GOVERNMENT OF INDIA

Ministry of Rural Development

Draft Assessment of Current Conditions

Study on Environmental and Social Aspects of
PRADHAN MANTRI GRAM SADAK YOJANA

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LEA Associates South Asia Pvt. Ltd, New Delhi
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1. INTRODUCTION

1.1 Study Background

The Pradhan Mantri Gram Sadak Yojana (PMGSY) was launched in December 2000 to provide all weather road connectivity to 1.6 lakh unconnected Habitations with population of 500 persons or more in the rural areas by end of the 10th Plan Period (2007) at an estimated cost of Rs. 60,000 Crores. Ministry of Rural Development (MoRD) executes the programme as a centrally sponsored scheme in all the States and Union Territories.

The Govt has approached the World Bank for financial assistance for the PMGSY activities carried out in the states of Rajasthan, Uttar Pradesh, Himachal Pradesh and Jharkhand. The MoRD has appointed M/s LEA Associates South Asia Pvt. Ltd as consultants to undertake this study to provide with (i) an unbiased review of the environmental and social aspects of the PMGSY (ii) identify potential environmental and social risks in PMGSY and (iii) recommend associated mitigation mechanisms for the identified risks. The three stages of the study are:

Stage I: Review & Assessment of current practices/policies and guidelines
Stage II: Recommendation & Formulation of Environmental & Social Management Framework (ESMF)
Stage III: Preparation of EMP/RAP/IPDP for first year corridors in accordance with ESMF

The present report pertains to the findings of the stage I, Review and Assessment of the current practices in the four states. These findings form the base for identification of the key environmental & social impacts and Safeguard risks. This review has been based on site visits to 105 contracts taken up / proposed to be taken up under the PMGSY program and the review of the available guidelines for the project.

1.2 Process followed

1.2.1 Selection of sample districts

For the study, a representative sample of 18 districts has been chosen based on environmental, social and economic characteristics (Table 1.1).

<table>
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<tr>
<th>Environmental characteristics</th>
<th>Physiography</th>
<th>Climate</th>
<th>Sensitive areas</th>
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<tbody>
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<td>Social characteristics</td>
<td>Literacy rates</td>
<td>Tribal districts</td>
<td>Access to infrastructure (Social)</td>
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<tr>
<td>Economic characteristics</td>
<td>Agriculture productivity</td>
<td>Investment levels</td>
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The selection process ensures that the environmental and social characteristics of the different regions in these states are represented. The districts identified for study were finalized after discussion with the MoRD/WB
and their observations are incorporated into fine tuning of selection criteria. The districts selected are presented in Table 1.2.

**Table 1-2: Districts selected for Site visits**

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<tr>
<th>State</th>
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<td>Bhilwara</td>
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<td>Jhalawar</td>
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<td>Uttar Pradesh</td>
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<td>Banda</td>
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<td>Mirzapur</td>
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<td>Himachal Pradesh</td>
<td>Kullu</td>
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<td>Lahul &amp; Spiti</td>
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<td>Mandi</td>
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<td>Jharkhand</td>
<td>Hazaribagh</td>
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<td>Dumka</td>
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<td></td>
<td>West Singhbhum</td>
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</table>

To identify the development level of each physiographic region, the current environmental, social, economic and infrastructure development indicators were analyzed. Though same parameters are taken for each physiographic division, the level of development is dependent on the significance level of particular aspect in that region. It provided the ground for identification of intra-region distinctions of the existing development levels. Table 1.3 gives the parameters taken into account and analyzed to arrive at the districts to be selected for site visits. Annexure-1 presents the social, economic and infrastructure development indicators for each district.

In Rajasthan, Bundi, Bhilwara, Banswara and Churu are the districts selected that reveal poor levels of growth in developmental sectors of social and economic aspects. Jhalawar is at the developing stage where infrastructure development index is low. Banswara represents the tribal district in the state while Churu is the district having desert topography marked by sand dunes.

In Himachal Pradesh, districts from each of the three physiographic regions have been selected. These districts also represent different levels of development in terms of social, economic and infrastructure. Kullu being a tourist destination with low levels of social infrastructure indices, moderate economic development represents a developing scenario. Lahul and Spiti represent the backward region of the state with poor levels of social, economic and infrastructure development indices. Mandi being a main marketing hub reveals moderate rates of social, economic and infrastructure development indices.

Uttar Pradesh has varied physiographic regions and developmental levels. Most of the districts in the state that are selected can be classified as backward in terms of developmental rates except for Hardoi and Mirzapur that are identified as the developing regions.

West Singhbhum, Hazaribagh and Dumka are the districts selected from Jharkhand. Despite economic expansion owing to mineral exploitation, low levels of social development indices are observed in West Singhbhum. On the other hand, Hazaribagh has poor economic rates of growth and high forest cover while Dumka has considerable size of tribal population.
1.2.2 Selection of roads for the visit

- PMGSY project provides for construction of all weather roads to provide for the following: New connectivity to unconnected settlements;
- Upgradation and widening of existing earthen tracks;
- Widening of existing roads; and

The selection of roads for site visit were finalized after discussion with the district officials and was taken to select roads that pass through sensitive areas. Major environmental and social issues that were considered for selection of the roads are: (i) forests (ii) geologically unstable areas (iii) procurement of materials (iv) loss of trees, (v) water bodies (vi) tribal population and (vii) problem areas in land take / voluntary donation. A representative sample under each of the above proposals undergoing in the district, under various stages of implementation are chosen for the study.

1.3 Field Visits

With a view to assess the current environment and social issues and to draw up standards to be adopted to address them, site visits were undertaken in selected districts. The site visits are aimed at testing the compliance of the standards (Government and CRRI etc) during project preparation and implementation on a sample basis.

Contracts within the chosen districts were preferred on the basis of their representation of the existing status of implementation of PMGSY projects in the district. Teams were formed who visited the states in view to identify issues pertaining to the environmental and social aspects based on their observations and consultations with local groups in June and July 2003. These teams comprised of experts from environmental and social background. Table 1.4 presents the number of roads studied under each stage of the project. Aspects studied in these roads are broadly classified under the following heads.

- Selection: Methodology adopted by the PIU in selection of the roads for construction is studied closely. This also included review of the District Rural Roads Plan (DRRP) and Core network.
- Project Preparation & Approval: The methodology of preparation of the Detailed Project Report (DPR) and items included as part of the design are reviewed. Role of various authorities in preparation & approval of the DPR are also studied. Extent of scrutiny by the PIU/STA is assessed for each district.
- Construction Practices: Environmental and social issues arising/considered under each stage of the project are identified. Current practices of the contractor in dealing with likely issues are studied.
- Availability of Land: Since majority of issues are arising out of land availability, this is given special attention in the study. The process of land take and issues arising are identified.
Table 1-3: Existing characteristics for the districts for PMGSY in the project states

<table>
<thead>
<tr>
<th>State</th>
<th>ACRP Region</th>
<th>Districts</th>
<th>Reasons for Selection</th>
<th>Environmental Aspects</th>
<th>Social Aspects</th>
<th>Economic Aspects</th>
<th>Infrastructure Development</th>
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</thead>
<tbody>
<tr>
<td>Rajasthan</td>
<td>Southern Plains</td>
<td>Bhilwara</td>
<td>Low level of urbanisation, female literacy and gender ratio and high rural poverty along with Tribal population and density of population</td>
<td>Plain topography with few marked hillocks and considerable area under wasteland (27%)</td>
<td>Economic development representing a growing district economy</td>
<td>Economically developing district based on textile industries</td>
<td>Well developed infrastructure but lacks in access to medical facilities</td>
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<td></td>
<td>Eastern Plains</td>
<td>Bandi</td>
<td>Low literacy levels especially in rural areas and lower urbanisation rates</td>
<td>Flat terrain, balanced utilisation of water but prone to occasional floods</td>
<td>Considerable agriculture and mineral output representing a growing economy</td>
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<td>High infrastructure development index</td>
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<td></td>
<td>Western Arid</td>
<td>Churu</td>
<td>Needs investment in economy along with low value of production and animal husbandry is prevalent</td>
<td>And region with no forests, desert soil, low water holding capacity and soil erosion</td>
<td>Lower levels of social development especially in literacy</td>
<td></td>
<td>Poor infrastructure development index and access to facilities</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>Southern Plateau</td>
<td>Jhalawar</td>
<td>Moderate levels of economic development representing a growing district economy</td>
<td>Undulating terrain with considerable forest area</td>
<td>Tribal district with significant numbers of tribal population having low level of urbanisation, female literacy and gender ratio and high rural poverty</td>
<td>Moderate levels of value of production but poor credit and deposit rates</td>
<td></td>
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<tr>
<td>Rajasthan</td>
<td>Southern Plains</td>
<td>Banswara</td>
<td>Low level of infrastructure development</td>
<td>Flat terrain with undulations in form of hillocks and considerable area under wasteland</td>
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<td></td>
<td>Low level of infrastructure development</td>
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<tr>
<td>Rajasthan</td>
<td>North Eastern Plains</td>
<td>Bahraich</td>
<td>Economically under developed districts with low per capita bank deposits and credits</td>
<td>Flat terrain with significant area under cropping with meager land under forest</td>
<td>Socially backward district with poor gender ratio, literacy rates and urbanisation levels</td>
<td></td>
<td>Lowest infrastructure development index in state with poor access to facilities</td>
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<td>Uttar Pradesh</td>
<td>Region 4(2)</td>
<td>Azamgarh</td>
<td>Economically developing in terms of value of production but poor levels of deposit and credit ratios</td>
<td>Flat terrain with insignificant area under forest cover</td>
<td>Under developed society with low literacy and urbanisation levels</td>
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<td>Poor in terms of infrastructure development index, need for improvement in health and educational facilities</td>
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<tr>
<td>Uttar Pradesh</td>
<td>Vindhyan</td>
<td>Mirzapur</td>
<td>Economically developing base with moderate rates of bank deposits and credits</td>
<td>Undulating terrain marked by hills with dense forest cover</td>
<td>Developing society in social terms with low levels of urbanisation</td>
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<td>Moderate level of infrastructure development</td>
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<td>Uttar Pradesh</td>
<td>Central plains</td>
<td>Hardoi</td>
<td>Economically developing base with growing agricultural base</td>
<td>Flat terrain marked by vast area under cultivation and meagre forest cover</td>
<td>Moderate level of social development</td>
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<td>Low level of infrastructure development with inadequate medical facilities</td>
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<tr>
<td>Uttar Pradesh</td>
<td>North Western Plains</td>
<td>Rampur</td>
<td>Agriculture based economy with low rates of bank deposits and credit</td>
<td>Plain topography with agriculture as predominant land use and no forest cover</td>
<td>Low level of social development</td>
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<td>Moderate level of infrastructure development</td>
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</table>
**Draft Assessment of Current Conditions**

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<th>State</th>
<th>ACRP Region</th>
<th>Districts</th>
<th>Reasons for Selection</th>
<th>Environmental Aspects</th>
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<td>South Western Plains</td>
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<td>tourist destination and moderate</td>
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<td></td>
<td>forests and natural</td>
<td>social development levels</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>vegetation, prone to soil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>erosion and landslides</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lahul and Spiti</td>
<td></td>
<td></td>
<td>Alpine region with high</td>
<td>Socially advancing society though</td>
<td>Economically</td>
<td>Moderate level of</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>hills and steep slopes,</td>
<td>lower literacy rates compared to</td>
<td>under developed</td>
<td>infrastructure development</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>landslides, glacial</td>
<td>state</td>
<td></td>
<td>and accessibility</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>movements and soil</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>erosion are common, vast</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>area under dense forest</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 1-4: Roads Studied

<table>
<thead>
<tr>
<th>States</th>
<th>Completed</th>
<th>Under construction</th>
<th>Proposed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rajasthan</td>
<td>18</td>
<td>7</td>
<td>14</td>
<td>39</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>7</td>
<td>5</td>
<td>8</td>
<td>36</td>
</tr>
<tr>
<td>Himachal Pradesh</td>
<td>7</td>
<td>7</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>Jharkhand</td>
<td>40</td>
<td>33</td>
<td>13</td>
<td>107</td>
</tr>
</tbody>
</table>

1.4 Consultations conducted on site

The site visits carried out for the selected four states constituted interactions with the implementing agency (Public Works Department, Rural Engineering Services, Rural Engineering Organization and Department of Rural Development), contractors and local community. List of officials met during the site visits is presented in Annexure 1.2. PWD officials for each district detailed out the procedure involved for the contracts selection and implementation and accompanied the teams during site visits as well. The local population was also consulted in order to understand the issues and problems faced by them during and after implementation of the project. An understanding of the role of PRI was also studied by meeting the village Pradhan and Sarpanch.

Along each of the corridors, focus group discussions/village meetings were conducted. The following issues were discussed:

1. Whether any consultation was conducted by the PIU or any other agency regarding alignment fixation and road construction?
2. If yes, who were the participants in the meetings?
   - Man/Women/PRI members/Representative of the implementing agency/Any other agency
3. What were the main points of discussions?
4. What was the process involved for approval of alignment?
5. Was documentation of the discussion undertaken?
6. Was peg marking carried out before initiation of construction work?
7. Did any villager lose his land during construction of the road?
8. What is the extent of land lost?
9. What was the process adopted for land donation in such instances?
10. Did it involve legal transfer of land?
11. Has land donation affected your livelihood/source of income?
12. Were any community land, property, and religious structures affected?
13. Was tree cutting involved during construction?

14. Any other impact identified due to the project?

15. Any environmental and social issues felt by the community due to construction work (Borrow area, Construction waste, location of camping sites, Movement of heavy machineries, others.)

16. If yes, details and what are their suggestions?

17. Whether the villager’s skill and knowledge incorporated for mitigation measures?

18. Were villagers employed in the construction work?

19. If yes, what kind of work undertaken?

20. Were women also employed during construction work?

21. What was the wage structure and whether timely payment of wages?

22. Whether suggestions and demand of villagers incorporated?

23. Were there any health impacts owing to the project work or migrant labourers?

24. Any social conflicts due to migrant laborers during construction work?
2. REVIEW OF LEGISLATION, POLICIES AND DESIGN STANDARDS

2.1 Legal provisions – Environmental Management

A review of the legislations of Government of India (GoI) as well as other state level laws applicable for PMGSY regarding environmental and social aspects is carried out and their applicability is presented in the following sections.

2.1.1 Environmental Clearance from MoEF

In April 1997, a notification was issued by MoEF amending Schedule I of the EIA Notification, 1994 that lists projects requiring Environmental Clearance. MoEF is the responsible agency for implementing the provisions of the notification. The 1997 Notification states:

"...Environmental Clearance from the MoEF is not required for Highway projects relating to improvement work including widening and strengthening of roads with marginal land acquisition along the existing alignments provided the highways do not pass through ecologically sensitive areas such as National Parks, Sanctuaries, Tiger Reserve, Reserve Forests etc."

Applicability: It is important to note that the width of land required for the sub-projects is less than 12m and does not exceed the marginal land acquisition specified. Therefore, as a rule, all sub-projects are exempted from environmental clearance apart from roads through ecologically sensitive areas. Also, the EIA notification would be applied to sub-projects involving construction of Tarred roads in Himachal Pradesh exceeding a length of 5 km.

2.1.2 Forest Clearances

The Forest (Conservation) Act 1980 (as amended 1998) pertains to the cases of diversion of forest areas and felling of roadside plantation.

Applicability: Restrictions and clearance procedure proposed in the Forest (Conservation) Act applies wholly to the sub-projects requiring diversion of natural forest areas, even in cases the protected/designated forest area does not have any vegetation cover.

2.1.3 Water (Prevention and Control of Pollution) Act 1974, as amended in 1988

The Water (Prevention and Control of Pollution) Act 1974 is enacted to prevent pollution of water sources through the industrial or any other construction activity and for maintaining or restoring of wholesomeness of water.

Marginal land acquisition is defined by the MoEF as "land acquisition not exceeding 20m on either side of the existing right-of-way".
Applicability: Project includes setting up of worker's camp and other construction equipment. The Contractor needs to take consent for setting up and also consent for operation of the equipment/worker's camp.

2.2 Legal provisions – Resettlement

2.2.1 73rd Constitution Amendment Act, 1992

In 1992, the Indian Constitution was amended through the 73rd Constitution Amendment Act to empower the Panchayati Raj Institutions in preparation and implementation of development programs.

Applicability: Provides involvement of the PRIs especially, the Gram Sabha/Panchayat during project preparation and implementation. The provisions under the Act empower the PRIs at the appropriate levels to implement the project activities.

2.2.2 Panchayats (Extension to Scheduled Areas) Act, 1996

The Panchayats (Extension to Scheduled Areas) Act, 1996 is enacted to safeguard and preserve traditions and customs of tribal community and prevent alienation from their homelands.

Applicability: The Approval of plans, land acquisition and safeguard mechanism consistent with the existing customary laws and practices through Gram Panchayat will achieve legal sanctity through this act. The PRIs will be the responsible agency to implement the tasks involved as per the provisions of the Act.

2.2.3 Freedom of Information Act, 2002

The Freedom of Information Act, 2002, is enacted to secure access to information under the control of public authorities.

Applicability: It empowers people to obtain information on the project. To facilitate project stakeholders obtain requisite project information PMGSY provides for dissemination of information and procedures, entitlements, project costs, selection criteria for contractor etc. The PI will be the responsible agency to provide the required information pertaining to the project to the desired individual. The information dissemination will also be undertaken by the PIU through the PRIs at the grass root/village level.

2.2.4 Other State Level legislations

Apart from the above, the acts applicable at State level in the project states, especially for land reforms and for empowering Panchayati Raj Institutions are as listed below.

For Land Reforms:

- Rajasthan Tenancy Act, 1955

An Act to consolidate and amend the law relating to tenancies of agricultural lands and to provide for certain measures of land reforms and matters connected therewith.
Applicability: Under the terms of lease, the lessee has the right to transfer his rights and shall have all rights of a lessor as per the Tenancy Act. In such case, the MoU for voluntary donation of land shall be between the PIU/ Government and the lessee.

- UP Land Zamindari Abolition and Land Reform Act, 1950
  The Act abolishes the zamindari system involving intermediaries between the State and cultivators and empowers the tillers of the soil to have proprietary rights over the land they till.

- Chota Nagpur Tenancy Act, 1908 for restricting transfer of land of SC/ST in Jharkhand
  Restricts or prohibits transfer of land by SC/ST/ backward classes to any member of non-SC/ST. However, for public purposes the land can be donated to the “State” in the name of the Governor.

- Santhal Paraganas Tenancy (Supplementary Provisions) Act, 1949 for restricting transfer of land in Jharkhand
  The act codifies the customary laws relating to exchange of raiyati lands in six districts of Jharkhand. The act provides that no transfer by a raiyat of his right on his holding or portion thereof by sale, gift, mortgage, will lease or an other contract or agreement, express or implied, shall be valid unless the right of transfer has been recorded in the record-of-rights, to the extent to which such right is so recorded. The Act does not allow the transfer of land to the state even for public purposes.

Applicability: Same procedures can be used in case of PMGSY for transfer of land.

For Panchayati Raj Institutions:
- Rajasthan Panchayati Raj Amendment Act, 1994
  Authorises the Panchayat to act as the agencies involved during programme planning and implementation.

  Applicability:
  - Provides for PRI involvement in R&R planning
  - Approval of rural road plan and core network by Intermediate & District Panchayat.
  - Involvement of gram sabha during:
    - Finalisation of alignment
    - Identification of entitled persons
    - Disbursement of assistance

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2 Raiyat means a person not being a landlord, who has acquired a right to hold land for the purpose of cultivating it by himself or by members of his family or by hired servants; and includes the successor in interest of a person who has acquired such a right.

3 Districts of Ranchi, Singhbhum, Latehar sub-division & Bhandari block of Garhwa sub-division in Palamu, Dumka, Pakur, Rajmahal Hills sub-division, Sundar Pahari & Borijor blocks of Godda sub-division in Santhal Paraganas district.
2.3 World Bank Safeguard Policies Applicable

The WB safeguard policies applicable to the project are as presented in the Table 2-1.
Table 2-1: World Bank Safeguard Policies applicable

<table>
<thead>
<tr>
<th>S. No.</th>
<th>World Bank Policy</th>
<th>Applicable due to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Environmental Assessment OP 4.01</td>
<td>Project is likely to have impacts on environmental and social components as on water bodies, existing slopes in case of hill areas and on trees along the road</td>
</tr>
<tr>
<td>2.</td>
<td>Involuntary Resettlement OP 4.12</td>
<td>Involves affect on assets and livelihood</td>
</tr>
<tr>
<td>3.</td>
<td>Indigenous Peoples OD 4.20</td>
<td>Presence of people belonging to Scheduled Tribes and Scheduled Castes</td>
</tr>
<tr>
<td>4.</td>
<td>Natural Habitats OP 4.04</td>
<td>Project passes adjacent to forest areas</td>
</tr>
<tr>
<td>5.</td>
<td>Forests OP 4.36</td>
<td>Project likely to have effects on health and quality of forest</td>
</tr>
<tr>
<td>6.</td>
<td>Cultural Properties Draft OP 4.11</td>
<td>The project entails risk / damage to cultural properties and has likelihood of finding archeological properties</td>
</tr>
</tbody>
</table>

Apart from compliance to the above policies, the project will need to comply with the bank procedure, BP17.50. Disclosure shall need to be carried out at all stages of the project as at planning stage, prioritization stage, project preparation stage and implementation stages.

2.4 Review of Design Standards

IRCSP-20:2002, lays down guidelines for the various aspects of rural roads. The standards laid down are suggestions to be followed in the planning, design, construction and maintenance of rural roads. It further lays down uniform standards for adoption across the states. It has been stated that the guidelines should be applied taking local experience into consideration. But the states have not tailored guidelines to suit the states varying conditions.

The planning and design of PMGSY roads are mandated to follow the IRCSP-20:2002. However, it is observed that these standards could not be followed in any of the four states. The non-compliance was with respect to Roadway width, Radius of curves and other features. It is therefore necessary to have a relook at the standards and to restate the same keeping the environment issues and diverse nature of requirements in the various regions of the country. Some of the issues identified due to inadequacies of design are as under.

2.4.1 Design Speed

The design speed prescribed in IRCSP-20:2002 is as given in Table 2-2.

<table>
<thead>
<tr>
<th>Road Classification</th>
<th>Design Speed (km/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plain Terrain</td>
</tr>
<tr>
<td></td>
<td>Ruling</td>
</tr>
<tr>
<td>Rural Roads (ODR and VR)</td>
<td>50</td>
</tr>
</tbody>
</table>

The design speed governs the geometric designs of the roads and laying down the minimum radius of curves but these design norms could not be complied with for want of adequate land width.
Draft Assessment of Current Conditions

2.4.2 Road Land Width/Right of Way:

The recommendations of IRC SP20 for land width are indicated in Table 2.3.

Table 2-3: Roadway Width as per IRC:SP-20:2002

<table>
<thead>
<tr>
<th>Road Classification</th>
<th>Plain and Rolling Terrain</th>
<th>Mountainous and Steep Terrain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Open Area</td>
<td>Built-up Area</td>
</tr>
<tr>
<td></td>
<td>Normal</td>
<td>Range</td>
</tr>
<tr>
<td>Rural Roads (ODR and VR)</td>
<td>15</td>
<td>15-25</td>
</tr>
</tbody>
</table>

PMGSY programme provides for aligning the roads along revenue tracts and for voluntary donation by the land owner. Land width of 15-25m of or full formation of 7.5m is not available at most of the places.

2.4.3 Height of Road embankment:

The minimum height of embankment adopted on most of the PMGSY roads was observed as 6m in arid and sandy areas. Reduction of average height of embankment in such places would reduce the quantity of earth needed for the road construction and would consequently result in lesser width and depth of borrow pits. The deep borrow pits become breeding places for mosquitoes and redevelopment of these areas is not being carried out.

2.4.4 Minimum Radii of Curves

In view of the land restrictions, it has not been possible to adhere to IRC standards for minimum radii of curves in most of the cases.

2.4.5 Side slopes & Road shoulders

The guidelines for side slopes are indicated in Table 2.7 of IRC:SP-20:2002 but these are not generally observed for want of roadway width. The side slopes have been recommended on the basis of the property of local soil utilised for embankment but in most of the DPR only the value of CBR had been indicated but full details soil profile not indicated. Local borrow soils must be tested as required in the Format 4.1. This would provide a rough check on the value of CBR and also ensure use of local soil without any modification. It would reduce transport of soil in case of clayey soil areas. The slopes as well as the embankments get eroded during rainy season effecting road safety. It should be mandatory to mark the toe-lines and compact full width of the embankment from the sub-grade level and to ensure that the guidelines of IRC:SP-20:2002 are strictly followed.

The shoulders are not protected from erosion and compaction leading to their failure under load and under heavy rains.

2.4.6 Design of Cross-Drainage Works

For small catchments areas IRC SP20:2002 has specified size and number of pipes without taking the topography of the area into account and without calculating the likely afflux. In plain terrain with low ground
Draft Assessment of Current Conditions

Pradhan Mantri Gram Sadak Yojana

Slopes the rise of water cause flooding on the up-stream. The increase of velocity of water passing through the pipes cause scour on the down-stream and disturb natural ground. There is a need to properly study the hydrology, to limit the afflux and provide adequate waterways.

2.4.7 Provision of Cattle-Crossings:

Cattle wealth is an important asset for villagers and the cattle is moved between various paddocks for grazing. Many of the new roads may cross their normal routes. However, no cattle crossings for safety of the cattle as well as for the road users are provided. Crossing of cattle and other farm equipment from the embankment sides damages the embankment.

2.4.8 Intersection with other roads

Rural roads meet the collector roads of higher category. Design of the junctions as per the IRC:SP-2002, are not designed. The DPR also does not provide for such junction designs.

2.4.9 Hill roads

Following are some of the issues identified specifically in hill roads:

- Alignments passing through sensitive areas as forests;
- Soil erosion and alteration of drainage;
- Soil strata becoming unstable during construction due to absence of thorough geological studies indicating location of loose strata; and
- Risks due to blasting
3. ASSESSMENT OF CURRENT CONDITION

A) Rajasthan

3.1 Introduction

The population distribution and density in Rajasthan varies across the physio-geographical regions. The population is comparatively dense in the semi-arid and southeastern plains as against the low density in the arid regions. More than 50% of the workers are engaged in cultivation.

Western arid region, characterized by desert topography and low rainfall, has less density of people. This region experiences very low rainfall and is prone to droughts. Due to absence of irrigation sources the cultivation is rain fed and restricted to the months of June to September. This region is witnessing a serious drought for the past three years.

The plains and plateau regions have considerable population density with major concentration of settlements and agricultural activities in areas served by rivers and canals. These represent highly productive regions owing to productive soil, adequate rainfall and irrigation facilities. Various regions of the state are identified in Map 2-1.

Map 2-1: Various agroclimatic regions in the state are presented in Map
3.2 Environment

3.2.1 Climate

Rajasthan experiences a tropical climate varying from semi arid to arid conditions with a maximum temperature of up to 45°C in June to a minimum of 3°C in January. The average annual rainfall is as low as 150 mm in extreme arid zones and as high as 1000 mm in the southeastern part of the State. Most of the rainfall (60-80%) is received with the Southwest monsoon in the period from July to September.

Climatic factors affecting construction work are:

- Shifting dunes accumulate sand on construction site in arid areas as Churu. This sand is to be towed away for restarting the work
- Movement of machinery is not allowed in the post-monsoon as affect is likely on sown area
- Heavy rains during monsoon
3.2.2 Topography

Relief and topography of the state varies from flat terrain in western and northwestern region to elevated plains in the southern area. Desert or arid areas marked by hillocks and sand dunes characterize flat terrain. Whereas, elevated plains are characterized with the Aravalli Range as most conspicuous topographic feature with elevated plains forming a plateau.

Natural gradient followed along PMGSY roads as evident in Churu

Ravine area observed along some sections of PMGSY roads in Bundi

In the arid regions, the alignments are routed along existing tracks and the natural gradient is followed. Only in cases where a profile correction is required, cut and fill operations are planned. Therefore, no major impacts on the general topography are witnessed.

Desert topography along Ribariya-Mehra-Vanasar road in Churu

Proposed road to Huwaliyan passing through flat area in Bundi
3.2.3 Geology

The geological formations in the state range from the oldest Archaean, Metamorphites (Schists or Quartzites), in the plains and plateau sub-recent, alluvium and sand in the western and northwestern parts of the state.

No separate studies conducted as regards the geological formation but inputs, which are based on some other studies conducted, are taken into consideration during the design stage.

3.2.4 Soil Characteristics

Broad soil characteristics fixed by the PWD are used for design. Due to time constraints, no specific tests are conducted to determine the soil characteristics. No topsoil conservation is carried out as revealed by the field visits. In 28 of 39 corridors, topsoil conservation is not done and in rest of the corridors, no topsoil is available.

3.2.5 Ambient air quality

Consultations with the contractor and visit to sites under construction revealed that no dust suppression measures are being undertaken during earthwork. As a result, high dust concentrations around the construction sites are prevalent. Use of water for dust suppression is not a viable option due to scarcity of water. The bitumen and aggregates for several PMGSY roads in a package are procured from a centralised hot-mix plant, crusher set up by the contractor. As these are sited away from habitations, no significant pollution from these sources is witnessed.

During operation, the project roads are not characterized by high volume of traffic. Therefore, no significant increase of pollutants as CO, SOx, SPM etc are anticipated.
3.2.6 Ambient noise levels

The increased noise levels during construction due to operation of heavy vehicles and machinery is a temporary impact. Apart from settlements, there are usually no sensitive receptors as schools and hospitals adjoining the corridors. No management of noisy construction activities or regulation of timing of construction is currently being followed.

During the operation stage, the noise levels along the project roads are low as there is no heavy vehicular traffic. Therefore, no significant impact due to vehicular noise is expected.

3.2.7 Water quality and availability

Water is a very scarce commodity in arid areas of Rajasthan. The availability of ground water varies across regions and the water table is very deep in the arid districts of Churu. The contractor obtains water for construction from community sources or private wells/tube well owners. In corridors close to major water sources as dams etc., (as in the case of Mahi dam rest house to Kankaneja corridor in district Banswara falling under plans of Rajasthan) water is procured from the dam reservoir.

Tests as per the project guidelines are conducted for validating the physical parameters such as hardness etc. Most of the water is obtained either from local village sources or transported by tankers. No deterioration of water quality in the water bodies along project corridors is evident.
3.2.8 Drainage

Drainage is not an issue in the arid regions, which witness very low rains and frequent droughts. Remaining part of the state is prone to occasional floods and proper drainage needs to be provided for its uninterrupted flow. Though there exist provisions for longitudinal drainage, these drains are not continuous and are blocked, resulting in water logging at certain sections. Cross-drainage structures provided to discharge the floodwater across the road are inadequate and cause water logging at certain locations. During monsoons, the approach road to Huwaliyan gets submerged under water up to 6ft. It drains into the Rajput Pond at approximately 100m on the RHS. According to the PWD officials, the site requires a minor bridge, which they may plan to execute under the site funds if not permitted under PMGSY.

In areas of the western part of the state as in Churu district, no drainage channels exist; hence there is no provision for CD structures in the corridors. No alteration of drainage pattern is envisaged in the corridors visited.

- Proposed site for upgrading CD structure along the Luhari Khurd road in Bhilwara
- Proposed site for culvert on approach road to Huwaliyan, waiting for forest clearance
- Flush causeway in section where water flows over the approach road to Gathila Kheda in Bhilwara
- Side drains draining out water in vented causeway, on approach road to Baland in Bhilwara District
3.2.9 Flora and Fauna

The arid areas are not rich in vegetation and the natural vegetation is of desert shrubs apart from dry bushes and grass. Acacia and a few thorny tree species is characteristic flora of the region. The southern and eastern part of the state has Dry Forest and Tropical Forest with Teak and Boswellia Sarata are the predominant species.

![Forest area along the Chandrab in Bhilwara](image1)

![Thorn bushes along roads are common site in the state](image2)

Roads passing through the forest are avoided from selection wherever possible. However, along certain sections where the acquisition of forestland is inevitable, clearances are being obtained in accordance with the provisions of the Forest Conservation Act (1980). The felling of trees is minimized to the extent possible. In certain cases, trees are left without clearing within the roadway.

3.2.10 Land utilization

Agriculture is the predominant land use in the semi-arid regions while in the western arid region it is uncultivable wastelands. Resistance from the landowners to provide the required land can be seen in the fertile soil areas.

The ownership or status of the land is not ascertained while planning or implementation of the project. So there is no special consideration for the grazing land.

3.2.11 Procurement of construction material

Locally available materials are used in the construction of the PMGSY roads. In majority of the PMGSY roads, material for earthwork has been from the roadside while the other construction material is brought from the quarries notified by the Government or PWD. There is no resistance from the local population in taking material from private lands in western arid parts while in the other regions of the state, borrowing from private lands is an issue of concern.
No redevelopment of the borrow areas is proposed as part of the contractor's scope of work. In case of Jhalawara district, Pipaliya to Aroliya road people have started filling the borrow areas with quarry wastes from the stones mines which are dumped by the quarry owners without any cost.

3.2.12 Safety Concerns

There are no provisions for public safety concerns in the project. During construction either the traffic is blocked or try passing through the stretch under construction, as no diversions are proposed. Provision of guide stones and parapets in undulating topography are not considered under the project.

In the case of Moyakhari road in Jhalawar district there is a siphon of the irrigation department crossing the road. The walls of the siphon used to be higher than the road level. With the road construction under PMGSY, the road is elevated over the siphon wall. But no effort has been taken to increase the height of the siphon wall. The villagers are facing problems as animals are falling into the siphon. Irrigation department as well as the PWD is shifting the responsibility to each other for increasing the siphon wall.

3.2.13 Worker's safety

The skilled workers are usually provided houses taken on rent in the villages. At times, schools and other buildings are used as labour camps. The contractor provides for the accommodation, and the labourers have to make their own arrangement for food and other requirements. Majority of the unskilled labourers from the same village or nearby villages as this provides them with additional sources of income. No sanitary and other facilities are provided in both the cases. Personal safety devices for construction laborers were found generally lacking. Even in cases where provision of such equipments, as helmets, boots were available, the usage amongst the laborers was not significant. Though there are no regular health check up facilities, tieups with existing health facilities by the contractors was observed to take care of emergencies and accidents.
3.3 Socio-Economic Environment

3.3.1 Land Categories in the state

The existing land categories in the state can be broadly classified into the following categories:

Private Land: These are lands, which are under individual ownership and can be transferred through the existing legislation except for land owned by tribals where it can be sold to the tribals.

Gram Sabha land includes:
- Lal dora: In Rajasthan, lands reserved for residential purpose is known as Lal dora. In case of such lands the people residing in such land are entitled to usufruct rights but do not have title for the plot of land. In such cases under the present regulation system, these people are not eligible to any compensation under the Land Acquisition Act in case their lands are acquired for "public purpose".

- Grazing land: The grazing lands in Rajasthan called pasubari, are usually protected land but can be transferred for public purpose under notification of the Governor.

Government Lands: The title of these lands rest with the Government, they can be transferred from the Government for "public purpose".

Government Department Lands: Land under the ownership of different departments can be transferred to the PWD for public purpose under the existing laws.

The legal status of each land category is presented in Table 3.1.

<table>
<thead>
<tr>
<th>Land Category</th>
<th>Legal Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Land</td>
<td>Individual property heritable rights vested with owner, can be transferred as per present laws</td>
</tr>
<tr>
<td>Gram Sabha Land</td>
<td>Land can be transferred for public use as per notification of Governor for public purposes</td>
</tr>
<tr>
<td>Government Land</td>
<td>Different government institutions can transfer land as per existing laws</td>
</tr>
</tbody>
</table>

3.3.2 Land Availability in sub-projects

In the state of Rajasthan, the revenue tracks have been in existence for long and have been the traditional routes of communication for the villages. Though the available width is of the range 68m, the effective width available for movement is between 3-5m, and is encroached upon by the agricultural landowners. This practice is witnessed in most of the contracts visited.

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1 The Public Purpose as defined in Section 3(f) vii of the Land Acquisition Act 1894 as "the provision of land for any other schemes sponsored by the Government, or with prior approval of the appropriate Government, by a local authority"
3.3.3 Need for land width accretion

Unconnected villages with an existing revenue track are taken up for implementation under Phase – I. The width of these revenue tracks varies between 6-8m. As no new connectivity on a fresh formation is envisaged, the requirement of procuring private lands has been minimized. The need for additional private land arises when the existing revenue track is not sufficient to accommodate the proposed cross-sections along the rural sections. In case of village areas, the width of the road is always restricted to the available width between the structures.

![Road section in village Hawaliyan where width constricted by land availability](image1)

![Availability of land width in village section in Samelia](image2)

The extent of additional private land taken up for road construction in the various contracts visited varies upto a maximum of 2-3m. There is no case of displacement due to PMGSY apart from the encroachments, which are removed along the project roads and the revenue tracks.

Issues related to procuring the additional land differs markedly between the arid regions and rest of the State. In arid areas there has been no marked issues related to the local population pertaining to land and property affected. This can be attributed to the fact that since the land is sandy and unproductive, there is no resistance from the local people in parting with the land.

In other areas, along certain corridors there are instances of farmers not willing to part with their land. Though not a serious concern of these farmers, lack of provisions of compensation for land acquired was questioned.

3.3.4 Minimization of impacts

The proposed carriageway width is 3.75m with shoulders of 1.5m. At places where the land availability is less, the carriageway width is maintained at 3.75m while the width of shoulders are modified as per the land available. In the village sections, the pavement width is constricted according to the land available.

Even along the rural sections, there are instances where the cross-section is constricted due to non-availability of the desired land width of 6-8m. Several examples can be cited as in the case of approach road to
Bhamarbore in Banswara district where the road is constructed in 'S' shape with blind curves to avoid displacement.

Approach road to Bhamarbore in Banswara and Approach road to Vanasar in Churu following the available revenue track to avoid impact on private land.

There has been a dispute of land ownership for 100m of land on LHS of the corridor where the old village track was passing through private land. The landowner who was a farmer complained to the contractor and approached the PWD officials in Bundi. Since the farmer was not ready to donate the land and asked for due compensation, the Revenue Department was approached to do peg marking and identify the revenue track. As a result the alignment has been shifted. Farmer not ready to part with his land without compensation for construction of road.

The revenue tracks have been in existence for long and have been the traditional routes of communication for the villages. Though the available width is of the range of 6-8m, the effective width available for movement is between 3-5m, and is encroached upon by the agricultural landowners.

Existing revenue tracks representing long established routes for village connectivity taken up for PMGSY.
3.3.5 Community Profile and Characteristics of PAPs including Tribal Community

In the state of Rajasthan, the natural regions range from the Desert topography in the western districts to well irrigated districts in northern and central areas. The eastern, central and southern portion has nearly plain topography with few hillocks. A very narrow belt of undulating topography characterized by Aravalli in the Southwest and plateau in the southern most parts of the state.

The districts and villages in the plain areas of southern and eastern region have higher concentration of population owing to flat terrain, fertile soil and a comparatively adequate supply of water provided by Ghaggar, Luni-Jawai and Chambal-Banas drainage systems. On the contrary the southern plateau region is marked by scattered but high population concentrations. The district of Banswara is a notified Scheduled Tribal Area with approximately 75% population belonging to tribal community. In addition, several pockets of tribal population have been observed in villages of Bhilwara and Bundi.

3.3.6 Project Affected Persons

The community consultations in the 39 villages of the 5 districts visited revealed that the PAPs belong to the vulnerable groups of SC and ST. There has been impact in terms of donation of land by BPL and households with uneconomic land holding in the state. Majority of the PAPs are cultivators and also working as agricultural labourers. Table 3.2 provides the profile of the PAPs consulted during community consultation in the state.

<table>
<thead>
<tr>
<th>District</th>
<th>No of Corridors visited</th>
<th>No of PAPs HH</th>
<th>Vulnerable Households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Scheduled Case</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Scheduled Tribe</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Below Poverty Line</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Women Headed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Handicap</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Uneconomic Land</td>
</tr>
<tr>
<td>Churu</td>
<td></td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Banswara</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Bhilwara</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bundi</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Jhalawar</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Community Consultations in villages along project corridors.

3.3.7 Project Displaced Persons

Along no corridor, there has been displacement of any person or asset due to the project.

3.3.8 Indigenous People

Consultations in the villages along project in tribal areas had no formal consultations with the PIU to ascertain concerns related to PMGSY road in tribal areas. No studies assessing the socio-economic, cultural characteristics or other laws and policies governing their systems and identifying their tenure rights have been conducted. No tribal development plans are prepared to address the issues that would arise during
construction. No specific plans / measures are taken in these regions to avoid or mitigate impacts on these communities as they are positively impacted due to the project.

### 3.3.9 Nature and Extent of Impact

#### 3.3.9.1 Land

The state of Rajasthan has varied topography and climate which is reflected in the land holding size. In the sandy district of Churu, the average land holding size is 7-10 ha with PAPs having a land holding of 4-6 ha. In Bhiwara it varies from 2-3 ha while in rest of the districts visited it ranges from 1-2 ha. Along majority of the corridors, the average land width required for donation has been between 1-2 m without marginalizing any of the landowners land holding. The farmers in the fertile areas pose resistance to donation of land and ask for compensation of land taken for the project. In the tribal district of Banswara, there has been donation of land as reported during consultation by 1 tribal person.

#### 3.3.9.2 Structure

There has been no impact on the structures along the PMGSY corridors in the state of Uttar Pradesh.

#### 3.3.9.3 Livelihood

The impact on the livelihood of the villagers has been negligible. This can be attributed to the construction of road & related activities during non-harvesting season. As a result, the standing crops are not affected by the project. In the plain and plateau regions of the State, villagers do not allow construction works when the crops are ready for harvest. This causes delay in commencement of construction works. No impacts are identified on the standing crops due to the project.

#### 3.3.9.4 Issues due to borrowing /material procurement

The earth for construction is usually obtained by borrowing earth from within the existing revenue track. Along stretches where the land required for borrowing is not available, the contractor procures borrow material from the adjoining lands. The landowner has little option for resisting this action as it is usually communicated that the construction will be abandoned if the earth is not given. As the redevelopment or flattening of the borrow areas is not done, the utility of the land parcels for sowing/cultivation is reduced.

An instance in Bundi district has been known where the farmer did not allow the contractor to use material from his field for earthworks along approach road to Anthara. Only after the pressure from the Sarpanch and PWD officials, they agreed to it. The topsoil in this case was piled up in the field and later spread back.

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Draft Assessment of Current Conditions

Material for earthwork taken from the agricultural land along the Kota Khurd road in Bundi

3.3.9.5 Irrigation Facilities

The irrigation facility to agricultural lands on either side of the track is connected through pipes below the revenue tracks. During site visits and interactions with the community, it was revealed that these links are maintained and consideration for laying new pipes is also given to the farmers prior to stabilization of the embankments.

Irrigation facility un-interrupted along project roads
Draft Assessment of Current Conditions
Pundhran Man mandal Gmn sadak

3.3.9.6 Drainage issues – post construction

With the level of road is raised, water flows into the houses in absence of side drains in village portion where stone pitching has been done.

3.3.9.7 Other Assets

Impact on common property resources

The common properties such as wells, water taps, hand pumps, and ponds were avoided while constructing the roads. Also, any other property or open land that is valuable for local community to hold festivals etc are also avoided.

Impact on cultural properties

Religious structures such as temples and mazars along the roads have been avoided through change in alignment, constriction of the proposed cross-sections etc. The project roads do not involve either removal or shifting of any of these properties.
Impact on Access to Minor Forest Produce / Common Property Resource

Along no corridor in the tribal areas or village with tribal population has been impacted in terms of restriction or loss of access to CPRs and MFPs.

3.3.9.8 Temporary Impacts

Disruption to normal traffic

As the existing tracks are blocked for construction and these tracks are the only connections to the habitations, no alternate routes for movement of vehicles exist. The vehicles ply on the existing track after the work stops for the day.

Quality of life during construction

These included increased noise levels during construction, dust due to earthworks and are experienced for a very short duration. Though these impacts were not raised by the communities, consideration of these issues by the contractor through regulating timings of usage of heavy equipments, dust suppression etc will minimize the extent of impacts.

Employment for local population

Unskilled labour is being engaged from the villages along the alignment. Participation of people in construction activities is present in all packages and is engaged at Rs. 60 - 80 per day. Female also worked on road construction. Increased employment opportunities and diversification into construction activities from the seasonal agricultural activities is seen in the villages. Along one corridor, there has been delays in payments to the villagers who worked as unskilled labour during construction work.

Issues related to movement of vehicles and machinery

The PMGSY guidelines specify use of pavers and other heavy equipments for construction to ensure the quality of construction. Many of these equipments require a turning radius of upto 10m, which is usually not available along the project roads. Use of such machinery would impact the surrounding land due to dumping.

Impacts on Land and people during construction

Movement of construction machinery as rollers and earthmoving equipment on the adjacent lands have temporary impacts during construction. No other impacts are occurring to the people during this stage. Labour is available from the local villages but skilled labour stays in the nearby areas. The villagers in these cases cooperate with the resident labour and there is healthy interaction. No conflict of uses is identified, as the numbers of such labour are small.
Safety and Health Impacts

The aspect of road safety and health has not been considered in the villages.

- Pedestrian safety especially at settlement stretches and sharp curves is poor and no signages were erected.

- The PMGSY provides for cement concrete roads with v-shaped drains in village sections around the water sources. This has been done to avoid damage to the pavement structure. In the absence of any definite outfall of these drains, these drains are connected to a low-lying area. The resultant water logging forms a breeding ground for mosquitoes and vectors.

- The borrow areas are not rehabilitated after construction. Though not very deep, there are locations where animals crossing the road may fall. Water logging along these borrow locations is an issue in the plains.

No communicable diseases have spread due to contact with people outside the village so far. As revealed from the consultations with the local population, there has been no instance involving spread of any disease due to the migrant construction labourer.

3.3.10 Process for Land Accretion

3.3.10.1 Identification of locations

Initial survey conducted by the PIU is based on the visual observation during verification of existing revenue track. The procedure adopted for verification of the land does not involve revenue department. The assessment of adequacy of the existing land width available involves the identification of locations for additional land width accretion.

3.3.10.2 Ownership verification

There has been no process involving verification of the existing alignment through revenue records, the involvement of the revenue department is absent or at times minimal. Only in case of any issue raised by the landowner along the proposed corridor, the patwadi is approached to verify the land ownership of the impacted or likely to be impacted land parcel.
3.3.10.3 Dissemination of process

At no stage of project implementation, the information pertaining to the project features, alignment details and schedule of work is formally disseminated among the community.

3.3.10.4 Process of Land Transfer/Donation

Interactions with the communities who have willingly parted with their land parcels (1-2m), revealed no major resentment towards the voluntary donation of land, realizing the subsequent benefits from the project. However, there is a general perception that the component of compensation needs to be built in the project. This is more significant in the fertile regions, where the productivity is high and the land holdings are small.

The process of land donation is usually done after the mobilization of the contractor. The decision to donate land is ensured by the contractor through village meetings and discussions, usually in the presence of the Sarpanch (head of the village). There is no evidence in the form of documents to review the process or transfer the ownership of land to the PWD or updating revenue records.

3.3.11 Non-Titleholders

While partial encroachments (of about 2m into the revenue tracks) are cleared by the contractor usually with the consent of the landowners, complete encroachments are usually cleared by involving officials of PWD, Revenue dept, Sarpanch and Police assistance, if required.

Encroachments cleared from the revenue track from the approach to Bhojaan in Churu

3.3.12 Consultation Process and Information Dissemination

The concerns of the villagers are considered prior to approval of the project roads at the district level. The approvals of the proposals are done at the block level from the Panchayat Samiti members and from Zilla Parishad at the district level. The resolution passed in those meetings for the approval is documented. After that, there are no efforts made to access or include the concerns of any other stakeholders. There was no public consultation in the village before initiation of the work in the village.
Community Consultation in villages connected by PMGSY roads in Bundi and Bhilwara

3.3.12.1 Verify any Tribal Development Plans are prepared

Banswara (73%) and Dungarpur (66%) are designated as Tribal Districts. In other districts, there are blocks where concentration of tribal population is considerable. There were no tribal development plans prepared for any of the project road in these districts. Impact of the project on the tribals is not ascertained.

Population belonging to Scheduled Tribes & Other Backward Classes benefited from PMGSY

3.3.13 Grievance Redressal Mechanism

The grievances raised at the village level are resolved through involvement of the sarpanch, patwari and the PIU official. There is no formal mechanism of addressing the grievances except when the aggrieved person has a written document detailing his concern. The PIU does not maintain any records of the issues raised by the community or an individual.
B) Uttar Pradesh

3.1 Introduction

The state of Uttar Pradesh is divided broadly into The Ganga Plains and The UP Uplands. The Ganga Plains consists of vast flat terrain while The UP Uplands are dissected and rugged plateau, which slopes towards North-east, with an average altitude less than 300 m. The land is gently sloping from Shiwalik hills in north-western region (274 m) towards the eastern Terai region (78 m) of the state. The soil of the state is divided into Bhabhar, Tarai, and Central Ganga Alluvium plain.

The state constitutes 166 million persons distributed over an area of 143327.09 sq km, out of which 19.9 % constitute urbanized population. The rural population is highly concentrated in eastern Uttar Pradesh and some district of western Uttar Pradesh while it is moderate in the central region. The ST population is minimal in entire state while SC population constitutes 21 % of the entire population.

There are 30.19 million workers engaged in primary activities out of which 53.27 % are cultivators and 18.94 % are agriculture labourers, constituting 72.88 % of the total main workers in the state.

3.2 Environment

3.2.1 Climate

The climate in the state ranges from moist, sub humid to dry arid in the North Eastern plains. The state has an annual rainfall of 997 mm with a maximum of 1214 mm in Bahraich to a minimum of 721 mm in Fatehpur in SW plains.
Generally the contractors stop work during adverse climate conditions. The targets for completion of the PMGSY contracts are for 9 to 11 months irrespective of the starting season. In the absence of detailed construction schedule to accommodate the harvesting and rainy season, construction activities are also being carried out during rainy season to meet the targets, affecting quality of work.

3.2.2 Geology

The Gangetic Plain covers about three quarters of the state, gently dropping from 365 m above MSL in the northwest to 80 m above MSL in the east at Varanasi (Benaras). Due to this geological setup, the quarry material is usually available in the north of UP – in Haldwani or near Fatehpur sikri. Rest of the state being under Gangetic plain consisting mainly of alluvial deposits, hard rock with acceptable quality for the construction purposes is a scarce resource, which needs to be transported for long distances. There are no separate studies conducted on geological formation in the area for the project.

3.2.3 Soil Characteristics

Soil types of the visited areas can be divided into:

- Bhabhar, consisting of boulders and alluvium. Water table in these areas is at considerable depth;
- Tarai, consists at the upper end the perennial springs and merges with the alluvium plane of the Ganges. This supports very high diversity vegetation and dense forests. It consists of clay, sand, pebbles, and boulders; and
- Central Ganga Alluvium plain, consists of sands and clay with pockets of gravel and kankar. This area has the most problems of water scarcity.

As per the guidelines, the tests are conducted on the soil used for subgrade (embankment) during preparation of DPR. There is in-house soil testing facility in PMGSY Dept. Various tests are recommended to meet the standards set under the project. However, PMGSY stipulates use of soil adjacent to the proposed alignment for filling, if the soil is suitable, to reduce the costs in transportation. Hence, fertile agricultural soil from the fields is being used as borrow material.

3.2.4 Ambient air quality

PMGSY roads is the only connectivity to villages and do not effect the air quality. Only source of the air pollution is Mentha oil extraction in parts of central Uttar Pradesh. Large numbers of such extraction units are found along the rural roads. However, emissions from these units are localised and do not have large dispersion over the area. Clean environment is observed along most of the sample based visited corridors. There is no provision of ambient air quality monitoring during construction / operation of the project. Contractors are also not aware about the distance of hot mix plant from the village etc. Since the motorised traffic is very less, air pollution due to traffic sources is insignificant.

3.2.5 Ambient noise levels

There is no source of noise pollution along PMGSY roads in UP, because most of the roads are in interiors having few motorized vehicles. There is no provision of noise level monitoring in the construction / operation of the project roads. Contractors are also not aware of any precautionary measures for control of noise from construction machineries and protection measures for workers. Even with the completion of the road, traffic is limited as most of the roads are approach roads to one or two villages. Due to less traffic and a large proportion of it being non - motorised, noise generated would be insignificant.
3.2.6 Availability of water

Water availability for construction of PMGSY roads is not a concern in the state of Uttar Pradesh. Water table in the visited areas is 10 to 15m and Irrigation canals and rivers are found in Rampur, Bahraich and Etah districts in plain areas. Due to fertile agricultural land, farmers installed tube wells for extraction of water for irrigation. So water is usually obtained from these wells with the consent of the farmers for construction. Alternatively, the contractor gets water from nearest canal/river, if available. Contractors make payments to the owner (Individual or Panchayat) of the tube well if water is used from their wells. There has been no impact on the existing water bodies due to the project in the state.

3.2.7 Drainage

Water logging is a common feature in the districts of Rampur and Hardoi, & areas of Teri Region due to high water table and some areas are flood prone. The requirement and design of the CD structures and drains are worked out by the PIU based on PMGSY guidelines. The STA scrutinises the designs prepared for the roads. Number of CD structures provided is generally not adequate as no supporting data is provided for justification of their opening size. Hence could not be sanctioned by the STA.

On the contrary, in Banda district, people resist construction of culverts fearing submergence of their fields from the heavy flows in the region. Concrete roads are constructed with longitudinal drains and pucca roadside drains are provided in Hardoi. But at some places villagers are of the opinion that the CD structures are not as per requirement. In settlements where the road is sloping towards the structures, drainage is poor and villagers are dissatisfied with the drainage provided. Water logging in the borrow trenches occurs and these are adjacent to the road within the farmers field.
3.2.8 Flora and Fauna

Forests constitute about 7.0% of the total geographical area of the state. In case of Mirzapur district, settlements exist within the forest areas. A 6 km proposed road connecting Kharihat Kalan passes through patches of notified forests at 4 locations, 200 m each. Permission is sought from the forest department for transfer of land to revenue department. Though permission was not granted, the PWD was asked to remit the amount equivalent to the cost of construction of the road within the stretch and forest department will construct the road. At present no permission is obtained and hence the 800m stretches have been left out from construction while the remaining 5.2 Km has been completed.

Mango tree plantation was found along the road in Bahraich. Though tree cutting was avoided but at some places shrubs and few trees were removed. In case of Banda, 200 Babool trees are cut but permission from forest department is sought as they are on private lands. In Azamgarh district, a dry tree in the middle of the pavement is seen along approach road to Khuthana as the forest department has not issued clearance for cutting the Tree. Officials of PMGSY at Hardoi are planning for roadside tree plantation from other funds, involving local people.

Trees in Middle of Road at Azamgarh

Tree felling avoided in Rampur

3.2.9 Agricultural Practice

Most of the land along the visited roads is fertile. Major crops along the project corridor are sugarcane, maize, rice, arhar, etc. Start of works will be delayed if there are standing crops as earth needs to be excavated for raising / forming new embankment as per technical specifications. Hence, it is necessary to schedule the construction activities keeping in view the harvesting time and rainy season to avoid delays in the works execution.
3.2.10 Grazing Land

Existing revenue tracks have been selected for PMGSY project in UP. Existing width of village roads taken up for PMGSY varies from 3.5m-8m. Requirement of additional 2-3 m land for widening is not affecting the grazing land. But at some places borrowing of earth for embankment is done from nearby grazing land.

3.2.11 Land utilization

Most of the PMGSY roads in UP are aligned on Chak roads, which are usually on fertile agricultural land. Few roads are passing through barren land in Etah. Commercial activities have come up after the road has been constructed. No consideration is given to the type of land use and the impact of construction activities on the fertile agricultural land.
3.2.12 Availability of construction material

Due to a number of road projects going-on in UP i.e. Ambedkar Gram Sadak Yojana, UP State Highways Project etc, at times contractors face shortage of construction materials.

The proposals in the district are made as per availability of construction material in the district. But still there are cases of delay of the projects due to non-availability of materials in the districts of Banda, Hardoi and Etah. There are instances of transporting materials from long distances like the ballast for Banda and Azamgarh districts are brought from Mirzapur district. Construction stopped due to shortage of sand.

3.2.13 Handling of earth work

Machines such as excavators carry out earthwork for embankments in the PMGSY project. The farmers do not allow the earthwork when the crops are standing on the field. Spillage of the construction activities to the adjacent lands causing damage has been observed in some instances.

3.2.14 Conservation of topsoil and reuse

The soil throughout UP is very fertile. Top layer of the soil is being used for rising the embankment leading to loss of topsoil. More serious loss of topsoil is evident when the farmer try to level their field by towing in soil into the borrow trenches thereby losing the fertile layer containing residues of the fertilizers used. Usually villagers donate the soil from their agricultural land up to maximum one-meter depth. PMGSY officials are also not aware of the topsoil conservation.

3.2.15 Use of quarries

Quarry materials are taken from nearby licensed quarries. Quarry materials are taken from Lalkuna quarry in Rampur and Hardoi whereas Fatehpur Sikri is the only approved quarry for Etah District, but Archaeological Survey of India has declared Fatehpur Sikri as a protected area. Blasting activities has been stopped in this area. Now only manual mining is in practice. But this quarry does not fulfil the material requirement of the project, resulting in delays.

3.2.15.1 Borrow areas and their rehabilitation

All the visited PMGSY roads pass through plain terrain. Borrow material for earthwork is taken from roadsides. No redevelopment of these areas is proposed as part of the contractor's scope of work hence these are left as it is. Villagers fill these pits at the time of ploughing of their agricultural fields.
3.2.16 Worker's Safety

The labour force employed by the contractors consists of both locals as well as residents. But mostly skilled labourers are migrants from Bihar. The unskilled labourers including women are also employed doing the construction work. Out side labourers stay in nearby school buildings, abandoned govt / private buildings etc. Only a tarpaulin is provided for about 20 to 30 workers that too only in case of rain while no sanitary or other facilities are provided at some places. Throughout the construction sites visited, it has been observed that no adequate safety measures are being followed during construction.

3.3 Socio- Economic environment

3.3.1 Land Categories in the state

The land can be broadly classified into the following categories and the legal status are tabulated in Table 33.

Private Land: These are land, which are under individual ownership and can be transferred through the existing legislation except for land owned by tribals where it can be sold to the tribals.

Gram Sabha land includes

- **Abadi Land**: In Uttar Pradesh, land reserved for residential purpose is known as Abadi Land. In case of such lands the people residing in such land are the entitled to usufruct rights but do not have title for the plot of land. In such cases under the present regulation system, these people are not eligible to any compensation under the Land Acquisition Act in case their lands are acquired for "public purpose."

- **Grazing lands**: The grazing lands in Uttar Pradesh called pasuchar, are usually protected land but can be transferred for public purpose under notification of the Governor.

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1 The Public Purpose as defined in Section 3(f) vii of the Land Acquisition Act1894 as "the provision of land for any other schemes sponsored by the Government, or with prior approval of the appropriate Government, by a local authority"
Government Lands: The title of these lands rest with the Government, they can be transferred from the Government for “public purpose”.

Government Department Lands: Land under the ownership of different departments can be transferred to the PWD for public purpose under the existing laws.

Table 3.3: Existing Land categories in Uttar Pradesh

<table>
<thead>
<tr>
<th>Land Category</th>
<th>Legal Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Land</td>
<td>Individual property heritable rights vested with owner, can be transferred as per present laws</td>
</tr>
<tr>
<td>Gram Sabha Land</td>
<td>Land can be transferred for public uses as per notification of Governor for public purposes</td>
</tr>
<tr>
<td>Government Land</td>
<td>Different government institutions can transfer land as per existing laws</td>
</tr>
</tbody>
</table>

3.3.2 Land Availability in sub-projects

The existing Chak roads (revenue tracks) are taken up under PMGSY. In majority of the areas, existing land width for the project varies between 4.5m-6.5 m, which is inadequate as per the PMGSY guidelines. Encroachments onto the revenue tracks, if any, are cleared to provide for the required width where the land available is inadequate. To accommodate the proposed cross-section, a land width of 2-3 m is procured on either side. Peg marking of the alignment is being carried out only at the time of mobilization of machinery for the earthwork on the site. As the actual area of land loss is known with peg marking, landowners put up resistance to construction.

3.3.3 Need for land width accretion

Though in majority of the areas, the existing chak roads are followed and inadequate land widths is suitable for the project (4.5m-6.5 m) as per the PMGSY guidelines. Also, several small stretches where the existing width is about 3.0m have been sited.

PMGSY roads are constructed till the point it enters the habitation / settlement in Rampur district; as a result, there is very less probability of affecting any structure in the settlement section. But in Etah, Hardoi and Bahraich districts the road crosses the village. The width of the road is reduced to the available width to reduce any additional land requirement and to avoid any displacement.

In case of Hardoi, where land is highly fertile, people resist voluntary donation. The landowners are hassled to donate the land required for PMGSY road by the Sarpanch and Tehsildar. Project work has stopped for approach road to Mohammadpur village wherein stay order from High Court has been obtained by the landowner on construction of the proposed road. Similarly, construction work has stopped at jirock point (due to no apparent benefits for him, being nearer to the corridor) along Khanpura corridor of Banda district due to a stay order. In certain corridors, as in Barouli Azam in Banda, width of the c/s has to be reduced to 5 m from 7.5m for about 30% of the length due to people’s resistance to voluntary donation (Plate I).
Draft Assessment of Current Conditions
Pradhan Mantri Gram Sadak Yojna

Communal disputes in Azamgarh along corridor connecting to Godhanais one of the reason to avoid donation of land. The takeoff point is in a Muslim village benefiting a Hindu village hence land is not donated. The corridor is brick pitched in the disputed land (Plate II).

In Azamgarh district, corridor connecting, Khutahna land dispute occurred and work is stopped due to a stay order at the takeoff point. But with the intervention of the district collector, the owner is allotted an alternate piece of land as compensation and work has resumed (Plate III).

Plate II Land not donated due to communal Problems
Plate III Disputed land in Azamgarh

3.3.4 Minimization of impacts

Land width accretion has been minimised to the extent possible in roads passing through agriculture lands in settlement sections the c/w width is maintained at 3.75m. No geometric corrections to the alignment are made to minimise land requirement, and also to avoid impacts on farmers. The cross section of the proposed corridor is restricted within the available land width especially in the settlement sections.

3.3.4.1 Alignment Selection

During selection of the alignment, PWD officials notify the Zilla Parishad Members, MLA’s and MP about the project and seek their opinion on the alignment. The people’s representatives in turn express their opinion. The proposal, finalized by the PIU satisfying the PMGSY guidelines is presented in Zilla Panchayat for approval. With the approval of Zilla Panchayat, it is sent to the Department of Rural Development, which sends it to the Ministry of Rural development Government of India for sanctioning the project. After the approval from the Ministry of Rural Development the PWD prepares a detailed project report (DPR) and detailed cost estimates. The DPR is subjected to the unbiased scrutiny of the STA for its approval for construction. Comments of STA if any shall be incorporated. With the approval of the DPR by the STA, the PWD requests the State standing committee for implementation.

3.3.5 Community Profile and Characteristics of PAPs including Tribal Community

Uttar Pradesh has marked variation in the distribution of population. The region of eastern UP has higher concentration of rural population, which decreases towards the western regions. Amongst the western districts those in close proximity to Delhi have high density of population. In the Tarai region and southern plain, population is sparse.

The state is developed in terms of irrigation facilities, agriculture and industries. The economy is primarily agrarian as more than 70% of the workers are engaged in primary activities. In the rural areas, 85% of workforce participation is in the primary sector, especially agriculture. The tribal population in the state is insignificant and no tribal population has been affected due to the project.

3.3.5.1 Project Affected Persons

Majority of the PAPs are Scheduled Castes with 80% of the total impacted households. There is no person belonging to ST impacted due to the project, as their concentration is negligible in the state. 22 of the 110
PAPs are below poverty line with 2 households headed by women. In no case the impacted household has been marginalized due to the project as reported during the community consultations. Since the state is rich in productive soil, the main occupation of the PAPs is farmers with few PAPs working as agricultural labourers. Table 3.4 provides the details of the PAPs consulted during community consultation in the state.

**Table 3.4: Profile of the PAPs in the state of Uttar Pradesh**

<table>
<thead>
<tr>
<th>District</th>
<th>No of Corridors visited</th>
<th>No of PAPs HH</th>
<th>Scheduled Caste</th>
<th>Scheduled Tribe</th>
<th>Below Poverty Line</th>
<th>Women Headed Households</th>
<th>Handicap</th>
<th>Uneconomic Land Holding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azamgarh</td>
<td>24</td>
<td>22</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td></td>
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<tr>
<td>Banda</td>
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<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Hardoi</td>
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<td>3</td>
<td>0</td>
<td>1</td>
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<tr>
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<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Mirzapur</td>
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<td>17</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Source: Community Consultations in villages along project corridors.

### 3.3.5.2 Project Displaced Persons

There has been no person displaced owing to the process of voluntary land donation.

### 3.3.6 Nature and Extent of Impact

#### 3.3.6.1 Land

There has been resistance from the local community for land donation as the state is rich in agricultural produce. Owing to its high population density, the average land holding size is between 1.0 ha to 1.5 ha in 5 districts except for Azamgarh and Mirzapur where it varies from 1.0 ha to 2.0 ha. The average land donated by the PAPs is 1.2 m with less than 1 m in the fertile areas of the central and western plains. Along 9 of the 36 corridors visited, there has been donation of land by farmers with uneconomic land holding. There has been marginal impact on the land holding size as only 0.5-1.0 m of land is taken for PMGSY. Predominantly, the land donated for the project is cultivated land belonging to private landowners.

#### 3.3.6.2 Structure

There has been no impact on the structures along the PMGSY corridors in the state of Uttar Pradesh.

#### 3.3.6.3 Livelihood

There has been no case of any villager or farmer losing its livelihood due to construction of PMGSY road. Assessment of impacts on standing crops has been addressed by avoiding damage to the standing crops since...
the construction period is for one year, scheduling construction considering the harvesting and sowing seasons would minimise delays.

3.3.6.4 Assets

Impact on common property resources

No common property resources are impacted along the PMGSY roads. Along Khutana road in Azamgarh District, a part of the grazing land has been taken to take material for earthwork. No wells or hand pumps are removed as part of the project. However, excavation is carried out nearer to hand pump (Unri Dhari link marg, Bahraich) causing water logging near it. This is likely to cause damage to inner pipes of hand pump and also contaminate water due to the standing water.

Impact on cultural properties

Alignments have been slightly swerved to protect the cultural property along the c/w edge. Since the modifications in the alignment are minor, no official procedures have been adopted to approve these changes. In one of the corridor of Banda District, road has been slightly shifted to the left to avoid an old temple. Efforts have been made to avoid pond and few trees by slight realignment as observed along the approach road to Manra in Azamgarh district.

3.3.6.5 Temporary Impacts

Disruption to normal Traffic

No alternate routes for movement of vehicles are identified while the construction work is in progress. However, this is insignificant considering the low traffic volumes and the anticipated benefits due to the project.

Quality of Life during construction

These included increased noise levels during construction, dust due to earthworks etc are experienced for a short duration. Consideration of these issues by the contractor through regulating timings of usage of heavy equipments, dust suppression etc will minimize the extent of impacts.

Construction Camps

The skilled labour for the project is external workforce. The contractor at times provide accommodation in rented houses inside the village such as Panchayat buildings and schools etc. These workers are totally
dependent on the village for their daily basic requirements. But no instance of resentment from the host community has been confronted with in any of the districts visited.

**Employment for local population**

Unskilled labour is being engaged from the villages along the alignment. Participation of people in construction activities is present in all packages and are engaged at Rs. 60 - 80 per day. Female also worked on road construction. Increased employment opportunities and diversification into construction activities from the seasonal agricultural activities is seen in the villages.

**3.3.6.6 Safety and Health Impacts**

The community has not reported of any sort of health issues such as dust, noise etc while the work is in progress or after the project road has been completed.

**Issues related to movement of vehicles and machinery**

Usually earthwork is done after harvesting or before sowing season. Consequently, there is no impact on the standing crops but the land is used for movement of vehicle. In Mirzapur district, the bitumen mixing is carried out on site. This not only increases the chance of affecting some patch of land but also air pollution in the vicinity of the road.

**Impacts on Land and people during construction**

Movement of the machinery as rollers and earthmoving equipment on the adjacent lands have insignificant during construction. The short-term impacts are often ignored by the implementing agency unless the people raise an objection to that, then only some mitigation measures are adopted to reduce the impacts. There has been no provision of alternate routes while the construction work is in progress.

**3.3.7 Process for Land Accretion**

**3.3.7.1 Identification of locations**

The identification of the locations for additional land uptake is undertaken by the PIU during initial survey of identifying the existing chak roads. It involves no peg marking of the alignment and checking of the revenue records.

**3.3.7.2 Ownership verification**

Along the corridors visited, no peg marking of RoW has been carried out before implementation of the project. The lands taken up along the PMGSY roads are mostly private lands and Gram Sabha lands. Instances of Gram Sabha lands where individuals carry out cultivations are observed in several districts of Uttar Pradesh. In most of the cases, it was observed (based on the consultations) that these cultivators own other parcels of land. Requirement of grazing lands has not been observed along the corridors visited, but there is a likelihood of these lands getting impacted in other roads to be taken up in future.

Similarly, the transfer of Abadi land was not observed along the corridors visited either due to roads usually end at the start of the habitation and these designated Abadi lands are within the habitations or road within the habitation is designed to accommodate within the existing building lines and there is no impact on structures.
Apart from forestlands, there are no lands belonging to other government departments, impacted in the project. Any uptake of such lands will need to be carried out through the requisite clearance procedures of the concerned departments. Clearance of forest lands by the individual state departments are being carried out through the provisions of the Forest Conservation Act by the implementing agencies.

Updating the revenue records has not been carried out in case of transfer or donation of land. Revenue department is not aware of the location of Chak and PMGSY roads, which reveals that they are oblivious of their role in this project.

3.3.7.3 Dissemination of process

During survey of the corridor for DPR preparation, the concerned Junior Engineer undertakes informal consultations with the villagers / Sarpanch about the requirement and voluntary donation of land. Based on this enquiry the PIU gives a certificate in the final DPR to STA stating, “For all proposed roads, Land is available and no provision for land compensation made in the proposed project”

There is no formal disclosure as to the extent of social impacts and land requirement prior to the start of the construction. However, interactions with the villagers along proposed stretches indicate that they are informed of the proposed alignments through interactions with PIU. There has been no formal consultation and information dissemination pertaining to the project and alignment details and schedule of the construction work.

3.3.7.4 Process of Land Transfer/Donation

Due to fertile nature of the area, the farmers whose lands are adjoining the PMGSY roads are not readily willing to part with their lands. During the entire process of project preparation, there have been no efforts to identify the number of persons affected by the project and to compensate them.

The PIU is not involved in the handing over of the site to the contractor prior to start of construction. Along several stretches, it has been observed that it has been the responsibility of the contractor to procure land for the project. The Contractor carries out interaction with the Pradhan and the affected persons and secures land for construction. The characteristics of the land holding and the status of the affected person are not considered. In isolated cases, there have been instances of the contractor paying token assistance in case of severe grievances. Along the corridors visited, there are instances where people take stay orders from the court for stopping the construction along a particular stretch. Such instances along the roads visited are at:

- Khanpura link road of Banda District.
- Khutahna Link Road of Azamgarh District
- Godhana Link Road of Azamgarh District
- Kasada Link Road of Mirzapur District (In this case the corridor is in Package No – UP 5305. The tender is awarded to the contractor on 22.04.02 and due to the unwillingness of the landowner he has filed a case and got a stay order on 14.11.02)

No transfer of land as per the provisions of the UP ZA&LR Act, 1950 taken up.

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2 Construction work resumed at the corridor Khutahna Link Road of Azamgarh District after intervention of the district official. The landowner at the off take point has taken a stay order from Court for not allowing construction of the road. Construction work at the corridor stopped for three months. Work again started in June 2003 after intervention by the Collector. The person who had got the stay withdrawn the stay after the District Collector arranged a patch of land as compensation.
3.3.8 Non-Titleholders

Encroachments along the PMGSY roads have been reported along few of the visited corridors. The most common form has been the inclusion of revenue track within the agricultural field. In most of the cases, the contractor with the consent of the landowners clears encroachments at the time of construction. While involvement of officials of PWD, Revenue department, Sarpanch and Police assistance, is required in some cases.

3.3.9 Consultation Process and Information Dissemination

There has been no public consultation in the village before the initiation of the work. There were interaction with the villagers while implementation of the work but there has been no documentation of the proceedings. The approvals of the proposals are done from Zilla Parishad at the district level in the presence of local Gram Pradhan, MLAs, MPs, CDO and Officials of PMGSY. The resolution passed in those meetings for the approval is documented. Concerns of the villagers are put forward by the village pradhan to the PUL officials for consideration during fixing the alignment. No documentation exists for these consultations.

3.3.10 Grievance Redressal Mechanism

There exists no formal mechanism for addressing the concerns and issues raised by the community. The engineer, contractor and sarpanch resolve the grievances of the impacted person or community. No record or documentation of the existing procedure of grievance redressal is undertaken depicting the type of grievances and how resolved. In maximum possible cases the contractor tries to solve the problem on site through dialogue. But in case of legal order, the PWD and revenue department have been involved. This many times causes delays in the completion of earthwork. In few cases, some patches have been left without any construction as the landowners have got stay order from the court. The following instances indicate the delays due to non-availability of land.

3.3.11 Assessment of Land use / land utilization pattern and Induced Development

The land along the project is primarily a cultivated area. Land use has not been a factor for consideration while choosing and preparing the proposals. No environmental or social issues have been considered as part of project preparation. Commercial activities have started along completed stretches of PMGSY. Construction of a shop on the shoulder is observed in Pakadia–Ranipur corridor of Azamgarh district. Construction of houses is also observed in corridor connecting Manra in Azamgarh. Such developments are likely with the construction of the road. No controls exist at present to avoid such developments. The land not being owned by the Revenue department, effective measures to control induced development are to be developed which provides for adequate enforcement powers even when the land is privately owned.
3.3.12 Construction Debris

Construction wastes from the road construction are left on the roadside after completion of construction. Contractor when consulted assured of the clearance after completion of construction.

3.3.13 Implementation Arrangements

3.3.13.1 Agencies Involved

State PWD / RES: The state PWD / RES is the executing agency for the project. It is responsible for procurement of contractors and disbursement of funds. PWD at district level under the Executive engineer supervises the project preparation and construction activities. In some cases, detailed project preparation is done through procurement of services of an external consulting agency.

Role of STA: Ceiling on fund allocation for a PMGSY road is sometimes hampering the road quality, especially in case of drainage. Funds allotted for c-d structures are inadequate in flood prone areas. Due to the upper cap on budget allocation and inadequate information on proposed CD structures, STA tries to reduce the cost by cutting down the number of CD structures. Restriction by STA on length of concrete pavement in a flood prone area due to high initial cost is likely to decrease life of the road. There have been indications on the inadequate role of STA in the project. They sanction the project on the basis of their academic experience and do not carry out site visits.

3.3.13.2 Supervision and Monitoring

There has been continuous monitoring of the project throughout its planning and implementation by the PWD. Frequency of field visits of the executive engineer to the construction sites varies from once a week to once a fortnight. There have been visits of the National Quality Monitors to the roads under construction. Their suggestions are coming in the advanced stages of the project implementation. Hence, the contractor / PWD is able to implement the suggestions in the subsequent corridors only. In this state the Online Monitoring System is operational in few districts.

3.3.13.3 Reporting

The reporting of progress of work is being done as per the guidelines of PMGSY. Slight modifications to the formats are carried out to suit the field conditions. The formats are the basis of costing the work done and also
for release of payments to the contractor. No environmental and social factors are incorporated into these formats.

3.3.13.4 Capacity Building

There have been no workshops organized for providing training to the officials at any stage of the PMGSY scheme. This is one of the reasons for lack of awareness about the scheme among the various officials and authorities involved in the implementation of the scheme. It is claimed that the staff have difficulty in feeding and retrieving data into the online system as also other aspects of analysis using computers. The implementation staff is adequately trained in technical and engineering aspects and hence they are able to follow and implement the guidelines.
C) Himachal Pradesh

3.1 Introduction

The territory of Himachal Pradesh is wholly mountainous. Physiography of the state is characterized with hilly terrain and reflects an intricate mosaic of hills, valleys, and splendid mountain ranges having altitude ranging from 450m to 6500m above msl. The state can be broadly classified into three zones: (i) valleys and low hills, (ii) high hills between 2000-3000 m, (iii) and the alpine zone above 3500 m covering three districts. The broad characteristics of these regions are as follows:

Region 1: Valleys and low hills: Mainly lies along the southern borders of the state, and experience climatic condition similar to plains.

Region 2: High hills: Mainly the central parts of the state of Himachal experience temperate summer and extreme cold winters.

Region 3: Alpine zone: Also known as the cold deserts of India. Experiences extreme winters and heavy snowfall. Practically cutoff for about eight months through motorable roads from the rest of the state. Experience out-migration of people from these regions in winter.

3.2 Environment

3.2.1 Climate

The climate in the state ranges from wet sub temperate to humid sub tropic. The low and high hills experience humid sub temperate conditions, and alpine zone is dry temperate. The annual rainfall in the state varies from 522 mm in alpine zone 1569 mm in Kangra valley. In winter months temperatures drop down below -20°C in the alpine region. This effectively reduces the working season to only 4 months.
In the Regions of Lower hills and hills and plateaus, work is hampered for a period of less than two months during winter, but it gets disrupted for about 3 months during rainy season. As the contractor is forced to implement the project within specified duration, there are instances of blacktopping being carried out outside the summer seasons, thereby resulting a compromise in quality. These instances are indicative of the contractor not scheduling his construction activities as per the prevailing climatic conditions.

As per the recent amendments in PMGSY for hill areas in particular, the construction work has been extended for a period of 2 years. The base work is finished in one year and the blacktopping is done in the next season. This also gives sufficient time for the base to stabilize.

3.2.2 Topography

The state has a deeply broken topography and complex geological structures. The undulating topography has an important role in the planning and design of roads in Himachal. Elevation in the state generally increases from southwest to northeast. In the low & high hill regions due to the vegetation cover, soil is relatively stable whereas in the alpine zone soil strata is unbound without any vegetation cover. In the low & high hills, soil slips are frequent in rainy season on locations of fresh cutting. The problem is aggravated in corridors where slope/erosion control structures are not proposed at required locations.

Studies related to the required gradient, cut & fill options are conducted during the planning stage. Efforts are made to balance the cut and fill quantities and in cases wherein the surplus is left, the same are disposed into the nearby nalas/streams. Slope protection measures are taken up only in few corridors.

3.2.3 Geology

The Shivaliks consists predominantly of tertiary formations and this belt of rocks is considered to be the youngest in age. The zones of lower Himalayas, great Himalayas and trans Himalayas are composed of granite & crystalline rocks; snow clad mountains; and young soils with thin depths respectively. No studies are conducted in relation to the geological aspects.
3.2.4 Soil Characteristics

The soils in the state can be broadly classified under the category of brown forest soils. Of the districts taken for the sample surveys, Kullu and Mandi districts fall under the highly fertile Brown alluvial soils. Alpine region has mountainous skeletal soils, which are young and thin; any depth in them whatsoever occurs in the valleys or on gently sloping inclined hill slopes.

The undulating topography further aggravates the problem of slope stability and erosion thereby making them more vulnerable to landslides / soil slips. In Alpine zone the required depth for construction of slope stabilization structures is much more in comparison to the other two regions due to sparse vegetation cover, unbound strata etc. In few instances the depth of retaining wall is provided up to the bed of the stream for better stability. This leads to escalation in per unit costs.

3.2.5 Quality of water

The general quality of water in the major rivers and its tributaries remains within the designated best use category\(^1\) of A to B only. During the monsoon, the turbidity levels increase due to siltation in the upper reaches. As per the guidelines, tests related to the pH, hardness, etc along with other tests are conducted by the PWD.

3.2.6 Availability of water & Impact on water bodies

Water availability for construction is not a concern in the state. Of the sample sites / corridors visited there were no conflicts arising out of the sharing of water resources with the local population. The contractor procures water from the nearest source and transported it in tankers to the site. At certain locations, the contractor is required to pay to the owner in case of private sources. No impacts are observed on water bodies due to procurement of water.

3.2.7 Flood drainage

While designs are prepared for Cross Drainage structures, the factors like HFL levels are taken into consideration of the various streams and nallahs, as per the IRC: SP-20:2002

3.2.8 Alteration of drainage patterns

Quick, efficient and well-connected drainage system is considered the backbone of roads in the hilly terrains. Being an undulating terrain, alterations to the drainage pattern are sometimes severe. The alpine region is made

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\(^1\) Designated best use category as per Central Pollution Control Board. Category A corresponds to quality of a drinking water source without conventional treatment but after disinfection and Category B corresponds to quality of water suitable for outdoor bathing.
Draft Assessment of Current Conditions
Pradhan Maneet Garm Sadak Yarın

up of mainly high mountain peaks, large glaciers, and vast snowfields. The vegetation exists in patches mainly as pasturelands. Design of Cross Drainage structures is of concern in this region as damages occur to a great extent due to the glacier movements and avalanche.

There have been instances wherein the proposed number of CD structures differs from what was provided on the ground due to local peoples resistance to the excess flow of water flooding their parcel of land. In such cases, the drainage patterns are altered by construction of additional catch pits to divert the flow of water to other parcel of lands, generally into the existing streams.

Provision of drainage in majority of the corridors is found to be satisfactory but in some corridors it is unsatisfactory and needs improvement.

3.2.9 Flora and Fauna

The low & high hill regions are fertile areas whereas in alpine region the vegetation exists in patches mainly the pasturelands. The fodder that is grown is cut before the snow starts in the region and is used for the rest of the year around 7-8 months. The slopes become gentler having fields and green pastures, within proximity of confluence of Chandra and Bhaga Rivers.

The steep mountain slopes are covered with coniferous and broad-leaved forests, meadows, pasturelands and terraces. The north face of Shiwalik Mountains is marked by sal forest due to high moisture contents, scrub forest cover the south face of the mountains. Miscellaneous broad-leaved forests are found on the other faces of the Shiwalik hills.

No studies regarding the rare or endangered species in the area are carried out. During the site visits none of the issues related to the same were noticed.

Felling of trees is avoided to the extent possible in aligning the road. In case no options are available then the permission is sought from the forest department. In case of the trees on the private parcel of land the owners are encouraged to cut the same. There have been instances where forest department have refused to cut the trees and they still exist at the edge of the carriage way or even on the paved portion. In Himachal Pradesh, most of the land is forestland. In such a case probability of road cutting into forestland is quite high.

3.2.10 Agricultural Practice

Agriculture is the predominant occupation of the people and quality potato is the main cash crop. The alpine region is without snow cover for only four months so the cash crops grown in the area are peashoppes (flower used for the production of Beer). Most of the agricultural production is done around the villages in district of Kullu, wheat, rice fields and orchards of plum, cherry and apple line the valley floor. There is resistance to voluntary donation of land in low and high hills due to fertile agriculture land and small size of land holding. In case of Orchards, even a slight increase in land requirement will require felling of a row of trees. Horticulture
Department values each full-grown Apple tree at Rs. 30,000 and sapling (1-2yr old) at Rs. 2,000. Due to such high value, land is not readily donated.

3.2.11 Grazing Land

Taking animals for grazing to higher reaches is prevalent in the state. Given the extent of land uptake, the extent of loss of grazing land is not likely to be significant. However, the changes to the natural hill slopes, especially due to the vertical cuts along new alignment has the potential to change the traditional routes adopted for grazing.

3.2.12 Handling of earth work

Mainly Bulldozers are used for earthwork in the PMGSY project. Haphazard cutting of the slopes is reported. Soil slips occur along the new cutting areas in the corridors. This damages the adjoining parcel of land. This has also lead to increased resistance from the locals to the donating of land under PMGSY in the low and high hill regions.

3.2.13 Conservation of topsoil and reuse

The concept of topsoil conservation is not relevant in case of alpine region due to its very thin depth. In case of Kullu and Mandi districts no efforts are made to conserve the topsoil.

3.2.14 Use of quarries

The material for construction is obtained from existing quarries. The quarry areas do not get exhausted after the removal of the materials in case of designated sites so the contractor undertakes no restoration efforts.
3.2.15 Borrow areas and their rehabilitation

The cutting and filling materials are generally balanced and in case of surplus, the materials are dumped into the nearby nallahs/streams. The cutting of rocks is carried out either by blasting or in manually incase loose strata is present. No new borrow areas are dug up for the project. The provision of passing places is not considered in design of most of the corridors in the state.

3.2.16 Safety Concerns

Narrow road width, steep grades, sharp curves and steep dangerous valleys characterize hill roads. There are no provisions for safety measures in form of parapets and guide stones in the project. At certain locations the construction of parapet walls etc are undertaken wherein the requirement is felt along the road particularly along the valley side.

3.2.17 Worker’s safety

The labour force employed by the contractors is both local as well as migrants but mostly migrant. But mostly migrant labour is from states of Rajasthan, Bihar, Orissa etc. In Spiti the contractor has taken houses on rent in the villages for the labors and in some cases the make shift arrangements made by the contractor for the labors are not sufficient enough. No basic infrastructure facilities are provided to them at these camps. These observations highlight the concern for the public's safety as well as the worker's safety on site. Socio-Economic environment

Himachal Pradesh being a hilly area has main population concentration in the villages. Since approximately 90% of the total population resides in the rural areas, the provision of accessibility to these regions becomes important. Relief, fertility of soils, favorable climatic conditions and transportation, mainly governs the distribution of people. Throughout the entire state, the population is densely concentrated in river valleys, basins and lower slopes of hills.

The highland areas have sparse concentration of people with high and rugged topography and harsh climatic conditions. The north and eastern part of the state are very thinly populated. The absence of the road networks in the tribal district of Lahul and Spiti has been one of the reasons for low levels of socio-economic development. The lower hills and valley region of the state has considerable population density with major concentration of settlements and economic activities. These are highly agriculturally productive regions owing to productive soil and adequate rainfall along with orchards.

3.3 Socio-Economic environment

3.3.1 Land Categories in the state

The various land categories in the state of HP are as follows:

**Private land:** The revenue settlement clearly defines agricultural land as private, Irrigated – ropa; and Non-irrigated – chait. The full property rights are vested in the head of the household and the rights are heritable.
Draft Assessment of Current Conditions
Pradhan Mantri Gram Sadak Yojana

Natour land: The HPCLVU Act (1974), also known as the Natour Lands Act, was enacted to redistribute land to the landless or land poor but was discontinued in 1980. The redistributed land was granted from land classified by the revenue department as wastelands. The Natour land must be cultivated by the grantee and cannot be sold for 15 years. After the 15-year period the natour land is considered to be the same as any other agricultural land.

Kuth: Kuth held by a collective (lineages), and each lineage paid taxes to the revenue department for their kuth land. Due to the decrease in population due the earthquake, the village population was reduced and it was no longer necessary to cultivate kuth land. The land was allowed to revert to pasture and trees but was recorded as land belonging to individual landholders at the time of the revenue settlement.

The development of property rights for kuth is different from that of the irrigated and non-irrigated land. The difference was that agricultural land was settled among the descendants of the person in whom the right in land was originally vested. As kuth ceased to be cultivated, it was retained by the lineage and not split among the descendants. Lineages became responsible for setting the rules on exclusion, management and alienation, access having been determined by the original settlement report. Some lineages divided the land among all the male descendants so that each could plant orchard on their share of the land. Land, which was held in common by lineages, is now under going a process of converting to private land.

Paht: Paht was an area of land over which members of a lineage held rights to cut grass for fodder, commonly known in English as hay. Haying lands were found to provide a parallel to kuth as the right to cut grass was held by a lineage. Haying lands were different from kuth because kuth is a right in land as settled under the revenue settlement, whereas paht was settled under the forest settlement as an individual usufruct right to cut grass on forest lands where a customary right previously existed. The haying right was recorded as an individual right but became a collective right as the lineage increased in number.

Thach and Theli: Thach refers to a forest meadow, or a clearing in a forest, which is used for grazing and acts as a campsite for shepherds. Theli refers to alpine meadows. The right to graze in the forest and on alpine meadows was recorded as an individual usufruct right under the forest settlement. Although the grazing right was recorded as one of the 'great rights', village consultants said that the right was limited and extinguishable. The original right holder was given the right to graze a fixed number of sheep in the village forest, in a summer grazing area and a winter grazing area based upon a pre-colonial practice of such a right. The permit was then split among the descendants. The permit was extinguishable once the shepherd family stopped grazing sheep.

Undemarcated Protected Forest (UPF): Previous to The HPCLVU Act (1974), the 'wastelands', as classified by the revenue department, were considered as shamlat land or village commons by the village. The land was not utilized for agriculture because it was of poor quality and was best suited for grazing village animals and collecting firewood from the scrub forest. The same land was considered as UPF (Class III) by the Forest Department after The HPCLVU Act (1974). Under The Act, shamlat land was classified as allotable land to be given to the landless, or non-allotable land to be given to the Forest Department. Non-allotable land was that "...on which tree growth is thick..." (ODA 1994). This process was not completed so ownership remained vested in the revenue department for those lands not allocated to the landless. UPF or 'wasteland' was partially privatized and partially made into open-access as neither the village, Forest Department nor revenue department had clear rights to the land.

2 In the past, when the local population was greater, forestland at a higher elevation than agricultural land was cleared and utilized as cultivated land. That land was known as kuth.
Grazing on the UPF land was regulated through the practice of moving all cattle except milk cows to higher grazing grounds in the summer. The government effectively created a situation of open-access upon heavily used land and at the same time limited the ability of the village to regulate the use of UPF land. In spite of this, customary village property rights over sacred trees, village groves and grazing allowed the village to implement some management practices and prevent the total degradation of UPF lands.

Demarcated Protected Forest (DPF): The rights of villagers in Law for DPF products were similarly limited to a right of usufruct and held by the individual not the village. The specific rights of each village and the DPF areas to which they correspond were prescribed in the forest settlement report and vary between villages. Some of these rights, such as grass cutting and grazing were previously described above. Additional rights such as lopping of branches of trees, collection of fodder and collection of bedding were described in Table 35.

Reserved Forest: All reserved forest rights were limited gathering rights for deadwood and there are no customary property rights for this type of land use.

The following table 3.5 presents the legal provisions for transfer of land under each category while table 36 shows the customary and traditional rights of tribal community over various land categories in Himachal Pradesh.

### Table 3.5: Existing Land categories in Himachal Pradesh

<table>
<thead>
<tr>
<th>Land Category</th>
<th>Legal Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Land</td>
<td>Individual property heritable rights vested with owner, can be transferred as per present laws</td>
</tr>
<tr>
<td>Gram Sabha Land</td>
<td>Land can be transferred for public uses as per notification of Governor for public purposes</td>
</tr>
<tr>
<td>Government Land</td>
<td>Different government institutions can transfer land as per existing laws</td>
</tr>
<tr>
<td>Demarcated Protected Forest</td>
<td>Rights of villagers were limited to right of usufruct held by an individual not village</td>
</tr>
</tbody>
</table>

Majority of the land (impacted or likely to be impacted) is under cultivation owned by individuals along with encroachment of Gram Sabha land. In no instance, the land within the settlement has been taken due to the following reasons, firstly, the road rather ends outside the village and secondly, the design of the PMGSY road is as per the land width available within the settlement.

### Table 3.6: Types of land use and property rights regimes according to law and custom in Tribal Areas

<table>
<thead>
<tr>
<th>Land Use1</th>
<th>Local Name</th>
<th>Village Rights to Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigated Agricultural land</td>
<td>Ropa</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>Non-irrigated agricultural land</td>
<td>Chait</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>Redistributed land</td>
<td>Natour</td>
<td>✓ ✓ ✓</td>
</tr>
<tr>
<td>Lineage based grazing land</td>
<td>Kuth1</td>
<td>✓ De facto De facto</td>
</tr>
<tr>
<td>Lineage based haying areas</td>
<td>Paht</td>
<td>✓ De facto De facto</td>
</tr>
<tr>
<td>Forest grazing</td>
<td>Thache</td>
<td>✓ De facto De facto</td>
</tr>
<tr>
<td>Alpine grazing</td>
<td>Theh</td>
<td>✓ De facto De facto</td>
</tr>
<tr>
<td>Un-demarcated Protected forest</td>
<td></td>
<td>✓ De facto De facto</td>
</tr>
<tr>
<td>Demarcated Protected forest</td>
<td></td>
<td>✓ De facto De facto</td>
</tr>
<tr>
<td>Reserved forest</td>
<td></td>
<td>✓ ✓ ✓</td>
</tr>
</tbody>
</table>
Draft Assessment of Current Conditions
Pradhan Mantri Gram Sadak Yojna

Note: The symbol (,) denotes that a village holds de facto (in law) rights for that land type. De facto rights, although unrecognized by law, are rights that have been acquired and recognized by other resource users and are considered to be held in custom.
1: Gah is a local and type surrounded by either undemarcated or demarcated forest. Its classification as private is unclear on the part of both local villagers and the local forest management.
2: Rights to cut gone are held by a kin group.
3: Some limited gathering rights (e.g., deadwood) apply to Reserved Forests.

3.3.2 Land Availability in sub-projects

In the state of Himachal, the existing revenue tracks are generally the shortest paths followed over the years, which sometimes are not possible to be made motorable without major modifications. The land requirement increases in case of fresh alignments while for minor improvements like grade improvements, harpin bend improvements etc the required width varies from 1-2 meters. The existing average land width available along the sub projects in the state ranges between 3.5-5.0m, less than the required PMGSY guidelines. Table 3.7 reveals the existing width available for PMGSY roads both in open area and village section of the project corridor.

Table 3.7: Existing Land Width available along sub-projects in sample districts of Himachal Pradesh

<table>
<thead>
<tr>
<th>Land Width (m)</th>
<th>Open Area</th>
<th>Built Up Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Standard</td>
<td>Existing</td>
</tr>
<tr>
<td></td>
<td>Plain</td>
<td>Hilly</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

Source: Based on field observations and interactions with HP PWD

3.3.3 Need for land width accretion

The roads that were taken up under the project were motorable to certain extent and very few are complete fresh alignments. The average width of the revenue tracks varies from 3.5 to 5.0 meters across the state which is generally not adequate as per the IRC: SP:20 standards for hilly terrains. Moreover, the land requirements are higher at the curves, passing places and locations where grade improvements are need. The additional land required is taken through land donation wherein the private or government land is transferred from the owner to the PIU (HP PWD) for construction of the road.

No formal process for land width accretion has been adopted by the PWD through which identification of additional land requirement ascertained and documented. The PWD has taken private land and maintained a list of impacted land parcels in the form of affidavits (mentioning that the landowner has no objection in donating land for the project) collected from landowners before the project implementation. However, there are no records as to how much land the individual parcel owners will be donating is documented. Detailed layout plan depicting the likely impacted land parcels and PAPs is not undertaken by the PIU. The process is entirely based on-field visual observations and assessment by the PIU officials.

As per the Government Notification (Refer Box 1), new roads will only be constructed if land is donated voluntarily.

Box 1 Himachal Government Notification No. PBW(B) A(7) 2-7/2000-11
According to the notification of Himachal Government No. PBW(B) A(7) 2-7/2000-11 on land acquisition "New roads to be constructed only if communities give land free of cost, work to start only after land is transferred to the government."

Alternative land to be allotted to those who become landless or otherwise eligible subject to availability of land with government.
There is no case of displacement as evident from the site observations and the interactions with the PWD officials wherein the land donor is left without any land after donating for the project. The socio-economic status of the likely persons donating the land for construction is not taken into account as to how land donation is likely to impact on their livelihoods.

3.3.4 Minimization of impacts

Due to the hilly and undulating terrain in the state, the options available for modifying the alignment is minimal. In majority of the cases, the existing revenue track is followed with additional land (where less than PMGSY guidelines) from the private landowners. Maintaining appropriate grades, slopes etc along the alignment restrict any alterations in the alignment, thereby resulting in land width accretion from private landowners.

Due to the resistance in land donation process in the low & high hills, at certain locations a compromise has been made with the geometric designs and grades due to non-availability of land. This problem doesn't arise in the village sections due to relatively flatter parcels of land near to the habitation. The problem is more severe in case of road alignment passing through the orchards where a slight increase in land donation may be of another row of trees. The problem is not so acute in the district of alpine region being sparsely populated areas and not very fertile land parcels. No encroaches and squatters are also observed in the corridors.

3.3.5 Community Profile and Characteristics of PAPs including Tribal Community

Approximately 90% of the total population resides in the rural areas, the provision of accessibility to these regions becomes important. Relief, fertility of soils, favorable climatic conditions and transportation, mainly governs the distribution of people. Throughout the entire state, the population is densely concentrated in river valleys, basins and lower slopes of hills.

The highland areas have sparse concentration of people with high and rugged topography and harsh climatic conditions. The north and eastern part of the state are very thinly populated. The absence of the road networks in the tribal district of Lahul and Spiti has been one of the reasons for low levels of socio-economic development. The lower hills and valley region of the state has considerable population density with major concentration of settlements and economic activities. These are highly agriculturally productive regions owing to productive soil and adequate rainfall along with orchards.

In winter months temperatures drop down below - 200 C in the alpine region. This effectively reduces the working season to only 4 months. The low & high hill regions are fertile areas whereas in alpine region the vegetation exists in patches mainly the pasturelands. The fodder that is grown is cut before the snow starts in the region and is used for the rest of the year around 7-8 months. The slopes become gentler having fields and green pastures, within proximity of confluence of Chandra and Bhaga Rivers.

Due to the noticeable seasonal variations in climatic conditions the main source of livelihood are orchards and livestock rearing. The gender ratio is also low in the Alpine region due to out migration of male population for employment. In the Lower Hills region & Hills and Plateaus, significant percentage of village population is engaged in agricultural practices. Kullu has a significant SC population (25% to 30%) while Lahul and Spiti district is a scheduled tribal area.
3.3.5.1 Project Affected Persons

The PAPs in the state are predominantly Scheduled Castes with 70% and Scheduled Tribes accounting for 30% of the total PAP households. The percentage share of ST is higher in the tribal district of Lahul and Spiti where 60% of PAPs belong to ST. 3 of the 13 corridors visited involved land donation by households owning marginal land holding especially Mandi district, while 7 of the households are below poverty line. Majority of the landowners are engaged in agriculture and have orchards. The tribal district of Lahul and Spiti have cultivators and animal husbandry as main the occupation of the population with high rate of migrations.

Table 3.8: Profile of the PAPs in the state of Himachal Pradesh

<table>
<thead>
<tr>
<th>District</th>
<th>No of Corridors visited</th>
<th>No of PAPs</th>
<th>Vulnerable Households</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Scheduled Caste</td>
</tr>
<tr>
<td>Kullu</td>
<td>3</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>Lahul and Spit</td>
<td>7</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Mandi</td>
<td>9</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Community Consultations in villages along project corridors.

3.3.5.2 Project Displaced Persons

Along no corridor, there has been displacement of any person or asset due to the project.

3.3.5.3 Indigenous People

The tribal areas of the state form 42.6% of states total area yet contain only 3.2% of the population of the state. The district of Lahul and Spiti have 204 kms of road maintained under the Border Roads Organization program. Apart from the selection criteria for roads as per PMGSY guidelines, for tribal areas (which is even otherwise applicable to the entire hilly state of HP), there are no special plans or provisions for development of tribal areas. The tribals in the area are Buddhists following Buddhist cultures and traditions. The women folk have a key role to play in the day to day activities but the decision making is not women's domain. Review of final choice of road.

No consultations in the tribal areas has been undertaken by the PIU to ascertain concerns related to PMGSY road in tribal areas. No studies have been conducted to identify their tenural rights, socio-economic, cultural characteristics or other laws and policies governing their systems. No tribal development plans are prepared to address the issues that would arise during construction. No specific plans / measures are taken in these regions to avoid or mitigate impacts on these communities as they are positively impacted due to the project. Land uptake in the Schedule V Areas in the state has not considered PESA provisions, PR acts as well as the tenural rights of the tribal community on the existing resources.
3.3.6 Nature and Extent of Impact

3.3.6.1 Land

There has been resistance from the local community for land donation as the land available is restricted owing to the hilly and undulating terrain. The average land holding size is between 0.5ha to 1.5ha while the average land donated is 1-2m. 3 of the 13 corridors visited in the state involved donation of land by farmers with uneconomic land holding. The land category impacted predominantly orchards providing livelihood to the PAPs.

3.3.6.2 Structure

No built-up structures have been impacted in any of the corridors. There have been instances wherein the work has stopped due to the rivalry between the opposite land owners or because of induced negative impacts on the rest of the parcel as no mitigation measures are proposed.

3.3.6.3 Livelihood

Agriculture is the predominant occupation of the people and quality potato is the main cash crop. The alpine region is without snow cover for only four months so the cash crops grown in the area are peas, hops (flower used for the production of Beer). Most of the agricultural production is done around the villages. In district of Kullu, wheat, rice fields and orchards of plum, cherry and apple line the valley floor. There is resistance to voluntary donation of land in low and high hills due to fertile agriculture land and small size of land holding. In case of Orchards, even a slight increase in land requirement will require felling of a row of trees. Horticulture Department values each full-grown Apple tree at Rs. 30,000 and sapling (1-2yr old) at Rs. 2,000. Due to such high value, land is not readily donated.

Taking animals for grazing to higher reaches is prevalent in the state. Given the extent of land uptake, the extent of loss of grazing land is not likely to be significant. However, the changes to the natural hill slopes, especially due to the vertical cuts along new alignment has the potential to change the traditional routes adopted for grazing.

The land holding sizes are not considered in the present process of voluntary land donation for the project. Though there has been no instance wherein the land donor has lost substantial part of their land holding, there are instances where the existing land holding size is lesser than the Minimum Economic Holding (MEH). Impacts on such marginal land holdings are not covered.
As a consequence of undulating topography the existing land under agricultural / orchards is very precious. Since the land holding size is small, people are not willing to part with their land. In case of orchards wherein the farmer donating land is very likely to lose some part of his income due to cutting of trees, no efforts are made to assess the impacts of the process of land donation on the source of his income. There are cases where the residual land holding is less than the MEH. But effort has been made to compensate them in any way.

In the district of Lahul and Spiti, complete loss / impact of livelihood has not been found in any of the corridors visited. In all the three regions visited none of the corridors have impacted to extent that complete loss of livelihood is reported.

3.3.6.4 Assets

Of the sample sites / corridors visited there were no conflicts arising out of the sharing of water resources with the local population. At certain locations, the contractor is required to pay to the owner in case of private sources.

Impact on common property resources

Along the corridors visited by the team, wherever common property resources has been impacted, the Panchayat takes the decision regarding its shifting or any other measure. This was observed in all the three districts i.e. Kullu, Mandi and Lahul & Spiti visited by the team. Hence the issue is not severe in any of the regions.

In Lahul and Spiti district, observations onsite revealed that the villagers are cutting small drains on to the paved portion of the road for providing access to water into their fields after the construction of the road is completed. In another corridor the PWD has taken this concern into consideration by providing additional hume pipes of smaller diameter for irrigation purposes.

Impact on cultural properties

As regards the impact on religious property along the PMGSY corridors visited during surveys, such kind of issue has never arose. If the need arises, alignments are modified in a manner not to disturb the religious structures.

Impact on Access to MFPs

There have been no impacts in access to the common properties and MFPs in the state as revealed by the villagers belonging to the ST in the state. In no, the grazing or pastureland has been significantly impacted to restrict or alienate the tribal rights of access on such lands. The tribal population practicing transhumance has not been impacted in the state due to the project.

3.3.6.5 Temporary Impacts

Disruption to normal Traffic

During construction time the temporary disruptions to the local traffic occur. No alternate routes are planned for villages for the construction period. Disruptions during the construction period will be observed at the time of use of pavers as constricted by inadequate land width in hilly tracts of the state.
Quality of Life during construction

These include increased noise levels during construction, dust due to earthworks etc and are experienced for a very short duration not having significant impacts. Though these impacts are not raised by the communities, consideration of these issues by the contractor through regulating timings of usage of heavy machinery, dust suppression etc will minimize the extent of impacts.

Employment for local population

Consultation with the local population revealed that the people are not willing to work under the contractor. Rather they would prefer working for the project if provided job in PWD. Due to the fact that the wages in PWD are much higher as compared to the contractor. In the alpine region workers are migrants who can work for a limited period of four months. The region remains cutoff by road for the rest of the year because of the heavy snow in the area. Hence participation of local labour is parochially absent in the state.

Construction Camps

The skilled labour for the project is external workforce. The contractor at times provide accommodation in rented houses inside the village such as Panchayat buildings and schools etc. These workers are totally dependent on the village for their daily basic requirements. But no instance of resentment from the host community has been confronted with in any of the districts visited.

Issues related to movement of vehicles and machinery

At times, heavy machinery like Pavers finds it difficult to move in the hilly tracts due to presence of narrow widths, hairpin bends and steep gradients. Apart from the huge size, a Paver generally requires a turning radius of 8-10 meters, which requires the road to be blocked for the normal traffic. Hence the use of Paver for construction work is restricted in the state.

Impacts on Land and people during construction

Short-term impacts like damages to built-up property, soil slips in terraced farm lands etc are often ignored by the implementing agency i.e. the HPPWD, unless impacted landowners raise an objection to the same. Subsequently some mitigation measures are adopted to nullify / reduce the impacts. The impacts cause more problems to the people in the lower & high hills than in alpine zone because of the relatively high population density in the first two districts as compared to the later.

Such short-term impacts are more prevalent in the lower & higher hills. The alpine regions being sparsely populated, this problem does not arise.
3.3.6.6 Safety and Health Impacts

The aspect of road safety and health has not been considered during project implementation stage. No efforts were made to establish the health impacts of the project on the people of the area. Interactions with the villagers in the completed corridor have reported positive impacts in terms of the reduced time and cost factors especially at the time of emergency. There have been no reported cases of any disease/s during community consultations in the beneficiary villages neither due to project work nor due to migrant labour. There have been no case of outbreak or spread of any disease due to construction camps. Resentment of the village community for siting of labour camps has not been reported along any of the corridors. The same feedback has also been highlighted by the construction workers related to safety and health concerns. Hence no negative impacts are emerged on health of local people. No information boards on nearest medical facilities in order to provide immediate care in case of accidents exists on the project roads. No health impacts are visualized while moving on the corridors in different stages of its implementation except on the health of the workers wherein the contractor does not provide safety equipments.

In the districts of Kullu, Mandi and Lahul and Spiti, addressing the safety issue, parapets have been provided in the designs and proposals particularly on the valley sides along the project corridors. In a few cases, due to limited funds and lack of land availability, construction of parapets is not taken up.

3.3.7 Process for Land Accretion

As per the general topography of the area, there are agricultural fields and orchards along the road. In the fertile areas of lower hills and valleys, the farmers are not willing to part with their land, as cultivation is the main source of livelihood, thereby resistance of local population donating land for the project roads has been a concern. This has been not been an issue in the highland areas of Lahul and Spiti which are predominantly rocky wastelands.

The PWD undertakes initial reconnaissance survey of the proposed alignment to identify the existing revenue track and land width available. Along few corridors, in case of additional land requirement, the PIU officials inform the Gram Panchayat about land donation for construction of PMGSY road (as per the Himachal Government Notification No. PBW(B) A(7) 2-7/2000-II). The land is donated by the landowner through Affidavits in the name of the PIU without any legal transfer of land ownership.
3.3.7.1 Identification of locations

In the case of Himachal not much options are available with the design team to change the alignments due to topographic limitations thereby usually following the available track. Small changes are taken up while implementation of the project to save cultural properties, wells and tube wells. The projects that are approved in the year 2003–04, the provision of tarring is not there, it is to the extent of WBM road only. The existing revenue tracks in Himachal are sometimes not motorable as these were followed based on the shortest path but while considering the same road for upgradation the improvements are undertaken in the form of grade improvements and cross-pin bends improvements, turning radius etc. The reconnaissance survey conducted along few corridors by the PIU provides initial assessment of locations and extent for additional land requirement.

3.3.7.2 Ownership verification

In the state of Himachal Pradesh, land has been donated voluntarily (as per the PMGSY guidelines) the PWD has maintained a list of impacted land parcels. There are no records pertaining to the extent of loss by a PAP. The socio-economic profile of the PAPs has not been considered to assess the impact of the loss of asset on the livelihoods of the PAPs. Only in few corridors, the verification of land ownership has been undertaken, restricted to locations where land requirement was foreseen and objection has been raised by the landowner. The status of the land ownership in case it belongs to the PWD is verified only in case of any objection raised by any person likely to be an encroacher. No verification of alignment fixed is undertaken and also no peg marking is being carried out.

3.3.7.3 Dissemination of process

The community consultation in the villages revealed that there has been no formal dissemination of information pertaining to the project activities, alignment details or process of voluntary land donation. It is only along few corridors along which there is need for land transfer that the Gram Panchayat is approached for donation of land. The instructions issued regarding the land acquisition in Himachal states that “New roads to be constructed only if communities give land free of cost, work to start only after the land is transferred to the government” is provided to the community to encourage them for voluntary land donation.

3.3.7.4 Process of Land Transfer/Donation

The current procedure for Voluntary Land Donation involved identification of locations for additional land requirement only after commencing of construction works. The landowners provide Affidavits as proof of land donation to the PWD prior to mobilising the machinery by the contractor. There has been no updating of the revenue records of land parcels donated voluntarily as the land is still in the name of the original landowner.

Only after initialization of construction works, during mobilization of machines for the earthwork, the contractor encounters resistance from the landowners as it affects the stability of the surrounding parcels of land if immediate measures are not taken for soil stability.

3.3.8 Non-Titleholders

No inventory of the encroachments is carried out by the PIU during the initial reconnaissance survey except mentioning in the DPR, availability of land free of encroachments. In case of minor encroachments cleared by the Contractor either on his won or with assistance of the PWD if required.
33.9 Consultation Process and Information Dissemination

The concern of the villagers has been considered prior to approval of the project roads at the district level. The approvals of the proposals are done at the block level from the Panchayat Samiti members and from Zilla Parishad at the district level. After that, there is no effort made to assess or include the concern of any of the stakeholders. The resolution passed in those meetings for the approval is documented. The concern of the local government is considered while approval of the corridors at the district level. After that there is no effort made to assess or include the concerns of any other stakeholders. The local politicians have a key role in influencing the prioritization of the roads in the same class interval of population.

There has been no public consultation in the village before the initiation of the work in the village. There were consultations with the villagers during the implementation but there has been no documentation of the proceedings by the PIU. Participation of women in decision-making has been negligible as evident from village consultations. The people are approached through the Panchayats i.e. Panchayat are informed about the project. Generally the interactions take place during the start of the implementation.

33.10 Grievance Redressal Mechanism

The current procedure for addressing the issues raised by the community is through mutual agreement with the involvement of the Sarpanch and village elders. There has been no effort to establish the direct and indirect impacts of the project due to land transfer. It is taken up only in cases wherein the people threaten to take legal steps against the implementing agency. At present, there is no formal mechanism for addressing the grievances of the community, generally resolved by the Gram Panchayat.
D) Jharkhand

3.1 Introduction

The state of Jharkhand is characterized by dense natural vegetation and rugged topography. Geologically the state consists of Deccan Lava with an average elevation of 1100 m. Number of rivers and rivulets viz. barr, damodar, north koel and south koel, etc. flow down through the hilly terrains and valleys.

Jharkhand with a total area 79,714 sq km, provide habitation to approximately about 3 Crore people. Out of the total Population, the tribal population in the Jharkhand State consists of 54 lakh people, representing 278 per cent of entire population of the state. About one third of the total population engaged in agriculture and allied activities. Secondary sector also employ considerable workers, as the state is rich in minerals and related industries.

The infrastructure availability for the population is poor through out the state. The villages lack any form of communication facilities along with poor level of transport facility. Medical facilities and drinking water sources are absent in many of the villages.

3.2 Environment

3.2.1 Climate

Climate in Jharkhand is moist humid to sub-humid. Average rainfall in the area ranges from 1315mm to 1404mm. Due to heavy rainfall in the area, construction work is stopped in few locations by the contractor. It not only causes delay, but also earthwork of uncompacted embankment gets washed away. Contractor had
generally not taken into account these adverse climatic conditions during while scheduling construction activities.

3.2.2 Topography

Jharkhand is characterised by undulating terrain in the north (Chota-Nagpur Hills) and relatively plain southern portion (Chota-Nagpur plateau). Changes in topography due to the PMGSY is only localised due to the formation of borrow trenches along the roads taken up. No adverse impacts are identified on the topography due to the project.

3.2.3 Geology

The physiographic regions, Chota-Nagpur Hills and Chota-Nagpur Plateau are low-lying hills with occasional hill outcrops. No major hill cutting is involved along the project roads visited in general except in one corridor in Hazaribag. Hence, no impacts on geology of the region are observed along the PMGSY corridors.

3.2.4 Soil characteristics

Soil in Jharkhand in general is red sandy, red and yellow, red loamy soil. The texture is loosely bound. Due to low binding properties, and low bearing capacity, the soil spreads on application of load under damp conditions. Hence, erosion of soil is a common phenomenon in the region. Slope protection measures as stone pitching or sidewalls for retaining earth are not carried out even for embankments as high as 2m.

3.2.5 Ambient air quality

The existing air quality along completed roads is observed to be pristine. No source of pollution is identified in the region. During construction, the consultations did not reveal any perceptible change in air quality. Dust rising if any, is for the limited time period i.e., during excavation for borrowing material. During rest of the
time, the embankment material gets moistened for consolidation and is subsequently laid with the road metal. Hence, dust nuisance during construction is also limited in extent and time.

Borrowed earth exposing fresh soil, Lipiya to Korambeym, Hazaribag

Red & Yellow soil in Kordha mode to Karudih, Dumka

3.2.6 Ambient noise levels

Except at locations connecting the major roads, higher noise levels are not observed along the PMGSY roads. Since most of the construction is done manually, noise due to machinery is not observed except during rolling of embankment and pavement. Only one roller is being used for the stretch under construction, hence, noise during construction is not having perceptible impacts. Due to the low volume of traffic, impacts due to noise from traffic in the operation period would be insignificant.

3.2.7 Water quality and availability

Water is a scarce resource in the eastern part of Chota-Nagpur hills. The contractor in this region has to wait for the rainy season due to non-availability of water during dry months. In rest of the region, water is available from the nearby rivers and ponds.

No impacts are observed on water bodies due to procurement and sharing of water resources from the nearby rivers and ponds. Sedimentation is increasing in the pond water of Chota Nagpur Plateau along the PMGSY corridors due to soil erosion elsewhere being deposited in water bodies.

3.2.8 Drainage

Due to rolling terrain in the northern part of Jharkhand, water immediately drains after rains. No drainage problems exist in this region. In the southern districts i.e., in Chota-Nagpur plateau and in eastern parts of the state, improper drainage causes problems during rains. Longitudinal drains are provided to collect the runoff from the road surface. Only cross-drainage structures are provided to discharge the floodwater across the road. This effects the embankment due to erosion caused by runoff generated by the undulating terrain. The provisions made in most of the cases are satisfactory except for the damage due to runoff to the embankments.
3.2.9 Forests

The undulating terrain and steep hills of Chota-Nagpur have significant area under forests. Hazaribagh is one of the districts in this region and is having reserved forests. The PMGSY corridors do not pass through reserved forests. However, PMGSY road passes through notified forests in village sections in Jarjara to Badam via Dukatarn Paseria in Barakagoan Block in Hazaribagh.

Few trees occurring along the alignment as Palash, Khair etc and small shrubs are cut for the project. However, no trees like Sal are removed for road construction. Tribes in the region worship the trees and do not allow their removal for road. Though the PMGSY road in Hazaribagh pass through notified forest (Pasaria forest), the Govt. of Jharkhand has permitted blacktopping of existing roads but without widening. No tree plantation is being planned as part of the project implementation.

3.2.10 Fauna

The state as a whole has good forest cover and is having potentially higher faunal population in the reserved forests. Corridors that are passing through reserved forests are not taken up under PMGSY and hence there shall be no impact on fauna.

3.2.11 Agricultural practices

Food crops as paddy, maize, yellow gram, leafy vegetables, potatoes etc. are cultivated in the region. These were being locally consumed due to absence of connectivity to markets and perishable nature of the products. With the construction of the roads, there is increased access to markets and consequently, more diversified agricultural practices are likely to be implemented. The existing products are fetching higher prices with the improved quality of the produce due to easy marketability.

In few corridors, which are under different stages of implementation, no impacts are observed on the standing crops in the parcel of land adjoining proposed roads.

3.2.12 Induced Development

In few corridors at the junction of the corridor with major roads, land use is tending to change from agriculture to commercial. Though no instances of ribbon development along the PMGSY corridors are observed, these are likely to occur if the corridor passes through the settlements. Growth of the settlement in such cases, may occur along the road, leading to land use changes. Commercial activities have started coming up along completed stretches of PMGSY. Weekly markets were seen on Kothia to Chandaubatham in Sariyahat block in Dumka district.
3.2.13 Availability of construction material

Quarry material is available from existing sources, which are being used for other construction activities as well. Due to pressure on the resources, sometimes there is shortage of construction material.

Water is scarce in the Chhota nagpur plateau and in parts of Chhota nagpur hills during summer. Hence, construction works are delayed. In rest of the year, water is obtained from nearby rivers and ponds. No conflict of uses with those of domestic users is observed due to water extraction, as the sources are located away from settlements.

3.2.14 Handling of earthwork

Earthwork during construction is mostly confined to borrowing in adjacent fields. But due to limitation of available land width, earth has to be extracted from the adjacent fields, trampling the existing vegetation.

3.2.15 Conservation of topsoil and reuse

The implementation agencies in the state/district are not aware of the concept of topsoil conservation and reuse. Soil is borrowed for fill material and along with it topsoil is also utilised. The farmers are filling the trenches by turning over the topsoil in their fields into the trenches, losing their fertile soil. There is a need for awareness on topsoil conservation to retain good fertility levels in adjoining fields.

3.2.16 Quarry & Borrow areas and their rehabilitation

Material from the quarry areas and borrow areas is being extracted for the project. There is no provision for rehabilitation of these areas either in the mandate of PWD or in the contractor’s works. Hence, the borrow trenches are being left as it is, which constitute a safety hazard.

3.2.17 Public safety

Safety of public during construction is not being considered during planning of construction works. No diversions are provided for the road users even in hilly terrain. People try to move over the road works in progress, or try to move adjacent to the construction work leading to accidents, raising a safety concern.
3.2.18 Labour camps & Worker's safety

Most of the labourers working in the construction activities are local labour living nearby. The skilled labour is outstation labour and residential arrangements are needed for them. Labourers in most of the cases stayed in nearby schools. In case of Dumka, the contractor constructed temporary huts for the labour. No other sanitary arrangements are made available.

The contractors do not provide for safety of worker's at the construction site. Worker's engaged for bitumen heating and application of seal coat are also not provided with adequate protection gear.

The participation of women is in the form of unskilled labour. Due to the low per capita incomes, working as daily wage labourers acts as an additional source of income for the villagers in most of the corridors.

3.2.19 Construction Debris Management

Construction debris is left out along the roadsides and is not cleared. Consultation with the contractor reveals that cleaning of debris after completion of construction is a part of his terms of contract, but it has to be ensured that clearing is effected before finalizing the claims of the contractor.

3.3 Socio-Economic Environment

3.3.1 Land Categories in the state

The following categories of land were identified along the project corridors:

**Private land:** These are land, which are under individual ownership and can be transferred through the existing legislation except for land owned by tribals where it can be sold to the tribals.

**Government Lands:** Gair Majua (GM) Khas and Gair Majua (GM) Aam: In the state of Jharkhand, the Government Lands are demarcated as the Gair Majua (GM) Khas and Gair Majua (GM) Aam. Land in the

---

1 The origin of these terms originate in the Zamindari System where the land which was owned by the Zamindar was known as the Khas land and those given to the people for their use against some tax was known as am land. Before the abolition of the Zamindari System, some of the land was donated to the people by the Zamindas in such cases they became the titleholder of the land. Some of the land which were under the possession of the Zamindar at the time of the abolition of the Zamindari system were transferred to the Government and were subsequently known as GM Land.
Revenue Records. Since the title of these lands rest with the Government, they can be transferred from to the Government for “public purpose”.

**Government Department Lands**: Land under the ownership of different departments can be transferred to the PWD for public purpose under the existing laws.

In Dumka, contractor with the help of REO officials took in writing from villagers that the village land shall be made available for realignment of Kordha mode to Karuddin Corridor in Saraiyahat block. Any transfer of the land taken for the project to the PWD is not possible as per the provisions of the Santhal Parganas Act. Interactions with the District Revenue officers and the PIU revealed that the realignment suggested does not pass through tribal lands.

Though transfer of tribal lands for PMGSY roads in Jharkhand was not witnessed along the corridors visited, there is a likelihood of land requirement in other projects, which would need to be planned considering the provisions of the Chota Nagpur and Santhal Paraganas Acts. The legal status of each land category is presented in Table 3.9.

<table>
<thead>
<tr>
<th>Land Category</th>
<th>Legal Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Land</td>
<td>Individual property heritable rights vested with owner, can be transferred as per present laws</td>
</tr>
<tr>
<td>Gram Sabha Land</td>
<td>Land can be transferred for public uses as per notification of Governor for public purposes</td>
</tr>
<tr>
<td>Government Land</td>
<td>Different government institutions can transfer land as per existing laws</td>
</tr>
</tbody>
</table>

### 3.3.2 Land Availability in sub-projects

The roads with a clear land availability of 5-8 m have been taken up for the PMGSY. In the plateau region generally, the width of the roads selected was found sufficient to accommodate the proposed improvements; therefore, no land uptake was required. In the other regions private land has been taken up at several locations, through voluntary land donation. The width of land uptake has been up to a maximum of 2-3 m on either side.

### 3.3.3 Need for land width accretion

In the state of Jharkhand, PMGSY has been taken up where land is available. Though along few corridors, need for private land has been identified up to 2-3 metres, locations where (i) curve improvements, (ii) passing places, (iii) design improvements for safety, and (iv) any suggestion by the community. The land requirements are accomplished through voluntary land donation in case of private land transfer and inter-departmental transfers for Government land.

### 3.3.4 Minimization of impacts

The likely impacts on the sensitive environmental and social locations have been addressed through alterations in the alignment of the corridor. Design modifications of the proposed road have been undertaken in the plateau region. The cross section of the proposed corridor is restricted within the available land width especially in the settlement sections.
3.3.5 Alignment selection

Selection of villages is done on the basis of 'core network' of District Rural Road Plan (DRRP). Villages with population above 1000 arranged in descending order, connected with kachha road and also lack all weather road, not connected from any side, are given priority. Proposals are sent to the MLAs & MP of the respective constituencies for their opinion and comments received are incorporated as per the guidelines. List of selected villages are sent to the Secretary, Department of Rural Development, Ranchi who in turn sends list to the Ministry of Rural Development, Govt. of India, for confirmation. Once, the confirmation is received, Detailed Project Report (DPR) is prepared by the office of the Executive Engineer. The DPR is sent to State Technical Agency (STA) BIT Mesra, who scrutinises the relevance of expenses on the basis of inspection & site visit. The DPRs scrutinised are sent further to Department of Rural Development, Ranchi & Ministry of Rural Development Govt. of India for approval and release of fund. Length of roads ranges from 3.5 to 21.5 km in the districts of Hazaribag, West Singhbhum and Dumka and cover number of villages throughout the length that feature in core network of the DRRP.

PMGSY road passes through Pachhatia village in kordha mode to Banbara Corridor in Jarimundi block in Dumka. The contractor in consultation with REO office and the villagers has constructed the road from outside the village, bypassing the habitation area to avoid impact on structures in the village. Here farmers have provided land for the proposed PMGSY road to save their structures.

Rural Engineering Organization tries to select roads such that all blocks get equal road length. But the interests of the villagers are not taken into consideration while developing the core network. If sensitive environmental features as trees and ponds are present, the alignment shall be slightly shifted to avoid the impacts. Constriction of the cross section is being considered if any impacts on trees are involved by following the cross section as per guidelines. No alternative materials for construction are sought for in the project.

Table 1

| Shifting of alignment due to Pond, Singhpura to Asuria, West Singhbhum | Constriction of alignment to save trees, Kuster Garaha to Bhulehai corridor in Hazaribag |

2 villages are surveyed, important roads, habitation & other lands are identified and branches of roads are also investigated & marked & a status report of the village is prepared
3.3.6 Community Profile and Characteristics of PAPs including Tribal Community

The districts visited namely Hazaribag, West Singhbhum and Dumka are developing regions in terms of literacy, urbanization and social development. Hazaribag has rich mineral base, Dumka is a religious centre with a famous temple like Basukinath Shiv temple. Large numbers of devotees visit the temple and there is influx of economic activities due to the pilgrims. Low infrastructure development Low value of bank deposits and low value of production are observed in the area. West Singhbhum and Dumka have large tribal population; hence, these are reserved parliamentary constituencies for the Scheduled Tribes.

The infrastructure availability for the population is poor throughout the state. The villages lack any form of communication facilities along with poor level of transport facility. Medical facilities and drinking water sources are absent in many of the villages.

Food crops as paddy, maize, yellow gram, leafy vegetables, potatoes etc., are cultivated in the region. These were being locally consumed due to absence of connectivity to markets and perishable nature of the products. With the construction of the roads, there is increased access to markets and consequently, more diversified agricultural practices are likely to be implemented. The existing products are fetching higher prices with the improved quality of the produce due to easy marketability.

In few corridors, which are under different stages of implementation, no impacts are observed on the standing crops in the parcel of land adjoining proposed roads.

3.3.6.1 Project affected people

The number of people whose land is to be affected is not ascertained prior to mobilisation of the contractor. The contractor usually manages any grievances related to compensation. As revealed from the community consultations, there are project-affected households along 4 of the 13 corridors visited. Out of the 29 PAPs (participants during consultations during site visits), the percentage share of ST is approximately 60% as the tribal population is significant in the tribal districts of Hazaribagh and Dumka with 61% and 50% respectively. Nearly 30% of the PAP households are SC with 10% of PAPs belonging to BPL category. Only 2 of the 29 impacted households have uneconomic land holdings. Nearly 85%of the PAPs are engaged in agriculture and related activities such as animal rearing etc. Table 3.10 provides the profile of the PAPs consulted during community consultation in the state.

Table 3.10: Profile of the PAPs in the state of Jharkhand

<table>
<thead>
<tr>
<th>District</th>
<th>No of Corridors visited</th>
<th>No of PAPs HH</th>
<th>Vulnerable Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazaribag</td>
<td>5</td>
<td>23</td>
<td>Scheduled Caste 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Scheduled Tribe 14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Below Poverty Line 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Women Headed Households 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Handicap 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Uneconomic Land Holding 0</td>
</tr>
<tr>
<td>Pashchimi</td>
<td>4</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Singhbhum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dumka</td>
<td>4</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Community Consultations in villages along project corridors.
3.3.6.2 Project Displaced People

Since the land requirement is marginal, none of the project-affected people are displaced. There is no loss of livelihood to the agricultural labourers also. Farmers restore the affected land with the completion of construction by filling the borrow trenches, and hence regaining most of the land donated for borrowing. This does not affect even the vulnerable groups.

3.3.6.3 Indigenous People

Consultations in the West Singhbhum and Dumka (designated as Tribal Districts) reveal 60% of the PAPs as ST households with no formal consultations done by the PIU to ascertain concerns related to PMGSY roads in tribal areas. No tribal development plans are prepared to address the issues that would arise during construction. No specific plans/measures are taken in these regions to avoid or mitigate impacts on these communities as they are positively impacted due to the project.

No studies have been conducted to identify their tenural rights, socio-economic, cultural characteristics or other laws and policies governing their systems. Consultations are conducted as in other places to understand their willingness and necessity for the project implementation in their regions before the start of the project or before its initial sanction from the government. Land uptake in the Schedule V Areas in the state has not considered PESA provisions, the Santhal Paraganas Act and Chota Nagpur Tenancy Act. Conformity to the existing land tenural rights if any, has not been given any considerations.

3.3.7 Nature and Extent of Impact

3.3.7.1 Land

The land use along the corridor visited is primarily cultivated area with patches open land. The average land holding size along the corridors is between 0.5 ha to 2 ha, varying from 0.5-2.5ha in the district of Hazaribagh and 1-2ha in other two districts of West Singhbhum and Dumka. On an average 1-2m of the total land holding has been donated by the landowner for PMGSY as evident from the extent of loss of land along 4 corridors in the state. Majority of the impacted land is open barren area and agricultural land without any major impact on the productive land holding size of the PAPs.

3.3.7.2 Structure

There has been no reported instance of loss of structures during the construction of PMGSY roads. This can be attributed to the fact the designs of the alignments are as per the available land width in the settlements and also as the roads are not passing through the habitation.

3.3.7.3 Livelihood

As per the findings of the community consultation including PAPs shows that there has been no loss of livelihood due to the project and through land donation. Due consideration is given to the harvesting seasons to avoid any impact on the standing crops along the project corridors. Also, along any corridor the grazing or pasture land has been impacted to the extent of loss of its utility or access especially in the areas with tribal population.
3.3.7.4 Assets

Impact on common property resources

Common property resources such as ponds, hand-pumps exist along the roads, but none of these are being affected due to the project. The contractor with slight realignments has avoided impacts on the common properties wherever they occur. Relocation of these assets was not found necessary as per the community consultation since not impacted. No implementation measures such as enhancement of these properties is being undertaken.

Impact on cultural properties

No instance of impacts on cultural or religious property has been reported during consultation with the community. As per the PIU, alignments have been modified to circumvent any impacts on such structures.

3.3.7.5 Temporary Impacts

Disruption to normal Traffic

During construction time the temporary disruptions to the local traffic occur. No alternate routes are planned for villages for the construction period. Disruptions during the construction period will be observed at the time of use of pavers as constrained by inadequate land width in hilly tracts of the state.

Quality of Life during construction

These included increased noise levels during construction, dust due to earthworks etc are experienced for a short duration. Consideration of these issues by the contractor through regulating timings of usage of heavy equipments, dust suppression etc will minimize the extent of impacts.

Construction Camps
Draft Assessment of Current Conditions

The skilled labour for the project is external workforce. The contractor at times provide accommodation in rented houses inside the village such as Panchayat buildings and schools etc. These workers are totally dependent on the village for their daily basic requirements. But no instance of resentment from the host community has been confronted with in any of the districts visited.

Employment for local population

Unskilled labour is being engaged from the villages along the alignment. Participation of people in construction activities is present in all packages and is engaged at Rs. 60 - 80 per day. Female also worked on road construction. Increased employment opportunities and diversification into construction activities from the seasonal agricultural activities is seen in the villages.

3.3.7.6 Safety and Health Impacts

The increase of access to health facilities is a positive benefit to the villagers. But none of the villagers are aware of any adverse health affects due to the increased access. No communicable diseases have spread due to contact with people outside the village so far. As revealed from the consultations with the local population, there has been no instance involving spread of any disease due to the migrant construction labourer. The migrant labourer has not faced any form of resentment from the village community during the construction work for the project. The contractor has neglected the safety of the labourers during construction.

Impacts on Land and people during construction

Movement of construction machinery as rollers and earthmoving equipment on the adjacent lands have temporary impacts during construction. No other impacts are occurring to the people during this stage. Labour is available from the local villages but skilled labour stays in the nearby areas. The villagers in these cases cooperate with the resident labour and there is healthy interaction. No conflict of uses is identified, as the numbers of such labour are small.

3.3.8 Process for Land Accretion

People in the interior parts of the state especially in the tribal dominated areas are lacking adequate infrastructure facilities. The existing revenue tracks get submerged during heavy rains, cutting the communication with rest of the communities and areas. Hence they feel the project to be of immense value to their village in improving their quality of life. Realising this they donate the land for the project with out any resistance or hesitation. No confrontations for land availability are observed in the state. Consultations with the people reveal their willingness for voluntary donation and also transfer of ownership of the land parcel donated to the PMGSY. In most of the cases people are cooperative and are inclined to see that road is constructed for their benefit.

3.3.8.1 Identification of locations

The locations for additional land width required is undertaken by the PIU through initial field visit. There has been no involvement of the revenue department (offical, records or maps) during the process of identification of existing revenue track to be taken up under PMGSY.
3.3.8.2 Ownership verification

No regular land records are maintained with the revenue department to identify the land ownership. Status of ownership or verification of RoW is not undertaken either during the identification of existing revenue track or at the design stage. As the Panchayat Raj system is not as regular as in other states, in most of the villages there are no Pradhan or Mukhiya. There has been absence of any sort of interactions between the PIU and the village community at any stage of project implementation. In case of any issue pertaining to land ownership, these are sorted out by the contractor/engineer through dialogue with the community.

3.3.8.3 Dissemination of process

There has been no formal dissemination of information about the project details prior to the finalization of the alignment. It is only through consultation with the village head and at times the community (in case of land width requirement or impact on any cultural / common property) that the villagers are consulted. Any information related to the details of the alignment and construction schedule are not shared by the PIU / Contractor with the community.

3.3.8.4 Process of Land Transfer/Donation

Interactions with the communities during the field visits revealed no resentment from the communities in parting with the land parcels. Also, as the land holdings are large and the extent of land required is small, there is no resentment to voluntarily donate land for the project. No regular land records are maintained with the revenue department. The status of ownership or verification of RoW is also not verified during the planning and design stage. Along 5 of the 12 corridors visited, the contractor has obtained a written confirmation as a proof of donation of land from the communities. In other locations, if any problems of ownership arise these are sorted out by the contractor/engineer with the concerned landowner. Interactions with the communities in the tribal district of Dumka revealed that the processes do not differ in the tribal districts.

Villagers of Pachkana, Kordha mode to Karuddin Corridor in Saraiyhat block in Dumka assembled at local temple and vowed to give land wherever required at village sections for PMGSY road. The contractor with the help of Assistant Engineer of REO took in writing from them that village land shall be made available for road construction. Likewise, in Kustegarha to Bhubai village corridor in Gola Block, contractor managed to take in writing from villagers that land will be made available for PMGSY road. Such type of exercise was done to avoid any future controversy in land being taken for PMGSY road.

The transfer of the strip of land taken up for road construction is not initiated in any of the stretches visited. It is only through identification of locations for additional land requirement through field observation by the PIU, subsequently consulting the concerned landowner who later on submits a written document for voluntarily donating the land is undertaken in the state.
3.3.9 Non-Titleholders

No inventory of the encroachments is carried out by the PIU during the initial reconnaissance survey. Encroachers were cleared by the Contractor with assistance of the REO if required.

3.3.10 Consultation Process and Information Dissemination

Interactions are held with beneficiaries either in villages or in REO office. There is no formal documentation of these consultations with REO. However, District Rural Development Agency maintains documentation of their official proceedings. Engineers consult villagers during survey for the proposed road. No photographs of the consultations are being taken and are not a practice in the consultation process. There has been no formal consultation and information dissemination about the project features, activities and impacts undertaken.

3.3.10.1 Addressal of concerns of stakeholders

Villagers consult the field staff in case of any concerns and get sorted out through them. Executive engineer is consulted only in case of major issues. All the villagers are aware of the benefits that would accrue due to the project and hence are enthusiastic in taking part in the construction activities. No separate consultations with vulnerable groups are held. However, concerns of small farmers are considered and brought to notice of the concerned authorities for appropriate action by the field staff.

3.3.11 Grievance Redressal Mechanism

There exists no formal mechanism for addressing the concerns and issues raised by the community. The contractor and the engineer on site resolve the grievances of the impacted person or community. No record or documentation of the existing procedure of grievance redressal is undertaken depicting the type of grievances and how resolved. In some places contractor with the help of REO officials took in writing from villagers that the village / private land shall be available for PMGSY road.

3.3.12 Implementation Arrangements

3.3.12.1 Agencies Involved

District Rural Development Agency: Lands are identified during meeting with District Rural Development Agency (DRDA). PMGSY cell of Rural Engineering Organisation (REO) inform the villager and the Pradhan
regarding proposed road construction and agricultural land to be taken for increasing the width of the road. With the oral consent of the villagers, work will be scheduled for construction. There is no Panchayati Raj administration in Jharkhand. No single case of encroachment on kachha road could be found.

**Revenue Department** has no role to play in terms of updating the revenue records in this state. In Dumka village survey in the district is in process, which will take into account the PMGSY and rest of village records.

**State Technical Agency (STA):** BIT (Mesra) is appointed as the STA for the PMGSY. It accords clearance to the packages prepared, based on its academic experience and field visits. STA did not have an active role in the Phase I as it was mobilized a bit late, however; its role is strengthened in Phase II.

**Other Departments involved:** Presence of sensitive features as trees will necessitate intimation to the forest department. Forest Deptt. is supposed to fell if the trees are a part of roadside plantations. However, in practice villagers themselves cut the tree if the trees and shrubs are obstacles in road construction. Few trees namely Palash and Khajoor etc. and shrubs have been cut for PMGSY road construction in Jharkhand.

The above arrangements are in place at present and are functioning as per the guidelines. However, as per the official's working under PMGSY infrastructure and facilities provided to the department and staff are inadequate. This results in difficulties in movement of officials and delays in reaching the site.

3.3.12.2 **Supervision and Monitoring**

Specific formats for monthly progress reports are submitted to the government at various levels. However, formats for reporting are slightly modified to suit the conditions in the district w.r.t providing a number of culverts, road height, embankment slope, turfing etc. The Executive Engineer undertakes field visits every month for monitoring physical and financial progress. The Central Monitoring Agency (CRR) has monitored the project and has provided necessary guidance. No online monitoring system is present in the State.

3.3.12.3 **Capacity Building**

No workshops so far have been organized for providing training to the officials at any stage of the PMGSY scheme. This is one of the reasons for lack of awareness about the environmental / social aspects in the project among officials and authorities involved in the implementation of the scheme.
4. ENVIRONMENT AND SOCIAL ISSUES

Site visits conducted as part of the study have enabled identification of environmental and social issues in each Physiographic region. Since the corridors chosen for field visits are in different stages of project issues at various stages are identified. It is observed that most of the issues arising in construction stage is due to poor / inadequate project preparation. With the improvement in project preparation activities the construction and monitoring practices are to be streamlined to avoid impacts on environment / roadside properties. The environmental and social issues that are likely during all stages of the project are presented in the Table 4-1. Avoidance/mitigation measures are worked out for the issues identified.

Table 4-1: Environmental and social issues in the four states

<table>
<thead>
<tr>
<th>Sl.No.</th>
<th>Environmental &amp; Social issues</th>
<th>Rajasthan</th>
<th>Uttar Pradesh</th>
<th>Himachal Pradesh</th>
<th>Jharkhand</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scheduling of Construction without climatic considerations</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Changes in topography due to hill cutting</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>Impacts on geology due to quarrying in sensitive areas</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>Conservation of top soil</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5</td>
<td>Water extraction for construction in dry seasons</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>6</td>
<td>Cross drainage, road side drainage inadequacy and water logging</td>
<td>✓</td>
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<tr>
<td>7</td>
<td>Identification and conservation of rare/endangered flora/fauna in sensitive areas</td>
<td>X</td>
<td>X</td>
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<tr>
<td>8</td>
<td>Tree cutting and absence of afforestation</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>9</td>
<td>Induced development and change in Landuse</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>10</td>
<td>Occupational health safeguards of workers, traffic safety and public safety during construction</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>11</td>
<td>Debris Disposal inadequate</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>12</td>
<td>Quarry area rehabilitation in case new quarries are opened</td>
<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>13</td>
<td>Minimisation of Resettlement Impacts through design modifications, analysis of alternatives</td>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
</tr>
<tr>
<td>14</td>
<td>Extent of compliance to existing legal processes / constitutional provisions - Voluntary land donation, PESA provisions, Tribal land uptake in Schedule V Areas, land tenural rights if any.</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>15</td>
<td>Non Involvement of affected communities prior to project finalisation</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>16</td>
<td>Identification and planning of resettlement. Transparency in - The process of voluntary land donation - Entitlement provisions and identification of Entitled Persons</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>17</td>
<td>Assessment of extent and magnitude of impacts (loss of livelihood, vulnerability etc)</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>18</td>
<td>Measures to avoid/mitigate impacts on tribal population Provision for compensating assets lost</td>
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<td>✓</td>
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<td>19</td>
<td>Entitlement provisions for project affected and vulnerable groups</td>
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<td>20</td>
<td>Implementation Arrangements for disbursement of entitlements</td>
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<td>21</td>
<td>Financial provisions for land uptake</td>
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<td>22</td>
<td>Participatory mechanisms for projects in Tribal districts Disclosure of project information</td>
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<td>Infrastructure</td>
<td>Social Parameters</td>
<td>Economic Parameters</td>
<td>Infrastructure</td>
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<tr>
<td>Source</td>
<td>Population Density</td>
<td>Literacy (%)</td>
<td>Access to Health (%)</td>
<td>Access to Water (%)</td>
<td>Access to Sanitation (%)</td>
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<td>Female</td>
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<td>Region 5</td>
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</table>

Note: The table provides data for various regions, including population density, literacy, access to health and water, and other social and economic indicators.