

# Government of Uttarakhand

## Uttarakhand Disaster Preparedness and Resilience Project (U-PREPARE)



## Environment and Social Management Framework (ESMF)

November 2023

## **Executive Summary**

### **1.1 Introduction**

This Environmental and Social Management Framework (ESMF) has been developed to serve as a guidance document for implementing agencies for integrating Environmental and Social risk management in each sub-project covered under the Uttarakhand Disaster Preparedness and Resilience Project (U-PREPARE). The purpose of this ESMF is to (a) provide a framework for managing environmental and social responsibilities efficiently by integrating with the U-PREPARE interventions; (b) help in the management of environmental and social risks and impacts in a comprehensive, systematic and adaptive manner; and (c) address environmental and social concerns through the allocation of resources, assignment of responsibilities, and adoption of E&S procedures and processes. The ESMF also includes an Indigenous Peoples Planning Framework (IPPF) (in Annex 10) which will guide the risks assessment to develop appropriate mitigation plans for impacts on indigenous groups and trans-nomads.

### **1.2 Project Background**

The proposed Project seeks to enhance the resilience of critical public infrastructure in Uttarakhand and strengthen the preparedness and emergency response capacity in the State. At its core, the Project will support a systems approach to resilience and the institutionalization of proactive disaster and climate risk management in the State. This will include mainstreaming disaster and climate risk management in road and infrastructure planning and investments to enable these lifelines to cope with and provide uninterrupted services during and after disasters of a specific magnitude. The project focuses on building capacity and strengthening systems to ensure long-term sustainability of the project investments.

### **1.3 Project Objective**

To enhance the climate and disaster resilience of critical public infrastructure and strengthen disaster risk management capacity in Uttarakhand.

#### **Project Description**

U-PREPARE has been requested by the Government of Uttarakhand for ensuring the sustainable development in the state and to improve disaster & climate resilience that has following four focus areas: (i) Enhancing the resilience of road infrastructure, and Providing disaster shelter; (ii) Improving emergency preparedness and response through strengthening emergency preparedness and hydromet and early warning systems and state disaster response force; (iii) preventing and managing forest and general fires that includes improving general fire management capacity and forest fire prevention and management capacity and iv) Project Management.

#### **Environmental and Social Laws & Regulations**

The implementation of the activities proposed under the U-PREPARE must be consistent with all applicable national and state regulations, as well the World Bank's Environmental and Social Framework including its relevant Environmental and Social Standards. The PMU and PIUs are responsible to ensure the project activities are in line with the above regulations and policies.

The provisions under the framework have been prepared in accordance with the applicable statutory provisions of Government of India and Government of Uttarakhand. The key environmental and social laws and policies at the National and State levels on environmental and social risk management including forests, biodiversity, pollution, waste management, land

acquisition, SC/ST, labor, gender and grievance redressal have been covered in the ESMF. Based on applicability of relevant statutory provisions, the requirements of different kinds of licenses, permits and clearance have been defined.

#### **1.4 Environment and Social Baseline**

The State of Uttarakhand is a hilly state of Himalayan region comprising of 13 districts that are grouped into two regions (Kumaon and Garhwal) and has a total geographical area of 53,484 sq. km. The economy of the State primarily depends on agriculture and tourism. The State has a very fragile terrain that, by virtue of its very origin, is prone to natural disasters. The entire State falls within Zone IV and Zone V (Zone V represents the highest level of seismicity) of the Earthquake Zoning Map of India. The districts of Bageshwar, Chamoli, Pithoragarh, Rudraprayag and Uttarkashi all fall within the Seismic Zone V. The state faces massive losses, particularly during the monsoon season, due to rains, cloudbursts, flash floods, landslides, floods, hailstorms and water logging events. The state is drained by a no. of rivers and streams. The major rivers flowing in the states are Gori, Dhauri, and Kali, Alakananda rivers. The hilly area of the state is largely covered with forest having 45.44% of the total geographical area which includes 12 notified protected areas and one biosphere reserve of the state. As per 2011 census, the total population the state is 10.1 million. The state is predominantly rural state having 69.77% living in rural areas. Sex Ratio in the state is 963, the Literacy rate in the state is 79.63% which are above the national average. The SC and ST population is 15.17% and 2.56% of the total population respectively. The population density of the state is 189 per sq. km. The main occupation of population in Uttarakhand is agriculture (58.39%).

#### **1.5 Environmental and Social Impacts**

The project is envisaged to benefit the people living in the project area by providing better and safe climate resilient infrastructure and enhancing for mitigating and responding to man-made and natural disasters. The U-PREPARE involves upgradation and new construction of bridges including approaches, slope/road protection measures, retrofitting of buildings (forest fire building, fire stations, and SDRF). The civil works will have varying degree of E&S risks and impacts because of geographical settings of sub-projects. Some sub-project will involve cutting of trees and diversion of forest area, including acquisition of private land and structures.

Activities pertaining to construction of bridges including approaches, buildings, protection works, are expected to have temporary, limited/localized, predictable and reversible impacts that can be mitigated through site specific ESMPs and conventional mitigation and engineering measures. The environmental, OHS and Social risks and impacts associated with the proposed U-PREPARE sub-projects have been broadly identified and summarized as below:

##### **1.5.1 Environmental Risks**

- **Air Pollution and Noise Pollution**
  - ❖ Dust generations due to excavation, cutting and operations of vehicles and equipment
  - ❖ Gaseous emission due to operation of plants DG sets and vehicles
  - ❖ Operation of camp site and other allied sites
- **Water contamination**
  - ❖ Due to excavation and debris disposal
  - ❖ Discharge of waste water into water body

- ❖ Spillage of chemicals during works near river bed/waterway
- **Erosion and landslide problem**
  - ❖ Due to excavation activities near landslide prone areas
  - ❖ Due to slope cuttings and trimming
  - ❖ Blockage of waterways
  - ❖ Loss of top soil due to excavation
- **Ecological impacts**
  - ❖ Due to diversion of forest land for non-forest use
  - ❖ Habitat fragmentation
  - ❖ Due to cutting of trees
  - ❖ Risks on wildlife due to accidents/illegal poaching
  - ❖ Man-animal conflicts
- **Landscape degradation**
  - ❖ Due to slope cutting
  - ❖ Due to random disposal of debris materials

### **1.5.2 Occupational Health and Safety**

- ❖ Accident hazards for Workers at site due to construction activities
- ❖ Risk of falling, tipping and slipping of workers at site
- ❖ Creation of unhygienic conditions at work and camp site due to ill maintenance of debris/ domestic waste and drainage system
- ❖ Accident risks and casualty due Natural calamities such as flash flood, cloud burst, landslide, etc.
- ❖ Accident risks due to structural failure

### **1.5.3 Social Risks**

The proposed works may have moderate social impacts due to the nature, type and size of the works. However, the following social impacts could possibly arise out of the proposed projects:

- Deprivation and Displacement
  - ❖ Due to acquisition of private residential or agricultural or commercial land and also transfer of Government land under different tenure systems
  - ❖ Loss of assets/ infrastructure
  - ❖ Loss of Common Property Resources/ Community Assets
  - ❖ Loss of Livelihoods
  - ❖ Loss of access to houses/ businesses
- Inconvenience and nuisance to Public
  - ❖ Due to accumulation of excavated earth
  - ❖ Disturbance to traffic and resulting congestion
  - ❖ Disruption of utilities such as water, electricity, telephone, cable, etc.
- Social issues
  - ❖ Social disruption in the area of construction
  - ❖ Social unrest issues on construction sites
  - ❖ Regional labour issues
  - ❖ Child/forced labour

- ❖ Ill treatment, sexual harassment and exploitation of women and children
- ❖ Lesser wages to women
- ❖ Gender Issues
- Safety hazards to the households in the neighborhood during construction
  - ❖ Due to impact of vehicles on the road and land outside roads
  - ❖ Due to risk of accidents
- Health Hazards
  - ❖ Due to stagnation of water leading to mosquito breeding and public health problems
  - ❖ Due to spread of COVID-19, HIV-AIDS, etc., communicable diseases at construction sites
  - ❖ Due to surface water pollution
  - ❖ Due to groundwater pollution

### **1.6 Environment and Social Management Framework**

The ESMF has been developed to mitigate and manage these likely impacts of E&S risks and impacts. The ESMF identifies the potential environmental and social risks and impacts of U-PREPARE, outlines risk identification and mitigation processes and practices and lays down the mechanisms and procedures for implementation and monitoring of mitigation measures. The ESMF applies to all U-PREPARE interventions and subprojects. The ESMF covers the following instruments, guidelines and tools: (a) Environment and Social Screening, (b) Process flow for Environment and Social Management, (c) Environment and Social Management Plans (d) Biodiversity Management Measures (e) Indigenous Peoples Planning Framework (f) Grievance Redressal Mechanisms (g) Monitoring, Reporting and Auditing and (h) Training and Capacity Building, among others.

#### **1.6.1 Environment and Social Screening**

The Environmental and Social Screening will be carried out for all sub-projects, which will be appraised by the World Bank for completeness, correctness and compliance and approval. Based on the screening the scope of development of different E&S Management instruments will be decided for each sub-project.

The ESMF includes an Environment and Social Screening Checklist that provides early information on potential E&S risks and impacts related to eco-sensitive zones, critical natural habitats, resource use and pollution, waste management, trees and forests, regulatory requirements, biodiversity, community health and safety, GBV and SEA/SH, land acquisition and resettlement impacts, scheduled tribes, labor/labour influx and working conditions, stakeholder engagement, and cultural heritage. Information in the checklist will inform the preparation of site specific ESMPs and/or IPPs and RAPs.

#### **1.6.2 Process flow for Environmental and Social Management**

The ESF requirements to be fulfilled during the sub-project cycle, i.e., during planning, implementation, supervision, and monitoring & evaluation are summarized in **Table -0-1**.

*Table 0-1: Process Flow for ESMF Implementation*

Project Phase	Project Activity	Tasks	Responsible Entities
Planning and Designing Phase	Screening of Subprojects	<ul style="list-style-type: none"> <li>• Screening of subprojects to be done using a pre- defined E&amp;S checklist;</li> <li>• Completing the checklist in consultation with concerned PIUs/ Department;</li> <li>• The internal verification on accuracy and coverage of risks and impacts.</li> </ul>	Prepared by DPR Consultants and reviewed/accepted by PIU/PMU
Planning Phase	Preparation of Site specific Environmental and Social Management Plan	<ul style="list-style-type: none"> <li>• Ensure sub-project specific ESIA as required and ESMP provides detail on the planned activities;</li> <li>• The potential environmental and social impact &amp; risks from each activity;</li> <li>• Measures to mitigate negative environmental and social impacts and risks;</li> <li>• Measures to enhance positive environmental and social impacts;</li> <li>• Ensure all the key risks/impacts are adequately addressed and that provision has been made to meet the costs involved.</li> </ul>	Prepared by DPR Consultants and reviewed/approved by PIU and PMU
Construction Phase	Implementation on of ESMP	<ul style="list-style-type: none"> <li>• Implementation of mitigation measures and set forth measures under ESMP</li> <li>• Provided orientation on the mitigation measures and ESMP;</li> <li>• Supervise, monitor, reporting and documentation of implemented ESMPs.</li> </ul>	Contractors PMU/PIU and Engineer's representatives Engineer's Representative, PIU/PMU

### 1.6.3 Environmental and Social Impact Assessment (ESIA)

As informed by screening, the environmental and social impact assessment will be carried out for the sub-projects where it is necessary. Detailed characterization and assessment of these impacts will be carried out in the respective subproject specific ESIA/ESMP prior to invitation of bids. In addition, the impacts of the proposed subprojects on the environmental and social components will be identified through field visits, and consultation with experts and the local community. The impacts will be analyzed and graded qualitatively (e.g., high, substantial, moderate, low). The mitigation hierarchy will guide the impact assessment and analysis of alternatives. The outcome of the screening exercise would suggest whether the proposed subprojects would need detailed ESIA or site-specific ESMPs. If the screening concludes that the proposed subprojects are of high or substantial-risk category, a detailed ESIA and ESMP will need to be developed. For the moderate-risk projects, the limited ESIA and site-specific ESMPs will be prepared, whereas for low-risk projects, ESMPs will be sufficient.

Potential impacts will be predicted using the professional judgment of the multi-disciplinary team members based on baseline information collected and any modelling studies if required. The impact assessment will also consider both cumulative and induced impacts of the subprojects.

#### **1.6.4 Environment and Social Management Plans (ESMPs)**

ESMF includes generic ESMPs which have been prepared for bridges including approaches, road/slope protection measures, and fire protection. Based on the generic ESMPs, PIUs will prepare site-specific ESMPs for all subprojects. All DPRs, RFPs and Construction Contracts supported under U-PREPARE will include site specific ESMPs, ESHS monitoring and reporting mechanism with adequate budgetary provisions.

In accordance with the Sexual Exploitation and Abuse/Sexual Harassment (SEA/SH) risk assessment tool for projects with civil works, the Project is assigned a moderate risk rating for SEA/SH. If the risk rating for sub-project is moderate-high, site-specific SEA/SH prevention and response plan will be prepared along with the ESMP. In addition, the project will ensure a SEA/SH responsive GRM is in place.

#### **1.7 Institutional and Implementation Arrangements**

The Project Management Unit (PMU) will be placed in the Uttarakhand State Disaster Management Authority (USDMA), which has been successfully managing the Uttarakhand Disaster Recovery Project (UDRP) and the on-going Additional Finance (AF) since 2013. The project has four Project Implementation Units (PIUs) responsible for implementing specific project activities and managing respective funds. The PIUs are: Public Works Department (responsible for Road Infrastructure), Rural Works Department (responsible for infrastructure of Fire department), USDMA (responsible for Shelters & Preparedness), and Forest Department (responsible for Forest Fire). The PMU and PIUs will closely coordinate with other relevant entities, , State Disaster Response Force (SDRF), and Uttarakhand Fire and Emergency Services (UFES).

The E&S specialists in the PMU shall support all the PIUs in implementation of environment and social risk management instruments. PMU will provide necessary guidance and support to the PIU in implementation, monitoring and training on E&S safeguards. E&S experts will also be designated at the PIUs.

#### **1.8 Grievance Redress Mechanism**

The Grievance Redress Mechanism is detailed in the Stakeholder Engagement Plan, prepared separately for U-PREPARE. PMU and PIUs will have a grievance redress mechanism, that can also handle or refer SEA/SH related grievances, which will look into all aspects of sub-projects and their activities including land acquisition, resettlement and rehabilitation (R&R) related grievances.

#### **1.9 ESMF Budget**

The total administrative budget for environmental and social management activities under the U-PREPARE has been worked out as INR 6.6 Crores ( $\approx$  USD 821,304).

Disclaimer: This ESMF is a document of the borrower. The views expressed herein do not necessarily represent those of World Bank's Board of Directors, Management, or staff, nor do they imply any judgment on the part of the World Bank concerning the legal status of any territory or the endorsement or acceptance of boundaries, colors, denominations and other information shown on any map. The World Bank reviews borrowers' environmental and social documents to confirm their alignment with its Environmental and Social Framework.

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## ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
CCAP	Climate Change Action Plan
CERC	Contingent Emergency Response Component
DRM	Disaster Risk Management
EIRR	Economic Internal Rates of Return
EWS	Early Warning System
FD	Forest Department
GoUK	Government of Uttarakhand
GRM	Grievance Redress Mechanism
HPC	High-Powered Committee
MIS	Management Information Systems
M&E	Monitoring and Evaluation
PDO	Project Development Objective
PIU	Project Implementation Units
PMU	Project Management Unit
PWD	Public Works Department
RCP	Representative Concentration Pathway
RWD	Rural Works Department
SDRF	State Disaster Response Force
SEOC	State Emergency Operations Center
UAPCC	Uttarakhand Action Plan on Climate Change
UDRP	Uttarakhand Disaster Recovery Project
UFES	Uttarakhand Fire and Emergency Services
ULMMC	Uttarakhand Landslide Mitigation and Management Centre
U PREPARE	Uttarakhand Disaster Resilience and Preparedness Project
USDMA	Uttarakhand State Disaster Management Authority
WHH	Women-Headed Households

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## 1. Introduction

### 1.1 Background

The Uttarakhand Disaster Preparedness and Resilience Project (U-PREPARE), to be supported by The World Bank is under preparation. The proposed Project seeks to enhance the resilience of critical public infrastructure in Uttarakhand and strengthen the preparedness and emergency response capacity in the State. At its core, the Project will support a systems approach to resilience and the institutionalization of proactive disaster and climate risk management in the State. This will include mainstreaming disaster and climate risk management in road and infrastructure planning and investments to enable these lifelines to cope with and provide uninterrupted services during and after disasters of a specific magnitude. The project focuses on building capacity and strengthening systems to ensure long-term sustainability of the project investments.

### 1.2 Project Development Objective (PDO)

The Project Development Objective is to **enhance the climate and disaster resilience of critical public infrastructure and strengthen disaster risk management capacity in Uttarakhand**

#### 1.2.1 Project Components

##### **Component 1 – Enhancing Infrastructure Resilience (US\$55.2 million IBRD + US\$13.8 million Counterpart Financing [CF] million)**

1. The objective of this component is to develop climate and disaster-resilient priority infrastructure and integrate resilience into infrastructure planning.

**(a) Enhancing the resilience of transport connectivity (US\$41.6 million IBRD + US\$10.4 million CF)** through (i) improving the condition, safety, and resilience of selected bridges, which are prone to floods; (ii) reducing the risks of landslides to enhance population safety, including scaling up bioengineering solutions; (iii) supporting the new Uttarakhand Landslide Mitigation and Management Centre (ULMMC) achieve its vision of becoming a center of excellence for landslide risk management, including through capacity building, preparing an institutional development plan and promoting the application of technology and innovation; and (iv) strengthening the capacity of the Public Works Department (PWD) in resilient design and construction by integrating disaster and climate risk management approaches into existing systems and improving maintenance of transport infrastructure for climate resilience.

**(b) Providing disaster shelter (US\$8 million IBRD + US\$2 million CF)** through (i) conducting a State-wide shelter needs and development assessment; (ii) constructing pilot multi-purpose disaster shelters in disaster-prone areas along major routes with resilient, inclusive, and energy-efficient designs; and (iii) establishing institutions and procedures for shelter management including the use and maintenance of the shelters during non-emergency situations.

##### **Component 2 – Improving Emergency Preparedness and Response (US\$45.6 million IBRD + US\$11.4 million CF)**

2. The objective of this component is to improve the capabilities of government entities and first responders to predict, prepare for, and respond to disasters.

**(a) Strengthening emergency preparedness (US\$6.4 million IBRD + US\$1.6 million CF)** through (i) establishing a State Emergency Operations Center (SEOC) with a Centralized Incident Command System to enhance coordination; (ii) reviewing and strengthening the State's multi-agency institutional emergency and response frameworks and standard operating procedures; and (iii) implementing community DRM activities.

**(b) Strengthening hydromet and early warning systems (EWS) (US\$34.4 million IBRD + US\$8.6 million CF)** through (i) improving impact forecasting for weather, climate, and hydrological hazards; (ii) establishing an end-to-end multi-hazard EWS to provide timely warnings directly to the vulnerable population, using multi-channel and multi-technology dissemination systems; (iii) developing fit-for-purpose hydromet tools and services for stakeholders in key sectors; and (iv) training and capacity building for DRM officials at State and local levels and communities.

**(c) Strengthening the State Disaster Response Force (US\$4.8 million IBRD + US\$1.2 million CF)** through (i) constructing SDRF outdoor search and rescue training facilities; (ii) providing search and rescue and communications equipment; and (iii) providing training on equipment storage, maintenance, and repair.

**Component 3 – Preventing and Managing Forest and General Fires<sup>1</sup> (US\$43.2 million IBRD + US\$10.8 million CF)**

3. The objective of this component is to enhance the capacity of the government and communities to prevent and manage forest and other fires.

**(a) Improving general fire management capacity (US\$33.6 million IBRD + US\$8.4 million CF)** through (i) conducting a fire risk assessment in the context of climate change, and a gap analysis to prioritize resources and interventions; (ii) developing a state-level fire management strategy and action plan that defines the roles and responsibilities of different stakeholders, establishes coordination mechanisms, sets targets, and allocates budgets for fire management activities; (iii) strengthening UFES' capacity for firefighting, application of innovative technologies (for example, drones and remote sensing), building inspections, enforcement of fire safety acts, rules, and norms, and occupational health and safety management; (iv) constructing and upgrading fire stations to improve response time and effectiveness, applying gender, resilience, and environment, health, and safety design considerations; (v) constructing a fire management training facility; and (vi) implementing community-based activities on fire safety, including raising public awareness raising and promoting self-compliance and transparency in the fulfillment of fire safety norms.

**(b) Improving forest fire prevention and management capacity (US\$9.6 million IBRD + US\$2.4 million CF)** through (i) strengthening the FD's prediction, mapping, and early detection capacity, focusing on new technologies, such as remote sensing techniques, mobile applications, artificial intelligence, and drones, and taking into account shifts in fire risks due to climate change; (ii) assessing policies, processes, planning, and inter-agency forest fire coordination mechanisms, including creating an incident command system for forest fire management; (iii) strengthening the FD's forest fire suppression capacity by purchasing equipment, constructing and upgrading stations, and providing capacity building for officials and communities; (iv) establishing an incentive-based community program for forest fire risk management that will be guided by sustainable forest management principles, reduces fuel load, restores degraded lands, and enhances soil moisture levels; and (v) preparing a carbon-finance mechanism based on reduced emissions from the above-mentioned activities as a sustainable funding mechanism for community forest fire risk management activities.

**Component 4 – Project Management (US\$16 million IBRD + US\$4 million CF)**

4. The objective of this component is to support project management and knowledge sharing.

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<sup>1</sup> General fires refer to instances of commercial, residential, or industrial fires which fall under the legislated accountabilities of UFES.

**(a) Carrying out the day-to-day coordination** through (i) supporting financial management (FM), procurement, environmental and social management, communication, monitoring and evaluation (M&E), and stakeholder engagement, including community outreach; and (ii) enhancing the State's ongoing efforts on open data management.

**(b) Supporting the establishment of a Lighthouse Uttarakhand platform** through (i) disseminating lessons learned and good practices in Uttarakhand to other States in India, and (ii) supporting the exchange of knowledge and strengthening the capacity of institutions in India through partnerships.

[\[1\]](#) General fires refer to instances of commercial, residential, or industrial fires which fall under the legislated accountabilities of UFES.

### **1.3 Need for ESMF**

The ESMF was developed as there are substantial number of sub-projects to be implemented under the U-PREPARE, and the risks and impacts cannot be determined until all sub-project details have been identified. This ESMF sets out the process for environmental and social screening and categorization of sub-projects, conducting environmental and social impact assessment (where necessary), preparation of sub-project environmental and social management plans (ESMPs) and implementation and monitoring of these plans.

## 2. Environment and Social Baseline

### 2.1 Environment Baseline

#### 2.1.1. Geography

Uttarakhand lies in the northern part of India amidst the magnificent Himalayas and dense forests. The State is bordering Himachal Pradesh in the north-west and Uttar Pradesh (UP) in the South and shares international borders with Nepal and China. Uttarakhand the 27th state of Republic of India lies in the northern Himalayas between 28°53'24" to 31°27'50" North latitude and 77°34'27" to 81°02'22" East longitude. It was carved out of UP on 9th November 2000. The geographical area of the state is 53483 sq. km and the terrain and topography of the state is largely hilly with large areas under snow cover and steep slopes.

Physiographically, Uttarakhand represents a cross-section of the Himalaya, namely the Trans-Himalaya, Greater Himalaya or Himadri, Lesser Himalaya, Shiwalik Ranges, foothills & Terai and the Plains of Dehradun, Haridwar and Udham Singh Nagar.

Uttarakhand State comprises of 02 regions, 13 districts, 78 Tehsils and 95 community development blocks. The districts lying in Garhwal region are Uttarkashi, Chamoli, Pauri, Rudraprayag, Tehri, Dehradun & Haridwar and the remaining 06 in Kumaon region are Udham Singh Nagar, Nainital, Almora, Pithoragarh, Bageshwar & Champawat.



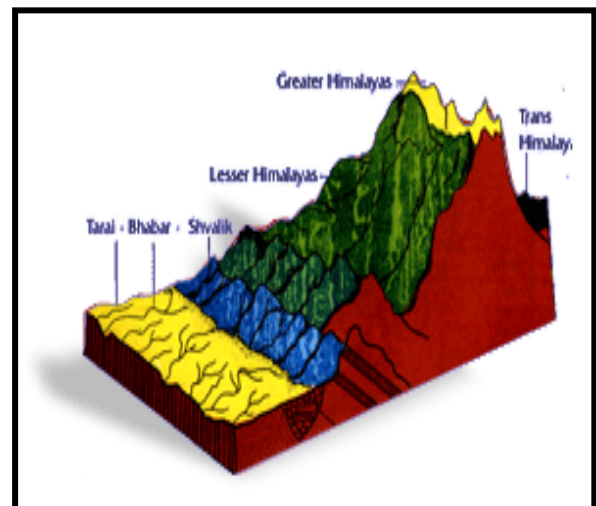
**Figure 2-1: Location of Districts in Uttarakhand**

Uttarakhand is divided into two regions and also called administrative divisions, basically following terrains: the Kumaon and Garhwal. The Kumaon division located southeast of the state and composed of Almora, Bageshwar, Champawat, Nainital, Pithoragarh, and Udham

Singh Nagar. The Kumaon region is part of the vast Himalayan track and the sub-mountains of Terai and Bhabhar. The region is drained by Gori, Dhauli, and Kali from the Tibetan mountains, and Pindari and Kaliganga which ultimately joins Alaknanda River. The Garwhal division is composed of Chamoli, Uttarkashi, Rudraprayag, Tehri Garhwal, Pauri, Dehradun, and Haridwar districts and is entirely on rugged mountain ranges dissected by valley, and deep gorges. The Alakananda River, the main source of the Ganges, traces its headwaters in this region.

The State is part of the Western Himalaya. Geographically, the Kumaon zone of the Western Himalaya can be divided into four zones viz. a. Tarai-Bhabar-Shivalik, b. (Sub-Himalayas) Lesser-Himalayas, c. Greater-Himalayas and d. Trans-Himalaya (Tethys).

South of Lesser Himalayas, it is the outermost zone overlooking the foot-hills and the plains. The altitude ranging from 750-1,200 metres, the Shiwaliks are the foot-hills just above the Bhabhar and Tarai, once famous for the swamps and insalubrious climate, inhabited by Tribal people only, now reclaimed and developed into a fertile land, supporting a large population. While the northern zone is composed of gneisses and granites, this has a great complexity of structure, having the most favorable climatic condition for human habitation. The elevation varying from 1,000 metres to 3,500 metres from low lying river valleys to peaks close to the Great Himalayas, the Lesser Himalayas, with moderately steep slopes, consists of many fertile and flat river valleys.



The northern most zone consisting of perpetually snow-covered ranges between 3,500 to 4,4800 metres, although the snow-line rises to 5,400 metres, during summers at some places. The zone contains a number of glaciers, Pindari, Milam, Nandakot, Kafni, Untadhura, Gori etc. which originate to a number of snow fed rivers like Alakananda, Bhagirathi, Pinder, Gori Ganga etc. The Dharamganga and Saryu are major tributaries of the Kali river. Which separates Kumaon from Nepal in the extreme north-east.

### 2.1.2. Geology

According to Gansser (1964), the Himalayas may be sub-divided into five geographical divisions from west to east. In their longitudinal structure, the Himalayas are divided (from north to south) by a series of parallel tectonic zones. The 'Sub' or 'Outer-Himalayas' forming the foot-hill zone are delimited in the south by the large fans of Ganges alluvial deposits, whereas the northern edge is a clearly outlined tectonic feature—the Main Boundary Fault—genetically linked with Miocene metamorphism in the Himalayas.

The Lesser Himalayas are composed of tectonically compressed blocks of Paleozoic and Mesozoic crystalline, metamorphic, and sedimentary rocks. The Main Central Thrust is a major



tectonic feature of the Himalayas and has brought the crystalline rocks of the Higher Himalayas over the younger sedimentaries.

The Greater/Higher Himalayas consist of a single range with an average height exceeding 6,000 m. The width of this zone, mostly composed of granites and gneisses, is 24 Km. The Central Crystalline occupy the core or the 'axis' of this range, and were considered to be Tertiary intrusive accompanying the compression movements responsible for the uplift of the Himalayas by some earlier workers. The recent view, however, is that they are mostly Paleozoic or Precambrian in age and represent a geanticline between the unfossiliferous sediments of the Lesser Himalayas to the south and a highly fossiliferous sequence of the Tethys zone in the north. The stratigraphic order in the Tethys zone is well known because of the well-preserved fossils such as products, ophiceras, and the likes.

### **2.1.3. Physiography**

Uttarakhand lies in the Northern part of India amidst the magnificent Himalayas and dense forests. The state is bordering Himachal Pradesh in the north-west and Uttar Pradesh in the South and has international borders with Nepal and China. Uttarakhand consists of 13 districts viz., Pithoragarh, Almora, Nainital, Bageshwar, Champawat, Uttarkashi, Udham Singh Nagar, Chamoli, Dehradun, Pauri, Tehri Garhwal, Rudraprayag and Haridwar.

### **2.1.4. Pedology**

The soils are natural, dynamic, heterogeneous, non-renewable resource, which support plant and animal life. Most of the soil in Uttarakhand state is organic in nature but in some areas it content high proportion of minerals.

The soils developed from rocks like granite, schist, gneiss, phyllites, shales, slate etc. under cool and moist climate.

Very steep to steep hills and Glacio-fluvial valleys are dominantly occupied with very shallow to moderately shallow excessively drained, sandy-skeletal to loamy-skeletal, neutral to slightly acidic with low available water capacity soils. They have been classified as Lithic/Typic Cryorthents. These soils are in general under sparse vegetation.

The baseline data on soil quality at each proposed site for construction of Helipads will be generated by the contractor before commencement of construction works.

During construction the sampling locations proposed are, where the construction/restoration/repair work will be done.

### **2.1.5. Climate and Meteorology**

The State of Uttarakhand, with its highly varying topographical features, has shown an equally variegating climatic condition, ranging from hot and sub-humid sub-tropical in the southern tract of Bhabhar to temperate, cold alpine, and glacial climates in the northern part of the high mountains.

Factors such as elevation, slope, proximity of glaciers, forests, mountain peaks and ridges and direction of mountain ranges together give rise to the great variations in climatic conditions, even at the micro and local levels. These attributes determine the temperature range as well as the distribution of rainfall.

However, the overall climatic condition in the State is governed by the southwest monsoon. It has a sub-tropical to temperate climate, with three pronounced seasons; summer, winter, and monsoon. The hilly terrain of the Himalayan region has snow cover and is severely cold during winter with snowfall normally occurring during the months of December to March.

### 2.1.6. Ambient Air Quality

The State Pollution Control Board has established a number of ambient air quality monitoring stations in major cities of Uttarakhand in both Garhwal and Kumaun region. In general, they monitor the ambient air quality in terms of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>2</sub>. The annual report published by the Uttarakhand Pollution Control Board for the last year, i.e. 2022, reflects that the annual mean concentration of PM<sub>10</sub> and PM<sub>2.5</sub> exceeded the prescribed limits in major cities of Dehradun, Rishikesh, Haridwar, Roorkee, Kashipur and Rudrapur. The main reason for high concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> may be attributed to construction activities, heavy traffic flow and commercial and industrial activities in these cities. However, the annual mean concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> in the air were found well within the prescribed limits in the towns located in the hilly areas of Uttarakhand. In the hilly areas the concentrations of other air quality parameters were recorded well within the prescribed limit.

The air pollution level is well within the permissible limits because there are no major sources of pollution in the hilly region.

**Table 2-1: Air Quality Level**

S.No.	Place	Monitoring Station	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>
1.	Dehradun	Clock Tower	150.83	84.96	24.59	19.05
		Rajpur Road	142.41	82.81	23.52	26.28
		ISBT	151.17	88.12	24.80	20.97
2.	Rishikesh	Nagar Nigam	136.26	70.33	24.38	18.87
		SPS Hospital	134.62	71.08	24.14	18.53
		Natraj Hotel	137.92	75.11	24.08	18.66
3.	Haridwar	SIDCUL	116.95	92.25	26.58	18.05
		RISHIKUL	132.39	94.09	26.43	19.54
4	Haldwani	Jal Sansthan	113.22	31.20	25.37	7.65
5	Kashipur	Hospital	122.39	59.57	19.75	15.89
		Anaaj Mandi	147.26	71.25	NA	NA
		Ganna Ayukt	124.28	67.76	NA	NA

S.No.	Place	Monitoring Station	PM <sub>10</sub>	PM <sub>2.5</sub>	NO <sub>2</sub>	SO <sub>2</sub>
6	Rudrapur	Govt. Hospital	124.28	NA	20.31	16.43
7	Roorkee	PCNNR	NA	129.70	20.37	12.31
8	Uttarkashi	CMO Office	16.43	25.82	NA	NA
9.	Pauri	NPP	39.58	30.48	NA	NA
10	Gopeshwar	NPP	34.55	32.03	NA	NA
11	New Tehri	NPP	38.65	31.85	NA	NA
12	Bageshwar	NPP	56.64	31.68	NA	NA

### 2.1.7. Hydrology

Uttarakhand has tremendous water resources such as glaciers, lakes, rivers and other water bodies. Most of these have tourism importance like Milam, Pindari, Sunder Dhunga and Heeramani Glaciers; Seven Lakes in Nainital; and some wetlands. However, these water bodies are located far from the sub-project sites.

Generally, there has been an overall decline in water resources in the State. Hydrological studies over the last decades confirm the diminishing water resources and the worsening crises as caused by the following factors which have resulted in the decrease in underground seepages. These have directly contributed to the reduction of water availability in and reduction of discharge in nallas as well as extensive disappearance of springs-the region's primary source of drinking water.

- There has been a diminishing regulatory effect of glaciers of the Great Himalayan zone.
- There is a long-term decreasing trend of stream discharges.
- The capacities of the lakes have dwindled.
- Surface runoff on the hillsides has shown high increase.
- There has been an increase in floodwater and decrease in base flow water in channels
- and rivers.
- Extensive soil erosion and landslips are recurring phenomena in the region.

### 2.1.8. Water Drainage

The region of Uttarakhand is well drained by numerous rivers and rivulets locally known as Gad (river) and Gadhera (rivulet). The water resources of this region are of singular importance not only for the region but also for the whole Gangetic plains of north India. There are three main river systems are: (i) the Bhagirathi – Alakananda basin – Ganges basin, (ii) The Yamuna – Tons basin, and (iii) the Kali basin.

The Ganges system drains a major part of the region covering the whole of the Garhwal, except the western part of Uttarkashi district, and the western part of Garhwal Himalayas from an altitude of 7,138 m meet at Devprayag and flow as the Ganges thereafter. The Bhagirathi is the mainstream while the Alakananda, Saraswati, Dauli Ganga, Berahi Ganga, Nandakini,

Mandakini, Madhu Ganga, Pindar, Atagad, Bhilangana, Jad Ganga, the Kaldi Gad and the Haipur are the main tributaries to the Alakananda and Bhagirathi rivers, ultimately contributing to the waters of Holy river Ganga. The Nayar, which drains more than a half area of the Garhwal district, is an important tributary of the Ganga. The Yamuna-Tons system is also located in the Garhwal region. The Yamuna River rises at Yamunotri and is joined by important tributaries such as the Giri and more importantly, the Tons, which is its biggest tributary with 2.7 times greater volume of water than the Yamuna. The river Yamuna flows out of the hill areas through the Doon valley and the Shivaliks, into Haridwar district, being joined in the Doon valley by several streams.

#### **2.1.9. Water Quality**

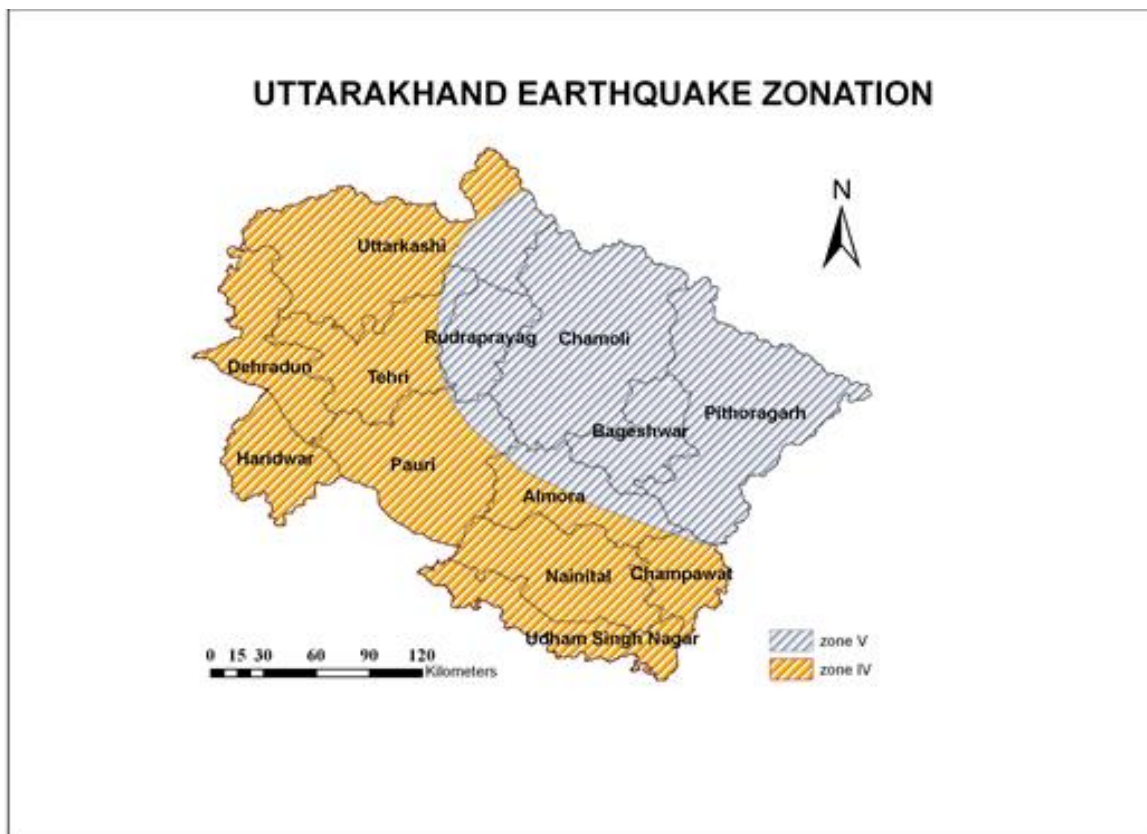
The State Pollution Control Board monitors surface water quality of all the major rivers of Uttarakhand and both Garhwal and Kumaun regions of the state. The test result as reported by the State Pollution Control Board, in general water quality of all the river except for water sample of Song River in Dehradun and Suswa River at Mathurawala Dehradun meet the primary water quality criteria for organized outdoor bathing. The Suswa river and Song River showed higher concentration of Faecal coliform exceeding the maximum permissible level. This is primarily caused due to sewage discharge and industrial discharge into these two rivers on the upstream side in Dehradun.

#### **2.1.10. Seismology**

The main tectonic elements of the region include the (i) central thrust and (ii) boundary fault. Several NE-SW lineaments are also known from the area and these traverse across different tectonic zones.

Seismically, the State constitutes one of the most active domains of the Himalayan region. Several damaging earthquakes are recorded from this region. As such, the region is classified under high seismic zones IV and V. The seismic zones of Uttarakhand are represented in **Figure**

### **2.2**



**Figure 2-2: The Seismic zone map of Uttarakhand**

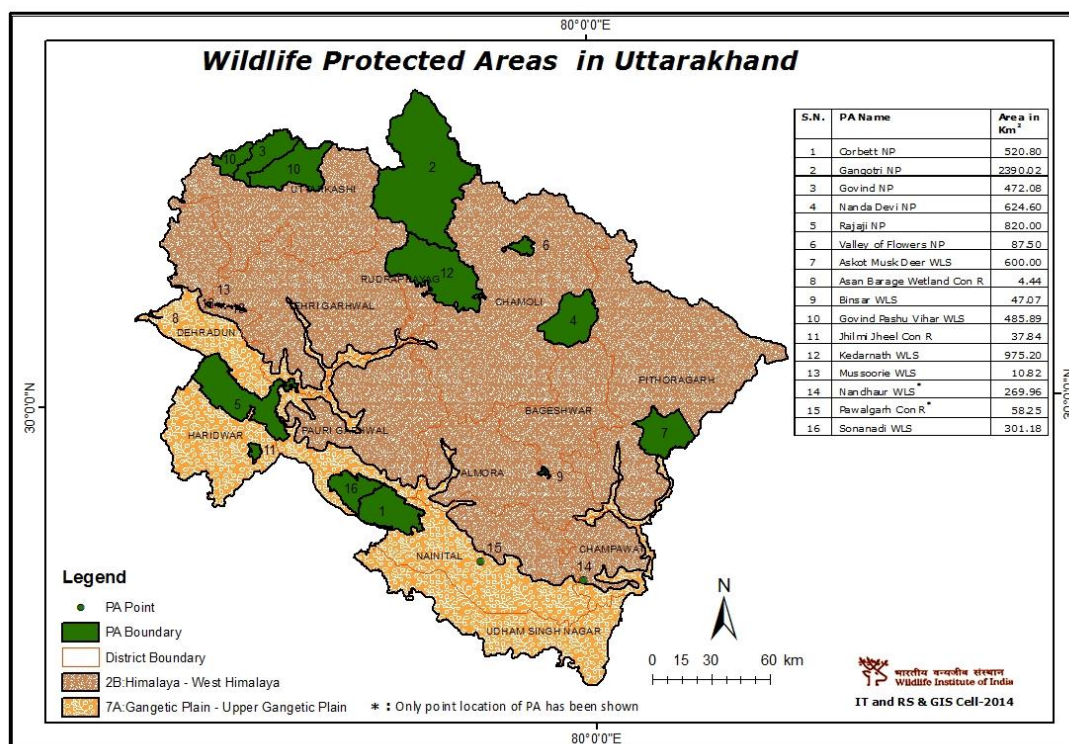
**2.1.11. Ecologically Protect Areas**

The Himalayas represent one of the most fascinating biotas (fauna and flora) all over the world, both in terms of quality and quantity. This is evident from the fact that more than 50% of all biota can be found only in the Himalayan region. Such fact is brought about by the region’s uniqueness in terms of favorable climatic conditions, natural habitats, and soil types. The State of Uttarakhand is represented by Biogeographic Zones 2B Western Himalaya and 7B Siwaliks in this region. About 18.7% of the total area under the Forest Department has been clearly earmarked for biodiversity conservation by the creation and management of 12 Protected Areas (PA) and a biosphere reserve in the State. The details are provided in **Table 2.2.**

**Table 2-2: Details of Ecologically Protect Areas in Uttarakhand**

S. No.	Name	Year of Establishment	Area (Sq. Km)	District
<b>National Park</b>				
1	Corbett NP	1936	520.80	Nainital and Pauri
2	Nanda Devi NP	1982	630	Chamoli
3	Valley of Flower NP	1982	87	Chamoli
4	Rajaji NP	1983	820	Dehradun and Haridwar
5	Gangotri NP	1989	2390	Uttarkashi

S. No.	Name	Year of Establishment	Area (Sq. Km)	District
6	Govind NP	1990	. 472	Uttarkashi
<b>Wildlife Sanctuary</b>				
1	Govind WLS	1955	521	Uttarkashi
2	Kedarnath WLS	1972	957	Chamoli
3	Askot WLS	1986	600	Pithoragarh
4	Sonanadi WLS	1987	301	Garhwal
5	Binsar WLS	1988	46	Almora
6	Musoorie WLS	1993	11	Dehradun
<b>Biosphere Reserve</b>				
1.	Nanda Devi Biosphere Reserve	2004	64.07	Chamoli



**Figure 2-3: Wildlife Protected Area of Uttarakhand**

## 2.2 Socio-Demographic Profile

Uttarakhand is a predominantly rural state with 16,826 rural settlements, of which 12,699 or 81% have a population of less than 500. In most of the districts, more than 75-85 % of rural settlements have a population of less than 500. Only 17 % of the rural settlements have a population ranging between 500-1999 and the villages with population of 2000 or more are few (2.7 %). The small size of settlements and their widespread distribution is a formidable challenge for service delivery in the state of Uttarakhand with such a high percentage of small and scattered hamlets in tough geographic and climatic conditions.

According 2011 Census, Uttarakhand's population is around 10.1 million, with last decadal growth being 19.17. Uttarakhand comprises approximately 0.84% of India's total population. Out of the total population of the state, males account for 5,154,178 and females account for 4,962,574, persons. Sex Ratio in the state is 963 in 2011 census and fares better as compared to average sex ratio of India (940) but the child sex ratio of 886 in Uttarakhand remains a matter of concern.

Literacy rate in the state is 79.63% that above the national average of 74.04%. Total 6,997,433 people were found literate in Uttarakhand during the last Census. Out of the total literate population, 3,930,174 were males (88.33%) while remaining 3,067,259 were female (70.70%). These averages of literacy among male and female have increased since Census 2001 when the male and female literacy rates were recorded as 81.02% and 63.36% respectively.

The population of the districts in Uttarakhand varies considerably. Four of the 13 districts, namely Dehradun, Haridwar, Udham Singh Nagar and Nainital account for 61.5 % of the state's total population. On adding Tehri Garhwal, Pauri Garhwal and Almora, this accounts for nearly 81%. This clearly shows that the concentration of population is quite high in the mid and foothills as compared to the remaining six districts of high hills. District-wise, there are variations in the density of population with Haridwar, Udham Singh Nagar and Dehradun have higher densities of 817, 648, and 550 persons per square km respectively; while in districts like Uttarkashi, Chamoli and Pithoragarh the population density is quite low with average of 41, 49, and 69 persons per square km. The population density in the other two project districts, Bageshwar and Rudraprayag is 116 and 122 persons per square km respectively.

**Table 2-3: Demographic Indicators**

S.No.	Indicators	Number/ Percentage
1	Geographic Area (in Sq. kms)	53,484 sq. kms
2	Number of blocks	95
3	Number of villages	16826
4	Number of towns	75
5	Total Population (2011)	1,01,16,752
	Male	5,154,178
	Female	4,962,574
6	Population Sex Ratio	963
7	Child Sex Ratio	886
8	Decadal growth rate	19.17
9	Density- per sq. km.	189
10	Literacy Rate	79.63%
	Male	88.33%
	Female	70.70%
11	% SC/ST population	
	SC	15.17
	ST	2.56

12	Number of households	2056975
13	Scheduled Castes – Persons	1892516
14	Scheduled Castes – Males	968586
15	Scheduled Castes – Females	923930
16	Scheduled Tribes – Persons	291903
17	Scheduled Tribes – Males	148669
18	Scheduled Tribes – Females	143234
19	Literate population – Person	6880953
20	Literate population – Males	3863708
21	Literate population – Females	3017245
22	Total worker population – Person	3872275
23	Total worker population – Males	2551921
24	Total worker population – Females	1320354
25	Main working population – Person	2870624
26	Main cultivator population – Person	1045674
27	Main agricultural labourers population – Person	247256
28	Main household industries population – Person	77040
29	Main other workers population – Person	1500654
30	Marginal worker population – Person	1001651
31	Marginal cultivator population – Person	534749
32	Marginal agricultural labourers population – Person	156045
33	Marginal household industries population – Person	37272
34	Marginal other workers population – Person	273585
35	Non working population – Person	6214017

Source: Census of India, 2011

### 2.2.1 Languages

The official language of Uttarakhand is Hindi, which according to the 2011 census is spoken natively by 43% of the population (primarily concentrated in the south), and also used throughout the state as a lingua franca. Additionally, Sanskrit language has been declared a second official language, although it has no native speakers and its use is constrained to educational and religious settings.

The other major regional languages of Uttarakhand are Garhwali, which according to the 2011 census is spoken by 23% of the population, mostly in the western half of the state; Kumaoni, spoken in the eastern half and native to 20%; and Jaunsari, whose speakers are concentrated in Dehradun district in the southwest and make up 1.3% of the state's population. These three languages are closely related, with Garhwali and Kumaoni in particular making up the Central Pahari language subgroup. There are also sizeable populations of speakers of some of India's other major languages: Urdu (4.2%) and Punjabi (2.6%), both mostly found in the southern districts, Bengali (1.5%) and Bhojपुरi (0.95%), both mainly present in Udham Singh Nagar district in the south-east, and Nepali (1.1%, found throughout the state, but most notably in Dehradun and Uttarkashi).



## **2.2.2 Culture**

Uttarakhand is known for its beautiful Garhwali and Kumaoni culture. The various traditions, religions, fairs, festivals, folk dances, music are what distinctly separate them.

### **2.2.2.1 Garhwali Culture**

Garhwali is the main language spoken here that has a number of dialects too including Jaunsari, Marchi, Jadhi and Sailani. Garhwal is inhabited by people belonging to a number of ethnic groups and castes. These include Rajputs who are believed to belong to the Aryan origin, Brahmins who migrated after the Rajputs or later, tribals of Garhwal who stay in the Northern tracts and comprise of Jaunsaris, Jadhhs, Marchas and Van Gujars.

### **2.2.2.2 Kumaoni Culture**

The people of Kumaon speak 13 dialects including Kumaiya, Gangola, Soryali, Sirali, Askoti, Danpuriya, Johari, Chaugarkhyali, Majh Kumaiya, Khasparjia, Pachhai and Rauchaubhaisi. This group of languages is known as the group of Central Pahari languages. Kumaon is also rich in its folk literature which comprises myths, heroes, heroines, bravery, Gods, Goddesses and the characters drawn from Ramayana and Mahabharatha. The most popular dance form of Kumaon is known as Chhalaria and it is related to the martial traditions of the region. All the festivals are celebrated with a lot of enthusiasm and witness such traditional dance forms even today.

## **2.2.3 Occupations**

Like most of India, agriculture is one of the most significant sectors of the economy of Uttarakhand. Basmati rice, wheat, soybeans, groundnuts, coarse cereals, pulses, and oil seeds are the most widely grown crops<sup>2</sup>. Fruits like apples, oranges, pears, peaches, litchis, and plums are widely grown and important to the large food processing industry. Agricultural export zones have been set up in the state for leechi, horticulture, herbs, medicinal plants, and basmati rice. During 2010, wheat production was 831 thousand tonnes and rice production was 610 thousand tonnes, while the main cash crop of the state, sugarcane, had a production of 5058 thousand tonnes. As 86% of the state consists of hills, the yield per hectare is not very high. 86% of all croplands are in the plains while the remaining is from the hills. Other key industries include tourism and hydropower, and there is prospective development in IT, ITES, biotechnology, pharmaceuticals and automobile industries. The service sector of Uttarakhand mainly includes tourism, information technology, higher education, and banking.

## **2.2.4 Livelihoods**

The work force engaged in agricultural activities is 58.39 percent of total work force. The share of female work force in total work force is 36.31 percent. The occupational distribution (2011 census) indicates that the share of cultivators are predominant in occupational structure. Main workers are those workers who had worked for the major part of the reference period i.e., six months or more are termed as main workers. Marginal workers are those workers who had not

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<sup>2</sup> “Economy of Uttarakhand” [https://en.wikipedia.org/wiki/Economy\\_of\\_Uttarakhand](https://en.wikipedia.org/wiki/Economy_of_Uttarakhand)

worked for the major part of the reference period i.e., less than six months are termed as marginal workers. The proportion of marginal workers is ¼ th of total work force and a higher proportion of marginal workers are engaged in agriculture sector. It indicates that development programs should be devised in such a manner so that adequate employment opportunities on sustainable basis are provided to the marginal workers. It would help in reduction of poverty level and also arresting in migration of labour force from rural to urban areas.

**Table 2-4: District wise details of main and marginal workers**

District	Main Workers	Marginal workers	Total Workers	%age of marginal workers to total workers
Uttarakashi	114842	21062	135904	15.50
Chamoli	96900	67829	164729	41.18
Tehri Garhwal	181205	83510	264715	31.55
Dehradun	336504	63971	400475	15.97
Pauri Garhwal	171647	98224	269871	36.40
Rudraprayaga	76068	25965	102033	25.45
Haridwar	353556	71707	425263	16.86
Pithoragarh	124062	74647	198709	37.57
Almora	204649	87533	292182	29.96
Nainital	220995	57952	278947	20.78
US Nagar	300141	92015	392156	23.46
Bageshwar	85613	33231	118844	27.96
Champawat	56165	34043	90208	37.74
<b>Total</b>	<b>2322347</b>	<b>811689</b>	<b>3134036</b>	<b>25.90</b>

Source: Census of India, 2011 (<https://censusindia.gov.in/nada/index.php/catalog/12703>)

The districts which are having high proportion of marginal workers than state average (25.90%) are Chamoli, Tehri Garhwal, Pauri Garhwal, Almora, Pithoragarh, Bageshwar and Champawat which indicates that employment opportunities on sustainable basis needs to be generated in these districts particularly reduce under-wage employment.

**Table 2-5: Classification of Workers and Its Percentage to Total Workforce**

Numbers in Lakhs					
Type of workers	Main workers	Marginal workers	Total	Male	Female
Cultivators	10.67 (34.0)	2.03 (16.1)	15.7 (5.01)	6.84 (21.8)	8.86(28.3)
Agricultural laborers	1.43(4.6)	1.17(3.7)	2.6(8.3)	1.90(6.1)	0.69(2.2)
Household Industry	0.49(1.6)	0.23(0.7)	0.72(2.3)	0.44(1.4)	0.29(0.9)
Others	10.63(33.9)	1.69(5.4)	12.32(39.3)	10.78(34.4)	1.54(4.9)
<b>Total</b>	<b>23.22(74.1)</b>	<b>8.12(25.9)</b>	<b>31.34(100)</b>	<b>19.96(63.7)</b>	<b>11.98(36.3)</b>

Source: Census of India, 2011 (<https://censusindia.gov.in/nada/index.php/catalog/12703>)

## 2.2.5 Festivals

**Kumaoni Holi** is celebrated in three forms namely Baithki Holi, Khari Holi and Mahila Holi. The unique feature about this festival is that it is celebrated with a lot of music.

**Harela** is a festival that marks the beginning of the rainy season or monsoon. The people belonging to the Kumaon community celebrate this festival during the month of Shrawana, i.e., July-August. This festival is followed by Bhitauli, which is celebrated in the month of Chaitra, i.e., March - April. It revolves around agriculture where women sow seeds in the soil and by the end of the festival they reap the harvest which is called harela.

**Jageshwar fair** is carried out in the temple of Lord Shiva in Jageshwar on the fifteenth day of Baisakh month which is the period extending from late March to early April. People take a dip in the pool known as Brahma Kund as a kind of belief during the fair.

**Kumbh Mela** is one of the biggest and the most popular festival of Uttarakhand. This mela is a 3-month long festival and takes place once in every four years rotating between Allahabad, Haridwar, Ujjain, and Nasik, i.e., only once in 12 years in any one place.

## 2.2.6 Scheduled Castes and Scheduled Tribes Population

The district wise Scheduled Castes and Scheduled Tribes population as per 2011 census is given in **Table 2.6**.

**Table 2-6: SC and ST Population Details**

District	Population			SC Population			ST Population			
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	% of Total
Uttarkashi	305781	24305	330086	76875	3692	80567	3374	138	3512	1.06
Chamoli	332209	59396	391605	68000	11317	79317	9046	3214	12260	3.13
Rudraprayag	232360	9925	242285	46279	1400	47679	309	77	386	0.16
Tehri Garhwal	548792	70139	618931	94628	7502	102130	630	245	875	0.14
Dehradun	754753	941941	1696694	119123	109778	228901	101475	10188	111663	6.58
Garhwal	574568	112703	687271	109576	12785	122361	1952	263	2215	0.32
Pithoragarh	413834	69605	483439	109541	10837	120378	15915	3620	19535	4.04
Bageshwar	250819	9079	259898	69842	2219	72061	1874	108	1982	0.76
Almora	560192	62314	622506	140931	10064	150995	750	531	1281	0.21
Champawat	221305	38343	259648	41725	5658	47383	1084	255	1339	0.52
Nainital	582871	371734	954605	137906	53300	191206	5780	1715	7495	0.79
Udham Singh Nagar	1062142	586760	1648902	174919	63345	238264	117381	5656	123037	7.46
Hardwar	1197328	693094	1890422	307320	103954	411274	5249	1074	6323	0.33
Uttarkashi			330086	80567		80567			3512	
<b>Total</b>	<b>7036954</b>	<b>3049338</b>	<b>10086292</b>	<b>1496665</b>	<b>395851</b>	<b>1892516</b>	<b>264819</b>	<b>27084</b>	<b>291903</b>	2.89

Source: Census of India, 2011 (<https://censusindia.gov.in/nada/index.php/catalog/42886>)

**Table 2-7: Scheduled Tribes: Different Tribes and their numbers, prevalence by districts**

District	Population				
	Bhotia	Buksa	Jannsari	Raji	Tharu
Uttarkashi	2,061	7	1,082	3	9
Chamoli	10,219	3	57	9	23
Rudraprayag	134	6	7	0	0
Tehri Garhwal	107	10	313	1	74
Dehradun	2,123	17,684	86,516	62	220
Garhwal	241	1,416	97	0	37
Pithoragarh	18,115	2	18	382	93
Bageshwar	1,553	1	9	0	44
Almora	939	5	19	8	25
Champawat	295	5	0	127	720
Nainital	2,271	3,694	209	12	575
Udham Singh Nagar	853	27,609	64	61	89,399
Hardwar	195	3,600	268	25	123

**Source:** *Census of India, 2011*  
<https://censusindia.gov.in/nada/index.php/catalog/42886>

The tribal population of Uttarakhand is concentrated in the remote and forest area of Tarai and Bhabar and high reaches of Pithoragarh, Chamouli, Uttarkashi District and Jaunsar-Bhabar area of Dehradun district. Some of the tribal groups have a nomadic or semi-nomadic way of life. However, most of these people have taken to a settled life and are engaged in animal husbandry, agriculture, trade and other occupation. As per census data of 2011, out of total population of Uttarakhand, about 3% of the population of the state are scheduled tribes.

### 2.2.7 Details of latest Tribal sub-plans

There are multiple welfare schemes which are being implemented in state by Social Welfare Department. The schemes focus on the development of Scheduled Tribes in state. The schemes and their features are enlisted below: Government Ashram Based Schools, Government Scheduled Tribe Hostels<sup>3</sup>, ITI centres are operated which enhance the skills of youth of Scheduled Tribe People, financial assistance for coaching for competitive exams in coaching centres, medical and marriage assistance to daughters of scheduled tribes, among others.

### 2.2.8 Tribal welfare and developmental programs/ projects in the state

There are several types of welfare and development projects, running for the scheduled tribes populations like Special Central Assistance to Tribal Sub-Scheme, Grants-in-aid under Article 275(1) of the Constitution, Development of Particularly Vulnerable Tribal Groups (PVTGs), Institutional Support for Development & Marketing of Tribal Products / Produce (Central Sector Scheme), Mechanism for Marketing of Minor Forest Produce (MFP) through Minimum Support Price (MSP) and Development of Value Chain for MFP' as a measure of social safety for MFP

<sup>3</sup> For educational development of Scheduled Tribe students, at present 4 hostels are being operated in state.

gatherers (Centrally Sponsored Scheme), Support to National Scheduled Tribes Finance and Development Corporation (NSTFDC)/State Scheduled Tribes Finance and Development Corporations (STFDCs), Scheme of Grant-in-aid to voluntary organizations working for the welfare of Scheduled Tribes and Vocational Training in Tribal Areas

### 2.2.9 Social Infrastructure

The district-wise data of sanitation, water supply, electricity, road network, and education institutions in Uttarakhand is given in **Table 2.8**

**Table 2-8: Social Infrastructure**

District	Sanitation	Water Supply	Electricity	Road Network	Education Institutions
Almora	93%	98%	99%	99%	1,044
Bageshwar	92%	98%	99%	99%	657
Chamoli	94%	98%	99%	99%	877
Dehradun	95%	99%	99%	100%	2,516
Haridwar	94%	99%	99%	99%	1,893
Nainital	96%	99%	99%	99%	1,174
Pithoragarh	91%	98%	99%	99%	547
Rudraprayag	93%	98%	99%	99%	764
Tehri Garhwal	94%	98%	99%	99%	1,224
Udham Singh Nagar	96%	99%	99%	100%	1,731

From the above table, it is observed that the socio-economic indicators of Uttarakhand are generally higher than the national average. The sanitation coverage is 93%, which is higher than the national average of 85%. The water supply coverage is 98%, which is higher than the national average of 92%. The electricity coverage is 99%, which is higher than the national average of 97%. The road network density is 100 km/100 sq km, which is higher than the national average of 60 km/100 sq km. The number of educational institutions per 100,000 people is 1,260, which is higher than the national average of 1,000. The details of district wise power connectivity, water supply coverage, etc. are given in the Annexures.

### 2.3 Disasters Related Information

The following are the major disasters faced by the state is given in **Table 2.9**.

**Table 2-9: Major Disasater of Uttrakhand**

S.No.	Year	Disasters (earthquake / flood / cloudburst / himalayan tsunami/ drought / cyclones / landslides / other)	Impacted areas	Impacts including fatalities / injuries / loss of assets	Remarks
1	2015	Uttarkashi earthquake	Uttar Pradesh	768–2,000 dead 1,383–1,800 injured	The shock was generally moderate while further clarifying the intensities that were observed at specific locations. Ghansyali, Gongotri, and Tehri were listed as experiencing intensity VII ( <i>Very strong</i> ) shaking and Bhatwari, Budhakedar, Krishanpur, Mahinanda, Maneri, and Uttarkashi were listed as experiencing intensity VIII ( <i>Severe</i> ) shaking
2	1980	Nepal earthquake	Uttarakhand & Nepal	200 dead, 5,600 injured	
3	1991	Uttarkashi Earthquake	Uttar Pradesh	768–2,000 dead 1,383–1,800 injured	
4	1998	Malpa Landslide	Malpa village Pithora garh district, Uttar Pradesh	221 deaths	
5	1996	Haridwar and Ujjain stampedes		21 killed, 39 injured	Killing 21 and 39, and injuring 40 and 35 hindu worshippers at respective places
6	1999	Chamoli earthquake	Rudraprayag, Tehri Garhwal, Bageshwar, Uttarkashi and Pauri Garhwal	Approximately 103 dead	

S.No.	Year	Disasters (earthquake / flood / cloudburst / himalayan tsunami/ drought / cyclones / landslides / other)	Impacted areas	Impacts including fatalities / injuries / loss of assets	Remarks
7	2012	Himalayan Flash flood	Uttarkashi, Karnprayag, Chamoli	31 dead, 40 missing	
8	2013	North India floods due to cloud burst	<u>Himachal Pradesh, Har yana, Delhi and Uttar Pradesh, Tibet, Nepal</u>	6,054 deaths 4,550 villages were affected	
9	2016	Uttarakhand forest fires	Uttarakhand & Himachal Pradesh	9 deaths & 17 injuries	A series of widespread, damaging wildfires that took place in Uttarakhand, India between April and May. The fires were caused by a heatwave that spread across Uttarakhand and were the worst recorded in the region with a reported 4,538 hectares
10	2020	Forest fire	Srinagar, Pauri Garwal	2 deaths & 1 injured. It led to a large damage to plants, animals	In the last week of May 2020, unprecedented rates of forest fires in the state of Uttarakhand occurred. Initial reports suggested that the fires were primarily in the Kumaon region, but also confirmed that there were multiple, separate incidents of forest fires occurring throughout the state's forest cover. On 26 <sup>th</sup> May 2020, there had been 46 incidents of forest fire in the state, resulting in a loss of 51.34 hectares (0.5134 km <sup>2</sup> ) of

S.No.	Year	Disasters (earthquake / flood / cloudburst / himalayan tsunami/ drought / cyclones / landslides / other)	Impacted areas	Impacts including fatalities / injuries / loss of assets	Remarks
					forest cover. In October 2020, forest officials reported continued incidents of forest fires, which were stated to be 'untimely' for that time of the year. Forest officials described these fires as being caused by an unseasonable heat wave and period of dry weather.
11	2021	Uttarakhand floods known as Chamoli disaster caused due to Garwal Himalayas. It was caused by a large rock and ice avalanche consisting of material dislodged from Ronti peak	Joshimath, Rini, Nanda Devi National Park, Tapovan Vishnugad Hydropower Plant and Sridha	83 deaths 121 missing	Most houses are damaged. Few houses that remain undamaged on the site were covered in slush up to 20 feet deep.
12	2020	Covid Pandemic Uttarakhand	Uttarakhand	18,235 deaths in 2020	

[https://en.wikipedia.org/wiki/Category:Disasters\\_in\\_Uttarakhand](https://en.wikipedia.org/wiki/Category:Disasters_in_Uttarakhand)



### 2.3.1 Fire Fighting Infrastructure in state

The state has a total of 34 fire stations and 13 fire units. The land availability for augmentation or expansion of some of the units including details on availability of fire fighting equipments are given in the **Annexure \_\_\_\_\_**<sup>4</sup>.

#### Fire Accidents:

The **Table 2.12** gives the fire accidents in the state since 2000, alongwith details of property saved and lost, human lives saved and lost, and animal lives saved and lost.

**Table 2-10: Details of Fire Accidents**

S.No.	Year	Fire Calls	Rescue Calls	Total	Property Saved	Property Lost	Life Saved (Human)	Life Saved (Animal)	Life Lost (Human)	Life Lost (Animal)
1	2000	475	77	552	244069900	38287400	328	44	166	50
2	2001	630	50	680	200760665	41218334	249	47	100	30
3	2002	620	86	706	134534950	23165150	291	76	148	44
4	2003	694	96	790	553798300	25391950	395	48	64	81
5	2004	823	181	1011	186677940	47914460	626	42	254	28
6	2005	301	181	1482	572140092	128791020	758	89	180	205
7	2006	1008	237	1245	622775019	179275181	1074	65	242	48
8	2007	1318	286	1604	894194050	112298650	1095	77	300	66
9	2008	1492	260	1752	638621795	126696755	1154	62	369	46
10	2009	2244	229	2473	1272298136	396733628	765	140	174	442
11	2010	2135	232	2367	1220434766	365323942	1008	128	157	171
12	2011	1580	191	1771	1835270334	337315419	549	67	179	60
13	2012	3314	199	3513	2147483647	530515745	419	84	254	97

<sup>4</sup>

S.No.	Year	Fire Calls	Rescue Calls	Total	Property Saved	Property Lost	Life Saved (Human)	Life Saved (Animal)	Life Lost (Human)	Life Lost (Animal)
14	2013	1701	255	1956	2001916174	465444117	627	51	249	51
15	2014	1821	266	2087	1774776695	490920881	519	150	222	129
16	2015	1922	293	2215	2147483647	391046611	580	85	279	50
17	2016	2890	297	3187	1703698112	570369073	958	86	277	207
18	2017	2306	264	2570	2147483647	780603996	530	150	218	299
19	2018	2553	441	2994	1717654383	435645373	1184	384	327	270
20	2019	2665	349	3014	2004521989	351966430	1547	2099	200	647
21	2020	1572	338	1910	1096488523	142738380	523	133	123	40
22	2021	2248	476	2724	2147483647	2147483647	455	97	208	40
23	2022	1829	464	2293	1251121415	189347372	603	115	173	76

*The major cause of fire was short circuit and for residential fires the major cause was explosion of LPG cylinders.*

### **3. Laws and Regulations - Environment and Social**

#### **3.1 Introduction**

This chapter deals with the laws, regulations and policies, of Government of India, Government of Uttarakhand and the World Bank, related to environment and social issues. Only the laws, regulations and policies relevant to the project are discussed here. This chapter needs to be updated as when new laws, regulations and policies are made and enforced or the existing ones are revised.

The implementation of the activities proposed under the U-PREPARE must be consistent with all applicable laws, regulations, and notifications. It is the responsibility of the PMU and PIUs to ensure that project activities are consistent with the national, state and local regulatory framework. Additionally, the Implementation Agencies (PIUs) needs to ensure that activities under the project are consistent with World Bank's Environment and Social Framework (ESF), including its relevant Environment and Social Standards (ESSs).

#### **3.2 Some Important Legal Provisions Related to Project Activities**

The legislation given below has some important legal and policy provisions of Government of India (GoI), Government of Uttarakhand (GoU) and all international conventions ratified by the country are briefly described in **Table 3.1**.

**Table 3-1: Legal Provision related to project activities.**

S. No.	Relevant Acts and Policies of GoI and GoU	Mandate of the Act/ Policy	Applicability	Responsibilities
<b>ENVIRONMENTAL REGULATIONS</b>				
1.	Environment (Protection) Act- 1986	This is an umbrella Act under which various notifications, rules, standards and schedules are promulgated. The objective of this Act is to protect and improve the environmental quality and preventing controlling and abating environmental pollution.	Yes, Activities under Different sub-projects, if not managed appropriately, likely to have the potential adverse environmental impacts in the local context. All the emissions, discharges, noise levels are required to be managed within the stipulated permission limits and handling of materials and waste to follow the relevant rules.	Contractor/PIU and PMU
2.	Environmental Impact Assessment Notification, 2006 & subsequent amendments	To provide environmental clearance to new or expansion project listed under the schedule of the Notification following environmental impact assessment study. The notification makes it mandatory for Building and Construction projects that have $\geq 20,000$ sq.m. and $<150,000$ sq.m. of built-up area to obtain environmental clearance from the relevant government authority before any construction work, or preparation of land except for securing the land is started	No The environmental clearance will not trigger, as the proposed components of the sub-projects under U-PREPARE are bridge construction, and construction of fire buildings. However, standard Environmental Management Plan will be required to be prepared for all the building to be constructed under the project	Contractor/PIU/PMU

S. No.	Relevant Acts and Policies of GoI and GoU	Mandate of the Act/ Policy	Applicability	Responsibilities
3.	Forest Conservation Act, 1980	To check deforestation by restricting conversion of forested areas into non-forested areas.	Yes, in case forest land diversion is required for any subproject under U-PREPARE, this act will be applicable	Forest Department, Govt. of Uttarakhand (for land conversion below 5 hectare & 40% density), MoEFCC, Regional Office, MoEFCC; PIU/PMU
4.	The Wildlife Protection Act, 1972	The Act provides for the protection of wildlife and for all matters that are connected to wildlife and their habitat. This Act prohibits destruction, exploitation or removal of any wildlife, and provides for protection to listed species of flora and fauna.	Yes, This act is applicable for wildlife protection for any of the sub-project activities near or within the forest area. The Contractor will abide by this Act. Wildlife Clearance would be required under this act for the subproject located within Wildlife Sanctuary, National Park, Tiger reserve, wildlife corridors, etc	State Wildlife Department, NBWL, PIU/PMU during project preparation and preconstruction stage and Contractor during construction and O&M period.
5.	Eco Sensitive Zone Notifications	As notified vide Ministry's Office Memorandum dated 17.05.2022, projects/activities in notified Eco-Sensitive Zone (ESZ) around the Protected Areas shall be regulated and governed by the concerned ESZ notification. Such regulated activities, if covered under the Environment Impact Assessment (EIA) Notification, 2006 as amended, shall require prior	No, the NBWL's recommendation is required under ESZ Notification only for the projects requiring environmental clearance and located in the ESZ. None of the sub-projects under UGIRP qualifies for Environmental Clearance	PIU/PMU

S. No.	Relevant Acts and Policies of GoI and GoU	Mandate of the Act/ Policy	Applicability	Responsibilities
		environmental clearance as per the provisions of the said notification whereas, if the ESZ is not notified or is in draft stage, prior environmental clearance shall be required for projects/activities located within the default ESZ, i.e., zone within 10 km of the boundaries of the protected areas including National Parks and Sanctuaries. Such projects shall require consideration by the National Board of Wildlife (NBWL)/Standing Committee for National Board of Wildlife (SCNBWL). Accordingly, proposals are granted environmental clearance after due approval by the Expert Appraisal Committee (EAC), constituted by the Ministry for the purpose.		
6.	Biological Diversity Act 2002, and Biological Diversity Rules, 2004 Uttarakhand Biological Diversity Rules, 2015	This Act is mandated to provide for conservation of biodiversity, sustainable use of resources fair and equitable sharing of the benefits from use of resources. The Rules Provide guideline in preventing the planning of project subcomponents near and within the environmental sensitive areas including national parks, wildlife sanctuaries, etc.	Applicable for Conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto	
7.	Air (Prevention and Control of Pollution) Act, 1981	To control air pollution by controlling emission of air pollutants as per the prescribed standards. To control air pollution & controlling emission of air pollutants as per the prescribed standards. The NAAQ	This act is applicable for fugitive emissions from construction works, construction camps, plants, stack emissions from DG sets and concrete	Contractor, PIU/PMU

S. No.	Relevant Acts and Policies of GoI and GoU	Mandate of the Act/ Policy	Applicability	Responsibilities
		standards (CPCB) for Ambient Air Quality have been promulgated by the MoEF&CC	mixture and related activities and to manage ambient air quality in the sub- projects and ancillary activities.	
8.	Water Prevention and Control of Pollution) Act, 1974	To control water pollution by controlling discharge of liquid pollutants as per prescribed standards.	Applicable for construction and operation phases to manage liquid effluent discharges	
9.	Noise Pollution (Regulation and Control) Rule 2000	This regulation is for controlling the noise pollution created due to various activities and operation of vehicles and machines. The standards for noise for day and night time have been promulgated by the MoEF&CC for various land uses.	This act will be applicable for all construction equipment/ plant and machinery including vehicles deployed for construction/project activities to regulate ambient noise levels. This act will be applicable to regulate noise nuisance during construction/ project activities	
10.	Hazardous and Other Wastes (Management, & Trans-Boundary Movement) Rules, 2016 and amended thereof	Protection to the general public against improper handling and disposal of hazardous wastes. This stipulates prevention, minimization, reuse, recycling, recovery, utilisation including co-processing and safe disposal of all kind of hazardous wastes.	Yes, Rules will be applicable to used oil generated from construction equipment/ machinery during civil construction works. The rule includes storage, handling, transportation procedures and requirement or safe disposal of hazardous waste Authorised Recyclers.	
11.	Construction and Demolition Waste Management Rules, 2016	The rules provide guidance for safe disposal and management of building materials, debris and rubble resulting from construction, repair, and demolition of	Yes	

S. No.	Relevant Acts and Policies of GoI and GoU	Mandate of the Act/ Policy	Applicability	Responsibilities
		any civil structure.		
12.	Solid Waste Management Rules 2016	The rules provide guidance for safe disposal and management of building materials, debris and rubble resulting from construction, repair, and demolition of any civil structure.	Yes Rules shall be applicable to generation of wastes resulting from demolition of existing civil structures and construction debris	
13.	Guidelines to Regulate and Control Ground Water Extraction in India, 2019	Regulate and control ground water extraction for various purposes	Yes, NOC is required for ground water for water withdrawal from ground for civil construction	
14.	Code on Occupational Safety, Health, and Working Conditions, 2020	This code has been framed for regulating the occupational safety, health and working conditions of the persons employed in an establishment and for matters connected therewith	Yes, to comply with the requirements of Occupational Safety, Health and Working Conditions in construction and other works.	
15.	National Policy on Safety, Health, and Environment at Workplace, 2009	The policy provides an action program for enforcement of national standards on occupational health and safety at construction works, testing and laboratories.	Yes, The policy is applicable for ensuring safety of the workforce during the infrastructure up-gradation under the project	



S. No.	Relevant Acts and Policies of GoI and GoU	Mandate of the Act/ Policy	Applicability	Responsibilities
16.	National Building Code, 2016	The code is published with an aim to provide unified building regulations for controlling and regulating building construction throughout the country for use by Govt. Departments, municipal bodies and other construction agencies. The code provides the 'accepted standards' in relation to material specification, testing or other related information. The code provides development control rules and general building requirements ( <i>e.g.</i> floor area ratio, specifications on building design, etc.) for fire buildings and SDRF training facilities	The Code is applicable to the planned activities supported by the project. The standards prescribed under the code that are applicable to the project activities.	
17.	The Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010	The Act aims to stop the rampant encroachment and construction around the monuments and other sites of archaeological importance. As per the Act, construction is prohibited in a radius of 100 meters from a protected monument and is regulated in a radius of >100-300 meters from a protected monument. Permission of the National Monuments Authority needs to be taken in case of repair/renovation in the prohibited area or regulated area.	This Act will be applicable only when the proposed sub-project is located within regulated zone of 300 m from notified protected monuments and archaeological sites.	Archaeological Survey of India (ASI)/State Archaeological Department

S. No.	Relevant Acts and Policies of GoI and GoU	Mandate of the Act/ Policy	Applicability	Responsibilities
18.	Central Motor Vehicle Act, 1988 and Central Motor Vehicle Rules 1989	This act checks and controls vehicular emissions and noise and safety aspects during driving and includes provision for punishments for violating the standards stipulated on the above aspects.	This Act is applicable for all the construction vehicles engaged by the contractor as well as those of PIU/PMU monitoring staff	State Transport Department
<b>SOCIAL REGULATIONS</b>				
19.	The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (RFCTLARRA, 2013)	The act provides for a transparent process and fair compensation in land acquisition for public purpose and provides for rehabilitation and resettlement of landowners and those affected by land acquisition. It comprises four schedules that provide the minimum applicable norms for compensation based on market value, multiplier and solatium; resettlement and rehabilitation (R&R) entitlements to landowners and livelihood losers; and facilities at resettlement sites for displaced persons, besides providing flexibility to states and implementing agencies to provide higher norms for compensation and R&R.	Yes. Applicable to all sub-projects when private land is required to acquired involuntary basis.	Revenue Department/ District Administration Stage wise notification as per Act
20.	The Uttarakhand Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (Social	The Rules provide a framework for conducting Social Impact Assessment of the project for which land acquisition is proposed and preparation of a Social Management Plan.	Applicable for activities where land is required to be taken on involuntary basis i.e., if land is not taken on direct purchase from the owner	District Collector, Revenue Department, PIUs, PMU

S. No.	Relevant Acts and Policies of GoI and GoU	Mandate of the Act/ Policy	Applicability	Responsibilities
	Impact Assessment and Consent) Rules Act, 2015 (UKRFCTLARRR, 2015)			
21.	Rights of Persons with Disabilities Act, 2016	Ensures that the Persons with Disability (PWD) enjoy the right to equality, life with dignity, and respect for his or her own integrity equally with others.	Yes. For all the sub-project where PWDs are present and affected	PMU/PIU
22.	Right to Information Act, 2005	The Act provides for setting out the practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, the constitution of a Central Information Commission and State Information Commissions and for matters connected therewith or incidental thereto.	All documents pertaining to the project would be disclosed to public.	PMU/PIU/ Other implementation Agencies
23.				

S. No.	Relevant Acts and Policies of GoI and GoU	Mandate of the Act/ Policy	Applicability	Responsibilities
24.	Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	To recognize and vest the forest rights and occupation in forest land in forest dwelling STs and other traditional forest dwellers who are residing in such forests for generations but whose rights could not be recorded. Its objective is to facilitate the overall development and welfare of the tribal people by empowering them socially, economically, politically without any impact on their culture, habitation and tradition and in terms of their age-old rights and privileges.	Yes. Applicable to all sub-projects where tribals are present	The Gram Sabha resolution for determining the nature and extent of individual or community forests rights. Ministry of Tribal Affairs/ Tribal Affairs department of the state
25.				
<b>Labour Laws Applicable to Establishments Engaged In Building And Other Construction Work</b>				
26.	Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996	It regulates the employment and conditions of service of building and other construction workers and provides for their safety, health and welfare.	This will be applicable for all building or other constructions works under the project that employ 10 or more workers.	Chief labour Commissioner
27.	Employee Compensation Act, 1923	It provides for payment of compensation by employers to their employees for injury by accident i.e. personal injury or occupational disease.	Construction workers will be involved in the sub-projects	Commissioner for Workmen's Compensation
28.	Inter-state Migrant Workers Act, 1979	It protects workers whose services are requisitioned outside their native states in India. A contractor who employs or who employed five or more Inter-State migrant workmen need to obtain registration under	Construction workers will be involved in the sub-projects	Chief labour Commissioner

S. No.	Relevant Acts and Policies of GoI and GoU	Mandate of the Act/ Policy	Applicability	Responsibilities
		this act		
29.	The Child Labour (Prohibition & Regulation) Amendment Act, 2016	It prohibits employment of children in specified hazardous occupations and processes and regulates the working conditions in others.	There should not be any child labour (less than 14 years) in any project activity and adolescents (above 14 and less than 18 years) in any hazardous activity.	Chief labour Commissioner
30.	Building and Other Construction Workers Welfare Cess Act, 1996	An Act to provide for the levy and collection of a Cess on the cost of construction incurred by employers.	Sub-projects will involve construction workers	Chief labour Commissioner
31.	Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act)	It mandates every organization having more than ten employees to constitute an Internal Committee (IC) in the prescribed manner to receive and address the complaints of any sort of sexual harassment from women in a time-bound and extremely confidential manner	Applicable to all implementing agencies and contractors	District Officer (District Collector) PMU, PIUs
32.	Contract Labour (Regulation & Abolition) Act 1970	To provide proper and habitable working conditions. To regulate the functioning of the advisory boards. To lay down the rules and regulations regarding the registration procedure of the establishments employing contract labour	Applicable to all implementing agencies and contractors	Chief labour Commissioner
33.	Payment of Wages Act, 1936	Lays down as to by what date, wages are to be paid, when it will be paid and what deductions be made from the wages of the workers, if any.	Applicable to all implementing agencies and contractors	Chief labour Commissioner
34.	Payment of Gratuity Act, 1972	Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation, if an	Applicable to all implementing agencies and contractors	Chief labour Commissioner

S. No.	Relevant Acts and Policies of GoI and GoU	Mandate of the Act/ Policy	Applicability	Responsibilities
		employee has completed 5 years of service with employer		
35.	Employees Provident Fund and Miscellaneous Provision Act, 1952	Provides for monthly contributions by the employer and as well as by workers with a provision as return of pension of a lump sum (principal and interest accrued) at the end of his/her service term).	Applicable to all implementing agencies and contractors	Chief labour Commissioner
36.	Maternity Benefit Act, 1951	Provides for maternity leave for women, during pregnancy and after giving birth and some other benefits to women employees, in case of medical recommendation of bed rest or miscarriage etc.	Applicable to all implementing agencies and contractors	Chief labour Commissioner
37.	Payment of Bonus Act, 1965	Provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 20% of wages.	Applicable to all implementing agencies and contractors	Chief labour Commissioner
38.	The Bonded Labour (Abolition) Act 1976	An Act to provide for the abolition of bonded labour system, with a view to prevent economic and physical exploitation of the weaker sections of the people and for all matters connected there with or incidental thereto	Applicable to all implementing agencies	Chief labour Commissioner
39.	The Trade Union Act, 1926	Lays down the procedure for registration of trade union of workers and employers. The trade unions registered under the Act have been given certain immunities for civil and criminal liabilities.	Applicable to all implementing agencies and contractors	Chief labour Commissioner

### 3.3 Key Statutory Clearances for Construction

Certain permissions, clearances and authorizations need to be obtained from competent authorities during the design and construction phase of sub-projects. This will depend mainly on the area, type, size and scope of the sub-project in question. The key statutory permits that may be required are summarized in **Table 3.2**.

**Table 3-2: List of Statutory Clearances and Requirements**

S. No.	Clearance/ Authorization	Relevant Act	Competent Authority	Responsibility
<b>A.</b>	<b>ENVIRONMENTAL</b>			
1	Forest Clearance for diversion of forest land	Forest Conservation Act, 1980	State Forest Department and MoEFCC	PIU, PWD
2	Tree Cutting Permission for non forest area	Uttar Pradesh Tree (Protection), Act 1976 (as adopted in Uttarakhand)	State Forest Department	PIU, PWD
3	Wildlife Clearance	Wildlife Protection Act, 1972	NBWL, MOEF&CC, Govt. of India	PIU,PWD
4	CtE and CtO for establishment of Batching Plant	Air (Prevention and Control of Pollution) Act, 1981 and Water Prevention and Control of Pollution) Act, 1974	Uttarakhand Pollution Control Board	Contractor
5	NOC for abstraction of Groundwater through borewell for Construction	Environmental Protection Act, 1986	Central Ground Water Authority	Contractor
6	Pollution Under Control Certificate for Vehicles and equipments	Central Motor Vehicles Rule of 1989	Emission Testing Centres Authorised by the State Transport Department, Govt. of Uttarakhand	Contractor for their vehicles engaged in the sub-project and PIU/PMU for their vehicles
<b>B.</b>	<b>SOCIAL</b>			
1	Labour License	The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996 Uttaranchal Building and Other Construction Workers (Regulation of Employment and	Labour Department	Contractor

S. No.	Clearance/ Authorization	Relevant Act	Competent Authority	Responsibility
		Conditions of Service) Rules, 2005 and The Inter-State Migrant Workmen Act, 1979		
2	Employing Labour/ Workers	The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996 and Uttaranchal Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Rules, 2005	Labour Department	Contractor

### 3.4 World Bank Policies and Directives

#### 3.4.1 Environmental and Social Framework (ESF)

The World Bank's Environmental and Social Framework sets out the World Bank's commitment to sustainable development, through a Bank Policy and a set of Environmental and Social Standards (ESSs) that are designed to support Borrowers' projects.

The Environmental and Social Standards (ESSs) set out the requirements for Borrowers relating to the identification and assessment of environmental and social risks and impacts associated with projects supported by the Bank through Investment Project Financing. The standards will: (a) support Borrowers in achieving good international practice relating to environmental and social sustainability; (b) assist Borrowers in fulfilling their national and international environmental and social obligations; (c) enhance non-discrimination, transparency, participation, accountability and governance; and (d) enhance the sustainable development outcomes of projects through ongoing stakeholder engagement. The World Bank's Environmental and Social Standards relevant for this U-PREPARE are presented in the **Table 3.3**.

**Table 3-3: The World Bank Environment and Social Standards**

Environment & Social Standard	Objective(s) of the ESS	Relevance
<b>ESS1:</b> Assessment and Management of Environmental and Social Risks and Impacts	<ul style="list-style-type: none"> <li>Identify, assess, evaluate, and manage environment and social risks and impacts.</li> <li>Adopt a mitigation hierarchy principle</li> <li>Adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable.</li> </ul>	This standard is relevant; the ESMF study was undertaken as per the provisions of ESS1.



Environment & Social Standard	Objective(s) of the ESS	Relevance
	<ul style="list-style-type: none"> <li>• Utilize national environmental and social institutions, systems, laws, regulations and procedures where appropriate.</li> <li>• Promote improved environmental and social performance in ways which recognize and enhance Borrower capacity.</li> </ul>	
<b>ESS2:</b> Labor and Working Conditions	<ul style="list-style-type: none"> <li>• Promote safety and health at work.</li> <li>• Promote fair treatment, non-discrimination, and equal opportunity of project workers.</li> <li>• Protect project workers, with emphasis on vulnerable workers.</li> <li>• Prevent the use of all forms of forced labor and child labor.</li> <li>• Support principles of freedom of association and collective bargaining of project workers.</li> <li>• Provide project workers with accessible means to raise workplace concerns.</li> </ul>	This standard is relevant as the project is going to work with different kinds of labour at different levels.
<b>ESS3:</b> Resource Efficiency and Pollution Prevention and Management	<ul style="list-style-type: none"> <li>• Promote the sustainable use of resources, including energy, water and raw materials</li> <li>• Avoid or minimize adverse impacts on human health and the environment caused by pollution from project activities.</li> <li>• Avoid or minimize project-related emissions of short and long-lived climate pollutants.</li> <li>• Avoid or minimize generation of hazardous and non-hazardous waste.</li> <li>• Minimize and manage the risks and impacts associated with pesticide use</li> </ul>	This standard is relevant, given the opportunities to promote efficiency of resource use and preventing pollution from activities to be financed under the project.
<b>ESS4:</b> Community Health and Safety	<ul style="list-style-type: none"> <li>• Anticipate or avoid adverse impacts on the health and safety of project-affected communities during project life-cycle.</li> <li>• Promote quality, safety and climate change considerations in infrastructure design and construction.</li> <li>• Avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials, and have in place effective measures to address emergency events.</li> <li>• Ensure that safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities</li> </ul>	This standard is relevant, as there are communities in the vicinity/ surroundings of sub-project locations and appropriate management measures would be required.

Environment & Social Standard	Objective(s) of the ESS	Relevance
<p><b>ESS5:</b> Land Acquisition, Restrictions on Land Use and Involuntary Resettlement</p>	<ul style="list-style-type: none"> <li>• Avoid or minimize involuntary resettlement by exploring project design alternatives.</li> <li>• Avoid forced eviction.</li> <li>• Mitigate unavoidable adverse impacts from land acquisition or restrictions on land use through timely compensation for loss of assets at replacement cost and assisting displaced persons in their efforts to improve, or at least restore, livelihoods and living standards.</li> <li>• Improve living conditions of poor or vulnerable persons who are physically displaced.</li> <li>• Appropriate disclosure of information, meaningful consultation, and informed participation during resettlement activities.</li> </ul>	<p>The project may need to acquire private land for the construction of some of the proposed sub-projects.</p>
<p><b>ESS6:</b> Biodiversity Conservation and Sustainable Management of Living Natural Resources</p>	<p>This standard recognizes the importance of maintaining core ecological functions of habitats, including forests, and the biodiversity they support. All habitats support complexities of living organisms and vary in terms of species diversity, abundance and importance. This ESS also addresses sustainable management of primary production and harvesting of living natural resources. This recognizes the need to consider the livelihood of project-affected parties, including Indigenous Peoples, whose access to, or use of, biodiversity or living natural resources may be affected by a project. The potential, positive role of project affected parties, including Indigenous Peoples, in biodiversity conservation and sustainable management of living natural resources is also considered.</p>	<p>Interventions to support activities for preventing/managing forest fires and retrofitting/ upgrading/ construction works (such as some limited number of bridges to connect communities that get cut off during monsoons) may have risks and impacts on different types of habitats. However, adverse impacts are largely envisaged to be limited and localized in context.</p>
<p><b>ESS7:</b> Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities</p>	<ul style="list-style-type: none"> <li>• Ensure that the development process fosters full respect for affected parties' human rights, dignity, aspirational, identity, culture, and natural resource-based livelihoods.</li> <li>• Promote sustainable development benefits and opportunities in a manner that is accessible, culturally appropriate and inclusive.</li> <li>• Establish and maintain an ongoing relationship based on meaningful consultation with project-affected parties.</li> </ul>	<p>This standard is relevant as some of the sub-project may lead to temporary access restrictions to forest land and the traditional paths of trans-nomads.</p>

Environment & Social Standard	Objective(s) of the ESS	Relevance
	<ul style="list-style-type: none"> <li>• Obtain Free, Prior, and Informed Consent (FPIC) of affected parties.</li> <li>• Recognize, respect and preserve the culture, knowledge, and practices of Indigenous Peoples</li> </ul>	
<b>ESS8:</b> Cultural Heritage	<ul style="list-style-type: none"> <li>• To protect cultural heritage from the adverse impacts of project activities and support its preservation.</li> <li>• To address cultural heritage as an integral aspect of sustainable development.</li> <li>• To promote meaningful consultation with stakeholders regarding cultural heritage.</li> </ul>	Given the location and geographical area of the state across which sub-projects would be located, there is a possibility of cultural heritage related concerns, including chance finds, coming-up in case of certain sub-projects under the proposed operation.
<b>ESS9:</b> Financial Intermediaries	<ul style="list-style-type: none"> <li>• Deals with projects funded by financial institutions as intermediaries.</li> </ul>	Not applicable
<b>ESS10:</b> Stakeholder Engagement and Information Disclosure	<ul style="list-style-type: none"> <li>• Establish a systematic approach to stakeholder engagement that helps Borrowers identify stakeholders and maintain a constructive relationship with them.</li> <li>• Assess stakeholder interest and support for the project and enable stakeholders' views to be taken into account in project design.</li> <li>• Promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life-cycle.</li> <li>• Ensure that appropriate project information is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner.</li> </ul>	This standard is relevant, as stakeholders need to be consulted throughout the project preparation and implementation period and also duly informed through disclosure of project related information.

The World Bank Group's General Environment, Health and Safety (EHS) Guidelines, 2007 set out international good practice related to environment, health and safety which the project should follow regarding assessment of potential impacts and applicable standards and management measures, performance indicators, and monitoring guidelines. In particular, the guidance in Section 4 on Construction and Decommissioning will be applicable for this project. When national requirements differ from the standards and measures set out in these guidelines, then PMU/ PIUs will need to ensure that it achieves whichever are more stringent.

## 4. Environmental and Social Impacts

### 4.1 Project Risks and Impacts

Under the U-PREPARE various sub-projects, such as bridges and approach roads, slope protection measures in the chronic landslide prone areas, strengthening of the forest fire fighting system, General Fire fighting system, strengthening of facilities at SDRF Buildings, have been included for contributing to green, resilient, and inclusive development in Uttarakhand. Hence, from the project development objective, it can be seen that this project and the sub-projects would overall yield positive and beneficial impacts on the target population. The likely positive impacts can be summarized below:

- Improved public safety and security.
- Reduced sufferings during monsoons and adverse climatic conditions
- Better infrastructure and connectivity
- Improved infrastructure will improve disaster management and response to the emergency.
- Improved access to services
- Productive use of time
- Health and Environmental improvements
- Opportunities for social interaction
- 

However, like any development projects, implementation of sub-projects under U-PREPARE will have certain environmental and social risks and impacts due to the spatial location of the sub-projects, the use of technology and equipments and machineries, construction activities and sub-project operations. The extent of risks and impacts of the sub-projects will vary depending upon the extent of the project, location of sub project with respect to sensitive environmental and social features and type and extent of activities proposed under the sub-projects under different stages such as design and pre-construction stage, construction stage as well as operational stage. These risks and impacts must be identified in advance during planning and designing and be integrated with the project for achieving the goals of the safeguards. As described earlier the sub-project under U-PREPARE will cover the following:

1. Construction of Pedestrian and motorable bridges
2. Slope Protection
3. Development of SDRF Buildings and training infrastructure
4. Fire Stations Including construction of Fire Station and Procurement of Equipments
5. Improving general fire management capacity against Forest Fire by strengthening the fire fighting Infrastructures
6. Expanding and modernizing hydromet and early warning systems
7. Constructing multi-purpose disaster shelters

Provision of all these sub-project features will involve civil works and will have varying degree of environmental and social risks and impacts. Following section provide an overview of the potential environmental and social risks and impacts due to proposed sub-project activities:

#### 4.2 Environmental Risks

The Environmental risks and impacts that could potentially arise from the project activities are described in **Table 4.2**.

**Table 4-1: Environmental Risks by component and activity**

S. No	Sector of Sub-project	Activities	Environmental Risk & Impacts
1	Construction of Bridges	<ul style="list-style-type: none"> <li>• Diversion of Forest Land</li> <li>• Tree Felling/Vegetation Clearance</li> <li>• Borrow area and Quarries</li> <li>• Construction of piers/abutments</li> <li>• Launching of girder</li> <li>• Operation of DG set</li> <li>• Fabrication works</li> <li>• Heavy machinery</li> <li>• Concrete mixture and heavy pumps</li> <li>• Material handling and storage</li> <li>• Haulage of machinery</li> <li>• Debris Disposal</li> <li>• Transport of construction material</li> <li>• Labour Camps</li> <li>• Acquisition of land and Properties</li> <li>• Utility Shifting</li> <li>• Temporary Land Acquisition (Temporary Diversion/ Camp sites/ Stockyard etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• Ecological Loss</li> <li>• Impact on Flora</li> <li>• Impact on Fauna</li> <li>• Habitat Fragmentation</li> <li>• Landscape Degradation</li> <li>• Soil Erosion</li> <li>• Air pollution</li> <li>• Noise Pollution</li> <li>• Surface Water Pollution</li> <li>• Solid Waste Generation</li> <li>• Occupational, Health &amp; Safety (OHS)</li> <li>• Temporary disruption of Utility</li> <li>• Land slide and erosion</li> <li>• Impact due to Vehicular Movement</li> <li>• Siltation of water body</li> <li>• GHG Emission</li> <li>• Sanitation issues</li> <li>• Trucks Traffic increase</li> <li>• Landscape Degradation</li> <li>• Change in Land Use</li> <li>•</li> </ul>
2	Slope / Road Protection Works	<ul style="list-style-type: none"> <li>• Diversion of Forest Land</li> <li>• Heavy machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Ecological Loss</li> <li>• Air / Noise Pollution</li> <li>• Soil Pollution</li> </ul>

S. No	Sector of Sub-project	Activities	Environmental Risk & Impacts
		<ul style="list-style-type: none"> <li>• Concrete mixture and heavy pumps</li> <li>• Material handling and storage</li> <li>• Haulage of machinery</li> <li>• Debris Disposal</li> <li>• Transport of construction material</li> <li>• Acquisition of land and Properties</li> <li>• Temporary Land Acquisition (For setting campsite &amp; other facilities)</li> </ul>	<ul style="list-style-type: none"> <li>• Occupational Health &amp; Safety</li> <li>• Water Pollution (Surface)</li> <li>• Soil Pollution</li> <li>• Trucks Traffic increase</li> <li>• Landscape Degradation</li> </ul>
3	Public Building such as Fire Stations, SDRF, Forest Buildings	<ul style="list-style-type: none"> <li>• Foundation Works</li> <li>• Water Usage at Foundation works</li> <li>• Water Usage at Labour Camps</li> <li>• Concrete Mixture/ Batch Mix</li> <li>• Transportation of Material</li> <li>• DG Sets</li> <li>• Woodwork &amp; paints</li> <li>• Debris Disposal</li> <li>• Labour Camps</li> <li>• Temporary Land Acquisition (For setting campsite &amp; other facilities)</li> </ul>	<ul style="list-style-type: none"> <li>• Air pollution / Noise pollution</li> <li>• Safety</li> <li>• Dust</li> <li>• Occupational Health &amp; Safety</li> <li>• Community Health &amp; Safety</li> <li>• Water Pollution</li> <li>• Ground Water Depletion</li> <li>• Leaching of Soil</li> <li>• Sanitation issues</li> <li>• Soil Pollution</li> <li>• Trucks Traffic increase</li> <li>• GHG Emission</li> <li>• Occupational Health &amp; Safety</li> <li>• Odour Problem</li> <li>• Landscape Degradation</li> </ul>

### 4.3 Social Risks

The social risks and impacts that could potentially arise from the project activities are described in **Table 4.2.**

**Table 4-2: Social Risks by component and activity**

S. No	Component	Activity	Social Risks and Impacts
1.	Construction of Bridges	Acquisition of land and Properties	Change in Land Use Temporary or permanent impacts on land, properties and/or assets of Title Holder and Non-Titleholders (encroachers/ squatters) Disruption or loss of livelihood

S. No	Component	Activity	Social Risks and Impacts
			Impacts on cultural heritage, community forest, and common property
		Diversion of Forest Land	
		Tree Felling/Vegetation Clearance	
		Utility Shifting	Disruption of Services Occupation, Health & Safety (OHS) hazard Community Health & Safety hazard
		Borrow area and Quarries	Impact due to Vehicular Movement Occupational Health & Safety risks Community Health & Safety risks
		Labour Camps	Labour Rights Violations Labour & Community conflicts Sanitation issues Impact due project induced influx of migrant labour SEA/SH and Gender Based Violence related risks. Impact on human health (Labour Camps) Occupational Health & Safety risks Community Health & Safety risks
		Heavy machinery Concrete mixture and heavy pumps Material handling and storage Haulage of machinery	Occupational Health & Safety risks Community Health & Safety risks
		Debris Disposal	Increase of vehicular traffic Occupational Health & Safety risks Community Health & Safety risks
		Transport of construction material	Occupational Health & Safety risks Community Health & Safety risks, such as pollution related risks Public inconvenience due to increase of vehicular traffic
2.	Slope/Road Protection Works	Acquisition of land and Properties	Change in Land Use Temporary or permanent impacts on land, properties and/or assets of Title Holder and Non-Titleholders (encroachers/squatters) within ROW/govt. land

S. No	Component	Activity	Social Risks and Impacts
			Disruption or loss of livelihood Impacts on cultural heritage, common property resources
		Diversion of Forest Land	
		Labour Camps	Labour Rights Violations Labour & Community conflicts Sanitation issues Impacts resulting from project induced influx of migrant labour SEA/SH and Gender Based Violence related risks Impact on human health (Labour Camps) Occupational Health & Safety risks Community Health & Safety risks
		Heavy machinery Concrete mixture and heavy pumps Material handling and storage Haulage of machinery	Occupational Health & Safety risks Community Health & Safety risks
		Debris Disposal	Landscape Degradation Occupational Health & Safety risks Community Health & Safety risks
		Transport of construction material	Occupational Health & Safety Community Health & Safety such as pollution related risks Public inconvenience due to increase of vehicular traffic
3.	Public Building such as Fire Stations, SDRF, Forest Buildings	Land Acquisition	Permanent or Temporary Loss to Crops/Structures/Utility of titleholders and/or non-titleholders. Disruption of Access Disruption or loss of livelihood Impacts on cultural heritage, community forest and common property
		Foundation Works	Safety Dust Occupational Health & Safety risk Community Health & Safety risk
		Water Usage	
		Labour Camps	Labour Rights Violations Labour & Community conflicts Sanitation issues



S. No	Component	Activity	Social Risks and Impacts
			Impact related to influx of migrant labour SEA/SH and Gender Based Violence risks Impact on human health (Labour Camps) Occupational Health & Safety risks Community Health & Safety risks
		Concrete Mixture/ Batch Mix Transportation of Material DG Sets	Public inconvenience Occupational Health & Safety risks Community Health & Safety risks
		Debris Disposal	Landscape Degradation Occupational Health & Safety risks Community Health & Safety risks

## 5. Environment and Social Management Framework

### 5.1 Introduction

This chapter describes the step-by-step procedures to be followed for carrying out the environmental and social assessment studies for the subprojects, from the screening stage to the completion stage. The procedures for preparing the Resettlement Action Plan (RAP) are detailed in RPF.

### 5.2 Environmental and Social Management Procedures

The E&S procedures for the management of the sub-projects are described below. These activities are presented as a flowchart in Figure 1. Detailed guidelines for carrying out these activities are described in the subsequent sections. The Project Implementing Agencies (PIUs) and the Project Management Unit (PMU) will be mainly responsible for completing these activities.

**Table 5-1: Process Flow for ESMF Implementation**

Project Phase	Project Activity	Tasks	Responsible Entities
Planning	Selection of Subprojects	<ul style="list-style-type: none"> <li>Screen all subprojects / activities to ensure that they do not contain any activities on the Negative/ Exclusion List of Activities;</li> </ul>	PIUs/ PMU and DPR Consultants
Planning and Designing Phase	Screening of Subprojects	<ul style="list-style-type: none"> <li>Screening of subprojects to be done using a pre- defined E&amp;S checklist;</li> <li>Completing the checklist in consultation with concerned PIUs/ Department;</li> <li>The internal verification on accuracy and coverage of risks and impacts.</li> <li>Risk categorization based on the E&amp;S screening process to determine the instrument required for each sub-project.</li> </ul>	Prepared by DPR Consultants/ ESIA Consultants and reviewed/ accepted by PIU/PMU
Planning Phase	Preparation of Site specific Environmental and Social Management Plan	<ul style="list-style-type: none"> <li>Ensure sub-project specific ESIA (where required) and ESMP provides the following detail on the planned activities:                             <ul style="list-style-type: none"> <li>The potential environmental and social impact &amp; risks from each activity;</li> <li>Measures to mitigate negative</li> </ul> </li> </ul>	Prepared by DPR Consultants/ESIA Consultants and reviewed/approved by PIU and PMU

Project Phase	Project Activity	Tasks	Responsible Entities
		environmental impacts and risks; - Measures to enhance positive environmental impacts; • Ensure all the key risks/impacts are adequately addressed and that provision has been made to meet the costs involved.	
Construction Phase	Implementation of ESMP	<ul style="list-style-type: none"> <li>• Implementation of mitigation measures and setforth measures under ESMP</li> <li>• Provided orientation on the mitigation measures and ESMP;</li> <li>• Supervise, monitor, reporting and documentation of implemented ESMPs.</li> </ul>	Contractors PMU/PIU and Engineer's representatives Engineer's Representative, PIU/PMU

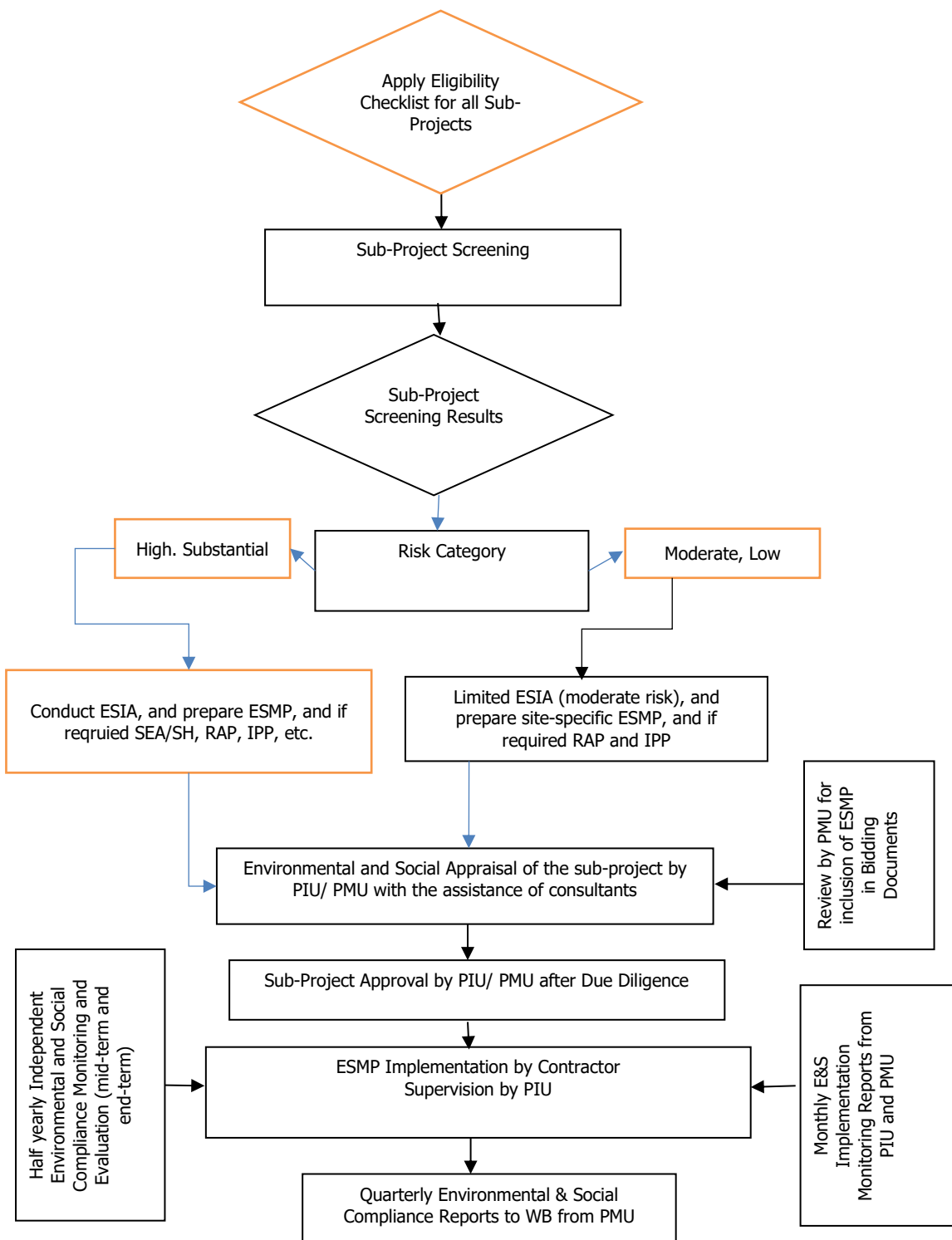
### 5.2.1 Step 1: Screening

For all subprojects, a screening exercise will be carried out to ensure that sub-projects with potentially significant environmental/social issues are identified at early stage for detailed environment and social assessment. The purpose of this screening is to assess the baseline conditions of the area, to identify the key environmental resources and social features of the area, to identify any environmental and/or social sensitivity of the area, and to determine the presence of any environmental and/or social hotspots in the area and to identify relevant ESS. Environmental and social screening would be carried out comprising sub-project information, locations, proposed interventions and activities, proximity from forest, environmentally sensitive locations, bio- reserve, national parks, wildlife statuary, wet lands, erosion and landslide prone areas, etc.; applicability of laws, regulations and clearances & permits to be required; identification of E&S risks and impacts; and to classify the sub-project based on risk level (low, moderate, substantial or high) and finally, presenting conclusion on risk category, need for the preparation of ESIA, ESMP, IPP and RAP (For details related to IPP and RAP refer to Annex 10 and the RPF respectively).

The Environmental and Social Screening for all subproject and activities under U-PREPARE would be undertaken using project Environmentand Social screening templates given at Annexure 1 and Annexure 2, respectively to identify nature and extent of E&S risks and impacts for different types of proposed activities.

The outcome of the screening exercise suggests whether the proposed subprojects would need detailed ESIA or site-specific ESMPs. If the screening concludes that the proposed subprojects are of high or substantial-risk category, a detailed ESIA and ESMP will need to be developed. For the moderate-risk projects, the limited ESIA and site-specific ESMPs will be prepared, whereas for low-risk projects, ESMPs will be sufficient.

Environmental and Social screening will be carried out for 100% subprojects by DPR consultants/ ESIA consultants/ Environmental and Social Experts of PIUs. The PMU will review the filled in E&S screening checklists and will send the checklist to the World Bank for reviewing its completeness, correctness and compliance and approval.



**Figure 5-1: E&S Management Procedures**

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### **5.2.2 Step 2: E&S Considerations in Design and Analysis of Alternatives**

Environmental and social issues will be mainstreamed into the subproject design through a detailed analysis of alternatives to the subproject location and design of subprojects. The primary objective of the 'analysis of alternatives' is to identify the location/design/technology for a particular subproject that would generate the least adverse impact and maximize the positive impacts. The criteria to be considered in evaluating various alternatives will be based on the following sub-criteria:

- Technical Aspects: Robustness, constructability, geology, and maintenance requirements.
- Financial Aspects: Construction cost and maintenance cost
- Environmental Aspects: project footprints, impacts on physical environmental components, such as physiography, slope stability and erosion, drainage pattern, waterbodies including air water and noise pollution levels, terrestrial and aquatic ecology, and
- Social Aspects: Land acquisition, Restrictions on Land Use, Resettlement, nuisance, and socio-economic impacts.

### **5.2.3 Step 3: Environmental and Social Impact Assessment Studies**

#### **5.2.3.1 Baseline Data Collection**

Project influence area for each subproject will be identified, covering areas likely to be directly or indirectly affected by the subproject construction and operation and -their associated facilities; areas that will be subjected to impacts from unplanned but predictable developments caused by the subproject, and areas that will be subjected to cumulative impacts that result from the subproject in conjunction with the other activities in its area of influence.

Baseline environmental and social data of the project influence area (covering physical, chemical, biological, and socio-economic environment) will be collected through a review of secondary literature and primary data collection/survey. Primary data collection will be carried out for the assessment of wildlife habitats and other ecological conditions in the project influence, ambient air and noise quality, and surface water and groundwater quality. Primary surveys will also be carried out to establish the baseline socio-economic conditions of the communities in the Project area.

#### **5.2.3.2 Environmental and Social Impact Assessment**

As informed by screening, the environmental and social impact assessment will be carried out for the sub-projects where it is necessary. Detailed characterization and assessment of these impacts will be carried out in the respective subproject specific ESIA/ESMP prior to invitation of bids. In addition, the impacts of the proposed subprojects on the environmental and social components will be identified through field visits, and consultation with experts and the local community. The impacts will be analyzed and graded qualitatively (e.g., high, substantial, moderate, low) in order to identify the major impacts. The mitigation hierarchy will guide the impact assessment and analysis of alternatives. Potential impacts will be predicted using the professional judgment of the multi-disciplinary team members based on baseline information collected and any modelling

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studies if required. The impact assessment will also consider both cumulative and induced impacts of the subprojects. Where indigenous/tribal communities are present in or have collective attachment to the project area, targeted social assessment will be conducted as a part of ESIA (For details refer to Annex 10).

### **5.2.3.3 Environmental and Social Management Plan**

ESMPs will be prepared for all the sub-projects in order to address all the identified potential environmental and social impacts and risks following the principles of the mitigation hierarchy. The ESMP will detail (i) the measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental and social impacts or to reduce them to acceptable levels; and (ii) the actions needed to implement these measures. To the extent feasible, all potential impacts and risks will be avoided through design changes, and if avoidance is not possible – measures will be taken to minimize the magnitude of the impact. Mitigation measures will be proposed for all the significant impacts. Compensation measures will be proposed if the residual impacts are still significant even after applying the mitigation measures. Further, enhancement measures will be proposed to increase the benefits of positive impacts. An environmental monitoring plan will also be prepared in the ESMP to monitor the effectiveness of the mitigation measures and compliance with the environmental standards. Detailed guidelines for the preparation of RAPs are given in RPF and for IPP refer to Annexure 10.

### **5.2.4 Step 4: Stakeholder Consultations and Disclosure**

Stakeholder consultation will help identify opportunities and risks, improve subproject design and implementation, and increase subproject ownership and sustainability. Meaningful consultation with the stakeholders will be required to be carried out as per Stakeholders Engagement Plan (SEP) prepared for U-PREPARE. The stakeholder consultation is a continuous process and is required to be conducted throughout the project lifecycle. During the site reconnaissance and screening stage a number of stakeholder consultation have been carried out in the priority investment sub-projects. An overview of the Stakeholder Consultation is presented in the project's Stakeholder Engagement Plan.

This ESMF, as well as the SEP, LMP, RPF and the Environmental and Social Commitment Plan (ESCP) that have been prepared for this project, have been disclosed in draft for stakeholder consultation on the USDMA and PIUs' websites once the Framework documents will be finalized and approved from The World Bank on [date]. Similarly, site-specific ESIA and ESMPs, RAPs and IPPs (where needed) once completed, need to be consulted upon and disclosed for feedback.

### **5.2.5 Step 5: Final ESIA Approval and Disclosure**

ESIA/ESMP, IPP and RAP for each subproject will be approved by PIU/ PMU before initiating any bidding process. In addition, the proposed subprojects require various approvals from the relevant government departments during implementation.

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### **5.2.6 Step 6: Environmental and Social Requirements in Bidding Documents**

The subprojects will be implemented by the contractors, who may not have experience implementing the ESMPs. PIUs will include the following Environmental, Social, Health, and Safety (ESHS) Conditions and Labour laws in the bidding documents to ensure all the mitigation measures proposed in the ESMPs are effectively implemented:

- ESHS Staff with the Contractor;
- Performance Security;
- Payments for implementation of ESHS measures for subprojects that involve large-scale civil works;
- Code of conduct of Contractor's Personnel;
- Management Strategies and Implementation Plans (MSIP) to manage the subprojects' ESHS risks involving large-scale civil works.

### **5.2.7 Step 7: Implementation of ESMPs of Subprojects**

The steps to be followed during the construction stage of subprojects for effective implementation of ESMP are described below:

#### **5.2.7.1 Contractor's Environmental Social Management Plan**

For subprojects that involve civil works, as a requirement under the bidding documents, the Contractors must submit a Contractor's Environmental Social Management Plan (C-ESMP) before their mobilization for PIU approval. This plan will consist of the following site-specific management plans that will be prepared in compliance with the requirements of the bidding documents, ESMP, and World Bank EHS guidelines:

- Waste management plan
- Wastewater discharges management plan
- Air and noise pollution management plan
- Hazardous material management and spill control plan
- Water supply and sanitation management at the worksites and workers' accommodations
- Management of labor influx and facilities for the foreign workers
- Labor recruitment procedures and labor management
- Traffic management plan
- Training plan for OHS and CHS risks, including HIV/AIDS, sexual exploitation and abuse / sexual harassment
- Emergency Response Plan
- Grievance Redress Mechanism
- Site restoration and demotlition plan during after completion of works

### **5.2.8 Step 8: Compliance Monitoring and Reporting**

The overall responsibility for ESMP implementation will rest with the PMU/PIU. However, at the construction areas, the ESHS staff of the Contractor is responsible for implementing the ESMP,



while the environmental and social specialists of the PMU and PIU will be responsible for the monitoring of the ESMPs throughout the Project implementation.

Compliance monitoring comprises an on-site inspection of the construction activities to verify that measures identified in the ESMP and included in the clauses for contractors are being implemented. This type of monitoring is similar to the normal technical supervision tasks ensuring that the Contractor achieves the required standards and quality of work. The reports to be prepared for each subproject are given in the table below. All these documents will be disclosed in the respective implementing agencies websites.

The PMU/PIUs will also track grievances/beneficiary feedback (in line with the SEP) during project implementation to use as a monitoring tool for implementation of project activities and environmental and social mitigation measures.

PMU will engage a third party agency for conducting Independent Environment and Social Audit on periodic basis for effectiveness of the implementation environmental and social safeguards compliances in all the sub-projects covered under U-PREPARE.

Lastly, if the PMU/ PIUs becomes aware of a serious incident in connection with the project, which may have significant adverse effects on the environment, the affected communities, the public, or workers, it should notify the World Bank within 24 hours of becoming aware of such incident. A fatality is automatically classified as a serious incident, as are incidents of forced or child labor, abuses of community members by project workers (including gender-based violence incidents), violent community protests, or kidnappings.

**Table 5-2: ESMP Monitoring and Compliance Reports**

<b>S.No.</b>	<b>Monitoring</b>	<b>Contents of the Report</b>	<b>Frequency of Report Preparation</b>	<b>Report to be prepared by</b>
1	ESHS Monitoring and reporting	The subproject's compliance status with environmental and social mitigation and monitoring measures. The report also covers the following: <ul style="list-style-type: none"> <li>• environmental incidents;</li> <li>• health and safety incidents (labour and community) including accidents,</li> <li>• health and safety supervision:</li> <li>• Usage of PPEs by workers;</li> <li>• Labour Management and working conditions as per LMP;</li> <li>• Training conducted, and workers participated;</li> <li>• Workers grievances</li> <li>• Community grievances</li> <li>• GBV related</li> <li>• Chance finds (if any)</li> </ul>	Monthly	Contractor
2	ESMP. RAP, IPP Monitoring	The compliance status of the monitoring requirements given in these reports	Quarterly	PMU, PIU
3	Incident Reports covering all environmental (pollution events), OHS (accidents) and social (SEA/SH allegations) incidents	Incident investigation reports for all major incidents covering details of the incident, root cause analysis, and actions taken to address the future recurrence of this event	Initial investigation report within 24 hours Detailed Investigation Report within ten days	Contractor
4.	Third Party Independent Environment and Social Audit	The Compliance status of Environment and Social Safeguards	Six monthly	Third Party Auditor

Regular training programs will be conducted throughout the project implementation on the EHS issues, LMP, GBV related issues associated with the construction activities.

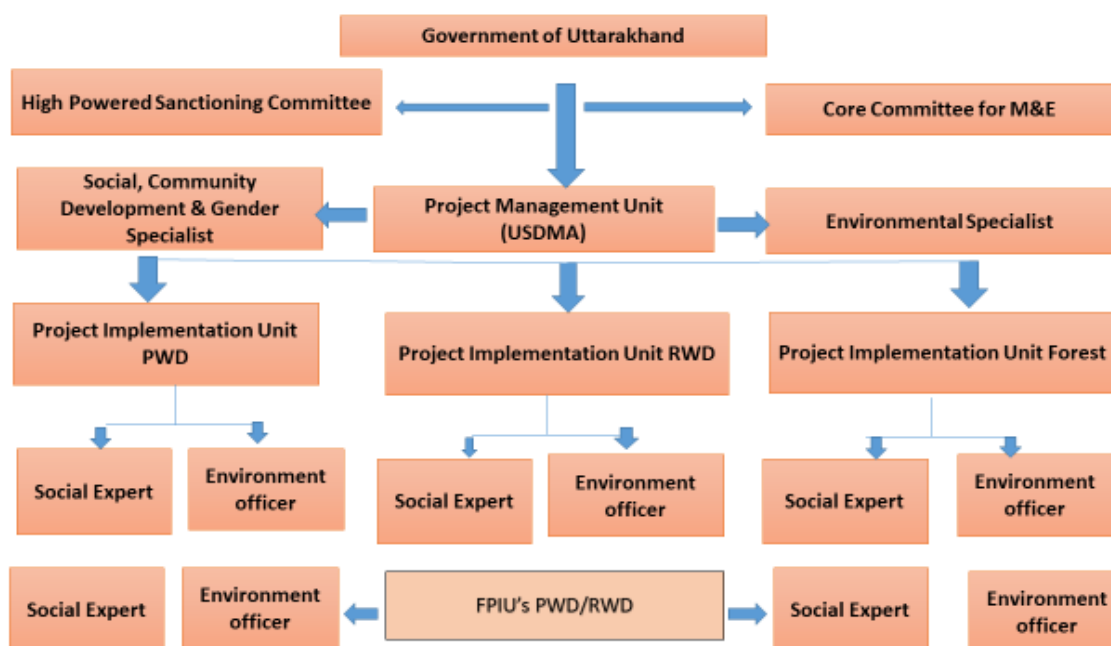
### **5.3 Grievance Redress Mechanism**

The Grievance Redress Mechanism is detailed in the Stakeholder Engagement Plan. PMU and PIUs will have a grievance redress mechanism which will look into all aspects of sub-projects and their activities including R&R related grievances. The SEP can be referred for details on Grievance Redress Mechanism.

## 6. Institutional and Implementation Arrangements

### 6.1 Introduction

The Institutional Structure for the U-PREPARE is given below:



**Figure 6-1: Institutional Arrangement of U-PREPARE**

The PMU will be responsible for the following:

- Coordination with the line agencies (PIUs) in approval of designs, assisting the PIUs in preparation of: DPRs, bidding documents, tendering schedules, etc. ensuring it includes all relevant E&S management provisions as per screening forms, ESIA's, and ESMPs.
- Provide support, oversight and quality control to PIUs and field staff working on environmental and social risk management.
- Appointment of technical assistance consultants and others safeguards management support to the implementing agencies.
- Collect, review and provide quality assurance and approval to screening forms, ESIA's and ESMPs as relevant, and ensure quality review through third party audits
- Maintaining MIS and Quarterly reporting on E&S risk management.
- Progress reporting, financial management, monitoring and reporting.
- Ensuring compliance with agreed implementation procedures and other Bank requirements, etc.
- Trainings and capacity building on Environment, OHS and social risk management to PIUs, field staff and contractors responsible for implementing the ESMF.

The PIUs will be responsible for

- a) Preparation of Detailed Project Reports including technical designs, surveys and investigations etc.
- b) Tendering, bid evaluation, contract award, contract management etc.
- c) Oversee daily implementation and monitoring of E&S mitigation measures and ESMP compliance at the field level
- d) Progress and expense reporting on E&S to the PMU on a monthly basis
- e) Coordination with district level coordination committees, relevant line departments, utilities, etc.

Local contractors will be responsible for:

- a) Complying with the project's environmental and social mitigation and management measures specified in the ESMPs, contract documents, as well as national and state laws and regulations.
- b) Preparing the C-ESMP prior to commencement of civil works, including workers' code of conduct.
- c) Taking all necessary measures to protect the health and safety of workers and community members, and avoid, minimize, or mitigate any environmental harm resulting from project activities.

## 6.2 Training and Capacity building

Successful implementation of the Project will depend, among others, on the effective implementation of the environmental and social risk management measures outlined in this ESMF. Training and capacity building will be necessary for the key stakeholders in order to ensure effective implementation of the ESMF, SEP, and other environmental and social documents. An initial training approach is outlined in the table below. To the extent possible, training on environmental and social risk management will be integrated into the project cycle and operational procedures. Given the need to raise awareness among project workers and stakeholders at many levels, a cascading model is proposed where information will follow from the state level to the field levels.

**Table 6.2. Proposed Training and Capacity Building Approach**

Level	Responsible Party	Audience	Topics/Themes that May Be Covered
<b>State level</b>	World Bank	PMU staff responsible for overall implementation of ESMF	ESMF and approach: - Identification and assessment of E&S risks - Selection and application of relevant E&S risk management measures/instruments - E&S monitoring and reporting - Incident and accident reporting - Application of LMP, including Code of Conduct, incident reporting, SEA/SH, COVID-19 mitigation - Application of SEP and the grievance/beneficiary feedback mechanism
<b>PIU level</b>	PMU staff	PIU staff Contractors	ESMF and approach: - Identification and assessment of E&S risks - Selection and application of relevant E&S risk management measures - E&S monitoring and reporting - Incident and accident reporting

			<ul style="list-style-type: none"> <li>- Application of LMP, including Code of Conduct, incident reporting, SEA/SH, COVID-19 mitigation</li> <li>- Application of SEP and the grievance/beneficiary feedback mechanism</li> </ul>
<b>Local/site level</b>	PIU staff	Staff at the sites Workers of contractors and sub- contractors	<ul style="list-style-type: none"> <li>- Application of SEP and the grievance/beneficiary feedback mechanism</li> <li>- Application of LMP, including Code of Conduct, incident reporting, SEA/SH, COVID-19 mitigation</li> <li>- Application of ESCOPs or ESMPs, as relevant</li> </ul>
<b>Community level</b>	Site-level staff/ contractors	Community members	<ul style="list-style-type: none"> <li>- Basic OHS measures and Personal Protective Equipment</li> <li>- Community health and safety issues</li> <li>- Worker Code of Conduct</li> <li>- SEA/SH issues, prevention, measures]</li> <li>- COVID-19 mitigation</li> <li>- Grievance redress</li> <li>- Workers' grievance redress</li> </ul>

### 6.3 ESMF Budget

The total administrative budget for environmental and social management activities under the U-PREPARE has been worked out as Rs. 6.6 Crores. The cost of implementing the proposed mitigation measures is not included in this costing. The cost of mitigating environmental and social impacts need to be included in the respective sub-projects' budgets. The detailed breakup of the administrative budget is presented in the **Table 6.1**.

**Table 6-1: Administrative budget for ESMF activities**

Activity/Cost Item	Potential Cost (INR)
Trainings for staff (venue, travel, refreshments etc.)	30,00,000
Trainings for contractors (venue, travel, refreshments, etc.)	20,00,000
Printing of awareness raising materials / grievance redress materials	5,00,000
Software for data collection / supervision / monitoring / grievance redress	200,00,000
Preparation of site-specific ESMPs and other site-specific plans	200,00,000
Cost of obtaining clearances or permits	
Environmental and social staff (for different levels)	
Travel and accommodation budget for environmental and social staff site visits	50,00,000
External E&S Audit consultant	300,00,000
<b>TOTAL</b>	<b>6,06,00,000</b>

## **Annexures**

### **Annexure 1: Environmental Screening Checklist**

<b>Name of the Project</b>	<b>Uttarakhand Green Resilient &amp; Inclusive Development Project (U-PREPARE)</b>
Name of Sub Project	
Name of Project Management Unit	
Name of Project Implementation Unit	

#### **Part a: General Information of the Sub Project**

<b>1. Location of the sub-project</b>	<b>Details</b>
Type of Project (Bridge& Approaches/ Slope Protection/ SDRF Building/ Forest Fire Facilities)	
Latitude	
Longitude	
District	
Block	
Village	
<b>2. Nearest Settlement Area</b>	
Name of the Settlement	
Approximate distance and location from the Sub-Project (in Km)	
<b>3. Description of Sub-Project</b>	
<b>A. Bridge Project</b>	
New/Reconstruction	
Name of the River/Water Stream across which Bridge is proposed	
Type of Bridge	
Length of Bridge (in m)	
Width of Bridge	
Span Arrangement	
Connecting Villages	
Length of Approach Roads in the proposed bridge Project	
Carriageway width	
Type of Protection measures provided for bank erosion/landslide	
Total length of protection measures	
<b>B. Slope Protection Works</b>	
Location of Protection Works	
Total length of Proposed Protection Works	
Type of Proposed Protection Works	



Total height of the slope susceptible to slide	
Total height of the Protection Works	
<b>C. Fire Protection Facilities/ Forest Fires Facility</b>	
Location of proposed facilities	
Type of Proposed Facilities	
Area of proposed construction of building	
No. of floors	
Total covered area	
<b>D. SDRF Building</b>	
Type of Building	
Total area of construction	
No. of floors	
Construction of other facilities	

**Part b: Environment Screening**

Project Screening Question	Yes (√)	No (√)	Details
<b>A. Project Siting</b>			
1. Is the sub-project located in whole or part within a radius of 1 km from any of the following environmentally sensitive areas?			
a) Biosphere Reserve			
b) National Park/Wildlife/Bird Sanctuary/Tiger Reserve/ Elephant Reserve			
c) Notified Wetland of Ecological Importance			
d) Natural Lake			
e) Swamps/Mudflats			
f) World Heritage Sites			
g) Reservoirs/Dams			
h) Within Buffer Zone of Protected Area i.e. Notified/Default 10Km ESZ of PA			
i) Special Area for Protecting Biodiversity			
j) Reserved/Protected Forest			
k) Migratory Route of Wild Animals/Birds/IBA			
l) Area with threatened/rare/ endangered fauna (outside protected areas)			
m) Area with threatened/rare/ endangered flora (outside protected areas)			
n) Habitat of migratory birds (outside protected areas)			

Project Screening Question	Yes (√)	No (√)	Details
2. Is the sub-project located in whole or part within a radius of 500 m from the following features?			
a) Archaeological monuments/sites (under ASI's central/state list) within notified 300m radius			
b) Historic Places (not listed under ASI- central or state list)			
c) Regionally Important Religious Places			
d) Public Water Intake/Supply mains from Rivers/Surface Water Bodies/ GW Sources			
e) Is there any Sensitive Receptor (Hospital, School, Courts) within 500m, if Yes, provide details			
f) Is the Site Located in the vicinity of erosion/landslide prone area?			
g) Is there any historical landslide around the proposed site within 500 m			
h) Is there any water way on the hill slope along bridge			
i) Is there incidence/risk of fall of boulders from slope to the bridge site			
3. Availability of Local Construction Material. If yes, provide details of material			
<b>B. Potential Environmental Impact</b>			
<b>Will the sub-project activity during its construction, operation or decommissioning cause impact on .....</b>			
1) Land Use/Diversion of Forest Land			
2) Water/alteration of SW hydrology			
3) Landslide /Rock falls			
4) Tree			
5) Wild animals			
6) Aquatic fauna			
<b>Will the Sub-project during its construction, operation or decommissioning cause/release any of the following? If yes, give full details.</b>			
7) Waste Material			
a. Municipal Waste			
b. C&D Waste			
c. Hazardous Waste			
d. Other Waste (Specify)			
8) Pollution			
a. Air Pollution			

Project Screening Question	Yes (√)	No (√)	Details
b. Noise Pollution vibration/ light/ heat energy/electromagnetic radiation c. Water Pollution from oil, grease and fuel spills d. Soil Contamination			
9) Accidents			
10) Poor sanitation Condition and Drainage issue			
11) Occupational Health and Safety			
12) land slide/soil erosion			
<b>C. Others</b>			
13) Any Additional, anticipated impact. Please specify.			

### **Part C: Result/Outcome of Environmental Screening Exercise**

S. No.	Outcome of Environmental Screening Matrix	Yes/No	Remarks
1.	<p>Significance of Impact (H/S/M/L)</p> <p><b>Criteria for Risk evaluation</b> The environmental screening criteria for evaluation of potential risks and impacts: <b>Low:</b> Localized, temporary, and negligible <b>Moderate:</b> Temporary, or short term and reversible under control <b>Substantial:</b> Medium term, covering larger impact zone, partially reversible <b>High:</b> Significant, non-reversible, long term and can only be contained/ compensated.</p> <p>Categorization will be based on the high category of Impacts.</p>		
2.	E&S Management Instruments Requirement		
a)	ESIA		
b)	Environment and Social Management Plan (ESMP)		
c)	Biodiversity Conservation Management Plan (BCMP)		
d)	Cultural Heritage Management Plan		
e)	Traffic Diversion Management Plan		

**Table A: Type of Regulatory Clearance Required**

S. No.	Type of Clearance/Permits	Yes/No	Remarks
1.	Diversion of Forest Land		
2.	Permission for Tree Cutting in Non-Forest Area & Transportation		
3.	Wildlife Clearance		
4.	Pollution Under Control Certificate (Central Motor and Vehicle Act 1988)  NB: It is applicable for both owned vehicles and hired vehicles.		
5.	Employing Labors and establishing Labor camps (The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996,).  NB: Applicable throughout project		
6.	Lease License/Permit from Mining Department and Environmental Clearance as applicable for Quarries from District Environmental Impact Assessment Authority (DEIAA).		
7.	NOC/ Permit to be taken from District Authority for Sand Mining		
8.	Others (Please specify)		

## **Annexure 2: Social Screening Format**

Name of the Project	Details
Name of Sub Project	
Name of Project Management Unit	
Name of Project Implementation Unit	

### **Part a: General Information of the Sub Project**

1. Location of the sub-project	Details
Type of Project (Bridge& Approaches/ Slope Protection/ SDRF Building/ Forest Fire Facilities)	
Geographical Information (Lat Long)	
District	
Block	
Village	
2. Nearest Settlement Area	
Name of the Settlement	
Approximate distance and location from the Sub-Project (in Km)	
3. Description of Sub-Project	
A. Bridge Project	
New/Reconstruction	
Name of the River/Water Stream across which Bridge is proposed	
Type of Bridge	
Length of Bridge (in m)	
Width of Bridge	
Span Arrangement	
Connecting Villages	
Length of Approach Roads in the proposed bridge Project	
Carriageway width	
Type of Protection measures provided for bank erosion/landslide	
Total length of protection measures	
B. Slope Protection Works	
Location of Protection Works	
Total length of Proposed Protection Works	
Type of Proposed Protection Works	
Total height of the slope susceptible to slide	
Total height of the Protection Works	

<b>C. Forest Fire Protection Facilities</b>	
Type of Proposed Facilities	
Area of proposed construction of building	
No. of floors	
Total covered area	
<b>D. SDRF Building</b>	
Type of Building	
Total area of construction	
No. of floors	
Construction of other facilities	

**Part b: Social Impacts Information**

S. No	Activity	Yes/No	Explain
<b>ESS-1 Assessment and Management Social Risks and Impacts</b>			
1	What are the likely social impacts due to the implementation of the sub-project?		
2	How many families and persons are likely to be affected? Which community will be directly impacted?		
3	Is there any risk to the community due to labours groups of different places?		
4	Is there any sensitive receptors (school, hospital, college etc.) situated nearby the sub project?		
5	If yes so what is the distance and what will be the risk to those children due to sub projects?		
6	Is there any water sources affected due to sub project if yes to what is the impact of that on the community?		
7	Any negative economic and social impacts relating to the involuntary taking of land or restrictions on land use?		
8	Are there any threat to women workers on the workplace and in camp as well.		
9	Is there any risk on children of that area due to sub project. For Example: is it effecting playground /schools approach road/ or any other.		
10	Social Assessment done before?		
<b>ESS-2- Labour and working conditions</b>			

S. No	Activity	Yes/No	Explain
11	Details of the labour requirement of the work (local/outside)		
12	Is the labour camp area selected nearby the sub project site, if no so how labour will reach to that area? What could be the arrangements?		
13	Safety and health facilities are present nearby the site for labour?		
14	How far the community residing from the sub-project site area?		
<b>ESS-4-Community Health and Safety</b>			
15	What are the possible actions to be taken for minimize the possible health hazards and risks? Example, pollution, contaminated areas/resources and diseases that could result from or be exacerbated by programming activities, including water related and vector-borne disease, communicable and noncommunicable diseases, injuries, nutritional disorders, mental health, and well-being that could result from project activities.		
16	Is there any requirement of community land or rented house for establishing contractor office and labour camp? If yes, please elaborate.		
17	Is there any factory nearby the site which is creating air and noise pollution to the project effected community.		
18	Please give details of community health workers and other govt schemes implementing in the sub-project areas.		
19	What are the possible measures which require during establishment of contractor's office and labour camp, so that risk related to health and safety can be minimized?		
20	Details of nearby streams/nala/waterfall.		
<b>ESS- 5 - Land Acquisition, Restrictions on Land Use and Involuntary Resettlement</b>			

S. No	Activity	Yes/No	Explain
21	Whether the project involve acquisition of land		
	If yes, total area required for acquisition: (a) Pvt land (b) Govt. Land		
22	Is any commercial properties affected due to sub-project? if yes so give details		
I	Total Affected Person		
Ii	Title Holders		
Iii	Non-Titleholders –Encroachers	-	
Iv	Non-Titleholders – Squatters	-	
V	BPL Families losing Dwellings	-	
Vi	Common Property Resources Affected: (Please give each type by number)	-	
Vii	Total no of HH affected due to proposed project activity (Single or multiple impacts)	-	
Viii	Total no of vulnerable HH affected due to proposed project activity (Single or multiple impacts)	-	
Ix	Total number of Community Property Resources affected	-	
<b>ESS – 7 Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities</b>			
22	Are there presence of any tribals community?	No	
I	If yes so do the meaning full consultation with them regarding project design, and document that.	N.A.	
ii	List out the likely risk of the tribal / nomads community like if any discrimination, debridement of their rights if it is there.	N.A.	
III	Ask them about the challenges they face and they are facing any related to land, water, temple or any thing else?	N.A.	
<b>ESS8 cultural heritage</b>			
24	Is there any legally protected cultural heritage site located within 500 m from the project site? If yes so give name and details.		



S. No	Activity	Yes/No	Explain
25	Is there any other features which comes under cultural heritage or which can be sensitive thing for the community?		
	If yes provide the, details along with the distance from the proposed site and protection measures requirements		
<b>ESS-10 Stakeholder Engagement and Information Disclosure</b>			
25	Stakeholder identification, analysis and management to be done.		
I	Stakeholder Engagement Plan is to be prepared.		
II	List of the project stakeholders is to be prepared separately.		
III	Any consultation done with the stakeholder? For their interest and support for the project and to enable stakeholders' views to be taken into account in project design and environmental and social performance. Ask them about their willingness, time period or any other expectations from the project.		
IV	Proper documentation of the stakeholders' expectations, about their views and support to project.		

<b>Result/ Outcome of Social Screening Exercise</b>		
1.	SIA Required	
2.	Sub-project Specific Social Management Plan required	
3.	RAP is required	
4.	SEA/SH Prevention and Response Action Plan is required	
5.	Other documents requirements	

### **Annexure 3: Detailed Baseline Data**

#### **Access to Electricity:**

<b>District Name</b>	<b>Sub District Name</b>	<b>Town Name</b>	<b>Electricity-Domestic Connection (Numbers)</b>	<b>Electricity Industrial Connection (Numbers)</b>	<b>Electricity-Commercial Connection (Numbers)</b>	<b>Road lighting connection</b>	<b>Electricity- Others Connection (Numbers)</b>
Uttarkashi	Rajgarhi	Barkot (Nagar Panchayat)	1409	0	67	98	0
	Bhatwari	Uttarkashi (Municipal Board)	3851	10	900	800	0
	Bhatwari	Gangotri (NP)	42	0	12	26	0
Chamoli	Joshimath	Badrinathpuri (NP)	24	0	20	20	0
	Joshimath	Joshimath (MB)	3408	2	381	163	0
	Chamoli	Chamoli Gopeshwar (MB)	5239	6	226	865	0
	Chamoli	Nandprayag (NP)	365	0	135	110	0
	Karnaprayag	Gochar (NP)	1777	0	275	125	0
	Karnaprayag	Karnaprayag (NP)	1920	2	325	300	0
Rudraprayag	Ukhimath	Kedarnath (NP)	248	0	38	70	0
	Rudraprayag	Rudraprayag (MB)	2140	19	253	350	0
Tehri Garhwal	Devprayag	Kirtinagar (NP)	326	1	110	120	0
	Devprayag	Devaprayag (NP) (Part)	563	1	260	250	1
	Tehri	Tehri (MB)	6004	15	900	1680	0
	Tehri	Chamba (NP)	1960	32	450	196	0
	Narendra Nagar	Narendranagar (MB)	1185	0	3	415	85
	Narendra Nagar	Muni Ki Reti (NP)	2294	50	460	346	0
	Narendra Nagar	Dhaluwala (Census Town)	3915	30	300	150	0
Dehradun	Chakrata	Chakrata (Cantonment Board)	556	2	108	480	0
	Vikas Nagar	Vikasnagar (MB)	3714	40	1265	625	0
	Vikas Nagar	Herbertpur (NP)	1946	19	800	750	0
	Vikas Nagar	Jiwangarh (CT)	2010	0	35	10	0
	Vikas Nagar	Central Hope Town (CT)	3165	125	4	120	0
	Dehradun	Mussoorie (MB)	6354	8	1608	3260	0
	Dehradun	Landaar (CB)	772	88	62	120	0
	Dehradun	Dehradun (M.Corp + OG)	113672	7628	11200	25152	144
	Dehradun	Dehradun (CB)	7746	1160	1200	1600	0
	Dehradun	Clement Town (CB)	2904	1	0	400	0
	Dehradun	Doiwala (NP)	5222	15	630	260	0
	Dehradun	Raipur (CT)	7053	0	12	170	0
	Dehradun	Natthan Pur (CT)	2935	0	0	120	0

District Name	Sub District Name	Town Name	Electricity-Domestic Connection (Numbers)	Electricity Industrial Connection (Numbers)	Electricity-Commercial Connection (Numbers)	Road lighting connection	Electricity- Others Connection (Numbers)
Dehradun	Dehradun	Mehu Wala Mafi (CT)	2339	0	0	12	0
Dehradun	Dehradun	Natthuwa Wala (CT)	1706	0	0	15	0
	Rishikesh	Rishikesh (MB)	13688	88	4227	2064	0
	Rishikesh	Virbhadra IDPL (ITS)	1363	1	75	500	0
	Rishikesh	Rishikesh (CT)	1547	0	30	10	0
	Rishikesh	Gumaniwala (CT)	1318	0	28	10	0
	Rishikesh	Kharak mafi (CT)	1587	0	0	12	0
	Rishikesh	Pratitnagar (CT)	2094	0	15	16	0
	Rishikesh	Haripur Kalan (CT)	1978	0	0	15	0
Garhwal	Srinagar	Srinagar (MB)	4432	10	1096	839	0
	Pauri	Pauri (MB)	5976	376	1211	1813	193
	Pauri	Devaprayag (NP) (Part)	161	0	25	65	0
	Lansdowne	Lansdowne (CB)	824	10	200	115	0
	Kotdwara	Dogadda (MB)	555	2	135	110	0
	Kotdwara	Kotdwara (MB + OG)	6641	85	2413	986	0
	Kotdwara	Padampur Sukhran (CT)	2266	0	40	20	0
	Kotdwara	Kashirampur (CT)	2284	0	80	22	0
	Yamkeshwar*	Jonk (CT)	995	0	400	80	0
Pithoragarh	Dharchula	Dharchula (NP)	1654	95	450	127	0
	Didihat	Didihat (NP)	1622	10	200	300	0
	Pithoragarh	Pithoragarh (MB)	12943	35	2215	15	62
Bageshwar	Bageshwar	Bageshwar (MB)	1911	7	3000	700	0
Almora	Ranikhet	Ranikhet (CB)	1992	4	700	725	8
	Dwarahat*	Dwarahat (NP)	647	250	300	586	0
	Almora	Almora (CB)	140	1	14	62	0
	Almora	Almora (MB)	7582	29	2531	2200	0
	Almora	Khatyari (CT)	1178	0	4	18	0
Champawat	Champawat	Champawat (NP)	1181	0	152	70	0
	Lohaghat*	Lohaghat (NP)	1759	8	426	178	77
	Poornagiri*	Tanakpur (MB)	3118	44	794	277	59
	Poornagiri*	Banbasa (CT)	1334	0	112	20	0
Nainital	Nainital	Nainital (MB)	9727	0	2352	1680	0
Nainital	Nainital	Nainital (CB)	279	1	24	129	1
Nainital	Nainital	Bhowali (MB)	1387	2	350	285	0
Nainital	Nainital	Bhimtal (NP)	1560	20	260	490	0
Nainital	Haldwani	Haldwani-cum-Kathgodam (MB + OG)	37721	258	7830	5663	187
		Fatehpur Range (Dhamua Dunga)	2285	2	0	16	0

District Name	Sub District Name	Town Name	Electricity-Domestic Connection (Numbers)	Electricity Industrial Connection (Numbers)	Electricity-Commercial Connection (Numbers)	Road lighting connection	Electricity- Others Connection (Numbers)
Nainital		Area) (CT)					
Nainital	Haldwani	Mukhani (CT)	4912	5	3	23	0
Nainital	Haldwani	Haldwani Talli (CT)	1487	0	17	16	0
Nainital	Ramnagar*	Ramnagar (MB)	10168	262	2603	1022	0
Nainital	Kaladhungi*	Kaladhungi (NP)	1376	12	265	351	4
Nainital	Lalkuan*	Lalkuan (NP)	1353	10	655	105	0
Udham Singh Nagar	Kashipur	Kashipur (MB)	21772	0	4000	3406	0
Udham Singh Nagar	Kashipur	Mahua Kheraganj (NP)	2049	74	55	207	0
Udham Singh Nagar	Kashipur	Kanchal Gosain (CT)	988	1	10	10	0
Udham Singh Nagar	Jaspur*	Mahua Dabra Haripura (NP)	1128	5	28	198	0
Udham Singh Nagar	Jaspur*	Jaspur (MB)	8067	6	500	1100	0
Udham Singh Nagar	Bajpur*	Sultanpur (NP)	1470	75	25	275	0
Udham Singh Nagar	Bajpur*	Bajpur (MB)	4373	5	550	250	0
Udham Singh Nagar	Bajpur*	Kela Khera (NP)	1391	70	16	110	4
Udham Singh Nagar	Kichha	Rudrapur (MB + OG)	24973	4500	200	2528	0
Udham Singh Nagar	Kichha	Kichha (MB)	6987	1000	600	925	16
Udham Singh Nagar	Kichha	Nagla (CT)	3640	0	0	220	50
Udham Singh Nagar	Kichha	Bandiya (CT)	1936	0	10	60	0
Udham Singh Nagar	Gadarpur*	Gadarpur (MB)	3773	162	1065	376	67
Udham Singh Nagar	Gadarpur*	Dineshpur (NP)	1914	30	200	700	14

District Name	Sub District Name	Town Name	Electricity-Domestic Connection (Numbers)	Electricity Industrial Connection (Numbers)	Electricity-Commercial Connection (Numbers)	Road lighting connection	Electricity- Others Connection (Numbers)
Udham Singh Nagar	Sitarganj	Shaktigarh (NP)	1018	0	0	155	0
Udham Singh Nagar	Sitarganj	Sitarganj (MB)	4829	71	583	360	2
Udham Singh Nagar	Khatima	Khatima (MB)	2732	60	650	384	0
Udham Singh Nagar	Khatima	Umru Khurd (CT)	2949	6	10	200	0
Udham Singh Nagar	Khatima	Maholiya (CT)	2155	8	28	120	0
Hardwar	Roorkee	Roorkee (MB)	21682	150	3000	3589	0
Hardwar	Roorkee	Roorkee (CB)	355	3	159	85	0
Hardwar	Roorkee	Jhabrera (NP)	1579	10	400	390	0
Hardwar	Roorkee	Manglaur (MB)	4800	85	35	615	52
Hardwar	Roorkee	Landhaura (NP)	2371	50	120	317	0
Hardwar	Roorkee	Shahpur (CT)	795	0	0	8	0
Hardwar	Roorkee	Bhagwanpur (CT)	1197	0	0	15	0
Hardwar	Roorkee	Saidpura (CT)	914	0	40	8	0
Hardwar	Roorkee	Piran Kaliyar (CT)	1134	0	16	10	0
Hardwar	Roorkee	Salempur Rajputan (CT)	2202	0	0	15	0
Hardwar	Roorkee	Sunhaira (CT)	2340	0	0	18	0
Hardwar	Roorkee	Shafipur (CT)	2147	0	0	16	0
Hardwar	Roorkee	Khanjarpur (CT)	1178	0	0	12	0
Hardwar	Roorkee	Bangherimahabatpur (Must) (CT)	1425	0	7	13	0
Hardwar	Roorkee	Padali Gujar (CT)	1835	0	0	17	0
Hardwar	Roorkee	Nagala Imarti (CT)	889	0	0	9	0
Hardwar	Roorkee	Dhandera (CT)	3891	29	86	100	215
Hardwar	Roorkee	Maohanpur Mohammadpur (CT)	2361	0	60	21	0
Hardwar	Hardwar	Bharat Heavy Electricals Limited Ranipur (ITS)	9736	10	282	3815	0
Hardwar	Hardwar	Hardwar (MB + OG)	42756	3000	13330	12058	0
Hardwar	Hardwar	Rawali Mahdood (CT)	3544	0	0	19	0
Hardwar	Hardwar	Bahadarabad (CT)	1904	0	0	18	0
Hardwar	Hardwar	Jagjeetpur (CT)	2786	0	0	22	0
Hardwar	Laksar	Laksar (NP)	3848	35	1000	200	500

**Educational Institutions:**

S. No.	Districts	Education					
		Jr School	Sr. School	Higher Sec	Graduation College	PG college	University
1	Dehradun	1208	726	562	5	8	16
2	Chamoli	927	193	229	0	9	
3	Rudraprayag	623	194	149	4	1	
4	Tehri Garhwal	1579	474	347	5	12	1
5	Haridwar	1105	872	359	18	11	
6	Pauri	1588	449	447	13	2	1
7	Uttarkashi	695	255	160	4	2	
8	Pithoragarh	1071	261	271		8	
9	Bageshwar	622	161	129	2	3	
10	Almora	1451	327	345		13	1
11	Champawat	528	134	145		6	
12	Nainital	1422	314	315	6	3	2
13	Udham Singh Nagar	1225	674	486	7	6	

**Access to water Supply:**

S. No.	Districts	Population covered
		2021-2022
1	Dehradun	669085
2	Chamoli	309311
3	Rudraprayag	13230
4	Tehri	633448
5	Haridwar	1610436
6	Pauri	640923
7	Uttarkashi	324078
8	Pithoragarh	540714
9	Bageshwar	229770
10	Almora	659452

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11	Champawat	232311
12	Nainital	411717
13	Udham Singh Nagar	942087

**Annexure 4: Details related to land availability and gap analysis of fire fighting equipments.**

**Details of Fire Station and Fire Units**

S.No.	Name of Project	District	Land Available	Total Land
1	Fire Training Centre Selaque	Dehradun	Yes	1.15 hectare/11500 Sqmtr
2	Fire Unit Tyuni	Dehradun	Yes	0.080 hectare/ 800 Sqmtr
3	Fire Station Mussoorie	Dehradun	Yes	0.0527 hectare/ 527 Sqmtr
4	Fire Station Rishikesh	Dehradun	Yes	0.1530 hectare/1530 Sqmtr
5	Fire Unit Thalısain	Pauri	Yes	0.095 hectare/950 Sqmtr
6	Fire Station Pauri	Pauri	Yes	0.302 hectare/ 3020 Sqmtr
7	Fire Station Kotdwar	Pauri	Yes	2.37 acr/9591 Sqmtr
8	Fire Unit Ghansali	Tehri	Yes	0.080 ha/800 Sqmtr
9	Fire Station Narendranagar	Tehri	Yes	0.3920 hectare/3920 Sqmtr
10	Fire Unit Gairsain	Chamoli	Yes	0.140 hectare/1400 Sqmtr
11	Fire Station Joshimath	Chamoli	Yes	0.100 hectare/1000 Sqmtr
12	Fire Station Barkot	Uttarkashi	Yes	0.200 hectare/2000 Sqmtr
13	Fire Unit Bhagwanpur	Haridwar	Yes	0.410 hectare/4100 Sqmtr
14	Fire Unit Bazpur	Udham SinghNagar	Yes	0.367 hectare/ 3670 Sqmtr
15	Fire Unit Kichcha	Udham Singh Nagar	Yes	0.2425 hectare/ 2425 Sqmtr
16	Fire Station Sitarganj	Udham Singh Nagar	Yes	2.84 acre/11335 Sqmtr
17	Fire Station Khatima	Udham Singh Nagar	Yes	0.186 hec/1860 Sqmtr
18	Fire Station Lohaghat	Champawat	Yes	0.31 hectare/3100
19	Fire Unit Didihat	Pithoragarh	Yes	0.201 hectare/2010 Sqmtr
20	Fire Station Ranikhet	Almora	Yes	2.025 Acre/8195 Sqmtr



From the above table it is clear that land is available for all the 20 fire stations/ fire units for expansion/ augmentation.

**Equipment:**

The Table 2.11 gives the fire fighting, search and rescue equipment available in these fire stations and fire units against the actual requirement. The table also gives the gap in the required equipment and quantities proposed to be acquired.

**Table \_\_\_\_ : Fire fighting equipments**

GAP ANALYSIS OF FIRE FIGHTING, SEARCH AND RESCUE EQUIPMENTS TO BE PROCURED FOR FIRE DEPARTMENT UNDER UGRIDP							
Sr. No.	Package Name / Item Description	Availability (A)	Requirement (R)	Gap (R - A)	Proposed Qty	Deployment	Manpower Available
1	Breathing apparatus	160	964	804	700	14 B.A Set per fire station / Unit	Yes
2	Fire Entry suits	0	94	94	94	02 Fire suit per fire station / Unit	Yes
3	Proximity suit	120	1462	1342	1000	21 suit per fire station / Unit	Yes
4	Chemical suits (Low hazard)	0	94	94	20	04 suit per Sidcul/Industrial Fire Station	Yes
5	Chemical suits (high hazard)	0	-	-	04	01 suit per Sidcul/Industrial Fire Station	Yes
6	fireman self rescue device	0	188	188	188	04 kits per fire station / Unit	Yes
7	Fire quick response vehicle	0	47	47	25	For 25 Hilly fire stations/Unit	Yes
8	fire fighting ATV	0	04	04	4	For Char dham /Hill Areas	Yes
9	Thermal Imaging Camera	4	47	43	9	For each district head qtr. Fire Stations.	Yes
10	Victim Location Camera	4	47	43	9	For each district head qtr. Fire Stations.	Yes
11	Lifting bags	20	47	27	13	For each district head qtr. Fire Stations.	Yes
12	safety net	0	47	47	13	For each district head qtr. Fire Stations.	Yes
13	jumping cushion	0	47	47	13	For each district head qtr. Fire Stations.	Yes
14	Multipurpose Fire Tender	03	13	10	07	For 07 Fire Stations in Sidcul/Industrial Areas	Yes
15	Advanced Mini fire Rescue Tender	0	13	13	6	For 06 district head qtr. Fire Stations.	Yes
16	hydraulic platform	1	13	13	4	For 03 district head qtr. FS in plain areas(where high rise buildings situated) and 01 for Training centre	Yes
17	Hazmat vehicle	0	04	04	2	Each for Garhwal and Kumoan Ranges.	Yes
18	Fireman Search & Rescue Equipments (Kits)	0	282	282	47	01 kit per fire station / Unit	Yes
19	Portable pump carrying vehicle (PPCV)	23	47	24	24	Each PPCV per fire station / Unit	Yes

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## **Annexure 5: Format for Environmental and Social Impact Assessment (ESIA)**

### **Executive Summary**

1. Project Description
2. Status of the subproject development at the time of ESIA
3. Sub-project Description
4. Analysis of Alternatives
5. Applicable Regulatory and Guidance Framework
6. Baseline environmental and social conditions
7. Assessment of Risks & Impacts and Mitigation Measures

### **CHAPTER 1 INTRODUCTION**

- 1.1. Purpose of the Report
- 1.2. Project Background.
- 1.3. The Sub-Project
- 1.4. Structure of the Environmental Assessment Report

### **CHAPTER 2 METHODOLOGY**

- 2.1. Introduction
- 2.2. Study Area.
- 2.3. Collection of Baseline Environmental & Social Data
- 2.4. Review of Policies, Regulations and Institutional Arrangements.
- 2.5. Stakeholder Consultation and Identification of Potential Environmental Impacts.
- 2.6. Preparation of Environmental and Social Management and Monitoring Plan.

### **CHAPTER 3 POLICY AND REGULATORY FRAMEWORK**

- 3.1. Introduction.
- 3.2. National and States Acts, Regulation and Policies
- 3.3. Applicability of Key International Convention/Requirements.
- 3.4. Key Statutory Clearances/ Permits and Licences requirements.
- 3.5. Institutional Arrangement for Implementing Mitigation Measures
- 3.6. Training on E&S Safeguards.

### **CHAPTER 4 ENVIRONMENTAL AND SOCIAL BASELINE**

- A. Physical Resources
  - 4.1 Topography and Soil
  - 4.2 Climate
  - 4.3 Geology/Seismology
  - 4.3 Land Use
  - 4.5 Drainage Pattern
  - 4.6 Surface Water
  - 4.7 Ground Water Resources
  - 4.8 Air Quality
- B. Ecological Resources
  - 4.9 Forests
  - 4.10 Aquatic biology
  - 4.11 Wildlife and Biodiversity
  - 4.12 Protected AReas
  - 4.13 Rare and Endangered Species
- C. Social and Cultural Resources:
  - 4.14 General Demography
  - 4.15 Archaeological monument/historical site

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## **CHAPTER 5 ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES**

- 5.1 Introductopn
- 5.2 Criteria for impacts
- 5.3 Project activities
- 5.4 Environmental & Social Impacts & Mitigation Measures
  - 5.4.1 Impacts During Design & Pre-Construction Stage
    - a. Impacts on Physiography & Soil
    - b. Impacts on Landuse
    - c. Impacts on Forest & Trees
    - d. Impacts on Drainage
    - e. Impacts on Land and Properties
    - f. Impacts on Cultural and Archaeological sites
  - 5.4.2 Impacts During Construction Stage
    - a. Impacts on landuse and Soil
    - b. Impacts on Air Quality
    - c. Impact on Noise Quality
    - d. Impact on Water Environment
    - e. Impact on Ecological Resources
    - f. Impacts on Land and properties.
    - g. Impacts on Sensitive Receptors
    - h. Impacts of Labour Influx
    - i. Occupational Health and Safety
    - j. Impacts on Community Health and Safety
    - k. Impacts on Cultural Features
    - l. Impacts on SHE/SH and GBV
  - 5.4.3 Impacts During Operation Stage

## **CHAPTER 6. ANALYSIS OF ALTERNATIVES**

- 6.1 With and Without Project Scenario
- 6.2 Alternate Alignment

## **CHAPTER 7. STAKEHOLDER CONSULTATION AND INFORMATION DISCLOSURE**

- 7.1 Objectives of Public Consultation
- 7.2 Approach to Public Consultation
- 7.3 Summary of Public Consultation
- 7.4 Information Disclosure

ANNEXURES.....

## **Annexure 6: Formats for Environmental and Social Management Plan**

1. Objective of ESMP
2. Key Environmental and Social Issues
3. Environmental and Social Management Plan
4. Environmental Enhancement Measures
5. Institutional Requirements for Implementation of ESMP
6. Environmental and Social Monitoring Plan
  - 6.1 Identification of Key Performance Indicators
  - 6.2 Monitoring Action Plan
7. Record Keeping and Reporting
8. Budget for Environmental and Social Mitigation and Monitoring

**Annexure 7: Generic Environmental and Social Management Plan for Bridge and Approach Roads**

**A. ENVIRONMENTAL MANAGEMENT PLAN:**

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
<b>A.</b>	<b>Design Stage</b>			
A.1	Transect walk for identification of environmental issues	<ul style="list-style-type: none"> <li>• Before design bridges and approach roads, proper Transect walk should be carried by involving local people.</li> </ul>	DPR Consultant	PIU, PWD
A.2	Retaining and breast walls and River bank protection	<ul style="list-style-type: none"> <li>• At required places in hilly areas, which are prone to landslide or valley side erosion breastwalls, retaining walls and/or protection shall be provided.</li> <li>• Additional protection measures against bank erosion such as protection wall along the river bank of appropriate length to be provided based on site condition.</li> <li>• In case the proposed alignment passes through builtup areas, an assessment of vulnerability of the buildings to the landslide due to excavation and other construction activities will be carried out and accordingly appropriate protection/mitigation measures will be provided in the design.</li> </ul>	DPR Consultant	PIU, PWD
A.3	Side drain and its outfall along approach roads	<ul style="list-style-type: none"> <li>• In plain areas, both sides of road drain shall be provided along the approach roads.</li> <li>• In hilly area, roadside drain shall be constructed hill side.</li> <li>• Proper out fall will be constructed for road side drain to control erosion.</li> </ul>	DPR Consultant	PIU, PWD
A.4	Climate Change Consideration and	<ul style="list-style-type: none"> <li>• Climate change vulnerability will be taken into consideration.</li> </ul>	DPR Consultant	PIU, PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
	Vulnerability screening	<p>Necessary mitigative and resilient measures will be adopted during design of bridges and approach roads.</p> <ul style="list-style-type: none"> <li>• Provisions of street light with will be made along the bridge and approaches. Depending upon the feasibility, the provision of solar lights may be explored and incorporated in design</li> </ul>		
A.5	Forest Clearance	<ul style="list-style-type: none"> <li>• In case the sub-project require acquisition of forest land for accommodating the proposed alignment, forest clearance would be obtained by the PIU prior to commencement of the construction.</li> <li>• No construction activities will be undertaken in such roads till Forest Clearance is obtained.</li> </ul>	PIU, PWD	PMU, PWD
A.6	Tree Cutting Permission	<ul style="list-style-type: none"> <li>• All efforts shall be taken to avoid tree cutting wherever possible.</li> <li>• Requisite permission from Forest Departments shall be obtained for cutting of trees.</li> <li>• In case of cutting of private trees the owner of the tree to be suitably compensated prior to tree felling.</li> <li>• Provision of Compensatory Afforestation shall be made on 1:10 ratio basis.</li> </ul>	PIU, PWD	PMU, PWD
A.7	Shifting of utilities and common property resources	<ul style="list-style-type: none"> <li>• PIU will obtain necessary permission for shifting of utilities from line department. The line department will prepare shifting plan in consultation with the PIU/Contractor's work schedule and will shift the utilities at the cost of project.</li> <li>• Prior intimation to the local public in the area where shifting is scheduled will be ensured well in advance by the line department and PIU.</li> </ul>	PIU,PWD through line Department	PIU,PWD & PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>In general practice, the cost for utility shifting is borne by the project owner i.e. PIU, PWD and the shifting activity is taken by the line department. Making alternate arrangement for ensuring uninterrupted service is prime responsibility of line department.</li> <li>Shifting activities shall be avoided during festival season. If it is unavoidable, the alternate arrangement will be made by the line department.</li> <li>All the utilities will be restored in advance prior to the start of construction works. The required mitigation measures would be to instruct in advance the relevant owners of these utilities to shift those before construction starts to avoid disruption of local services</li> </ul>		
<b>B.</b>	<b>Pre-construction Stage</b>			
B.1	Appointment of Environment, Health & Safety (EHS) Officer	<ul style="list-style-type: none"> <li>The contractor shall appoint qualified and experienced Environment Health &amp; Safety (EHS) Officer having appropriate qualification and experience in EHS implementation in similar construction projects.</li> <li>The EHS Officer will dedicatedly work and ensure implementation of EMP including occupational health and safety issues at the camp, plant and construction work sites and prepare the record and reports on EMP and OHS Compliances in the sub-project</li> </ul>	Contractor	PIU, PWD
	<b>Contractor's C-ESMP</b>	<ul style="list-style-type: none"> <li>The Contractor will along with their work plan develop site specific Contractor's Environmental Management Plan (C-ESMP) to cover all the environmental safeguard measures as per Contract's specifications, statutory requirements and environmental safeguard measures set-forth in the EMP of EIA report. The C-ESMP should contain but not limited to the following aspects:                             <ul style="list-style-type: none"> <li>Statutory clearances and permits</li> </ul> </li> </ul>	Contractor	PIU, PWD and PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>- Institutional arrangements for implementation of environmental mitigation measures and safety measures</li> <li>- Pollution Control Measures (Air, water, noise and soil) at different activity areas</li> <li>- Environmental Management at stocyards</li> <li>- Environmental Management at Plant site (Batching Plant, Hot mix plant etc.)</li> <li>- Environmental Management at Camp Site</li> <li>- Site specific OHS Plan</li> <li>- Emergency response system</li> <li>- Waste Management Plan (Solid Waste, Waste water C&amp;D waste including disposal plan)</li> <li>- Construction water management</li> <li>- Traffic Management Plan including diversion plan</li> <li>- Community Health and Safety Plan</li> <li>- Inspection checklists on various aspects of ESMPs</li> <li>- Environmental and Social Monitoring Schedule</li> <li>- Training schedule on EHS, HIV/AIDS awareness, SEA/SH&amp;GBV and COVID-19 awareness among contractor's workforce</li> <li>• Any other aspects as directed by the Engineer</li> </ul>		
B.2	Regulatory Permits/Licenses	<ul style="list-style-type: none"> <li>• The Contractor will obtain all necessary statutory licenses and permits related to environmental safeguards such as               <ul style="list-style-type: none"> <li>- Labour License,</li> <li>- NOC for establishing and operating, Batching Plant,</li> <li>- Authorization for storing spent oils</li> <li>- Environmental Clearance and Mining lease for self operating stone quarry</li> <li>- NOC from Ground Water Authority for establishment of borewell for abstraction of ground water for construction and camp site</li> </ul> </li> </ul>	Contractor	PIU,PWD



Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>- PUC for all the construction vehicles</li> <li>- Any other applicable license and permits as per prevailing rules related to environmental safeguards</li> <li>• The Contractor, at all time, will comply with the conditions stipulated under the licenses and permits.</li> <li>• From time to time the Contractor will renew the validity of the licenses and permits.</li> <li>• The Contractor will submit all the statutory permits &amp; licenses to the PIU/ prior to commencement of activities.</li> <li>• In case construction materials are procured from third party, contractor will collect copy of regulatory permission and submit to PIU</li> </ul>		
B.3	Clearing of vegetation and removing trees	<ul style="list-style-type: none"> <li>• All efforts shall be taken to avoid tree cutting wherever possible.</li> <li>• Requisite permission from Forest Department shall be obtained for cutting of trees.</li> <li>• In case of cutting of private trees the owner of the tree to be suitably compensated prior to tree felling.</li> <li>• Provision of Compensatory Afforestation shall be made on 1:10 ratio basis.</li> </ul>	Contractor	PIU,PWD
B.4	Establishment of construction camp and construction materials storage area	<ul style="list-style-type: none"> <li>• Construction camp sites shall be located away from any local human settlements and preferably located on lands, which are not productive (barren/waste lands presently).</li> <li>• Similarly temporary construction materials storage area shall be located away from human settlement areas and forested areas (minimum 0.5 km).</li> <li>• The construction camps and materials storage areas shall have provision of adequate water supply, sanitation and all requisite</li> </ul>	Contractor	PIU/PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<p>infrastructure facilities.</p> <ul style="list-style-type: none"> <li>• The construction camps and materials storage areas shall have provision of septic tank followed by soak pit of adequate capacity so that it can function properly for the entire duration of its use.</li> <li>• An emergency plan shall be prepared to fight with any emergency like fire, COVID-19, flood, etc.</li> <li>• Provision of hard surface area for storage of fuel oil, lubricant oil, away from storm water drainage.</li> </ul>		
B.5	Traffic Management and Road Safety	<ul style="list-style-type: none"> <li>• Identify the areas where temporary traffic diversion (for Bridges and approach roads) may be required.</li> <li>• Prepare appropriate traffic movement plan approved by respective PIU for ensuring continued safe flow of traffic, pedestrians and all road users during construction.</li> <li>• Wherever, cross drainage structure work require longer construction time and road is to be blocked for longer duration, the PIU/DPR consultant shall define appropriate measures for traffic diversion before the start of the construction.</li> <li>• Guidelines on Safety in Road Construction Zones of IRC SP 55 :2014 will be followed while opening of construction zones and traffic diversions. Adequate signboards shall be placed much ahead of diversion site to caution the road users.</li> <li>• . The road signs should be bold and retroreflective in nature for good visibility both during the day and night.</li> </ul>	DPR Consultant	PIU, PWD
<b>C.</b>	<b>Construction Stage</b>			
C.1.	Display of project Information Board	<ul style="list-style-type: none"> <li>• The Contractor will install Project Information Board with important Contact number displaying prominently at both end of project</li> </ul>	Contractor	PIU, PWD and PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
C.2	Sourcing and Transportation of Construction Materials (Borrow Earth and Aggregate)	<p><b>Borrow Earth:</b></p> <ul style="list-style-type: none"> <li>• Borrowing of earth shall not be carried from ROW in any circumstances.</li> <li>• The excavated and cutting materials generated during excavation and site preparation for approach roads will be reused for construction depending upon the suitability of the materials</li> <li>• The PIU will review and clear the borrow areas proposed by the contractor</li> <li>• The borrow earth shall be obtained from identified legal and approved locations and with prior permission of landowner and clear understanding for its rehabilitation.</li> <li>• The Indian Road Congress (IRC):36-2010 guideline should be used for selection of borrow pits and amount that can be borrowed.</li> <li>• Borrow area on slopy land vulnerable to landslide and erosion will not be operated</li> <li>• A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal).</li> <li>• The depth of borrow pits will not be more than 30 cm after stripping the 15 cm topsoil aside.</li> <li>• The top soil will be reused for redevelopment of the borrow area or for landscaping.</li> </ul> <p><b>Aggregate:</b></p> <ul style="list-style-type: none"> <li>• The stone aggregate shall be sourced from existing licensed quarries only.</li> <li>• Copies of consent environmental clearance for stone quarries for</li> </ul>	Contractor	PIU, PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		the existing third-party sources will be submitted to PIU. <b>Transportation of Construction Materials:</b> <ul style="list-style-type: none"> <li>Existing roads are to be used for hauling of materials to the extent possible.</li> <li>The vehicles deployed for material transportation shall be spillage proof to avoid or minimize the spillage of the material during transportation.</li> <li>Construction materials shall be transported by covering through tarpaulin.</li> </ul>		
C.4	Drainage	<ul style="list-style-type: none"> <li>Cross drainage structures shall be constructed based on hydrological study, and discharge capacities of drainage structures shall be designed to facilitate smooth passage of water and heading up or flooding is avoided even in rainy season.</li> <li>Irrigation pipes shall be laid as per requirement of local farmers.</li> <li>In the habitation areas, road side drain shall be constructed with proper outfalls.</li> <li>Around the hand pumps located adjacent to road, platform will be constructed and waste water channel shall be connected to road side drains to avoid flooding on the road.</li> </ul>	Contractor	PIU,PWD
C.5	Compaction and Contamination of Soil	<ul style="list-style-type: none"> <li>To prevent soil compaction in the adjoining productive lands beyond the ROW, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route.</li> <li>The productive land shall be reclaimed after construction activity.</li> <li>Fuel and lubricants shall be stored at the predefined storage locations only.</li> <li>The construction materials storage area shall be paved with gentle</li> </ul>	PIU,PWD	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<p>slope to a corner and connected with a chamber to collect any spills of the oils.</p> <ul style="list-style-type: none"> <li>All efforts shall be made to minimise the waste generation. Unavoidable wastes shall be stored at the designated place prior to disposal.</li> <li>To avoid soil contamination at the wash-down and re-fuelling areas, "oil interceptors" shall be provided. Oil and grease spill and oil-soaked materials are to be collected and stored in labelled containers (Labelled: USED OIL; and hazardous sign be displayed) and disposed off to authorized used oil recyclers approved by the state Pollution Control Board.</li> </ul>		
C.6	Construction Debris and Wastes	<ul style="list-style-type: none"> <li>Construction and demolition wastes generated from dismantling of old culverts and bridge remains shall be disposed off as per Construction and Demolition Waste Management Rule 2016.</li> <li>The bituminous wastes shall be disposed in secure manner at designated landfill sites only in an environmentally accepted manner.</li> </ul>	PIU, PWD	PIU, PWD
C.7	Air and Noise Quality	<ul style="list-style-type: none"> <li>Vehicles delivering loose and fine materials like sand and aggregates shall be covered.</li> <li>Dust suppression measures like water sprinkling, shall be applied in all dust prone locations such as earthworks, stockpiles, etc.</li> <li>DG set will be provided a chimney with vertical opening having adequate height as per CPCB guidelines (Height of stack in meter = Height of the building + 0.2 <math>\sqrt{\text{kVA}}</math>).</li> <li>Construction materials storage areas shall also be located downwind of the habitation area.</li> <li>Only acoustic enclosure fitted DG sets shall be used (if required).</li> </ul>	Contractor	PIU, PWD & PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>• All the vehicles engaged for construction activities will have valid Pollution Under Control Certificate (PUC).</li> <li>• Regular maintenance of machinery and equipment will be carried and vehicular pollution check should be made mandatory.</li> <li>• Engine will be switched-off when not in use to save fuel, prevent accidents and unnecessary noise and air pollution.</li> <li>• All vehicles and equipment used in construction work will be fitted with muffler or silencers.</li> <li>• Servicing of construction vehicles and machinery will be done regularly and during routine servicing operations, the effectiveness of exhaust silencers will be checked and if found defective, these shall be replaced.</li> <li>• The plants and equipment used in construction (including those of sub- Contractors) shall strictly conform to the MoEF&amp;CC/CPCB noise standards and shall have latest noise suppression mountings.</li> </ul>		
C.8	Water for Construction Activities	<ul style="list-style-type: none"> <li>• The Contractor shall arrange for water required during construction in such a way that the water availability and supply to nearby communities remains unaffected.</li> <li>• Requisite permissions need to be obtained before using water from the Competent Authority</li> <li>• Preventive measures like slope stabilization, etc shall be taken for prevention of siltation in water bodies.</li> </ul>	Contractor	PIU,PWD
C.9	Water Contamination	<ul style="list-style-type: none"> <li>• Excavation will not be scheduled during rains, so that there is no impact on drainage and surface water quality is envisaged.</li> <li>• Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets</li> </ul>	Contractor	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>• Provide temporary bunds for stockpiles and materials</li> <li>• Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies</li> <li>• Littering or unauthorized discharge will not be permitted.</li> <li>• Permission of the engineer and the concerned regulatory authorities will be obtained for disposal of the waste as the designated disposal point.</li> <li>• The stream course and drain will be kept free from dumping of solid wastes and earth materials.</li> <li>• The construction materials and debris will be stored away from water bodies or water ways and only at the designated sites along the construction zones.</li> <li>• Conduct surface quality inspection and monitoring</li> </ul>		
C.10	Biodiversity Conservation and Management	<ul style="list-style-type: none"> <li>• The project staff and workforce will be appropriately made aware about the importance of biodiversity and shall be advised not to indulge in any illegal activity including hunting of wildlife.</li> <li>• Construction materials as well as debris will not be stacked around trees and forest area.</li> <li>• No Campsite or any other allied site will be established within 0.5 Km of the forest area.</li> <li>• Contractor will take all precautions to avoid damage to the forest during transportation of material through forest area</li> <li>• The Contractor shall ensure that there is no disruption or damage to the wild animals due to his activities or by his persons.</li> <li>• It will be responsibility of the Contractor to ensure that there is no illegal poaching of wild animals around the area of activities by his staff, labours or sub-contractor's personnel.</li> <li>• Construction vehicles will run along specified access to avoid accidents to cattle or wild animal</li> </ul>	Contractor	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>No dumping site will be identified in the protected areas and no waste dumping (eventemporary) will be permitted in these areas.</li> <li>There will be no tree cutting/vegetation clearance other than in areas required for theProject.</li> </ul>		
<b>D.</b>	<b>Post Construction and Maintenance Stage</b>			
D.1	Site clearance and restoration	<ul style="list-style-type: none"> <li>The site will be cleaned immediately after the construction activity is over.</li> <li>The debris materials will be disposed off in environmentally acceptable manner only at identified area for disposal and the disposal site to be levelled properly after completion of the debris disposal activities</li> <li>All construction camp/temporaryoffice/materials storage areas are to be restored to its original or better conditions</li> <li>The borrow areas rehabilitation will beensured as per the agreed plan with the landowner.</li> <li>All the vents of cross water drainage and water way to be cleared</li> </ul>	Contractor	PIU, PWD and PMU



Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		from debris materials • Completion Certificate will be issued only after completing the post construction environmental and social compliances		
D.2	Drainage	• Regular removal/cleaning of deposited silt shall be done from drainage channels, road drains & outlet points and culverts before the monsoon season. • Rejuvenation of the drainage system by removing encroachments/ congestions shall be regularly conducted.	Contractor	PIU, PWD and PMU

**B. OCCUPATIONAL HEALTH AND SAFETY PLAN:**

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
<b>A. Design and Pre-Construction Stage</b>				
A.1	<b>Contractor's OHS Plan and Emergency Response System</b>	• The requisite PPE (helmet, mask, boot, hand gloves, earplugs) shall be provided to the construction workers. • Children (less than 18 years) and pregnant women shall not be allowed to work under any circumstances. • Deployment of Child Labour shall be strictly prohibited. • The contractor will also provide potable water facilities within the precincts of every workplace in an accessible place, as per standards set by the Building and other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996. • First Aid Box shall be kept at the work place and camp site. • Workforce, likely to be exposed to noise levels beyond regulatory	Contractor	PIU, PWD & PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<p>stipulated limits, shall be provided with protective gears like hear plugsetc.</p> <ul style="list-style-type: none"> <li>• Dust suppression measures like sprinkling of water shall be ensured on the earth work on the road.</li> <li>• Fixed or mobile toilets shall be provided for workers. Open defecation shall be strictly prohibited.</li> <li>• Toilets will be fitted with septic tank followed by soak pits.</li> </ul>		
A.2	<b>Contractor's OHS Plan and Emergency Response System</b>	<ul style="list-style-type: none"> <li>• The Contractor will Develop site-specific and job-specific Occupational Health and Safety (OHS) Plan which will cover the following aspects but not limited to: <ul style="list-style-type: none"> <li>- Site and Activity specific Hazard identification</li> <li>- Identification of PPE requirements</li> <li>- Work zone safety Plan including Safety during excavation, concreting, etc., operation of Heavy Plant &amp; Machinery; safety during Material handling, safety plan for lifting devices, fire, electrical and mechanical safety, vehicular safety</li> <li>- Medical facilities including first aid arrangements</li> <li>- Institutional arrangement for implementation of safety measures including safety committee</li> <li>- H&amp;S safety training programme including training schedule</li> <li>- Incidence reporting system and Safety Checklists</li> </ul> </li> <li>• The Contractor will comply with the requirements of the Environmental, Health, and Safety (EHS), Guidelines of the World</li> </ul>	Contractor	PIU,PWD & PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<p>Bank Group, 2007<sup>5</sup> and all national, state and local core labor laws during preparation of OHS Plan and implement the same.</p> <ul style="list-style-type: none"> <li>• A general guideline as provided in the Labour Management Procedures (LMP) on Occupational Health and Safety will be followed by the contractor in developing the OHS Plan.</li> <li>• In addition to EHS Plan the Contractor will develop Disaster Management Plan and Emergency Response System in line with the Disaster Management Policy of the State to deal with emergency situations, such as accidents, natural calamities, construction failure and submit them to the PIU for approval.</li> </ul>		
<b>B.</b>	<b>Construction Stage</b>			
B.1	<b>Personnel Protective Equipment (PPE)</b>	<ul style="list-style-type: none"> <li>• The Contractor will comply with the provisions of sub-project specific OHS Plan and all national, state and local core labor laws on working conditions and safety during construction.</li> <li>• The Contractor will provide adequate good quality Personal Protective Equipment (PPE) to all the workers working at construction zones and Plant sites and will ensure that these PPEs are used by workers including those of sub-contractor's workforce at all time during works. The list of PPEs as under: <ul style="list-style-type: none"> <li>- Full body protection clothing, protective footwear, hand gloves and goggles to workers employed handling cement concrete,</li> </ul> </li> </ul>	Contractor	PIU,PWD

<sup>5</sup> Reference: <http://www.ifc.org/wps/wcm/connect/554e8d80488658e4b76af76a6515bb18/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES> and <http://www.ifc.org/wps/wcm/connect/7e4c7f80488554d5b45cf66a6515bb18/Final%2B-%2BToll%2BRoads.pdf?MOD=AJPERES&id=1323162564158> ]

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>- Construction workers will be provided high visibility vests, Ear plugs to workers exposed to high noise levels, Hard hat or helmets to workers, where there is danger of falling objects from height,</li> <li>- Hand gloves, helmets, protective footwear/safety shoes, protective goggles, nose masks, high visibility vests etc. (as required) will be provided to the workers employed in construction works,</li> <li>- Safety belts will be used by workers while working at height,</li> <li>- Safety net around the girders/ under construction superstructure</li> </ul>		
B.2	<b>Work Site Safety</b>	<ul style="list-style-type: none"> <li>• The Contractor at all time will provide and maintain safe access and safe working conditions at the work site throughout the working period</li> <li>• The Contractor will provide hard barricading around the Work Zone.</li> <li>• All the equipments, machinery must be installed at rigid flat platform.</li> <li>• The lifting devices and working platform must be checked on daily basis for their stability.</li> <li>• The Contractor will secure all installations from unauthorized intrusion and accident risks;</li> <li>• The Contractor will arrange of potable drinking water at work site as well as at camps;</li> <li>• Provide clean eating areas where workers are not exposed to hazardous or noxious substances;</li> <li>• The Contractor will provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted;</li> </ul>	Contractor	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>• Ensure moving equipment is outfitted with audible back-up alarms;</li> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate;</li> <li>• Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively;</li> <li>• Bridge construction will be carried out only during lean period and no construction activity will be carried out during monsoon period.</li> <li>• During the alert from the Metrological Department/ USDMA, the river side construction work should be suspended till the situation normalized.</li> <li>• All the construction material and machineries stacked near the river must be cleared during alert period to avoid any mishappening.</li> </ul>		
B.3	<b>Medical Facilities</b>	<ul style="list-style-type: none"> <li>• The medical insurance coverage for the workers should be provided by the Contractor.</li> <li>• Readily available First Aid Box with adequate first-aid items the shall be kept at the work place and camp site and the same will be maintained on day to day basis throughout the construction period.</li> <li>• The contractor will tie up with local health centre/doctor and ambulance for dealing with first aid issue, health check-up of workers and epidemic conditions.</li> <li>• The Contractor will maintain first-aid register at site</li> <li>• The emergency contact details of concern officer and medical officers/officers require to be made available at working sites and camp site.</li> </ul>	Contractor	PIU, PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>The Contractor will organize health check-up camp for workers on periodic basis (Quarterly).</li> </ul>		
B.4	<b>Training on OHS</b>	<ul style="list-style-type: none"> <li>The Contractor will develop training programme alongwith training schedule on OHS aspects for their Work force including those of Sub-contractor’s workers</li> <li>The Contractor will organize awareness program on occupational health and safety aspects on quarterly basis as per the training schedule. The training must be attended by 100% workforce of the Contractor.</li> <li>The Contractor will maintain training register indicating the training details, number of workers working, attendance sheet of the participants, photographs, etc.</li> <li>The Contractors EHS Expert will provide regular pep talks and tool box talk to the labourers on the type of risk specific to the planned activities for the day and safety requirements before start of work on day to day basis.</li> </ul>	Contractor	PIU,PWD & PMU
B.5	<b>OHS Committee and OHS Meetings</b>	<ul style="list-style-type: none"> <li>The Contractor will form OHS Committee for dealing with OHS aspects of the projects during construction and maintenance period.</li> <li>The Committee will conduct monthly meetings of OHS and will discuss and analyse the type of safety incidences reported/recorded, safety instructions from the Engineer’s representative/PIU/PMU and prepare necessary corrective measures for ensuring the effectiveness of the implementation of OHS measured.</li> <li>The Contractor will maintain register &amp; Recorf of OHS Committee Meetings and submit to th PIU for review.</li> </ul>	Contractor	PIU, PWD & PMU

**C. SOCIAL MANAGEMENT PLAN**

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
<b>A.</b>	<b>Design &amp; Pre-Construction Stage</b>			
A.1	<b>Acquisition of Land and Properties</b>	<ul style="list-style-type: none"> <li>• The acquisition of land and private properties will be carried out in accordance with the Project's RPF and entitlement framework for the project.</li> <li>• Early identification of the project affected persons and advance planning of Resettlement Action Plan (RAP) will be ensured to compensate the losses.</li> <li>• All the affected people will be compensated as per RPF of the Project before commencement of construction works</li> <li>• No construction activities will be started prior to disbursement of compensation and necessary assistance as applicable to the affected persons.</li> </ul>	PIU, PWD through Competent Authority	PMU
A.2	<b>Appointment of Contractor's Social cum Labour Specialist</b>	<p>The Contractor will appoint Social cum Labour Specialist who will look after the social and labour issues of the sub-project during construction and maintenance period.</p> <p>He will be responsible for:</p> <ul style="list-style-type: none"> <li>- Implementation of social risk management including labour management and monitoring of performance indicators of social mitigation measures</li> <li>- Maintenance of records on implementation of social management plan</li> <li>- Organizing trainings on social issues and maintenance of record of trainings on social issues</li> <li>- Provide inputs in preparation of periodical Environmental and Social compliance reports</li> <li>- Management of workers' and construction related grievances at the site</li> <li>- Report on progress and shortcomings of the measures implemented to the project manager and social officer of PIU/PMU</li> </ul>	Contractor	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
A.3	<b>PC-1 Joint Inspection of Site and Awareness Creation among local public</b>	<ul style="list-style-type: none"> <li>The contractor will carry out site inspection along with PIU Representative for construction site, establishment of camp and other allied sites and assessment of any public inconvenience due to anticipated hindrance due to project activities.</li> <li>Contractor will conduct consultation with the local public to make them aware about the construction related risks and hazards, their schedule of work, blockage of access route, if any and alternative access arrangements.</li> </ul>	Contractor	PIU, PWD
A.4	<b>Establishment of Construction Workers Camp</b>	<ul style="list-style-type: none"> <li>The location of construction camp to be identified by the Contractor.</li> <li>No construction camp, labour camp, plant sites, stock yards will be established within the forest area.</li> <li>The camp and other allied sites must be sited sufficiently away from features like settlement, forest area and surface water bodies, and local habitation preferably located on lands, which are not productive (barren/waste lands/non-agriculture land) to avoid conflicts and stress over such type of features and the infrastructure facilities with the local community.</li> <li>Fencing of construction camp needs to be provided prior to commencement of work</li> <li>The Contractor will submit the legal agreement/ written Consent letter from the owner of the land or houses for using for specific purpose along with its rehabilitation plan as agreed by the owner.</li> <li>The Camp site will be provided with all the necessary facilities as per norms.</li> <li>All permits, licences and clearances relevant for establishment of camp sites will be obtained.</li> </ul>	Contractor	PIU,PWD
A.5	<b>Engagement of Labours: Employment Conditions</b>	<ul style="list-style-type: none"> <li>The Contractor will implement the Labour Management Procedures for the hiring of project workers including sub-contractor's workers.</li> <li>The Contractor will conform to national and state laws in relation to hiring and employment; and will comply with the principle of equal opportunity, fair treatment, and non-discrimination with respect to the employment relationship, gender, cast, races, etc.</li> </ul>	Contractor	PIU, PWD



Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
		<ul style="list-style-type: none"> <li>• The Contractor has to obtain necessary Labour license prior to engaging labourers and commencement of work and comply all the conditions stipulated in the license. The copy of labour license will be submitted to the Engineer/ Employer.</li> <li>• The contractor has to obtain Workmen Insurance to ensure the safety of his workers and the copy of insurance will be submitted to the employer.</li> <li>• The Primary Contractor will be responsible for compliance of all the labour regulations including those of sub-contractor’s labours.</li> <li>• Use of child labour and forced labour will be strictly prohibited.</li> <li>• The contractor has to ensure minimum wages, weekly off, quarterly fitness certificate and daily attendance of the labor and staff.</li> <li>• The contractor will organize quarterly training for the labor and staff to ensure their capacity building on their rights and labor laws, health and safety, SEA/SH and on gender sensitization.</li> <li>• The Contractor will ensure that all workers sign and abide by the workers’ code of conduct.</li> <li>• The Contractor will formulate GRM for receiving the Labour Grievances and regularly interact with the labourers to address their issues and maintain the record of the same</li> </ul>		
<b>B.</b>	<b>Construction Stage</b>			
B.1	<b>Labour Camp Management and Labour Welfare</b>	<ul style="list-style-type: none"> <li>• At labour camp, the contractor shall provide all the necessary basic facilities such as well ventilated accommodations, beds, safe drinking water supply, toilet &amp; bathroom units, lighting arrangements, cooking facilities, provision of waste collection (dust bins), drainage network, first-aid facilities, etc as per the Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 as</li> </ul>	Contractor	PIU,PWD & PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
		<p>well as the guidelines of IFC and EBRD<sup>6</sup> for construction and maintenance of labour camp throughout the construction period.</p> <ul style="list-style-type: none"> <li>• In case any female members are staying in the camp, separate toilet and bathing facilities including creche will be provided for them as per norms</li> <li>• The Contractor will always maintain these facilities functional and in hygienic manner.</li> <li>• The Contractor will ensure proper health-check-ups of all labours employed at the project site;</li> <li>• Adequate First-Aid box shall be provided at work sites, facilitating healthcare services and medical care in case of sickness.</li> <li>• One permanent helper to be engaged at worksite to maintain hygiene by daily cleaning of toilets</li> <li>• No child labour below 18 years of age or forced labour will be engaged for any kind of construction works in the project.</li> <li>• Contractor will maintain a labour/attendance/wage register with name, age and sex with supporting document (preferably copy of Aadhaar card or voter's ID card). This will be monitored by Environmental and Social officials of contractor and PIU, PWD</li> <li>• Contractor will adopt PMU's monitoring systems for periodic or incident-based reporting.</li> <li>• In case the Contractor hires accommodation in rented house for the workers, the Contractor will take written</li> </ul>		

6 [http://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/publications\\_gpn\\_workersaccommodation](http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/publications_gpn_workersaccommodation)

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
		<p>rent agreement with the house owner of each such building and submit the same to the PIU.</p> <ul style="list-style-type: none"> <li>The Contractor will prepare a code of conduct for the labours living in the camp/rented houses and all the workers will strictly adhere to the Code of Conduct.</li> <li>The Contractor regularly monitor the camp sites for ensuring the compliances to the campsite management as well as the Code of Conduct by the Contractor</li> </ul>		
B.2	<b>Community Health and Safety</b>	<ul style="list-style-type: none"> <li>The project will comply with the requirements of the <i>EHS Guidelines of the World Bank Group, including Good Practice Notes on Addressing Sexual Exploitation and Abuse and Sexual Harassment and Managing Risks of Adverse Impacts on Communities from Project-Related Labor Influx.</i></li> <li>The Contractor shall provide caution and safety signboards with retroreflective paints at construction sites especially near habitation and schools. All the safety signboards will be maintained and night visibility of the site will be ensured throughout the construction period.</li> <li>The Contractor will provide hard barricading around the construction zone</li> <li>In case of any school of temple and other sensitive locations, the construction activities area will be delineated through hard barricading of GI sheets with a height of 3 m.</li> <li>The contractor must ensure that during the construction of Bridges and approach roads the construction materials and equipments area stored at a location in such a manner that they do not block the normal routes for road users or create any risks to the road users.</li> </ul>	Contractor	PIU,PWD & PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
		<ul style="list-style-type: none"> <li>• The contractor at all time will provide safe access to the public for to and from movement till the original condition get restored.</li> <li>• Leave spaces for access between mounds of soil;</li> <li>• Consult businesses and institutions regarding operating hours and factoring this in work schedules</li> <li>• Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.</li> <li>• No material should be stocked close to these areas; material shall be brought to the site as and when required;</li> <li>• In the builtup areas, where construction activities are in close proximity to the buildings, the Contractor will undertake excavation and construction works in such a way that no structural damage is caused to the building. In case of damage to any structure during construction, the Contractor will restore the features at their own cost immediately after occurrence of such impact.</li> <li>• An Emergency Response system in case of any incidence will be developed and implemented.</li> <li>• A public grievance system shall be followed in order to record the public complaints regarding to Health &amp; Safety and Addressal of the same within agreed timeline. A signboard indicating the Contact details for registering complaints to be displayed at the site.</li> </ul>		

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
B.3	Impacts on Cultural Properties	<ul style="list-style-type: none"> <li>• All necessary and adequate care shall be taken to minimize impact on cultural properties which includes cultural sites and remains, religious places, monuments and any other important structures as identified during construction stage.</li> <li>• Relocation and enhancement measures shall be taken up as per design and in consultation with local community.</li> <li>• Safe access to such properties from the road shall be maintained clear and clean.</li> <li>• Adjacent to important religious sites, undertake excavation and construction works in such a way that no structural damage is caused to the building. In case of damage to any structure during construction, the Contractor will restore the features at their own cost immediately after occurrence of such impact.</li> </ul>	Contractor	PIU, PWD
B.4	Chance Find of Archaeological Assets and artefacts	<ul style="list-style-type: none"> <li>• All the archaeological assets and artefacts such as ancient coins, ruins, archaeological deposits etc. are the property of government and immediately to be reported to the concerned authority in case of finding of such features to the competent authority.</li> <li>• Create awareness among the workers and supervisors about the chance finds during excavation work;</li> <li>• Stop work immediately if any finds are suspected to allow further investigation;</li> <li>• Inform archaeological agencies promptly if a find is suspected, and take any action they require to ensure its removal or protection in site; and</li> <li>• Adjacent to important religious sites, undertake excavation and construction work in such a way that no structural damage is caused to the building.</li> </ul>	Contractor	PIU, PWD & Archaeological Department

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
B.5	Prevention of spread of HIV/AIDs and other STDs	<ul style="list-style-type: none"> <li>• The Contractor will organize medical tests for workers on regular basis.</li> <li>• Time to time HIV/AIDS awareness training/programme will be organized by the Environmental &amp; Safety Officers of the contractor.</li> </ul>	Contractor	PIU, PWD and PMU,
B.6	GBV & SEA/SH Prevention and Response	<ul style="list-style-type: none"> <li>• Contractor will prepare and implement measures to address the risk of gender-based violence that include (i) mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women; (ii) informing workers about national and state laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted; (iii) introducing a Workers' Code of Conduct as part of the employment contract, and including sanctions for non-compliance (e.g., termination), and (iv) cooperating with law enforcement agencies in investigating complaints about SEA/SH and gender-based violence.</li> <li>• Code of Conduct will be signed by all the labourers working on the project. Do's and Don'ts related to SEA/SH is part of daily tool box talk and displayed at sites so as to avoid any risk of SEA/SH.</li> <li>• The Contractor will establish and build awareness among workers on Internal Complaints Committee (ICC) as mandated by the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013</li> <li>• Identify and map GBV service providers in the vicinity to establish referral mechanism.</li> </ul>	Contractor	PIU, PWD and PMU
B.7	Awareness training on Social Issues	<ul style="list-style-type: none"> <li>• The Contractor will organise trainings on the following social issues on quarterly basis:               <ol style="list-style-type: none"> <li>(i) HIV/AIDS awareness Training</li> <li>(ii) SEA/SH and GBV prevention and response</li> <li>(iii) COVID 19 and other communicable diseases</li> <li>(iv) Workers' code of conduct</li> </ol> </li> </ul>	Contractor through Govt. approved agency / service provider	PIU, PWD & PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
		(v) Labour Laws including Grievance Redressal Mechanism for Labours <ul style="list-style-type: none"> <li>• The Contractor will ensure that all the workforce participate in the awareness training</li> <li>• Record of all the trainings will be maintained and will be included in the progress reports on Environmental and Social Compliances</li> </ul>		

**Annexure 8: Generic Environmental and Social Management Plan for Slope Protection Works**

**A. ENVIRONMENTAL MANAGEMENT PLAN:**

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
<b>A.</b>	<b>Design Stage</b>			
A.1	Transect walk for identification of environmental issues	<ul style="list-style-type: none"> <li>• Before designing the slope protection measures proper Transect walk should be carried by involving local people to understand the local slope stability issues and the extent of required protection</li> </ul>	DPR Consultant	PIU, PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		measures		
A.2	Retaining and breast walls	<ul style="list-style-type: none"> <li>• Slope Protection measures will be designed with appropriate length and height of breastwalls, retaining walls on both hilly and valley slopes. Generally gabion walls will be proposed after the geotechnical investigation</li> <li>• Additional protection measures such as bio-engineering and other measures covering the entire susceptible area will be proposed in design</li> <li>• In case the builtup are is located along the proposed slope protection areas, an assessment of vulnerability of the buildings to the landslide and due to construction activities will be carried out and accordingly appropriate protection/mitigation measures will be provided in the design.</li> </ul>	DPR Consultant	PIU, PWD
A.3	Waterways	<ul style="list-style-type: none"> <li>• Water ways must be considered in the designing the slope protection.</li> <li>• The CD structures with catchwater drains of appropriate size considering the local hydrology to be integrated with the sub-project design</li> </ul>	DPR Consultant	PIU, PWD
A.5	Forest Clearance	<ul style="list-style-type: none"> <li>• In case the sub-project require acquisition of forest land for accommodating the proposed protection works forest clearance would be obtained by the PIU prior to commencement of the construction.</li> <li>• No construction activities will be undertaken till Forest Clearance is obtained.</li> </ul>	PIU, PWD	PMU, PWD



Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
A.6	Tree Cutting Permission	<ul style="list-style-type: none"> <li>All efforts shall be taken to avoid tree cutting wherever possible.</li> <li>Requisite permission from Forest Departments shall be obtained for cutting of trees.</li> <li>In case of cutting of private trees the owner of the tree to be suitably compensated prior to tree felling.</li> <li>Provision of Compensatory Afforestation shall be made as per the conditions of the Forest Clearance</li> </ul>	PIU, PWD	PMU, PWD
A.7	Shifting of utilities and common property resources	<ul style="list-style-type: none"> <li>In case utilities fall the proposed slope protection area, shifting of utilities would be required.</li> <li>The PIU will obtain necessary permission for shifting of utilities from line department. The line department will prepare shifting plan in consultation with the PIU/Contractor's work schedule and will shift the utilities at the cost of project.</li> <li>Prior intimation to the local public in the area where shifting is scheduled will be ensured well in advance by the line department and PIU.</li> <li>In general practice, the cost for utility shifting is borne by the project owner i.e. PIU, PWD and the shifting activity is taken by the line department. Making alternate arrangement for ensuring uninterrupted service is prime responsibility of line department.</li> <li>Alternate arrangement will be made by the line department.</li> <li>All the utilities will be restored in advance prior to the start of construction works. The required mitigation measures would be to instruct in advance the relevant owners of these utilities to shift</li> </ul>	PIU, PWD through line Department	PIU, PWD & PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		those before construction starts to avoid disruption of local services		
<b>B.</b>	<b>Pre-construction Stage</b>			
B.1	Appointment of Environment, Health & Safety (EHS) Officer	<ul style="list-style-type: none"> <li>The contractor shall appoint qualified and experienced Environment Health &amp; Safety (EHS) Officer having appropriate qualification and experience in EHS implementation in similar construction projects.</li> <li>The EHS Officer will dedicatedly work and ensure implementation of EMP including occupational health and safety issues at the camp, plant and construction work sites and prepare the record and reports on EMP and OHS Compliances in the sub-project</li> </ul>	Contractor	PIU,PWD
B.2	Contractor's C-ESMP	<ul style="list-style-type: none"> <li>The Contractor will along with their work plan develop site specific Contractor's Environmental Management Plan (C-ESMP) to cover all the environmental safeguard measures as per Contract's specifications, statutory requirements and environmental safeguard measures set-forth in the EMP of EIA report. The C-ESMP should contain but not limited to the following aspects: <ul style="list-style-type: none"> <li>– Statutory clearances and permits</li> <li>– Institutional arrangements for implementation of environmental mitigation measures and safety measures</li> <li>– Pollution Control Measures (Air, water, noise and soil) at different activity areas</li> <li>– Environmental Management at stocyards</li> <li>– Environmental Management at Plant site (Batching Plant, Hot mix plant etc.)</li> <li>– Environmental Management at Camp Site</li> <li>– Site specific OHS Plan</li> <li>– Emergency response system</li> <li>– Waste Management Plan (Solid Waste, Waste water C&amp;D waste including disposal plan)</li> <li>– Construction water management</li> </ul> </li> </ul>	Contractor	PIU,PWD and PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>- Traffic Management Plan including diversion plan</li> <li>- Community Health and Safety Plan</li> <li>- Inspection checklists on various aspects of ESMPs</li> <li>- Environmental and Social Monitoring Schedule</li> <li>- Training schedule on EHS, HIV/AIDS awareness, SEA/SH&amp;GBV and COVID-19 awareness among contractor's workforce</li> <li>• Any other aspects as directed by the Engineer</li> </ul>		
B.3	Regulatory Permits/Licenses	<ul style="list-style-type: none"> <li>• The Contractor will obtain all necessary statutory licenses and permits related to environmental safeguards such as                             <ul style="list-style-type: none"> <li>- Labour License,</li> <li>- NOC for establishing and operating, Batching Plant,</li> <li>- Authorization for storing spent oils</li> <li>- Environmental Clearance and Mining lease for self operating stone quarry</li> <li>- NOC from Ground Water Authority for establishment of borewell for abstraction of ground water for construction and camp site</li> <li>- PUC for all the construction vehicles</li> <li>- Any other applicable license and permits as per prevailing rules related to environmental safeguards</li> </ul> </li> <li>• The Contractor, at all time, will comply with the conditions stipulated under the licenses and permits.</li> <li>• From time to time the Contractor will renew the validity of the licenses and permits.</li> <li>• The Contractor will submit all the statutory permits &amp; licenses to the PIU/ prior to commencement of activities.</li> <li>• In case construction materials are procured from third party, contractor will collect copy of regulatory permission and submit to PIU.</li> </ul>	Contractor	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
B.4	Clearing of vegetation and removing trees	<ul style="list-style-type: none"> <li>All efforts shall be taken to avoid tree cutting wherever possible.</li> <li>Requisite permission from Forest Departments shall be obtained for cutting of trees.</li> <li>In case of cutting of private trees the owner of the tree to be suitably compensated prior to tree felling.</li> <li>Provision of Compensatory Afforestation shall be made on 1:10 ratio basis.</li> </ul>	Contractor	PIU, PWD
B.5	Establishment of construction camp and construction materials storage area	<ul style="list-style-type: none"> <li>Construction camp sites shall be located away from any local human settlements and preferably located on lands, which are not productive (barren/waste lands presently).</li> <li>No construction camps, stockyard or establishment of construction equipment will be on the slope areas susceptible to land slide.</li> <li>Similarly temporary construction materials storage area shall be located away from human settlement areas and forested areas (minimum 0.5 km).</li> <li>The construction camps and materials storage areas shall have provision of adequate water supply, sanitation and all requisite infrastructure facilities.</li> <li>The construction camps and materials storage areas shall have provision of septic tank followed by soak pit of adequate capacity so that it can function properly for the entire duration of its use.</li> <li>An emergency plan shall be prepared to fight with any emergency like fire, COVID-19, flood, etc.</li> <li>Provision of hard surface area for storage of fuel oil, lubricant oil, away from storm water drainage.</li> </ul>	Contractor	PIU/PWD
B.6	Traffic Management and Road Safety	<ul style="list-style-type: none"> <li>Identify the areas where temporary traffic diversion (for Bridges and approach roads) may be required.</li> </ul>	DPR Consultant	PIU, PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>• Prepare appropriate traffic movement plan approved by respective PIU for ensuring continued safe flow of traffic, pedestrians and all road users during construction.</li> <li>• Guidelines on Safety in Road Construction Zones of IRC SP 55 :2014 will be followed while opening of construction zones and traffic diversions. Adequate signboards shall be placed much ahead of diversion site to caution the road users.</li> </ul>		
<b>C.</b>	<b>Construction Stage</b>			
C.1.	Display of project Information Board	<ul style="list-style-type: none"> <li>• The Contractor will install Project Information Board with important Contact number displaying prominently at both end of project</li> </ul>	Contractor	PIU,PWD and PMU
C.2	Sourcing and Transportation of Construction Materials (Borrow Earth and Aggregate)	<p><b>Borrow Earth:</b></p> <ul style="list-style-type: none"> <li>• Borrowing of earth shall not be carried from ROW in any circumstances.</li> <li>• The excavated and cutting materials generated during excavation and site preparation for approach roads will be reused for construction depending upon the suitability of the materials</li> <li>• The PIU will review and clear the borrow areas proposed by the contractor</li> <li>• The borrow earth shall be obtained from identified legal and approved locations and with prior permission of landowner and clear understanding for its rehabilitation.</li> <li>• The Indian Road Congress (IRC):36-2010 guideline should be used for selection of borrow pits and amount that can be borrowed.</li> <li>• Borrow area on slopy land vulnerable to landslide and erosion will not be operated</li> <li>• A 15 cm topsoil will be stripped off from the borrow pit and this</li> </ul>	Contractor	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<p>will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal).</p> <ul style="list-style-type: none"> <li>• The depth of borrow pits will not be more than 30 cm after stripping the 15 cm topsoil aside.</li> <li>• The top soil will be reused for redevelopment of the borrow area or for landscaping.</li> </ul> <p><b>Aggregate:</b></p> <ul style="list-style-type: none"> <li>• The stone aggregate shall be sourced from existing licensed quarries only.</li> <li>• Copies of consent environmental clearance for stone quarries for the existing third-party sources will be submitted to PIU.</li> </ul> <p><b>Transportation of Construction Materials:</b></p> <ul style="list-style-type: none"> <li>• Existing roads are to be used for hauling of materials to the extent possible.</li> <li>• The vehicles deployed for material transportation shall be spillage proof to avoid or minimize the spillage of the material during transportation.</li> <li>• Construction materials shall be transported by covering through tarpaulin.</li> </ul>		
C.4	Drainage	<ul style="list-style-type: none"> <li>• Cross drainage structures shall be constructed based on hydrological study, and discharge capacities of drainage structures shall be designed to facilitate smooth passage of water and heading up or flooding is avoided even in rainy season.</li> </ul>	Contractor	PIU, PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
C.5	Compaction and Contamination of Soil	<ul style="list-style-type: none"> <li>To prevent soil compaction in the adjoining productive lands beyond the ROW, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route.</li> <li>The productive land shall be reclaimed after construction activity.</li> <li>Fuel and lubricants shall be stored at the predefined storage locations only.</li> <li>The construction materials storage area shall be paved with gentle slope to a corner and connected with a chamber to collect any spills of the oils.</li> <li>All efforts shall be made to minimise the waste generation. Unavoidable wastes shall be stored at the designated place prior to disposal.</li> <li>To avoid soil contamination at the wash-down and re-fuelling areas, "oil interceptors" shall be provided. Oil and grease spill and oil-soaked materials are to be collected and stored in labelled containers (Labelled: USED OIL; and hazardous sign be displayed) and disposed off to authorized used oil recyclers approved by the state Pollution Control Board.</li> </ul>	PIU,PWD	PIU,PWD
C.6	Construction Debris and Wastes	<ul style="list-style-type: none"> <li>Construction and demolition wastes generated from dismantling of old culverts and bridge remains shall be disposed off as per Construction and Demolition Waste Management Rule 2016.</li> <li>The bituminous wastes shall be disposed in secure manner at designated landfill sites only in an environmentally accepted manner.</li> </ul>	Contractor	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
C.7	Air and Noise Quality	<ul style="list-style-type: none"> <li>• Vehicles delivering loose and fine materials like sand and aggregates shall be covered.</li> <li>• Dust suppression measures like water sprinkling, shall be applied in all dust prone locations such as earthworks, stockpiles, etc.</li> <li>• DG set will be provided a chimney with vertical opening having adequate height as per CPCB guidelines (Height of stack in meter = Height of the building + 0.2 <math>\sqrt{\text{KVA}}</math>).</li> <li>• Construction materials storage areas shall also be located downwind of the habitation area.</li> <li>• Only acoustic enclosure fitted DG sets shall be used (if required).</li> <li>• All the vehicles engaged for construction activities will have valid Pollution Under Control Certificate (PUC).</li> <li>• Regular maintenance of machinery and equipment will be carried and vehicular pollution check should be made mandatory.</li> <li>• Engine will be switched-off when not in use to save fuel, prevent accidents and unnecessary noise and air pollution.</li> <li>• All vehicles and equipment used in construction work will be fitted with muffler or silencers.</li> <li>• Servicing of construction vehicles and machinery will be done regularly and during routine servicing operations, the effectiveness of exhaust silencers will be checked and if found defective, these shall be replaced.</li> <li>• The plants and equipment used in construction (including those of sub- Contractors) shall strictly conform to the MoEF&amp;CC/CPCB noise standards and shall have latest noise suppression mountings.</li> </ul>	Contractor	PIU, PWD



Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
C.8	Water for Construction Activities	<ul style="list-style-type: none"> <li>• The Contractor shall arrange for water required during construction in such a way that the water availability and supply to nearby communities remains unaffected.</li> <li>• Requisite permissions need to be obtained before using water from the Competent Authority</li> <li>• Preventive measures like slope stabilization, etc shall be taken for prevention of siltation in water bodies.</li> </ul>	Contractor	PIU,PWD
C.9	Water Contamination	<ul style="list-style-type: none"> <li>• Excavation will not be scheduled during rains, so that there is no impact on drainage and surface water quality is envisaged.</li> <li>• Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets</li> <li>• Provide temporary bunds for stockpiles and materials</li> <li>• Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies</li> <li>• Littering or unauthorized discharge will not be permitted.</li> <li>• Permission of the engineer and the concerned regulatory authorities will be obtained for disposal of the waste as the designated disposal point.</li> <li>• The stream course and drain will be kept free from dumping of solid wastes and earth materials.</li> <li>• The construction materials and debris will be stored away from water bodies or water ways and only at the designated sites along the construction zones.</li> <li>• Conduct surface quality inspection and monitoring</li> </ul>	Contractor	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
C.10	Biodiversity Conservation and Management	<ul style="list-style-type: none"> <li>• The preparation of slope for providing the the slope protection measures will be carried out in such a manner so that there is least disturbance to the vegetation on the slope.</li> <li>• The scheduling of the construction works will be done with least interference with the forest area. The Contractor will take appropriate measures to avoid/minimize the risk of slope failure.</li> <li>• The project staff and workforce will be appropriately made aware about the importance of biodiversity and shall be advised not to indulge in any illegal activity including hunting of wildlife.</li> <li>• Construction materials as well as debris will not be stacked around trees and forest area and on the slope.</li> <li>• No Campsite or any other allied site will be established within 0.5 Km of the forest area.</li> <li>• Contractor will take all precautions to avoid damage to the forest including forest fire during construction and transportation of material through forest area</li> <li>• The Contractor shall ensure that there is no disruption or damage to the wild animals due to his activities or by his persons.</li> <li>• It will be responsibility of the Contractor to ensure that there is no illegal poaching of wild animals around the area of activities by his staff, labours or sub-contractor’s personnel.</li> <li>• Construction vehicles will run along specified access to avoid accidents to cattle or wild animal</li> <li>• No dumping site will be identified in the protected areas and no waste dumping (eventemporary) will be permitted in these areas.</li> <li>• There will be no tree cutting/vegetation clearance other than in areas required for theProject.</li> </ul>	Contractor	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
	Traffic Safety	<ul style="list-style-type: none"> <li>• The road signs should be bold and retroreflective in nature for good visibility both during the day and night.</li> <li>• On daily basis after completion of works in the evening the construction and debris materials slipped over the road must be cleared and pushed towards the hill side away from the carriageway.</li> <li>• The construction materials and equipments will be kept along the road in such a manner so that the carriageway is not blocked.</li> <li>• Advance Warning and caution signboards to be installed at both the ends of activities with retroreflective tapes and maintained throughout the construction period.</li> <li>• Trained Flagmen will be deployed on both the end of the construction zones to guide and warn the traffic.</li> <li>• No nighttime construction will be allowed</li> <li>• No construction materials and equipments will be staked on the curves.</li> <li>• The area where the construction materials and equipments have been stacked along the road must be delineated with proper delineators and nighttime visibility of the site will always maintained throughout the construction period.</li> </ul>	Contractor	PIU,PWD
<b>D.</b>	<b>Post Construction and Maintenance Stage</b>			
D.1	Site clearance and restoration	<ul style="list-style-type: none"> <li>• The site will be cleaned immediately after the construction activity is over.</li> <li>• The debris materials will be disposed off in environmentally acceptable manner only at identified area for disposal and the disposal site to be levelled properly after completion of the debris disposal activities.</li> </ul>	Contractor	PIU, PWD and PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>• Side casting of rock boulders and debris will not be allowed on the valley side.</li> <li>• The Contractor will dispose all the debris materials and construction wastes to designated disposal site</li> <li>• All construction camp/temporary office/materials storage areas are to be restored to its original or better conditions</li> <li>• The borrow areas rehabilitation will be ensured as per the agreed plan with the landowner.</li> <li>• All the vents of cross water drainage and water way to be cleared from debris materials</li> <li>• Completion Certificate will be issued only after completing the post construction environmental and social compliances</li> </ul>		
D.2	Drainage	<ul style="list-style-type: none"> <li>• Regular removal/cleaning of deposited silt shall be done from drainage channels, road drains &amp; outlet points and culverts before the monsoon season.</li> <li>• Rejuvenation of the drainage system by removing encroachments/ congestions shall be regularly conducted.</li> </ul>	Contractor	PIU, PWD and PMU

**B. OCCUPATIONAL HEALTH AND SAFETY PLAN:**

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
<b>A. Design and Pre-Construction Stage</b>				
A.1	<b>Contractor's OHS Plan and Emergency Response System</b>	<ul style="list-style-type: none"> <li>• The Contractor will Develop site-specific and job-specific Occupational Health and Safety (OHS) Plan which will cover the following aspects but not limited to:                             <ul style="list-style-type: none"> <li>- Site and Activity specific Hazard identification</li> <li>- Identification of PPE requirements</li> <li>- Work zone safety Plan including Safety during excavation, concreting, etc., operation of Heavy Plant &amp; Machinery; safety during Material handling, safety plan for lifting devices, fire, electrical and mechanical safety, vehicular safety</li> <li>- Measures against slip, trips and fall</li> <li>- Medical facilities including first aid arrangements</li> <li>- Institutional arrangement for implementation of safety measures including safety committee</li> <li>- H&amp;S safety training programme including training schedule</li> <li>- Incidence reporting system and Safety Checklists</li> </ul> </li> <li>• The Contractor will comply with the requirements of the Environmental, Health, and Safety (EHS), Guidelines of the World Bank Group, 2007<sup>7</sup> and all national, state and local core labor laws during preparation of OHS Plan and implement the same.</li> <li>• A general guideline as provided in the Labour Management Procedures (LMP) on Occupational Health and Safety will be followed by the contractor in developing the OHS Plan.</li> </ul>	Contractor	PIU,PWD & PMU

<sup>7</sup> Reference: <http://www.ifc.org/wps/wcm/connect/554e8d80488658e4b76af76a6515bb18/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES> and <http://www.ifc.org/wps/wcm/connect/7e4c7f80488554d5b45cf66a6515bb18/Final%2B-%2BToll%2BRoads.pdf?MOD=AJPERES&id=1323162564158> ]

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>In addition to EHS Plan the Contractor will develop Disaster Management Plan and Emergency Response System in line with the Disaster Management Policy of the State to deal with emergency situations, such as accidents, natural calamities, construction failure and submit them to the PIU for approval.</li> </ul>		
<b>B.</b>	<b>Construction Stage</b>			
B.1	<b>Personnel Protective Equipment (PPE)</b>	<ul style="list-style-type: none"> <li>The Contractor will comply with the provisions of sub-project specific OHS Plan and all national, state and local core labor laws on working conditions and safety during construction.</li> <li>The Contractor will provide adequate good quality Personal Protective Equipment (PPE) to all the workers working at construction zones and Plant sites and will ensure that these PPEs are used by workers including those of sub-contractor's workforce at all time during works. The list of PPEs as under:                             <ul style="list-style-type: none"> <li>– Full body protection clothing, protective footwear, hand gloves and goggles to workers employed handling cement concrete,</li> <li>– Construction workers will be provided high visibility vests, Ear plugs to workers exposed to high noise levels, Hard hat or helmets to workers, where there is danger of falling objects from height,</li> <li>– Hand gloves, helmets, protective footwear/safety shoes, protective goggles, nose masks, high visibility vests etc. (as required) will be provided to the workers employed in construction works,</li> <li>– While working on slopes all the workers will use climbing safety belt, Climbing harnesses, anchors, belay device, carabiner</li> </ul> </li> </ul>	Contractor	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
B.2	<b>Work Site Safety</b>	<ul style="list-style-type: none"> <li>• The Contractor at all time will provide and maintain safe access and safe working conditions at the work site throughout the working period</li> <li>• The Contractor will provide hard barricading around the Work Zone.</li> <li>• All the equipments, machinery must be installed at rigid flat platform.</li> <li>• All the Heavy Machineries and equipments will be kept on stable flat rigid platform to avoid falling/slip of of machineries due to unstable slope. The platform will be daily checked for its stability.</li> <li>• The lifting devices and working platform must be checked on daily basis for their stability.</li> <li>• The Contractor will secure all installations from unauthorized intrusion and accident risks;</li> <li>• The Contractor will arrange of potable drinking water at work site as well as at camps;</li> <li>• Provide clean eating areas where workers are not exposed to hazardous or noxious substances;</li> <li>• The Contractor will provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted;</li> <li>• Ensure moving equipment is outfitted with audible back-up alarms;</li> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate;</li> </ul>	Contractor	PIU,PWD

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection.</li> <li>The construction works will be carried out only during lean period and no construction activity will be carried out during monsoon period.</li> <li>During the alert from the Metrological Department/ USDMA, the e construction work should be suspended till the situation normalized.</li> <li>All the equipments and machineries will be removed from the slope and protected away from construction zones, during the high rain alert from Meteorological department</li> <li>Before resuming the works, the slopes and the constructed structures will be checked for stability. Only after ensuring the stability of the area, construction activities will be resumed.</li> </ul>		
B.3	<b>Medical Facilities</b>	<ul style="list-style-type: none"> <li>The medical insurance coverage for the workers should be provided by the Contractor.</li> <li>Readily available First Aid Box with adequate first-aid items shall be kept at the work place and camp site and the same will be maintained on day to day basis throughout the construction period.</li> <li>The contractor will tie up with local health centre/doctor and ambulance for dealing with first aid issue, health check-up of workers and epidemic conditions.</li> <li>The Contractor will maintain first-aid register at siteThe emergency contact details of concern officer and medical officers/officers require to be made available at working sites and camp site.</li> <li>Designated vehicles, which can be used as ambulance during emergency, which will be available at construction sites as per requirement</li> <li>The Contractor will organize health check-up camp for workers on periodic basis (Quarterly).</li> </ul>	Contractor	PIU, PWD



Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
B.4	<b>Training on OHS</b>	<ul style="list-style-type: none"> <li>The Contractor will develop training programme alongwith training schedule on OHS aspects for their Work force including those of Sub-contractor's workers</li> <li>The Contractor will organize awareness program on occupational health and safety aspects on quarterly basis as per the training schedule. The training must be attended by 100% workforce of the Contractor.</li> <li>The Contractor will maintain training register indicating the training details, number of workers working, attendance sheet of the participants, photographs, etc.</li> <li>The Contractors EHS Officer will provide regular pep talks and tool box talk to the labourers on the type of risk specific to the planned activities for the day and safety requirements before start of work on day to day basis.</li> </ul>	Contractor	PIU,PWD & PMU
B.5	<b>OHS Committee and OHS Meetings</b>	<ul style="list-style-type: none"> <li>The Contractor will form OHS Committee for dealing with OHS aspects of the projects during construction and maintenance period.</li> <li>The Committee will conduct monthly meetings of OHS and will discuss and analyse the type of safety incidences reported/recorded, safety instructions from the Engineer's representative/PIU/PMU and prepare necessary corrective measures for ensuring the effectiveness of the implementation of OHS measured.</li> <li>The Contractor will maintain register &amp; Record of OHS Committee Meetings and submit to the PIU for review.</li> </ul>	Contractor	PIU,PWD & PMU

## Social Management Plan

Social component / Issues	Potential Impact	Mitigation Measures	Location	Time Frame	Institutional Responsibility	
					Implementation	Supervision
<b>PC- DESIGN AND PRE-CONSTRUCTION PHASE</b>						
<b>PC-1 Joint Inspection of Site and Awareness Creation among local public</b>	-	<ul style="list-style-type: none"> <li>The contractor will carry out site inspection along with PIU Representative for construction site, establishment of camp and other allied sites and assessment of any public inconvenience due to anticipated hindrance due to project activities.</li> <li>Contractor will conduct consultation with the local public to make them aware about the construction related risks and hazards, their schedule of work, blockage of access route, if any and alternative access arrangements.</li> </ul>	At project site	Pre-Construction Stage	Contractor	PIU, PWD
<b>PC-2 Establishment of Construction / Workers Camp</b>	<ul style="list-style-type: none"> <li>Conflicts with Local population</li> <li>Increased Accident Risk</li> </ul>	<ul style="list-style-type: none"> <li>The location of construction camp to be identified by the Contractor.</li> <li>No construction camp, labour camp, plant sites, stock yards will be established within the forest area.</li> <li>The camp and other allied sites must be sited sufficiently away from features like settlement, forest area and surface water bodies to avoid conflicts and stress over such type of features and the infrastructure facilities with the local community.</li> <li>Fencing of construction camp needs to be provided prior to commencement of work</li> <li>The Contractor will submit the legal agreement/ written Consent letter from the owner of the land or houses for using for specific purpose along with its rehabilitation plan as agreed by the owner.</li> <li>The Camp site will be provided with all the necessary facilities as per norms.</li> </ul>	At temporary camp site, temporary diversion and plant sites	Pre-Construction Stage and Post utilization of the land	Contractor	PIU, PWD
<b>C-2 LABOUR AND WORKING CONDITIONS</b>						
<b>C-2.1 Engagement of Labours: Employment Conditions</b>	Unclear Employment Conditions	<ul style="list-style-type: none"> <li>The Contractor will implement the Labour Management Procedures for the hiring of project workers including contractor's workers.</li> <li>The Contractor will conform to national law in relation to hiring and employment; and will comply with the principle of equal opportunity, fair treatment, and non-discrimination with respect to the employment relationship, gender, cast, races, etc.</li> <li>The Contractor has to obtain necessary Labour license and insurance prior to engaging labourers and commencement of work and comply all the conditions stipulated in the license.</li> </ul>	At Project Site	Pre-Construction stage during team mobilisation	Contractor	PIU, PWD

Social component / Issues	Potential Impact	Mitigation Measures	Location	Time Frame	Institutional Responsibility	
					Implementation	Supervision
		<ul style="list-style-type: none"> <li>The contractor has to obtain labour insurance/Workmen Insurance to ensure the safety of his workers and the copy of insurance will be submitted to the employer.</li> <li>The copy of labour license will be submitted to the Engineer/Employer.</li> <li>The Primary Contractor will be responsible for compliance of all the labour regulations including those of sub-contractor's labours.</li> <li>Use of child labour will be strictly prohibited.</li> <li>The contractor has to ensure minimum wages, weekly off, quarterly fitness certificate and daily attendance of the labor and staff.</li> <li>The contractor will organize quarterly training for the labor and staff to ensure their capacity building on their rights and labor laws, health and safety, SEA/SH and on gender sensitization. The Contractor will adopt the ICT tool for monitoring compliance of labour laws and to maintain the proper database of labors to be engaged in the construction period.</li> </ul>				
<b>C-2.2 Labour Camp Management</b>	<p>Labour Camp:</p> <ul style="list-style-type: none"> <li>Influx of migrant labour</li> <li>additional pressure on the local resources and social infrastructures</li> <li>Risk of social conflict</li> </ul>	<ul style="list-style-type: none"> <li>For migrant labourers the contractor will establish labour camps with all basic facilities sufficiently away from local habitation preferably located on lands, which are not productive (barren/waste lands presently)</li> <li>Contractor will follow all relevant provisions of the Building and the other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 as well as the guidelines of IFC and EBRD<sup>8</sup> for construction and maintenance of labour camp throughout the construction period.</li> <li>The Contractor will provide all the basic facilities at campsite including proper beds for workers, lighting, potable drinking water, toilet and bathing facilities separately for male and female workers, washing facilities, Sanitation and sewerage system, cooking facilities, security, waste collection and disposal facilities, medical facilities including first aid facilities etc. as per norms and always maintain these facilities functional and hygienic manner.</li> <li>The Contractor will Ensure proper health-check-ups of all labours employed at the project site;</li> <li>Adequate First-Aid box shall be provided at work sites Facilitating healthcare services and medical care in case of sickness.</li> </ul>	Construction Camp	Construction Phase	Contractor	PIU, PWD

<sup>8</sup> [http://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/publications\\_gpn\\_workersaccommodation](http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/publications_gpn_workersaccommodation)

Social component / Issues	Potential Impact	Mitigation Measures	Location	Time Frame	Institutional Responsibility	
					Implementation	Supervision
		<ul style="list-style-type: none"> <li>• Mobile toilet on wheels to be provided at worksite with minimum 2 units each of Toilet and Bathroom with proper water supply and drainage system, electric supply and safe access at work site locations</li> <li>• One permanent helper to be engaged at worksite to maintain hygiene by daily cleaning of mobile toilet and the mobile toilet will be maintained properly by repairing and Painting atleast every six month</li> <li>• No Child Labour will be engaged for any kind of construction works in the project. Employment of any person below 18 years of age will be strictly prohibited. Contractor will maintain a labour register with name, age and sex with supporting document (preferably copy of Aadhaar card or voter's ID card). This will be monitored by Environmental and Social office of contractor and PIU, PWD</li> </ul>				
	Issues of SEA/SH and GBV	<ul style="list-style-type: none"> <li>• Contractor will prepare and implement measures to address the risk of gender-based violence that include (i) mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women; (ii) informing workers about national laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted; (iii) introducing a Worker Code of Conduct as part of the employment contract, and including sanctions for non-compliance (e.g., termination), and (iv) contractors adopting a policy to cooperate with law enforcement agencies in investigating complaints about SEA/SH and gender-based violence.</li> <li>• Code of Conduct will be signed by all the labourers working on the project. Do's and Don'ts related to SEA/SH is part of daily tool box talk so as to avoid any risk of SEA/SH.</li> <li>• The Contractor will establish their own GRC for dealing with workers SEA/SH issues and sensitize the workers on such issues including the statutory regulations on this. Grievances related to SEA/SH will be addressed by project GRM. The social specialist of PMU will be trained to address issues related to SEA/SH</li> </ul>	Construction Camp	Construction Phase	Contractor	PIU, PWD
<b>C-3 COMMUNITY HEALTH &amp; SAFETY</b>						

Social component / Issues	Potential Impact	Mitigation Measures	Location	Time Frame	Institutional Responsibility	
					Implementation	Supervision
<b>C-3.1 Community Health &amp; Safety</b>	C-3.1.1 Accident Risks due to construction induced impact.	<ul style="list-style-type: none"> <li>The project will comply with the requirements of the EHS Guidelines of the World Bank Group, 2007<sup>9</sup>.</li> <li>Good Industry Practice Guideline of IFC shall be followed and all the workers will be trained accordingly</li> <li>Proper caution signage, barricading, delineators etc. will be installed at Construction zone and temporary diversions</li> <li>An Emergency Response system in case of any incidence will be developed and implemented</li> <li>A public grievance system shall be followed in order to record the public complaints regarding to Health &amp; Safety and Addressal of the same within agreed timeline.</li> </ul>	Project Site	Construction Phase	Contractor	PIU, PWD
	C-3.1.2 Obstructing the access of residents and customers to nearby shops due to construction induced impact.	<ul style="list-style-type: none"> <li>The contractor at all time will provide safe access to the public for to and fro movement till the original condition get restored.</li> <li>Leave spaces for access between mounds of soil;</li> <li>Consult businesses and institutions regarding operating hours and factoring this in work schedules; and</li> <li>Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.</li> <li>No material should be stocked close to these areas; material shall be brought to the site as and when required;</li> </ul>	Working sites	Construction Phase	Contractor	PMC/PIU, PWD
<b>C-3.2 STAKEHOLDER CONSULTATION</b>	Impact on local stakeholders due to construction activities	<ul style="list-style-type: none"> <li>Contractor will conduct consultation with the local public to make them aware about the construction related risks and hazards, their schedule of work, blockage of access route, if any and alternative access arrangements.</li> <li>The process of grievance redressal mechanism due to any problem related to project along with contact details of concerned person will be provided during consultation.</li> <li>Informatory sign board, about the project and GRM will be displayed at start and end of project site.</li> </ul>	Along the Project alignment	Before commencement of project site activities.	Jointly by Contractor and PIU	PIU/PMU, PWD
<b>C-4 CULTURAL HERITAGE</b>						
<b>C-4.2 Chance Find of Archaeological Assets and artefacts</b>	Risk of archaeological Chance finding	<ul style="list-style-type: none"> <li>All the archaeological assets and artefacts such as ancient coins, ruins, archaeological deposits etc. are the property of government and immediately to be reported to the concerned authority in case of finding of such features to the competent authority.</li> <li>Create awareness among the workers and supervisors about the chance finds during excavation work;</li> </ul>	Along the excavation area	During Construction Stage	Contractor in consultation with PMC/PIU PWD and Archaeological Department	PMC/PIU

<sup>9</sup> <https://www.ifc.org/wps/wcm/connect/29f5137d-6e17-4660-b1f9-02bf561935e5/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES&CVID=jOWim3p>

Social component / Issues	Potential Impact	Mitigation Measures	Location	Time Frame	Institutional Responsibility	
					Implementation	Supervision
		<ul style="list-style-type: none"> <li>Stop work immediately if any finds are suspected to allow further investigation;</li> <li>Inform archaeological agencies promptly if a find is suspected, and take any action they require to ensure its removal or protection in site; and</li> <li>Adjacent to important religious sites, undertake excavation and construction work in such a way that no structural damage is caused to the building.</li> </ul>				

### **Annexure 9: Generic Environmental and Social Management Plan SDRF building and Fire Stations**

#### **A. ENVIRONMENTAL MANAGEMENT PLAN**

Sr. No.	Environmental and Social Issues	Environmental and Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
<b>A.</b>	<b>Design Stage</b>			
A.1	Building orientation	<ul style="list-style-type: none"> <li>For construction of new SDRF Building, Fire Buildings Adopt the concept of passive solar design of buildings using architecture design approaches that minimize energy consumption in buildings by integrating conventional energy -efficient devices such as fans, lighting fixtures with the passive design elements such as building orientation, landscaping efficient building envelope, appropriate fenestration, increased day lighting design and thermal mass.</li> <li>The new buildings should be oriented optimally based on Sun-Path and engineering analysis to curtail excessive solar</li> </ul>	DPR Consultant	PIU

Sr. No.	Environmental and Social Issues	Environmental and Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		radiations.		
A.2	Energy Conservation Measures during design	<ul style="list-style-type: none"> <li>• Appropriate technologies and materials to be used to encourage reduction in carbon foot print.</li> <li>• Lighting should solar/LED in the buildings and outside areas.</li> <li>• Fly ash and fly ash bricks can be considered as building materials (if available) as per the provision of Fly Ash Notification 2009.</li> <li>• Recycled materials having low embodied energy be used up to possible extent.</li> <li>• Use of light coloured, reflective roofs having Solar Reflective Index (SRI) of 50% or more should be promoted.</li> </ul>	DPR Consultant	PIU
A.3	Green Belt/ Green Cover Building Premises	<ul style="list-style-type: none"> <li>• Provide minimum 1 tree for every 80 sqm of plot area. More trees should be planted if open space is available.</li> <li>• Native species of trees should be planted.</li> </ul>	DPR Consultant	PIU

Sr. No.	Environmental and Social Issues	Environmental and Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
A.5	Storm Water Management	<ul style="list-style-type: none"> <li>Storm water management should be ensured during design.</li> <li>Natural flow of existing storm water channel should not be altered or diverted for construction of new buildings.</li> <li>Storm water channel will be designed based National Building Code of India 2016.</li> <li>Stagnation of water and flooding within SDRF and Fires station premises will be avoided.</li> </ul>	DPR Consultant	PIU
A.6	Rain Water Harvesting	<ul style="list-style-type: none"> <li>Based on hydrogeological investigations, rainwater harvesting structures should be designed in each building as per CGWA guidelines.</li> </ul>	DPR Consultant	PIU
A.7	Permission of ground water withdrawal	<ul style="list-style-type: none"> <li>Permission of ground water withdrawal from Ground Water Authority will be obtained as per applicable regulations.</li> </ul>	DPR Consultant	PIU
A.8	Water treatment measures and quality of Potable Water	<ul style="list-style-type: none"> <li>Water treatment measures such as filtration, RO, etc should be provided in each proposed buildings.</li> <li>It should be ensured that water quality all the building premises meets Indian standards for drinking water (IS:10500-2012).</li> </ul>	DPR Consultant	PIU
A.9	Disposal of Sewage	<ul style="list-style-type: none"> <li>Properly designed septic tanks and soak pits will be constructed for treatment and disposal of sewage.</li> </ul>	DPR Consultant	PIU
<b>B.</b>	<b>Pre-Construction Stage By Contractor</b>			
B.1	Display of project Information Board	<ul style="list-style-type: none"> <li>Project Information Board with important phone number will be displayed prominently at the site.</li> </ul>	Contractor	PIU
B.2	Appointment of Environment, Health & Safety (EHS) Officer	<ul style="list-style-type: none"> <li>The contractor shall appoint qualified and experienced Environment Health &amp; Safety (EHS) Officer having appropriate qualification and experience in EHS implementation in similar construction projects.</li> <li>The EHS Officer will dedicatedly work and ensure implementation</li> </ul>	Contractor	PIU



Sr. No.	Environmental and Social Issues	Environmental and Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		of EMP including occupational health and safety issues at the camp, plant and construction work sites and prepare the record and reports on EMP and OHS Compliances in the sub-project		
B.3	Contractor's C-ESMP	<ul style="list-style-type: none"> <li>• The Contractor will along with their work plan develop site specific Contractor's Environmental Management Plan (C-ESMP) to cover all the environmental safeguard measures as per Contract's specifications, statutory requirements and environmental safeguard measures set-forth in the EMP of EIA report. The C-ESMP should contain but not limited to the following aspects: <ul style="list-style-type: none"> <li>– Statutory clearances and permits</li> <li>– Institutional arrangements for implementation of environmental mitigation measures and safety measures</li> <li>– Pollution Control Measures (Air, water, noise and soil) at different activity areas</li> <li>– Environmental Management at stocyards</li> <li>– Environmental Management at Batching Plant</li> <li>– Environmental and Social Management at Camp Site</li> <li>– Site specific OHS Plan</li> <li>– Emergency response system</li> <li>– Waste Management Plan (Solid Waste, Waste water, C&amp;D waste, Bio-medical waste including disposal plan)</li> <li>– Construction water management</li> <li>– Community Health and Safety Plan</li> <li>– Inspection checklists on various aspects of ESMPs</li> <li>– Environmental and Social Monitoring Schedule</li> <li>– Training schedule on EHS, HIV/AIDS awareness, SEA/SH&amp;GBV and COVID-19 awareness among contractor's workforce</li> </ul> </li> <li>• Any other aspects as directed by the Engineer</li> </ul>	Contractor	PIU
B.4	Regulatory Permits/Licenses	<ul style="list-style-type: none"> <li>• The Contractor will obtain all necessary statutory licenses and permits related to environmental safeguards such as</li> </ul>	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental and Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>- Labour License,</li> <li>- NOC for establishing and operatin Batching Plant,</li> <li>- Authorization for storing spent oils</li> <li>- NOC from Ground Water Authority for establishment of borewell for abstraction of ground water for construction and camp site</li> <li>- PUC for all the construction vehicles</li> <li>- Any other applicable license and permits as per prevailing rules related to environmental safeguards</li> <li>• The Contractor, at all time, will comply with the conditions stipulated under the licenses and permits.</li> <li>• From time to time the Contractor will renew the validity of the licenses and permits.</li> <li>• The Contractor will submit all the statutory permits &amp; licenses to the PIU/ prior to commencement of activities.</li> <li>• In the event of procuring, aggregate and sand from third party, the contractor shall ensure that these stone and sand quarries are legal and have valid clearances and submit the copy of license/permits to the PIU</li> </ul>		
<b>B.</b>	<b>Construction Stage</b>			
B.1	Barricading of construction zone	<ul style="list-style-type: none"> <li>• The Contractor will provide barricading of GI sheets around the periphery of the construction site.</li> <li>• Safety signboards will be installed around the project area</li> </ul>	Contractor	PIU
B.2	Top Soil from construction area	<ul style="list-style-type: none"> <li>• Top soil will be stripped before commencement of foundation works and excavation and will be preserved separately within the project premises and to be later used for landscaping.</li> </ul>	Contractor	PIU
B.3	Disposal of Surplus	<ul style="list-style-type: none"> <li>• Earth excavated at construction site will be used for filling at the</li> </ul>	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental and Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
	Earth	site. Surplus earth will be collected and transported to pre identified disposal area.		
B.4	Transportation of Construction Materials	<ul style="list-style-type: none"> <li>All vehicles delivering construction materials to the site shall be covered to avoid spillage of materials and air pollution.</li> <li>The unloading of construction materials at the construction sites will be limited to day time only to</li> <li>avoid accidents.</li> </ul>	Contractor	PIU
B.6	Other Construction Vehicles, Equipment and Machineries	<ul style="list-style-type: none"> <li>All vehicles, equipment and machinery to be procured for construction work will conform to the relevant Bureau of Indian Standard (BIS) norms/CPCB standards. The discharge standards promulgated under the Environment Protection Act, 1986 and Motor Vehicles Act, 2019 will be strictly adhered to.</li> <li>Acoustic enclosure fitted DG set will be used at the project site as per regulations.</li> <li>The contractor shall maintain records of Pollution Under Control (PUC) certificates for all vehicles used during the contract period, which will be produced to PIU for verification whenever required.</li> </ul>	Contractor	PIU
B.8	Noise Levels from Vehicles, Plant and Equipments	<ul style="list-style-type: none"> <li>The contractor will ensure the following:                             <ol style="list-style-type: none"> <li>All construction activities shall be restricted to day time hours only.</li> <li>The plants and equipment used in construction (including those of sub-Contractors) shall strictly conform to the MoEF&amp;CC/CPCB noise standards and shall have latest noise suppression mountings.</li> <li>All vehicles and equipment used in construction work will be fitted with muffler or silencers.</li> </ol> </li> </ul>	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental and Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>• Servicing of construction vehicles and machinery will be done regularly and during routine servicing operations, the effectiveness of exhaust silencers will be checked and if found defective, these shall be replaced.</li> <li>• Only acoustic enclosures fitted DG set will be allowed at the construction site and camp site.</li> </ul>		
B.9	Transportation of Construction Materials	<ul style="list-style-type: none"> <li>• All vehicles delivering construction materials to the site shall be covered to avoid spillage of materials and air pollution.</li> <li>• The unloading of construction materials at the construction sites will be limited to day time only to</li> <li>• avoid accidents.</li> <li>• Screens of hessian cloth, agro-net and such other barricading materials are to be erected around stock piling sites, so that generation of the dust in the vicinity of construction site can be minimised</li> <li>• to a great extent</li> </ul>	Contractor	PIU
	Paint and White Washing	<ul style="list-style-type: none"> <li>• Lead containing paints will not be used at the site.</li> <li>• Paint and solvents should be used with the lowest possible VOC content.</li> <li>• Oil based paints and paints containing metals should be avoided.</li> <li>• Keep all paint and solvent containers closed when not in use to minimize evaporation and prevent spills.</li> <li>• Limit use of thinner to the maximum extent possible.</li> <li>• Use cleaning solvent the maximum numbers of times before disposal.</li> </ul>	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental and Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
B.10	Water Conservation During Concrete Curing and Construction	<ul style="list-style-type: none"> <li>• Keeping in view the use of large quantities of water in curing, measures for reducing water demand during construction should be followed.</li> <li>• Curing water should be sprayed on concrete structures, free flow water should not be allowed for curing. After liberal curing on the first day, all concrete structures may be painted with curing chemical to save water.</li> <li>• Concrete structures should be covered with thick cloth /gunny bags and then water should be sprayed on them. This will avoid water rebound and will ensure sustained and complete curing. Ponds should be made using cement and sand mortar to avoid water flowing away from the flat surface while curing.</li> <li>• Use of potable water during</li> <li>• construction should be minimized.</li> </ul>	Contractor	PIU
B.11	Construction Debris	<ul style="list-style-type: none"> <li>• Construction wastes will comprise of broken bricks, dry cement, discarded timber, metal pieces, empty cement bags, glass, paint/varnishes containers, electrical wastes, used oil, etc. These wastes should be segregated into recyclable and non-recyclable waste.</li> <li>• Recyclable waste shall be stored in the covered area and shall be sold to authorized vendors regularly. Non-recyclable waste shall be disposed at approved debris site in covered vehicles or reuse for landfilling purposes. These wastes' disposal must comply with the Construction and Demolition Waste Management Rules 2016 requirement for its disposal.</li> </ul>	Contractor	PIU
B-12	Hazardous Wastes	Used oil generated from maintenance of construction machines and DG sets shall be disposed through use	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental and Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		oil recyclers. Any hazardous wastes generated from the school construction site will be disposed as per Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016.		
B.13	Solid Waste (Municipal and other Waste)	Municipal solid wastes will be generated from labour camp and construction site. These solid wastes will be disposed as per Solid Waste Management Rules 2016. Dustbins for recyclable and non-recyclable wastes shall be provided in labour camp areas. Recyclable wastes shall be sold to authorized vendors. Biodegradable wastes shall preferably be composted. Concept of reduce, re-use and recycle shall be followed at site. The non-recyclable, non-salable and non-biodegradable wastes shall preferably be disposed at a municipal landfill site.	Contractor	PIU
B.14	Biodiversity Conservation and Management	<ul style="list-style-type: none"> <li>• The project staff and workforce will be appropriately made aware about the importance of biodiversity and shall be advised not to indulge in any illegal activity including hunting of wildlife.</li> <li>• No dumping site will be identified in the protected areas and no waste dumping (even temporary) will be permitted in these areas.</li> <li>• Natural vegetation will be conserved to the best possible extent during land preparation, and native species will be used in restoration after completion of the construction phase.</li> <li>• Land preparation and construction activities will be limited to designated work areas.</li> <li>• Vegetation clearance will be minimized.</li> <li>• There will be no tree cutting/vegetation clearance other than in areas required for the Project.</li> <li>• Mitigation measures related to land use and soil quality will be taken in line with the related management plans ensuring</li> </ul>	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental and Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		conservation of biodiversity.		
F.	Fire Safety and Emergency Response Measures	<ul style="list-style-type: none"> <li>At the construction site, necessary fire extinguishers will be provided at especially for electrical fire and general fire.</li> <li>Emergency phone numbers will be displayed prominently at the construction site.</li> <li>Cardiopulmonary resuscitation(CPR) chart will be displayed and training will be provided for the same.</li> <li>For emergency, vehicle will be available at the site, which can be used as ambulance to carry injured person to hospital.</li> </ul>	Contractor	PIU
G.	COVID Protection	<ul style="list-style-type: none"> <li>Latest Government COVID guidelines (Central, State as well as local) as are in force from time to time should be adhered to.</li> <li>Sanitizer and masks will be provided to workers.</li> <li>Body temperature will be monitored at the site.</li> <li>Arrangement to check body temperatures of all participants</li> <li>Masks should be used if mandatory</li> <li>Social distancing practiced, if mandatory</li> <li>Collection and compilation of vaccination status of all participants (Workers &amp; staffs).</li> <li>Details of nearest COVID isolation facilities and COVID medical facilities should be available at the site.</li> </ul>	Contractor	PIU
<b>H.</b>	<b>POST CONSTRUCTION STAGE</b>			
H.1	Clean-up Operations, Restoration and Rehabilitation	<ul style="list-style-type: none"> <li>On completion of construction works, the contractors will prepare site restoration and demobilization plan. The clean-up and restoration operation will be implemented by the contractors prior to demobilization. The Contractors will clear all temporary</li> </ul>	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental and Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		structures; dispose all garbage, night soils and POL (Petroleum, Oil and Lubricants) wastes in environmental sound manner. <ul style="list-style-type: none"> <li>All construction area including camp, and any other area used or affected due to the construction work will be left clean and tidy at the contractor's expense to the entire satisfaction to the PIU.</li> </ul>		

**B. OCCUPATIONAL HEALTH AND SAFETY PLAN:**

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
<b>B. Design and Pre-Construction Stage</b>				
A.1	<b>Contractor's OHS Plan and Emergency Response System</b>	<ul style="list-style-type: none"> <li>The requisite PPE (helmet, mask, boot, hand gloves, earplugs) shall be provided to the construction workers.</li> <li>Children (less than 18 years) and pregnant women shall not be allowed to work under any circumstances.</li> <li>Deployment of Child Labour shall be strictly prohibited.</li> <li>The contractor will also provide potable water facilities within the precincts of every workplace in an accessible place, as per standards set by the Building and other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996.</li> <li>First Aid Box shall be kept at the work place and camp site.</li> <li>Workforce, likely to be exposed to noise levels beyond regulatory stipulated limits, shall be provided with protective gears like hear plug etc.</li> <li>Dust suppression measures like sprinkling of water shall be ensured on the earth work on the road.</li> </ul>	Contractor	PIU



Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>• Fixed or mobile toilets shall be provided for workers. Open defecation shall be strictly prohibited.</li> <li>• Toilets will be fitted with septic tank followed by soak pits.</li> </ul>		
A.2	<b>Contractor's OHS Plan and Emergency Response System</b>	<ul style="list-style-type: none"> <li>• The Contractor will Develop site-specific and job-specific Occupational Health and Safety (OHS) Plan which will cover the following aspects but not limited to: <ul style="list-style-type: none"> <li>- Site and Activity specific Hazard identification</li> <li>- Identification of PPE requirements</li> <li>- Work zone safety Plan including Safety during excavation, concreting, work at height, working on scaffoldings, plastering and paint works, concreting and pillar works, drain works, etc.etc., operation of Heavy Plant &amp; Machinery; safety during Material handling, safety plan for lifting devices, fire, electrical and mechanical safety, vehicular safety</li> <li>- Medical facilities including first aid arrangements</li> <li>- Institutional arrangement for implementation of safety measures including safety committee</li> <li>- H&amp;S safety training programme including training schedule</li> <li>- Incidence reporting system and Safety Checklists</li> </ul> </li> <li>• The Contractor will comply with the requirements of the Environmental, Health, and Safety (EHS), Guidelines of the World Bank Group, 2007<sup>10</sup> and all national, state and local core labor laws during preparation of OHS Plan and implement the same.</li> </ul>	Contractor	PIU,PWD & PMU

<sup>10</sup> Reference: <http://www.ifc.org/wps/wcm/connect/554e8d80488658e4b76af76a6515bb18/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES> and <http://www.ifc.org/wps/wcm/connect/7e4c7f80488554d5b45cf66a6515bb18/Final%2B-%2BToll%2BRoads.pdf?MOD=AJPERES&id=1323162564158> ]

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>• A general guideline as provided in the Labour Management Procedures (LMP) on Occupational Health and Safety will be followed by the contractor in developing the OHS Plan.</li> <li>• In addition to EHS Plan the Contractor will develop Disaster Management Plan and Emergency Response System in line with the Disaster Management Policy of the State to deal with emergency situations, such as accidents, natural calamities, construction failure and submit them to the PIU for approval.</li> </ul>		
<b>B.</b>	<b>Construction Stage</b>			
B.1	<b>Personnel Protective Equipment (PPE)</b>	<ul style="list-style-type: none"> <li>- The Contractor will comply with the provisions of sub-project specific OHS Plan and all national, state and local core labor laws on working conditions and safety during construction.</li> <li>- The Contractor will provide adequate good quality Personal Protective Equipment (PPE) to all the workers working at construction zones and Plant sites and will ensure that these PPEs are used by workers including those of sub-contractor’s workforce at all time during works. The list of PPEs as under:                             <ul style="list-style-type: none"> <li>- Full body protection clothing, protective footwear, hand gloves and goggles to workers employed handling cement concrete,</li> <li>- Construction workers will be provided high visibility vests, Ear plugs to workers exposed to high noise levels, Hard hat or helmets to workers, where there is danger of falling objects from height,</li> <li>- Hand gloves, helmets, protective footwear/safety shoes, protective goggles, nose masks, high visibility</li> </ul> </li> </ul>	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<p>vests etc (as required) will be provided to the workers employed in construction works,</p> <ul style="list-style-type: none"> <li>- Safety belts will be used by workers while working at height,</li> <li>- The contractor will comply with all the precautions as required for ensuring the safety of the workmen as far as those are applicable to this contract.</li> <li>- The contractor will make sure that during the construction work all relevant provisions of The Building and other Construction Workers (regulation of Employment and Conditions of Services) Act, 1996</li> <li>- are adhered to.</li> </ul>		
B.2	Fire Safety and Emergency Response Measures	<ul style="list-style-type: none"> <li>• At the construction site, necessary fire extinguishers will be provided at especially for electrical fire and general fire.</li> <li>• Emergency phone numbers will be displayed prominently at the construction site.</li> <li>• Cardiopulmonary resuscitation (CPR) chart will be displayed and training will be provided for the same.</li> </ul> <p>For emergency, vehicle will be available at the site, which can be used as ambulance to carry injured person to hospital</p>	Contractor	PIU
B.3	Risk From Electrical Equipment(s)	<ul style="list-style-type: none"> <li>• The contractor shall take all required precautions to prevent danger from electrical cables, wires and equipment and ensure that: <ul style="list-style-type: none"> <li>a) All electrical installations and wirings shall be barricaded in manner that ensure safety of workers, equipment.</li> <li>b) Necessary fencing, illumination and proper insulation of the</li> </ul> </li> </ul>	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		electrical lines shall be ensured by the contractor for safety workers. c) All electrical equipment/cables/ • wires to be used in the		
B.4	<b>Work Site Safety</b>	<ul style="list-style-type: none"> <li>• The Contractor at all time will provide and maintain safe access and safe working conditions at the work site throughout the working period</li> <li>• The Contractor will provide hard barricading around the Work Zone.</li> <li>• All the equipments, machinery must be installed at rigid flat platform.</li> <li>• All the Heavy Machineries and equipments will be kept on stable flat rigid platform to avoid falling/slip of of machineries due to unstable slope. The platform will be daily checked for its stability.</li> <li>• The lifting devices and working platform must be checked on daily basis for their stability.</li> <li>• The Contractor will secure all installations from unauthorized intrusion and accident risks;</li> <li>• The Contractor will arrange of potable drinking water at work site as well as at camps;</li> <li>• Provide clean eating areas where workers are not exposed to hazardous or noxious substances;</li> <li>• The Contractor will provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted;</li> <li>• Ensure moving equipment is outfitted with audible back-up alarms;</li> </ul>	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
		<ul style="list-style-type: none"> <li>• Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate;</li> <li>• Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively;</li> <li>• During the alert from the Metrological Department/ USDMA, the construction work should be suspended till the situation normalized.</li> </ul>		
B.5	<b>First Aid and other Medical Facilities</b>	<ul style="list-style-type: none"> <li>• The medical insurance coverage for the workers should be provided by the Contractor.</li> <li>• Readily available First Aid Box with adequate first-aid items shall be kept at the work place and camp site and the same will be maintained on day to day basis throughout the construction period.</li> <li>• The contractor will tie up with local health centre/doctor and ambulance for dealing with first aid issue, health check-up of workers and epidemic conditions.</li> <li>• The Contractor will maintain first-aid register at site. The emergency contact details of concern officer and medical officers/officers require to be made available at working sites and camp site.</li> <li>• Designated vehicles, which can be used as ambulance during emergency, which will be available at construction sites as per requirement</li> <li>• The Contractor will organize health check-up camp for workers on periodic basis (Quarterly).</li> </ul>	Contrator	PIU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision/ Monitoring
B.6	<b>Training on OHS</b>	<ul style="list-style-type: none"> <li>The Contractor will develop training programme alongwith training schedule on OHS aspects for their Work force including those of Sub-contractor’s workers</li> <li>The Contractor will organize awareness program on occupational health and safety aspects on quarterly basis as per the training schedule. The training must be attended by 100% workforce of the Contractor.</li> <li>The Contractor will maintain training register indicating the training details, number of workers working, attendance sheet of the participants, photographs, etc.</li> <li>The Contractors EHS Officer will provide regular pep talks and tool box talk to the labourers on the type of risk specific to the planned activities for the day and safety requirements before start of work on day to day basis.</li> </ul>	Contractor	PIU & PMU
B.7	<b>OHS Committee and OHS Meetings</b>	<ul style="list-style-type: none"> <li>The Contractor will form OHS Committee for dealing with OHS aspects of the projects during construction and maintenance period.</li> <li>The Committee will conduct monthly meetings of OHS and will discuss and analyse the type of safety incidences reported/recorded, safety instructions from the Engineer’s representative/PIU/PMU and prepare necessary corrective measures for ensuring the effectiveness of the implementation of OHS measured.</li> <li>The Contractor will maintain register &amp; Record of OHS Committee Meetings and submit to the PIU for review.</li> </ul>	Contractor	PIU & PMU

**C. SOCIAL MANAGEMENT PLAN**

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision / Monitoring
<b>A.</b>	<b>Design &amp; Pre-Construction Stage</b>			
A.2	<b>Appointment of Contractor's Social cum Labour Specialist</b>	<p>The Contractor will appoint Social cum Labour Specialist who will look after the social and labour issues of the sub-project during construction and maintenance period.</p> <p>He will be responsible for:</p> <ul style="list-style-type: none"> <li>- Implementation of social risk management including labour management and monitoring of performance indicators of social mitigation measures</li> <li>- Maintenance of records on implementation of social management plan</li> <li>- Organizing trainings on social issues and maintenance of record of trainings on social issues</li> <li>- Provide inputs in preparation of periodical Environmental and Social compliance reports</li> <li>- Management of workers' and construction related grievances at the site</li> <li>-</li> <li>- Report on progress and shortcomings of the measures implemented to the project manager and social officer of PIU/PMU</li> </ul>	Contractor	PIU
A.3	<b>Joint Inspection of Site and Awareness Creation among local public</b>	<ul style="list-style-type: none"> <li>• The contractor will carry out site inspection along with PIU Representative for construction site, establishment of camp and other allied sites and assessment of any public inconvenience due to anticipated hindrance due to project activities.</li> <li>• Contractor will conduct consultation with the local public to make them aware about the construction related risks and hazards, their schedule of work, blockage of the area due to construction, if any</li> </ul>	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision / Monitoring
A.4	<b>Establishment of Construction Workers Camp</b>	<ul style="list-style-type: none"> <li>The location of construction camp to be identified by the Contractor.</li> <li>No construction camp, labour camp, plant sites, stock yards will be established within the forest area or on the sloppy areas</li> <li>The camp and other allied sites must be sited sufficiently away from features like settlement, forest area and surface water bodies, and local habitation preferably located on lands, which are not productive (barren/waste lands/non-agriculture land) to avoid conflicts and stress over such type of features and the infrastructure facilities with the local community.</li> <li>Fencing of construction camp needs to be provided prior to commencement of work</li> <li>The Contractor will submit the legal agreement/ written Consent letter from the owner of the land or houses for using for specific purpose along with its rehabilitation plan as agreed by the owner.</li> <li>The Camp site will be provided with all the necessary facilities as per norms.</li> <li>All permits, licenses and clearances relevant for establishment of camp sites will be obtained.</li> </ul>	Contractor	PIU
A.5	<b>Engagement of Labours: Employment Conditions</b>	<ul style="list-style-type: none"> <li>The contractor preferably will use unskilled/ semiskilled/ skilled labour from local area to give the maximum benefit to the local community</li> <li>The Contractor will implement the Labour Management Procedures for the hiring of project workers including sub-contractor's workers.</li> <li>The Contractor will conform to national and state laws in relation to hiring and employment; and will comply with the principle of equal opportunity, fair treatment, and non-discrimination with respect to the employment relationship, gender, cast, races, etc.</li> </ul>	Contractor	PIU



Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision / Monitoring
		<ul style="list-style-type: none"> <li>The Contractor has to obtain necessary Labour license prior to engaging labourers and commencement of work and comply all the conditions stipulated in the license.</li> <li>The contractor has to obtain Workmen Insurance to ensure the safety of his workers and the copy of insurance will be submitted to the employer.</li> <li>The copy of labour license will be submitted to the Engineer/ Employer.</li> <li>The Primary Contractor will be responsible for compliance of all the labour regulations including those of sub-contractor's labours.</li> <li>Use of child labour and forced labour will be strictly prohibited.</li> <li>The contractor has to ensure minimum wages, weekly off, quarterly fitness certificate and daily attendance of the labor and staff.</li> <li>The contractor will organize quarterly training for the labor and staff to ensure their capacity building on their rights and labor laws, health and safety, SEA/SH and on gender sensitization.</li> <li>The Contractor will ensure that all workers sign and abide by the workers' code of conduct.</li> <li>The Contractor will formulate GRM for receiving the Labour Grievances and regularly interact with the labourers to address their issues and maintain the record of the same</li> </ul>		
<b>B.</b>	<b>Construction Stage</b>			
B.1	<b>Labour Camp Management and Labour Welfare</b>	<ul style="list-style-type: none"> <li>At labour camp, the contractor shall provide all the necessary basic facilities such as well ventilated accommodations, beds, safe drinking water supply, toilet &amp; bathroom units, lighting arrangements, cooking facilities, provision of waste collection (dust bins), drainage network, first-aid facilities, etc as per the Building and Other Construction Workers' (Regulation of</li> </ul>	Contractor	PIU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision / Monitoring
		<p>Employment and Conditions of Service) Act, 1996 as well as the guidelines of IFC and EBRD<sup>11</sup> for construction and maintenance of labour camp throughout the construction period.</p> <ul style="list-style-type: none"> <li>• In case any female members are staying in the camp, separate toilet and bathing facilities including creche will be provided for them as per norms</li> <li>• The Contractor will always maintain these facilities functional and in hygienic manner.</li> <li>• The Contractor will ensure proper health-check-ups of all labours employed at the project site;</li> <li>• Adequate First-Aid box shall be provided at work sites, facilitating healthcare services and medical care in case of sickness.</li> <li>• One permanent helper to be engaged at worksite to maintain hygiene by daily cleaning of toilets</li> <li>• No child labour below 18 years of age or forced labour will be engaged for any kind of construction works in the project.</li> <li>• Contractor will maintain a labour/attendance/wage register with name, age and sex with supporting document (preferably copy of Aadhaar card or voter's ID card). This will be monitored by Environmental and Social officials of contractor and PIU, PWD</li> <li>• Contractor will adopt PMU's monitoring systems for periodic or incident-based reporting.</li> </ul>		

<sup>11</sup>

[http://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/publications\\_gpn\\_workersaccommodation](http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/learning+and+adapting/knowledge+products/publications/publications_gpn_workersaccommodation)

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision / Monitoring
		<ul style="list-style-type: none"> <li>In case the Contractor hires accommodation in rented house for the workers, the Contractor will take written rent agreement with the house owner of each such building and submit the same to the PIU.</li> <li>The Contractor will prepare a code of conduct for the labours living in the camp/rented houses and all the workers will strictly adhere to the Code of Conduct.</li> <li>The Contractor regularly monitor the camp sites for ensuring the compliances to the campsite management as well as the Code of Conduct by the Contractor</li> </ul>		
B.2	<b>Community Health and Safety</b>	<ul style="list-style-type: none"> <li>The project will comply with the requirements of the EHS Guidelines of the World Bank Group, 2007<sup>12</sup>, including <i>Good Practice Notes on Addressing Sexual Exploitation and Abuse and Sexual Harassment and Managing Risks of Adverse Impacts on Communities from Project-Related Labor Influx</i>.</li> <li>The Contractor shall provide caution and safety signboards at the construction site night visibility of the site will be ensured throughout the construction period.</li> <li>The Contractor will provide curtain of sufficient height (preferably 3 m) around the construction site to avoid impact on surrounding properties and community due to the risk of material fall.</li> <li>An Emergency Response system in case of any incidence will be developed and implemented.</li> <li>A public grievance system shall be followed in order to record the public complaints regarding to Health &amp; Safety and Addressal of the same within agreed timeline. A signboard indicating the Contact details for registering complaints to be displayed at the site.</li> </ul>	Contractor	PIU

<sup>12</sup> <https://www.ifc.org/wps/wcm/connect/29f5137d-6e17-4660-b1f9-02bf561935e5/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES&CVID=jOWim3p>

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision / Monitoring
B.3	Chance Find of Archaeological Assets and artefacts	<ul style="list-style-type: none"> <li>All the archaeological assets and artefacts such as ancient coins, ruins, archaeological deposits etc. are the property of government and immediately to be reported to the concerned authority in case of finding of such features to the competent authority.</li> <li>Create awareness among the workers and supervisors about the chance finds during excavation work;</li> <li>Stop work immediately if any finds are suspected to allow further investigation;</li> <li>Inform archaeological agencies promptly if a find is suspected, and take any action they require to ensure its removal or protection in site; and</li> <li>Adjacent to important religious sites, undertake excavation and construction work in such a way that no structural damage is caused to the building.</li> </ul>	Contractor	PIU, Archaeological Department
B.4	Prevention of spread of HIV/AIDs and other STDs	<ul style="list-style-type: none"> <li>The Contractor will organize medical tests for workers on regular basis.</li> <li>Necessary HIV/AIDS prevention awareness measures will be taken at the labour camp by the contractor.</li> <li>Time to time HIV/AIDS awareness training/programme will be organized by the Environmental &amp; Safety Officers of the contractor.</li> </ul>	Contractor	PIU & PMU
B.5	GBV & SEA/SH Prevention and Response	<ul style="list-style-type: none"> <li>Contractor will prepare and implement measures to address the risk of gender-based violence that include (i) mandatory and repeated training and awareness raising for the workforce about refraining from unacceptable conduct toward local community members, specifically women; (ii) informing workers about national and state laws that make sexual harassment and gender-based violence a punishable offence which is prosecuted; (iii) introducing a Worker Code of Conduct as part of the employment</li> </ul>	Contractor	PIU & PMU

Sr. No.	Environmental and Social Issues	Environmental And Social Mitigation Measures	Responsibilities	
			Implementation	Supervision / Monitoring
		<p>contract, and including sanctions for non-compliance (e.g., termination), and (iv) cooperating with law enforcement agencies in investigating complaints about SEA/SH and gender-based violence.</p> <ul style="list-style-type: none"> <li>• Code of Conduct will be signed by all the labourers working on the project. Do's and Don'ts related to SEA/SH is part of daily tool box talks and displayed at site so as to avoid any risk of SEA/SH.</li> <li>• The Contractor will establish and build awareness among workers on Internal Complaints Committee (ICC) as mandated by the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 <ul style="list-style-type: none"> <li>• Identify GBV service providers in the vicinity to establish referral mechanism.</li> </ul> </li> </ul>		
B.6	Awareness training on Social Issues	<ul style="list-style-type: none"> <li>• The Contractor will organise trainings on the following social issues on quarterly basis: <ol style="list-style-type: none"> <li>(i) HIV/AIDS awareness Training</li> <li>(ii) SEA/SH and GBV prevention and response</li> <li>(iii) COVID 19 and other communicable diseases</li> <li>(iv) Workers Code of Conduct</li> <li>(v) Labour Laws including Grievance Redressal Mechanism for Labours</li> </ol> </li> <li>• The Contractor will ensure that all the workforce participate in the awareness training</li> <li>• Record of all the trainings will be maintained and will be included in the progress reports on Environmental and Social Compliances</li> </ul>	Contractor through approved agency/service provider	PIU & PMU

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## **Annexure 10: Indigenous Peoples Planning Framework (IPPF)**

### **Objectives of Indigenous Peoples Planning Framework (IPPF)**

The purpose of the Indigenous Peoples Planning Framework (IPPF) is to establish the requirements of ESS7, organizational arrangements, and design criteria to be applied to sub-projects to be prepared during project implementation when IP may be present in, or have collective attachment to, the project area. Following identification of the sub-project and confirmation that IP are present in or have collective attachment to the project area, a specific plan i.e., IPP, proportionate to potential risks and impacts, is prepared. Project activities that may affect IP do not commence until such specific plans are finalized and publically disclosed.

The IPPF will cover all activities under the project and would focus on creating an 'enabling environment' through intensive and extensive awareness creation among community members, mandating their participation in planning, management, and operations, ensuring equity in all project interventions and equities. The objectives of IPPF are to:

- avoid or minimize adverse impacts on the IP/tribal community and to suggest appropriate mitigation measures;
- ensure that the project engage IP communities/tribal people in all relevant stakeholder consultation sessions throughout the entire process of planning, implementation, and monitoring of project.
- identify the views of IP/tribal people regarding the proposed project and ascertain broad community support for the project; and
- ensure that project benefits are accessible to the IP/tribal communities living in the project area

### **Legal and Policy Framework**

The Acts / Policies that are applicable in the project includes (i) Panchayati Raj Act 1953, 73<sup>rd</sup> Amendment 1994; (ii) National Policy on Tribal Development, 1999; (iii) Tribal Sub Plan; and (iv) Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006.

### **Impact on Indigenous/ Tribal Communities**

The tribal population of Uttarakhand is concentrated in the remote and forest area of Tarai and Bhabar and high reaches of Pithoragarh, Chamouli, Uttarkashi District and Jaunsar-Bhabar area of Dehradun district. Some of the tribal groups have a nomadic or semi-nomadic way of life. However, most of these people have taken to a settled life and are engaged in animal husbandry, agriculture, trad and other occupation. As per census data of 2011, out of total population of Uttarakhand, about 3% of the population of the state are scheduled tribes. The geographical coverage of the project is the entire state, and preliminary screening reveal that specific investments may lead to temporary impacts on indigenous/tribal groups such as minor land and/or livelihood related impacts during construction/upgradation works, including access restrictions to forest land and the traditional paths of trans-nomads. The Project could also open-up avenues for enhancing opportunities for secured income through the management of forest fires. No land acquisition, physical displacement, or relocation or involuntary resettlement impacts on IP are anticipated under the project. Any project activity requiring acquisition of private land and/or physical relocation of IPs, or activities that may have adverse impacts on IP cultural heritage will be included in the negative list of activities ineligible for financing under the project. Nonetheless, where relevant, site-specific Indigenous Peoples Plan (IPP) will be prepared for investments relying on the procedures embedded in this Indigenous Peoples Policy Planning Framework (IPPF).

### **Exclusion Criteria**

Activities that require Free Prior Informed Consent (FPIC)/significant risks related to IP will be excluded from the project.<sup>13</sup>

### Process of preparing an Indigenous People Plan (IPP)

The following are steps for preparation of IPP for sub-projects where it can be concluded that IP/tribal communities are present in, or have collective attachment to, the project area:

<i>Sl. No.</i>	<i>Action</i>	<i>Responsibility</i>
1	<p><i>Information disclosure</i></p> <p>The project will disseminate project information to all stakeholders through various means, such as community level meetings, mass media, project brochures/posters and a dedicated project site on the internet.</p>	PMU and PIUs
2	<p><i>Screening</i></p> <p>A screening will be conducted to determine if indigenous/tribal families or communities are present or have collective attachment in the area of influence of the proposed sub-project. Where indigenous/tribal communities are found to be present or have collective attachment in the project's area of influence, it is to note that the ESS 7 will be applicable, and the following steps will be taken even if no negative impact is likely to occur.</p> <p>The determination as to whether a group is to be defined as IP/tribal peoples is made by reference to the presence (in varying degrees) of four identifying characteristics:</p> <ul style="list-style-type: none"> <li>▪ <i>Self-identification as members of a distinct tribal cultural group and recognition of this identity by others;</i></li> <li>▪ <i>Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;</i></li> <li>▪ <i>Customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and</i></li> <li>▪ <i>Any tribal language, often different from the official language of the country or region.</i></li> </ul>	DPR consultant/ ESIA consultant under the guidance of PMU, PIUs
3	<p><i>Targeted Social Assessment, preparation of sub-project specific IPPs including consultation with the IP/Tribal Communities<sup>14</sup></i></p> <p>If based on the screening, the Bank concludes that tribal communities are present in, or have collective attachment to, the project area, targeted social assessment is conducted, as part of the environmental and social assessment, to evaluate the project's potential impacts on the indigenous/tribal population and an IPP is prepared in accordance with the requirements of this framework. The social assessment and preparation of IPP will entail:</p> <ul style="list-style-type: none"> <li>• Identifying key stakeholders among IP/tribal community and establishing an appropriate framework for their participation in the selection, design, implementation, and monitoring and evaluation of the relevant project activities;</li> </ul>	PIU/ DPR consultant/ ESIA consultant

<sup>13</sup> As per ESS7, Borrower is required to obtain FPIC of the affected tribal community when project will (a) impact lands and natural resources traditionally owned, used, or occupied by tribes; (b) cause relocation of tribal community; or (c) have significant impacts on tribal community's cultural heritage.

<sup>14</sup> Free Prior Informed Consent is not required in this project as tribal community will not be adversely impacted.

	<ul style="list-style-type: none"> <li>Assessing the demographic, socio-economic, cultural and other relevant characteristics of ethnic population on and near the project sites, establishing social baseline and identifying potential barriers to their full participation in benefiting from project activities;</li> <li>Reviewing relevant legal and institutional framework applicable to indigenous/tribal community;</li> <li>Based on assessment, proposing specific measures to ensure that affected indigenous/tribal people will, meaningfully and in a culturally appropriate manner, participate in project activities and benefit from the project. The measures and actions to be developed under each sub-project to benefit indigenous/ tribal communities should be in consultation with them. The IPP should annex the minutes of consultation and present the key findings in the main text of the IPP along with the timing for such consultations and finalization of sub-project specific activities as agreed with the community and tribal leaders.</li> <li>Developing implementation strategies to assist indigenous/tribal communities to voice grievances and have them addressed in ways that are socially sound, in line with the procedures described in this IPPF.</li> <li>Any sub-project that results in any kind of adverse impact on indigenous/ tribal community / families will not be considered for financing under the project.</li> <li>The breadth, depth, and type of analysis in the social assessment shall be proportional to the nature and scale of the proposed project's potential effects on the indigenous/ tribal community, whether such effects are positive or adverse.</li> </ul>	
4	<p><i>Disclosure:</i>                  The social assessment report and draft IPP will be made available to the affected indigenous/ tribal communities in an appropriate form, manner, and language. To disseminate the draft IPP, the project will (i) translate the draft plan in local language; (ii) hard copy will be given to the indigenous/ tribal community in the sub project area, and tribal leaders; (iii) a copy will also be made available at the selected project sites; and (iv) the plan will be explained in the gram sabha (village meeting) with sufficient prior notice.                  Post finalization of the IPP, the document is also made available to the affected indigenous/ tribal communities in the same manner as the earlier draft documents. The documents will also be disclosed on the PMU/PIU websites and the World Bank external website.</p>	PMU and PIUs

**Elements of Indigenous Peoples Plan (IPP)**

The IPP will include the following elements:

- Description of the project objective and activities, in particular on project activities that will be conducted for the site;
- Summary of the social assessment including the results of the consultation with the IP/tribal community, and verification of their broad community support for the project;
- Mechanism to ensure that IP/tribal communities can meaningfully participate in the project activities and maximize their benefit from the project.
- Institutional mechanism to ensure that project benefits will be shared with the IP/tribal community and that the project activities will not interfere with their way of living and cultural identity. The mechanism should include participation of tribal leaders and representation of tribal administration.



- Mechanism through which affected IP/tribal communities can voice concerns and grievances and have them addressed.
- Mechanism and benchmarks for monitoring, evaluating, and reporting on the implementation of IPP.
- Financing plan for IPP implementation.

### **Stakeholder Consultation and Disclosure**

**Steps to meaningful consultations:** Since U-PREPARE will be implemented all over the state, the consultation will be carried out with the representatives of tribal groups, tribal-focused NGOs, and the Directorate of Tribal Affairs, GoU during the detailed design, construction and implementation phase and their broad community support will be documented. In areas with tribal population in minority, separate consultations with indigenous/tribal households (women and men) and groups will be organized to identify the priorities and strategies for ensuring tribal inclusion in the project interventions and accessing project benefits. Periodic meetings will also take place in tribal hamlets/villages for information sharing and review during the preparation and implementation stages, minutes of which will be recorded and reproduced when required (e.g., for monitoring and review purposes). The consultations and information dissemination with the indigenous/tribal communities will be in a culturally appropriate format, easily accessible manner and in a local language which is understandable to the stakeholders. Further, such interactions will be free of external manipulation, interference, coercion, discrimination, and intimidation.

**Grievance redressal:** The grievance management system for U-PREPARE will be applicable and take into consideration the socio-economic and cultural attributes of indigenous/tribal communities [refer to the project's Stakeholder Engagement Plan for details on GRM]. Further, indigenous communities can opt for legal recourse if not satisfied with the results of the project's grievance redress system. Such a person can approach the Courts, under the laws of the Country, and the verdicts of the Courts will be final, as per the judicial processes established in India.<sup>15</sup> To make it accessible, information on project's GRM will also be disseminated among indigenous/tribal communities, traditional institutions and NGOs representing the interest of indigenous/tribal communities.

### **Capacity Building**

The project will focus on enhancing capacity of all stakeholders to ensure the project is inclusive and the benefits meet the requirements of all social groups including indigenous/tribal groups. Trainings will be provided to PMU and PIU staff, consultants (DPR, etc.), and contractors to:

- Identify the views and priorities of various communities including indigenous groups concerning the quality and constraints of disaster management through a participatory consultation process.
- Incorporate design elements to make the project interventions socially inclusive and universally accessible.
- Address concerns, grievances, and feedback of indigenous groups in a culturally appropriate manner.
- Screen and mitigate/avoid adverse impacts on indigenous communities and other vulnerable groups.

### **Monitoring and Evaluation**

Throughout the implementation of the project, the social specialist at the PMU and PIUs will monitor the project compliance with ESS7. The site-specific IPPs, wherever needed, will be prepared as part of the detailed design/ DPR. The PIU will monitor the site-specific IPP implementation and report on

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<sup>15</sup>Laws such as the Forest Rights Act and the Scheduled Caste and Scheduled Tribe (Prevention of Atrocities) Act, 1989 safeguards the interest of indigenous groups. Wrongfully dispossessing any member of the Scheduled Castes or Scheduled Tribes from their land or premises or interfering with the enjoyment of their rights, including forest rights, over any land or premises or water or irrigation facilities or destroying the crops or taking away their produce is subject to punishment under the said Act.

quarterly basis to the PMU. The PMU social specialist will also conduct periodic site visits for monitoring. In addition, the sub-project will follow the norms and reporting as applied under the national/ state laws and guidance.

The project will provide quarterly updates on the progress of the project to the World Bank and will publish an annual report every year (coinciding with the financial year of the state), capturing the civil works progress made under the sub-projects.

**Budget**

Preparation of IPPs (where needed) for sub-projects will be part of the sub-project detailed project report and budget.