with RAMS.

(ii) **Subcomponent 4B: Streamlining and Piloting Speed Management.** This sub-component will support the following activities: (i) Undertaking a study of existing speed management practices and prepare comprehensive guidelines on speed management including recommendation on investment in relevant engineering measures, ITS and speed enforcement; and (ii) piloting of speed management along selected high-risk corridors (approx. 100kms in length).

(iii) **Subcomponent 4C: Road Safety Strategy and action plan** this sub-component will support (i) road safety performance survey for selected high-risk state highways (about 500km); (ii) developing a long-term road safety strategy and multi-year action plan based on the safe systems approach.

(iv) **Subcomponent 4D: Improved approach to Black Spots.** This sub-component will support (i) an exercise to re-assess existing approaches to black spot improvements, (ii) prepare a guideline on prioritizing investment to improve black spots, and (iii) piloting improvement works for about 20 high priority black spot locations.

**Component 5: Project Management Support**

(i) **Subcomponent 5A: Project management for operationalizing RSHA.** The project will finance consultants, studies, and incremental operating costs for the RSHA Cell that will implement the activities related to Component 1, operationalization of the RSHA.

(ii) **Subcomponent 5B: Project Management for PWD.** The project will finance consultants, studies, and incremental operating costs for the PPP Division of PWD to implement Components 2, 3 and 4 of the project, including (i) financial management, procurement, and safeguards; (ii) data collection and reporting for monitoring and evaluation; and (iii) financial audits.

(iii) **Subcomponent 5C: Project Management Consultant.** This subcomponent also will finance the services of a Project Management Consultant (PMC) to provide technical advice and implementation support to PWD, to implement the project efficiently within the agreed timeline, budgeted cost and in full compliance with the Bank guidelines and applicable state acts, rules and regulations.

(iv) **Subcomponent 5D: Independent Technical Audits and DLI Verification.** The project will finance the
services of an independent Technical Audit Consultant (TAC) to perform an annual Integrated Performance Audit covering, *inter alia*, engineering designs, management of social and environmental issues, procurement, quality assurance, contract management, compliance with loan and contract conditions, works supervision, and verification of the achievement of DLIs to trigger disbursements.

**Component 6: Follow on projects preparatory activities:**

18. The project will finance activities that the government will undertake to prepare follow on operations that GoR envisages to be financed by from different sources including the World Bank. These activities include studies, designs, related knowledge and experience sharing.

**Additional Initiatives:**

19. **Gender equality and the needs of differently abled persons.** Potential gender-related interventions under considerations; include gender audits for road designs and security enhancements for women and girls at bus stops and other locations18. The project will work with PWD to ensure the constitution of Internal Complaint Committee as mandated by the national law to combat women’s sexual harassment at their work places, in this case construction sites, workers’ camps, site offices of contractors and consultants. With regard to differently abled persons, designs adjacent to built-up areas as well include facilities such as access to and from the road proper ramps at bus stops, etc.

20. **Maximizing Finance for Development (MFD):** The project incorporates MFD elements in two areas: (i) mobilizing private capital through a hybrid annuity PPP model on five highway upgrading subprojects of 294 km in length. Once successful financial close is achieved in the HAM state highways contract, the project will leverage around US$45 million in private financing; and (ii) operationalizing a corporatized highway agency with a mandate to mobilize commercial capital leveraging public resources at its disposal.

21. **Climate Change Mitigation and Adaptation.** Rajasthan is located in the hottest climatic zone of India, with two thirds of its area comprising the Thar desert, which is exposed to intense solar radiation and high wind velocity. The state has the maximum vulnerability and lowest adaptive capacity to climate change challenges.

   a. **Adaptation (Resilience):** Based on the result of climate screening, the project design will incorporate measures, to the extent possible, to address the risks of climate vulnerability particularly related to high temperature, flooding and scarcity of water resources. The project design will incorporate measures including but not limited to use of asphalt grade VG 30 to withstand high temperature and embankment protection, design sub surface drainage layer, installation of equalizer cross drainage structures on selected project corridors in the south west region of the state for flooding. As construction uses a significant amount of the same shared scarce resource, the project design will to the extent possible, consider specifications that requires the minimum amount of water, more importantly the design will look at the adjacent catchment and design outflows from the road drainage system to convey it to the lowest point to harvest storm water for use by the community around, animals and wild life.

   b. **Mitigation - Green Highways Approach:** The project will mainstream wherever feasible along the project

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18 These include identification of the safest locations, provision of lights, wearable panic buttons to obtain help, and informing public transport times through simple apps to minimize waiting times at bus stops.
highways, the green highways approach given the potential in Rajasthan where abandoned mining wastes could be improvised and incorporated in the earthworks and pavements as appropriate. The approach includes resource efficiency and sustainability measures from a menu of options such as pavement recycling, use of local materials, recycled aggregates, use of innovative materials, plantations along the corridor, soil and water conservation, new technologies, and energy-efficient lighting.

22. **Citizen’s Engagement**: the project mainstreams citizens’ engagement in two areas (i) reporting road traffic accidents in rural areas, through a simple-to-use smart phone app. The report will be a feed to the RADMS developed under Component 4 – Road Safety. (ii) participating in the baseline, midterm and end line stage user satisfaction surveys, to capture users’ perception of the positive/negative changes the project brings about.

E. Implementation

Institutional and Implementation Arrangements

23. **Component 1, Rajasthan State Highway Authority.** For operationalizing the RSHA, including RSHA’s asset management and planning functions, RSHA Cell has been established. This Cell will report to the RSHA Board on day-to-day basis and periodically report to the State Empowered Committee on Infrastructure Development which is headed by the Chief Secretary of the State. The RSHA Cell will consist of an experienced team of individual (internal and external) experts which will work closely with the current Board members and other stakeholders, in accordance with the Act, and will provide day-to-day implementation support to be Board.

24. **Components 2, 3, 4, 5 and 6.** PWD’s PPP Division will be the implementing agency for the remaining components of the Project. The PPP Division has adequate skills in conventional road engineering, but its capacity will need to be considerably strengthened in environmental and social safeguards, road safety, and to some extent procurement and FM. The PPP Division is headed by an Additional Chief Engineer and has 37 engineers of various grades in the head office. The implementation of the project at the field (District) level will be the responsibility of nine Project Implementation Units (PIUs), each headed by an Executive Engineer supported by Assistant Engineers. The highway works contracts will be monitored by experts of an Independent Engineer for the HAM contracts and an Authority Engineer for the EPC contracts, under the guidance of the Project Director.

F. **Project location and Salient physical characteristics relevant to the safeguard analysis (if known)**

The project will be implemented in the state of Rajasthan, a state situated in the north-western part of India. It is the biggest state in the country of India and lies between 23°30' and 30°11' north latitude and 69°29' and 78°17' east longitude. This north-western state is the largest Indian state with an area of 3,42,239 sq. km. comprising 11 percent of the total geographical area of the country. The state stretches length-wise 869 km. from west to east and 826 km. from north to south. The Tropic of Cancer passes through its southern tip in Banswara District. Administratively, the state is divided into 32 districts.

Environment - Rajasthan houses the biggest Indian desert - 'Thar', which covers roughly 70% of the state's area. The oldest chain of fold mountains - the Aravali Range splits the state into two geographical zones - desert on one side and forest belt on the other. Other topographic features in the state includes rocky terrain, rolling sand dunes, some wetlands, barren tracts or land filled with thorny scrub, river-drained plains, ravines and wooded regions. While only 9.5 percent of the total area is classified as forest, there is a
diversity in the flora and fauna (including avifauna) found in the state owing to the varied topography. Rajasthan is known for its wildlife sanctuaries and national parks in India. The state experiences extreme climate with an average annual rainfall less than 25 cm. Rajasthan has about 65 varieties of minerals. There are large deposits of zinc and copper and these are being exploited for the development of industries dependent on these metals. The state also has large deposits of gypsum, lignite and mica. It has a large production of cotton and the textile industries. Among the other industries, cement, ball bearings, sugar, caustic soda and other chemicals operate in Rajasthan. The state is known for its traditional and colorful art and is famous for textile, semi-precious stones and handicrafts. Social -

G. Environmental and Social Safeguards Specialists on the Team

Mridula Singh, Social Safeguards Specialist
Neha Pravash Kumar Mishra, Environmental Safeguards Specialist

<table>
<thead>
<tr>
<th>SAFEGUARD POLICIES THAT MIGHT APPLY</th>
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<td>Safeguard Policies</td>
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<tr>
<td>Environmental Assessment OP/BP 4.01</td>
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<tr>
<td>Performance Standards for Private Sector Activities OP/BP 4.03</td>
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<tr>
<td>Natural Habitats OP/BP 4.04</td>
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to address the issue of wildlife crossings (outside the protected domains - accidents with Blue bulls have been fatal/serious) in some stretches in the interest of road user safety and environmental sustainability. Appropriate strategies and mechanisms will have to be built into the project design to ensure that the over-all network development and road construction takes into account this factor.

| OP/BP | Description | Action
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<tr>
<td>Forests OP/BP 4.36</td>
<td>It is likely that some sub-projects would require diversion of forest land and/or may impact avenue plantations that have been notified as 'protected forest' under the regulatory regime of the state.</td>
<td>Yes</td>
</tr>
<tr>
<td>Pest Management OP 4.09</td>
<td>OP 4.09 is not being triggered for this project as no major biological/environmental control methods or reliance on synthetic chemical pesticides is not envisaged under the project.</td>
<td>No</td>
</tr>
<tr>
<td>Physical Cultural Resources OP/BP 4.11</td>
<td>Implementation of sub-projects is likely to affect religious structures of local significance. Also, since civil works are involved, ‘chance finds’ at work sites is a likely impact that will have to be managed by incorporating appropriate provisions.</td>
<td>Yes</td>
</tr>
<tr>
<td>Indigenous Peoples OP/BP 4.10</td>
<td>The project will not have an impact on villages that may fall within the purview of Schedule 5 and on Schedule Tribal households.</td>
<td>No</td>
</tr>
<tr>
<td>Involuntary Resettlement OP/BP 4.12</td>
<td>The project has carried out social impacts assessment of 3 corridors. For which a Resettlement Policy Framework will be prepared to comply with the Right to Fair Compensation and Transparent land acquisition and Rehabilitation and Resettlement Act 2013 and World Bank Operational Policy 4.12. The RPF provides the guidelines to carry out the SIA for subsequent 9 corridors. Government and private land will be transferred and acquired, respectively. Mitigation plans covers all categories of affected including the encroachers and squatters. Rajasthan being sparsely populated, the numbers affected will be limited and concentrated at large settlements along the road. The SIA covers gender analysis to influence the designs for safe and secured mobility of women, physically challenged people, children and old and infirm. The mitigation plans prepared includes action plans to address risks associated with HIV/AIDS. Moreover, assessments will be undertaken to prepare preventive/mitigation plans for the likely risks associated with increase in human</td>
<td>Yes</td>
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traffic. The Assessment will be undertaken for construction induced impacts including influx of labour during construction period to develop appropriate action plan. The proposed project will support systems development for Citizen Engagement and grievance management.

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<thead>
<tr>
<th>Safety of Dams OP/BP 4.37</th>
<th>No</th>
<th>OP 4.37 is not being triggered for this project as there is no construction of new dams or activities that are concerned with safe functioning of existing dams.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects on International Waterways OP/BP 7.50</td>
<td>No</td>
<td>OP 7.50 will not be triggered for this project as there are no interventions planned/proposed over or around an international waterway that could cause a potential conflict. There are also no activities that may affect the use or pollute such a waterway.</td>
</tr>
<tr>
<td>Projects in Disputed Areas OP/BP 7.60</td>
<td>No</td>
<td>OP 7.60 is not being triggered as the project is not proposed in any disputed area.</td>
</tr>
</tbody>
</table>

**KEY SAFEGUARD POLICY ISSUES AND THEIR MANAGEMENT**

**A. Summary of Key Safeguard Issues**

1. Describe any safeguard issues and impacts associated with the proposed project. Identify and describe any potential large scale, significant and/or irreversible impacts:

**Key Environmental Issues/Concerns.**

Overall, the project is expected to promote socio-economic benefits for the state/region and extend opportunities for transformation to the wider rural population through improved and safer highway connectivity. However, the proposed project interventions, particularly those proposed under Component 2 are also likely to create some local level adverse environmental impacts during the construction stage.

One key area of concern pertains to stress on already limited water availability in the areas where investments are planned under the project on account of construction requirements. Other potential adverse impacts include: (i) felling of some limited number of roadside trees; (ii) effects on water quality from camp/plant site discharges during execution of works; (iii) impacts on sensitive receptors (such as education and health facilities); (iv) construction phase impacts, including those related to camp/plant site operation, occupational health & safety issues, dust generation and pollution from plants/machinery/vehicles; (v) inappropriate disposal of debris/other construction wastes; (vi) lack of proper management of materials (such as aggregates, sand, and earth) and; (vii) safety issues during the construction phase and due to increased traffic speeds during operation for both road users and roadside residents.

While the adverse impacts are likely to be fairly limited in the local context, the exact nature and magnitude of impacts will vary in accordance to the location and type of proposed engineering intervention. In view of the project's potential impacts on the environment, Bank's OP 4.01 on Environmental Assessment and OP 4.11 on Physical Cultural
Resources have been triggered, and the project is designated as Category B.

Diversion of some forest land may be required for widening/spot improvement in some cases. The exact area required for diversion can be ascertained after designs for all sub-projects are finalized. While no civil works will be financed under the project on roads passing through designated protected areas, the sub-project designs would need to address the issue of wildlife crossings (outside the protected domains such as that of Blue Bull) in some stretches. Accordingly, OPs on Natural Habitats (OP/BP 4.04) and Forests (OP/BP 4.36) have also been triggered for the project.

Appropriate strategies and mechanisms will have to be built into the sub-project design and institutional systems to ensure that the over-all network planning/development and road construction takes into account the identified issues and provides for requisite management measures. For the sub-projects that have been designed so far (five out of the eleven corridors under sub-component 2A), appropriate mitigation plans have been prepared and integrated into the relevant documents (such as Bidding Documents and ToRs for supervision consultants).

Social Safeguards

The project proposes to widen and upgrade about 765 km of roads and is expected to have broadly positive social impacts in terms of improved access, reduction in travel time, and road safety. The most significant negative impact would be in relation to the loss of land, structures, livelihoods and access for affected persons.

A total of approximately 269 hectares of land are to be acquired for 11 project corridors. Loss of land, structures, related livelihoods and access would be the primary impacts due to land acquisition. Government land would also have to be acquired and would be done separately. Social Impact Assessments are being done for all proposed corridors and a Resettlement Policy Framework has been developed to guide the SIA for remaining corridors and manage other related social impacts. The project would also have impact on women and other vulnerable groups, especially related to mobility and safe transport. The project would undertake relevant assessments and appropriate interventions would be designed accordingly.

In view of the project's potential impacts, the Bank's OP 4.12 on Involuntary Resettlement has been triggered and appropriate mitigation plans has been prepared.

2. Describe any potential indirect and/or long term impacts due to anticipated future activities in the project area:

Environment

Road improvement interventions proposed under the project have a potential to increase economic growth. It is expected that better connectivity and improved road surface quality will directly and indirectly contribute to the over-all development in the project influence area. The improvement in the road network will enable the people to have improved access to neighboring villages and nearby towns and thereby improve their access to basic amenities (education, health) and markets (agriculture, commerce etc.).

It is also expected that the improved road conditions will facilitate smoother traffic flows, thereby resulting in savings in time and vehicle operating costs. Dust pollution that is currently arising due to deficient pavement conditions is expected to decrease to an extent. Further, due to the proposed project interventions, it is anticipated that some local drainage/water logging problems and road safety concerns will also be resolved. Further, the project interventions will help in catalyzing the benefits of investments made under projects such as Rajasthan Road Sector Modernization Project (RRSMP) and PMGSY - Rural Roads Project.
However, increased road use could spur some growth of commercial activities along the road. Potential long-term impacts may include changes in land use pattern. This may also expose the road side communities, specifically vulnerable groups to adversities linked to inadequate levels of safety. If not properly designed, improved roads could have safety concerns during the operation phase, especially since design speed improvement is a desired outcome of the project. The impact of road accidents and its impact on a household level is therefore a risk, which will be factored-into the design, implementation and operation of the project.

In areas with existing water stress, increased growth in activities could further add pressure to the availability of this vital natural resource. Climate change related impacts on the infrastructure created under the project as well as project induced emissions of greenhouse gases may also accrue on account of the proposed works.

Social Safeguards

Among the potential indirect impacts are construction induced impacts in relation to labour, including migrant labour employed on construction sites. One indirect impact is on the labour employed and the project would have mechanisms in place to ensure that all applicable labour laws are complied with. Another important impact of labour influx would be on the host community, including issues of safety and security, and competition over scarce natural resources like water.

The project could also have potential impacts in terms of personal safety and security of women. Relevant assessments would be undertaken to understand these impacts properly and design appropriate interventions accordingly. Risks associated with HIV/AIDS would also be addressed as part of the mitigation measures.

3. Describe any project alternatives (if relevant) considered to help avoid or minimize adverse impacts.

Environment

The Environment Management Framework (EMF) prepared for managing EHS concerns, requires analysis of various alternatives during design of each sub-project. Alternative measures to manage adverse impacts also focus on reducing the impact on road-side features. Accordingly, realignments have been proposed in some the locations to reduce direct and indirect impacts on people and their resources. Further, in some towns the corridor of impact has been reduced to minimize the impacts resulting from road improvement and widening.

Alternatives have been/will be explored in cases where alignment adjustments are required to avoid and/or minimize impact on roadside trees, water bodies, sensitive receptors or other such features that are locally considered important. For this, as part of the sub-project preparation process, an environmental screening was conducted. This screening allowed for identification of key environmental issues early-on. To address potential impacts on biodiversity and natural habitats, the project’s environment screening mechanism was designed to identify and avoid impacts on critical/ecologically significant natural habitats. This has ensured that no such road traversing through a designated protected area or a critical natural habitat is included in the works identified under the project.

Further, engineering design for roads incorporates feedback from the consultations with concerned local community, state departments (including officials from Forests and Wildlife and Public Works Department), Community Based Organizations and other key stakeholders. The factors to influence the design of road improvement works has included tree cutting, loss of arable land, road safety aspects, impact on cultural/religious properties, sensitive receptors and water sources. During the on-going engineering design process and as part of the environment impact
assessments, cross-sectional, structural and geometric design alternatives have been/are being explored. Further, alternatives to increase resilience and environmental sustainability (such as through reduction in material footprint) are being evaluated and will be suitably incorporated in the project.

As part of activities under Component 1, 2 and 5, the project will support the PWD/RSHA in improving project preparation and management practices, design and construction standards and adopt new technologies, specifically for promoting resilient and environmentally optimal road development – some of these activities also consider ‘alternatives’ from the view-point of reducing costs and for minimizing the over-all environmental footprint in comparison to conventional practices.

Social

The finalized road alignments have been determined after taking into account the minimum possible social impacts, especially in relation to land acquisition. Where ever possible design changes were made to minimize the physical displacements or loss of livelihoods.

4. Describe measures taken by the borrower to address safeguard policy issues. Provide an assessment of borrower capacity to plan and implement the measures described.

Environment Management.

Safeguard policy issues have been assessed by carrying out screening and applying OP 4.01, OP 4.04, OP 4.36 and OP 4.11, resulting in distinct instruments. Accordingly, an Environment Management Framework (EMF) has been prepared for the project to guide the over-all sub-project preparation and implementation process and covers aspects such as screening methodology (including on biodiversity/wildlife issues); process and structure for preparing EIAs and corridor specific EMPs; institutional arrangements; supervision, monitoring and reporting requirements to facilitate compliance with the requirements specified in the World Bank's Operational Policies and those required under Govt. of India and State Government regulations.

The other key environment management instruments include: (i) a screening exercise to identify key issues in the selection and design of sub-projects, including those related to forests/biodiversity/wildlife; (ii) preparation of Environmental Impact Assessments (EIAs) along with corridor-specific Environment Management Plans (EMPs) for road corridors under Component 2.

Corridor-specific Environmental Impact Assessments (EIAs or EAs) are being undertaken in line with Bank policies and applicable environmental regulations of Govt. of India and Govt. of Rajasthan. Preparation of EIA and EMP for the priority roads has been completed, covering three (Baner-Kuchera; Bhavi-Pipar-Khimsar and Hurda-Baner) out of the eleven sub-projects identified so far under sub-component 2A. Preparation of EIA and EMPs is well underway for two more corridors. The project design and implementation planning for the said three priority roads have been informed by the EA process and outputs, which are integrated in documents such as bidding/contract documents for works and ToRs for Authority Engineer and Independent Engineers. The same approach will be followed for other road corridors/works that will be prepared under the project.

EMPs focus on addressing issues pertaining to water management, worksite safety management, occupational health and safety of workers and pollution management during construction. Mitigation measures in the EMPs also include provision of compensatory plantation in line with the local laws. Further, an attempt has been made to estimate the magnitude of the climate related impacts – of the proposed improvement to roads and on the roads considering
currently known trends for the future. Based on this, the required adaptation and mitigation options are being evaluated.

Implementation Arrangements. The implementation of the environmental aspects is a responsibility of several stakeholders, with PWD being the primary entity. A Nodal Environment Officer is already in place as part of the state level team and is currently overseeing preparation of environmental assessments, environment management plans and integration of plans within the civil work contracts. This officer will be responsible for regular reporting on implementation of EMPs/EHS aspects. In addition, involvement of local communities is expected in the implementation of plans for the locally important cultural resources identified for enhancement. The contractors’ teams will also include Environmental Specialists and Safety Officers who will ensure that the environmental, health and safety related work contract stipulations are implemented during execution of works.

Social Safeguards

Social Impact Assessment/Social Impact Management Plan and integrated Resettlement Action Plan has been prepared for the three priority corridors. This is in accordance with the procedures laid down for land acquisition for public purpose under the Right to Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, (RFCTLAR&R) 2013. The Act provides for compensation in case of land acquisition. In order to comply with World Bank policies, the RAP also covers non-titleholders, provides for livelihoods and income restoration support, assistance for vulnerable groups and integrates preliminary screening on labour influx and gender issues.

Under the RFCTLAR&R 2013 and OP 4.12, following the submission of the draft SIA report, public consultations will be organized in each district. This will be followed by a review of the SIA report by a specially constituted Expert Group. Thereafter, the Preliminary Notification under Section 11 would be issued. The Government of Rajasthan has come out with a Government Order, which provides for the option of direct purchase of land through negotiated settlement under the RFCTLAR&R Act, 2013. After the issuance of the preliminary notification, the process for negotiated settlement to purchase land from willing sellers can commence.

The safeguard instruments include Resettlement Policy Framework (RPF) and consolidated SIAs cum SMPs/RAPs in accordance with the RFCTLAR&R Act 2013 and OP 4.12. In order to ensure transparency and accountability and properly manage and track the land acquisition process, an E-RAP tool comprising an MIS system and mobile application is being developed with the Department of IT and Communications, Rajasthan.

In relation to labour, monitoring mechanism for ensuring compliance with applicable labour laws is in place. An assessment for labour influx issues would be done once the contractor finalizes their plan labour mobilization. The contractor for the priority corridors has identified sites for major labour camps and is in the process of preparing the same. Appropriate mitigation measures for labour influx issues would be developed pursuant to such assessment.

In terms of implementation, the PPP Division, PWD will be the Project Management Unit (PMU) and will be overall in-charge of coordination between the Project Implementation Units (PIU) for social safeguards compliance. Apart from the ACE who would have an overall/supervisory role, the PMU would be staffed with a Social Development/Resettlement Specialist who would be in-charge of RAP implementation. The PMU also has a Legal Officer who would be providing guidance on all legal compliances, procedures and documentation. Specifically, an officer has been designated as the Labour Welfare Officer to look at labour issues as well. Resettlement and Land Acquisition Officers at the PIU level would be in-charge of RAP implementation for each project corridor. The Project Management Consultant (PMC) and Authority Engineer would have social development specialists to provide support and
monitoring of RAP implementation and compliances at PMU and PIU levels respectively. A non-governmental organization (NGO) would be hired for field level implementation of the RAP. Community engagement would be critical at the contractor’s level and would be facilitated by the NGO and the PMU/PIU social team.

5. Identify the key stakeholders and describe the mechanisms for consultation and disclosure on safeguard policies, with an emphasis on potentially affected people.

Environment Management and Safeguards

Stakeholders: The primary stakeholders related to this project include: (i) the community residing along/close to the road, including farmers; (ii) road-side shop owners/vendors/businessmen; (iii) road users; and (iv) trusts/committees of the religious properties and local market associations. The secondary stakeholders include local bodies like panchayats and municipalities, officials from Public Works, Revenue Department, Forest and Wildlife, Agriculture, Irrigation, Utility Departments and representatives from the Community Based Organizations (CBOs) and Non-Governmental Organizations (NGOs).

Consultations: Stakeholder consultation mechanisms are central to the design and implementation of sub-projects under RSHDP and provide for information sharing, consultation and collaboration measures. This includes procedures for dissemination of information and consultation with communities in particular through various stages of the sub-project cycle. While design stage involvement requires stakeholder participation in planning road alignment and providing for local level interventions (such as those related to cultural/religious properties, provision of ramps/access and drainage), implementation phase requirements encourage feedback for a more participatory monitoring. Guidance on consultations has been laid out in the Environment Management Framework (EMF) to ensure proper stakeholder consultation at all key stages of sub-project preparation and implementation. The consultation process is designed such that: (i) affected people are included in the decision making process; (ii) links between communities and their natural resource base adjacent to project locations are explored; (iii) public awareness/information sharing on project alternatives and benefits is promoted and; (iv) views and design solutions are solicited. Over-all, the consultation strategy/process is designed to enhance positive and manage negative impacts from the project.

Consultations on environmental issues and design propositions, with both primary and secondary stakeholders are being conducted as part of the on-going EA studies. Findings from the consultations are being considered in deciding the alignment/cross sections, drainage facilities, safety and other design interventions. Follow-up consultations will also be conducted, as needed through pre-construction and construction stages of the project. Outputs from this process have been/will be integrated into the engineering design to the extent possible. The public consultation process so far has indicated that the people support the proposed project interventions. Some concerns have also been highlighted by the people and these pertain to drainage; accidents and road safety; potential disturbances to religious property, schools and water sources. These have been/are being addressed during design preparation, to the extent possible.

Disclosure: As per the agreed procedure, the sub-project specific EAs and subsequent EMPs will be reviewed and cleared by the Bank prior to clearance for bid invitation. The environment management and safeguard instruments/documents will be disclosed in line with Bank’s policy on Disclosure. The executive summary of the documents will be translated in vernacular for information and use of key stakeholders and will be placed in locations accessible to public. Further, the full document will be made available at PWD’s field offices (PIU level) for reference of interested individuals/groups and also uploaded on the Project Authority’s website. The in-country disclosure of draft EAs and EMPs prepared for the three priority roads has been completed. The said documents have also been disclosed on the Bank’s portal.
Social Safeguards

Key stakeholders include project affected persons, including non-titleholders and communities living in the vicinity of the proposed roads. Extensive consultations have been done during the Social Impact Assessment phase, not only with PAPs but also with community members in affected villages and PRIs. Special emphasis has been made to ensure proper consultation with women and other vulnerable groups. The Social Impact Assessment and Social Impact Management Plan along with the Entitlement Matrix would be disclosed to affected persons and discussed in a public consultation. This would include disclosure of Safeguard Policies. Plan for continued citizen engagement and stakeholder consultation is part of the RAP and RPF. Labour is also a key stakeholder and compliance with labour laws which includes provisions for disclosure would be monitored through the project’s institutional mechanism.

B. Disclosure Requirements

Environmental Assessment/Audit/Management Plan/Other

<table>
<thead>
<tr>
<th>Date of receipt by the Bank</th>
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</tr>
</thead>
<tbody>
<tr>
<td>29-Jun-2018</td>
<td>06-Jul-2018</td>
</tr>
</tbody>
</table>

"In country" Disclosure

India

06-Jul-2018

Comments

Draft EAs and EMPs for three priority roads have been disclosed by the client.

Resettlement Action Plan/Framework/Policy Process

<table>
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"In country" Disclosure

India

06-Jul-2018

Comments

Draft SIA, SIMP/RAP and Resettlement Policy Framework have been disclosed by the client.
C. Compliance Monitoring Indicators at the Corporate Level (to be filled in when the ISDS is finalized by the project decision meeting)

**OP/BP/GP 4.01 - Environment Assessment**

Does the project require a stand-alone EA (including EMP) report?
Yes

If yes, then did the Regional Environment Unit or Practice Manager (PM) review and approve the EA report?
Yes

Are the cost and the accountabilities for the EMP incorporated in the credit/loan?
Yes

**OP/BP 4.04 - Natural Habitats**

Would the project result in any significant conversion or degradation of critical natural habitats?
No

If the project would result in significant conversion or degradation of other (non-critical) natural habitats, does the project include mitigation measures acceptable to the Bank?
NA

**OP/BP 4.11 - Physical Cultural Resources**

Does the EA include adequate measures related to cultural property?
Yes

Does the credit/loan incorporate mechanisms to mitigate the potential adverse impacts on cultural property?
Yes

**OP/BP 4.12 - Involuntary Resettlement**

Has a resettlement plan/abbreviated plan/policy framework/process framework (as appropriate) been prepared?
Yes

If yes, then did the Regional unit responsible for safeguards or Practice Manager review the plan?
No

**OP/BP 4.36 - Forests**

Has the sector-wide analysis of policy and institutional issues and constraints been carried out?
NA

Does the project design include satisfactory measures to overcome these constraints?
NA

Does the project finance commercial harvesting, and if so, does it include provisions for certification system?
No
The World Bank Policy on Disclosure of Information

Have relevant safeguard policies documents been sent to the World Bank for disclosure?
Yes

Have relevant documents been disclosed in-country in a public place in a form and language that are understandable and accessible to project-affected groups and local NGOs?
Yes

All Safeguard Policies

Have satisfactory calendar, budget and clear institutional responsibilities been prepared for the implementation of measures related to safeguard policies?
Yes

Have costs related to safeguard policy measures been included in the project cost?
Yes

Does the Monitoring and Evaluation system of the project include the monitoring of safeguard impacts and measures related to safeguard policies?
Yes

Have satisfactory implementation arrangements been agreed with the borrower and the same been adequately reflected in the project legal documents?
Yes

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