Appendix 1: Standard Environmental and Social Management Plan (ESMP)

AVALANCHE DAM REHABILITATION AND IMPROVEMENT PROJECT PHASE II

(Funded by World Bank)

STANDARD ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

CENTRAL WATER COMMISSION
GOVERNMENT OF INDIA

September 2021

IMPORTANT NOTE

This Standard ESMP is prepared with management plans for all relevant ESSs.

Dam specific inputs and Management Plans of AVALANCHE DAM are used in this Standard ESMP purely for guidance purposes.

This Standard ESMP shall be updated with sub-project specific data/ ESDD outcomes/management plans as identified in ESDD for preparing sub-project Dam specific ESMP, as applicable

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ACRONYMS

AIDS:	Acquired immune deficiency syndrome
CPCB:	Central Pollution Control Board
CPMU:	Central Project Management Unit
CWC:	Central Water Commission
DRIP:	Dam Rehabilitation and Improvement Project
EAP:	Emergency Action Plan
EMC:	Engineering and Management Consultant
ESCP:	Environment and Social Commitment Plan
ESDD:	Environmental and Social Due Diligence
ESF:	Environmental and Social Framework
ESHS:	Environmental, Social, Health and Safety
ESIA:	Environmental and Social Impact Assessment
ESMF:	Environmental and Social Management Framework
ESMP:	Environmental and Social Management Plan
ESS:	Environmental and Social Standard
GBV:	Gender Based Violence
GRM:	Grievance Redressal Mechanism
HIV:	Human immunodeficiency virus
IA:	Implementation Agency
LMP:	Labour Management Procedure
LPG:	Liquefied Petroleum Gas
MMP:	Muck/Debris Management Plan
MPR:	Monthly Progress Report
NDMA:	National Disaster Management Authority
NGO:	Non-Governmental Organization
OHS:	Occupational Health & Safety
OHSMP:	Occupational Health and Safety Management Plan
OHSP:	Occupational Health and Safety Plan
PDO:	Project Development Objective
PPE:	Personal Protective Equipment
PUC:	Pollution Under Control
QPR:	Quarterly Progress Report
RCP:	Resource Conservation Plan
SDMA:	State Disaster Management Authority
SEAH:	Sexual Exploitation, Abuse and Harassment
SEF:	Stakeholder Engagement Framework
SEP:	Stakeholder Engagement Plan
SPMU:	State Project Management Unit
ST:	Schedule Tribe
TDP:	Tribal Development Plan
TPA:	Third Party Agency
WB:	World Bank

CHAPTER 1: PROJECT OVERVIEW AND FINDINGS OF ESDD

1.1. PROJECT OVERVIEW

The Dam Rehabilitation and Improvement Project Phase II and Phase III (DRIP Phase II & Phase III) initiated by Ministry of Jal Shakti through Central Water Commission, with an objective to cover more States and more dams (after DRIP Phase I) across India, to improve the safety and operational performance of these selected dams. This new Scheme will further strengthen the efforts of Government of India beyond ongoing DRIP Phase I. The project would continue to finance structural improvements along with dam safety institutional strengthening which shall break with the prevailing build-neglect-rebuild approach by giving greater emphasis to establishing innovative financing mechanism for regular O&M and dam rehabilitation, enhancing State capabilities to manage these critical assets through institutional strengthening, and introducing risk-informed dam safety management. The project development objective (PDO) is to increase the safety of selected dams and to strengthen institutional capacity for dam safety in participating States. The project components are as follows:

Component 1: Rehabilitation and Improvement of Dams and Associated Appurtenances, focusing on structural and non-structural measures at selected project dams. The proposed interventions will include, but not be limited to, around 35-40 kind of rehabilitation activities as done in ongoing DRIP. In addition, all important non-structural activities will also be taken up. In addition to these interventions, the project will require each rehabilitated dam to have basic instrumentation and could also support the development of additional systems to detect and respond to risks promptly, such as flood forecasting systems, early warning systems, data management and analysis software, and standardized dam safety instrumentation (i.e., Supervisory Control and Data Acquisition [SCADA]).

Component 2: Dam Safety Institutional Strengthening, focusing on regulatory and technical frameworks for dam safety assurance. The activities to be carried out will include, but not be limited to, targeted training nationally and internationally to all partner agencies, development of Management Information Systems (MIS) and other programs to capture and analyze data for long-term planning and guiding of dam operations; support to the further development within CWC of the Dam Health and Rehabilitation Monitoring Application (DHARMA) program, support to the revision of existing guidelines on dam safety and preparation of new guidelines, as needed; rapid risk screening of dams, stakeholders consultation meetings for dissemination of prepared emergency action plans, updation of seismic hazard mapping of country, capacity building of academic and central institutions, public outreach programs, construction supervision & quality assurance activities etc.

Component 3: Incidental Revenue Generation for sustainable operation and maintenance of dams; in order to ensure long term sustainability of operations & maintenance of existing dams, it is proposed to encourage the dam owners to explore the incidental revenue generation through innovative ideas i.e. Development of tourism, fisheries, secondary sources of power generation (hydel as well as solar), water recreation activities etc. and divert some part of this generated revenue for O&M of a given dam. Few pilot dams can be selected to experiment this innovation.

Component 4: Project Management; the overall responsibility for project oversight and coordination will rest with the CDSO of CWC. This Organisation will act as the Central Project Management Unit (CPMU). The CPMU will be assisted by a management and engineering consulting firm. Each state and other agency will establish a Project Management Unit (SPMU) attached to the Chief Engineer's (CE) office in charge of the SDSO or any such similar arrangement in power utilities. This Unit will have direct responsibility for the coordination and management of the project at state level.

The primary beneficiaries of the project are the communities that live in dam breach flood inundation areas and the communities that depend on water, irrigation and electricity services provided by the dams that could be compromised by poor dam performance or failure. The Project will be taken up in 19 states covering 300 dams.

1.2. OBJECTIVE AND CONTEXT OF ESMP

A project level ESMF has been prepared and disclosed. In compliance with the ESMF, Environmental and Social Due Diligence has been carried out employing E&S risk screening templates. ESMF mandates that for all Low and Moderate Risk projects, a standard ESMP shall be prepared, which will be updated based on the sub project specific activities. Accordingly, this Standard ESMP is prepared describing the process to manage the impacts identified during the ESDD. The ESMP also determines the implementation schedule, roles and responsibilities, reporting and monitoring requirements. The management plans included in this ESMP outline the environmental and social mitigation measures and management controls to be implemented in compliance with the E&S commitments.

This ESMP is a live document and is subjected to periodic review and updates. The Implementation Agency and contractors are primarily responsible for the implementation of the ESMP. Environmental and social management plans covering various phases, prepared as part of this ESMP shall be updated in line with the dynamics of project progress and stakeholder engagement inputs. If during the operationalization of this ESMP, new conditions emerge and risks and impacts differ from that identified in the ESDD, a new ESMP may be prepared adapting to the new conditions.

1.3. SUB PROJECT DESCRIPTION– AVALANCHE DAM

The Avalanche dam is mainly a Storage reservoir in Kundah basin for the Kundah Hydro electric scheme constructed across the stream Avalanche during 1956-1961. This dam is situated at 22 km from Udhagamandalam in the Nilgiris District, Tamil Nadu.

The total length of this masonry gravity dam is 365.75 m and the height is 57.00 m. It has two vertical lift type gates in Spillway. It receives water from Upper Bhavani dam through Kundah (Avalanche) Power House-V and diverted water from West and East Varahapallam Weirs in addition to the inflow from its own catchment. Avalanche reservoir is interconnected with Emerald reservoir at same FRL of 1985.80 m with a combined storage of 5532 Mcft.

It acts as a buffer storage reservoir feeding the Kundah Hydro Electric Scheme. The water from Avalanche reservoir is being conveyed through tunnel for Power Generation of 3 x 20 MW in Kundah Power House-I at Kundah Palam and the tail water is discharged into Kundah Palam reservoir.

Salient features of the project area are reported below:

1.	River	Avalanche Stream
2.	Location of the Dam	The Avalanche dam was constructed across Avalanche Stream at Emerald. This dam is located at 22 km from Ooty in Nilgiris District, Tamil Nadu.
3.	Latitude	11° 19' 08" N
4.	Longitude	76° 37' 00" E
5.	Total Catchment area	58.534 Sq. Km (Combined) 30.50 Sq. Km (For Avalanche)
6.	Maximum Flood discharge through Spillway	705 Cumecs
7.	Revised Maximum Flood discharge as per CWC recommendation	1765 Cumecs
8.	Type of dam	Masonry Gravity
9.	Height of dam	57.00 m
10.	Scheme work commenced during	1956
11.	Works completed	1961
12.	Reservoir capacity (Combined)	Gross capacity : 156.78 M.cum Effective capacity : 152.80 M.cum
13.	Water spread area (Combined)	8.06 Sq Km 3.818 Sq Km (For Avalanche)
14.	Length of masonry dam	365.75 m
15.	Length of spillway	28.96 m
16.	Crest level of spillway	+1979.70 m
17.	Maximum water level	+1985.80 m
18.	FRL	+1985.80 m
19.	Deepest Bed level	+1933.07 m
20.	Deepest foundation level	+1930.60 m
21.	Top width of dam	6.40 m
22.	Free Board	1.52 m

23.	Spillway	2 vents
24.	Spillway gate	Lifting Type. 12.19 m X 6.10 m – 2Nos.
25.	Top level of Non-spillway	+1987.32 m
26.	Length of Non-spillway	336.79 m
27.	Scour vent sill level	+1935.50 m
28.	Size of Scour vent	1.52 m x 2.13 m
29.	Minimum draw down level	+1943.10 m
30.	Dead storage Level	+1935.50 m

View of Dam

1.4. PROPOSED INTERVENTIONS/ ACTIVITIES AND INTENDED OUTCOMES

Dam Safety Review Panel (DSRP) constituted by CWC, Government of India has inspected and made a review of Avalanche Dam on 05/11/2020 and recommended measures to improve the safety and performance of dam and associated appurtenances in a sustainable manner and also to strengthen the dam safety institutional set-up.

The objectives of the project are to be achieved through investments for physical and technological improvement activities, managerial upgrading of dam operations, management and maintenance with accompanying institutional reforms. The project will improve the safety and operational performance of dam and mitigate risks to ensure safety of downstream population and property. The following rehabilitation proposals as described in the PST have been formulated based on DSRP recommendations and these proposals form the basis for preparation of present ESDD report.

Structural Rehabilitation Works

1. Basic Facilities:-

Improvements to the L/F & R/F approach roads to Dam.

Improvements to the Dam top and approach road lighting.

Providing 40 kVA DG Set, Siren and Lightning arrestor.

2. Remedial Works:-
   Jungle Clearance.
   Repair to revetment / pitching.
   Parapet / Kerb wall.
   Energy dissipation arrangements.
   Colour washing, Painting and Name board.
   Fencing to dam for safety aspects.

3. Earth slip protection works:-
   In the both approach roads and to the left flank on the upstream side.

4. Special repairs to masonry portion of dam:-

   Reaming the vertical & drainage shafts

   Water washing for removal of lime leaching and pointing.

   Spillway treatment.

   Removal of calcination deposits.

   Approach steps.

5. Repairs to shutters:-
   Cleaning and Painting works.

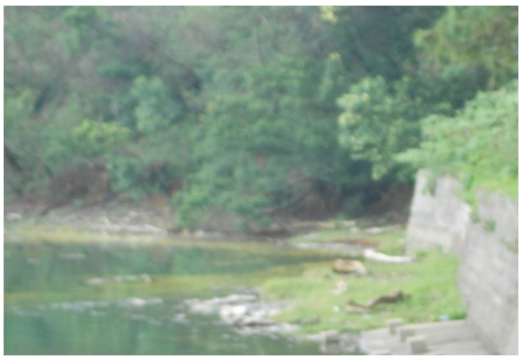
   Dismantling and overhauling the spillway and Scour vent gates.

   Supply and fixing of seal for gates.

   Repair/renewal of hoisting arrangements.

Figures 1.1 and 1.2 provide photographs of key infrastructure proposed for rehabilitation works and also major interventions locations.

DSRP –II team's Inspection of Avalanche Dam.



Extension of Slope protection to the left flank side of reservoir

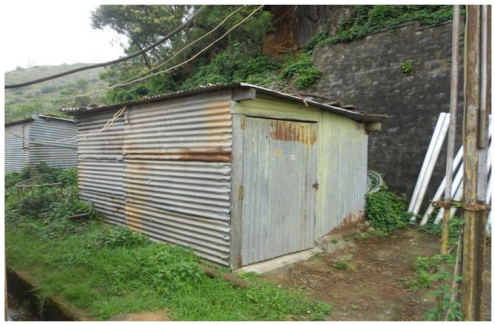
Chocked vertical drainage shafts

Algae growth and open joints in the spillway glacis

Calcinations deposits and sweating on the downstream face of the dam

Condition of Spillway and Scourvent stilling basins

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td colspan="2">Requirement of masonry steps to assess the energy dissipation & drainage gallery</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>V- Notch location inside drainage gallery</td><td>Insufficient lighting inside drainage gallery</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Slippery steps inside drainage gallery</td><td>Earth cutting on the back side of Police guard room require protection</td></tr>
</table>

	
Temporary DG set room to be made permanent	Stretch requiring security chain link fencing
	
Approach steps and security fencing for interconnecting tunnel gate location	Existing condition of Scourvent Emergency gate
	
Existing condition of Scourvent Emergency gate hoisting structure	Existing condition of Intake gates

	
Existing condition of Intake gate hoisting structure	Spillway gate condition
	
Spillway gate hoisting structure	Condition of Interconnecting tunnel gate
	
Insufficient lighting to the top of dam	Insufficient lighting to the approach road

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<tr><td>  </td><td>  </td></tr>
<tr><td colspan="2">Existing damaged condition of left flank Approach road</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Existing condition of right flank downstream approach road</td><td>Existing condition of right flank downstream approach road</td></tr>
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Figure 1.1: Selected Photographs of Improvement/ Intervention area

Figure 1.2: Project Area showing major intervention locations

1.5. ESDD FINDINGS AND KEY IMPACTS TO BE ADDRESSED

ESDD has been carried out considering the above proposals/interventions. The screening and site assessment exercise has identified the nature of risk and impacts, with level of risk and the outcomes are documented in ESDD report. The risks/impacts identified are related to labour employment and working conditions, pollution generation from rehabilitation work and impact on physical environment, SEA/SEAH and GBV risks. These risks are low to moderate and localised, short term and temporary in nature which can be managed following management plans and guidelines.

Environment risks of air, water, noise; land use, soil and resource use for most of the activities are moderate as well as social risks of labour. Environment risks of pollution downstream and upstream is categorised as Moderate for some of the activities along with that of labour camp. As per ESMF, OHS is considered a substantial risk activity for all sub-projects and is being treated separately through OHS plan in accordance with WBG Environmental Health and Safety (ESHS) Guidelines and shall be applicable to all sub-projects. Hence it was not being considered under screening criteria. Occupational health and safety is considered an important requirement and shall be managed as per above stated OHS plan and will be part of Contractor's ESMP.

Based on ESDD findings, WB Environmental & Social Standards (ESS) applicability analysis and recommended management plan is given at Table 1.1.

Table 1.1 WB-ESS Applicability Analysis and Recommended management plan

WB-ESS	Recommended Management Plan	Applicability To Avalanche Dam
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	Gender Based Violence or SEA/SH related actions	Applicable
ESS2: Labour and Working Conditions	Labour Management Procedure including Occupational health and Safety	Applicable
ESS3: Resource Efficiency, Pollution Prevention and Management	Pollution Prevention and Environment Quality Management Plan including Muck/Debris Management	Applicable
ESS 4: Community Health and Safety	Community Health and Safety Plan	Applicable
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Resettlement Action Plan/ Livelihood improvement Plan	Not Applicable
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural resources	Biodiversity Conservation Plan	Not Applicable
ESS 7: Indigenous	Tribal Development Plan	Not Applicable

WB-ESS	Recommended Management Plan	Applicability To Avalanche Dam
Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities		
ESS 8: Cultural Heritage	Cultural Heritage Protection Plan	Not Applicable
ESS 10: Stakeholder Engagement Plan	Stakeholder Engagement Plan	Applicable

The above recommended plans are discussed in detail in Chapter 2.

CHAPTER 2: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS

The E&S management plans prepared for the risks and impacts identified as part of ESDD are presented hereunder. Each plan includes mitigation measures specific to the risks and impacts and where applicable, sets out the framework for other plans and procedures to be developed later in the Project. Constructions contractors will develop and implement their own site specific C-ESMPs.

2.1 GENDER BASED VIOLENCE OR SEA/SH RELATED ACTIONS (ESS1)

The following key actions are to be ensured during implementation:

S. No.	Key Action to address GBV/SEA/SH Risks	By Whom
1	Clearly define SEA/SH requirements in Bid-documents and also the requirement for a CoC which addresses SEA/SH, using Standard WB procurement documents	SPMU
2	Operationalize or constitute Internal Complaints Committee as per Prevention of Sexual Harassment at Workplace procedure	SPMU
3	Implement appropriate project-level activities such as: Separate, safe and easily accessible facilities for women and men in the place of work and the labour camps. (e.g. toilets should be located in separate areas, well-lit) display signs that the project site is an area where SEA/SH is prohibited.	Contractor (implementation) GBV Focal Point at SPMU. Engineer in Charge
4	Ensure Codes of Conduct are clearly understood and signed by those with a physical presence at the project site; Train project staff on the behaviour obligations under the CoCs and Disseminate CoCs (including visual illustrations) and discuss with employees and local communities.	Engineer in Charge Contractor
5	Undertake regular M&E of progress on SEA/SH prevention and response activities, including reassessment of risks as appropriate.	GBV Focal Point at SPMU/IA

Implementation costs would include: preparation of sign boards, posters, conducting of awareness trainings by Implementing Agency and also by Contractor.

2.2 LABOR MANAGEMENT PROCEDURE (ESS2)

2.2.1 OVERVIEW OF LABOUR USE IN THE PROJECT

Number of Project Workers: Approximately 60 workers at different points of time (Direct workers, Contracted workers and Community workers) shall be engaged for the rehabilitation works

Characteristics of Project Workers: As per the proposed execution strategies for all Low to Moderate risk sub-projects, the following categories of project workers are identified:

i) Direct workers – all the existing dam site officials including those sent on deputation from other departments involved in the project activities;
ii) Contracted workers - all IAs would engage Contractors to undertake rehabilitation works; agencies/firms to support core service functions such as SCADA systems, etc. These contractors shall bring skilled Migrant workers for some of more specialized tasks; and
iii) Community workers (or volunteers particularly for EAP).

Timing of Labor requirements: See Table below:

S.No.	Type	Numbers	Locations	Duration	Skills required
1	Direct Workers (Project officials)	5-7	Dam site	Throughout	Executive and Supervisory
2	Contracted Workers	30-50	Dam site	18 months	Varied (skilled, semi skilled)
3	Community Workers	10-15	Villages/areas in the vicinity of the dam	Only during EAP implementation	Community facilitation skills

2.2.2 ASSESSMENT OF KEY POTENTIAL RISKS

Labour related risks would include:

- Safety issues while at work like injuries/accidents/ fatalities Occupational health and safety risks due to exposure of workers to unsafe conditions while working at heights, working using lifts, handling of equipment and machinery, exposure to air and noise pollution etc. will be addressed through OHS guidelines.
- Short terms effects due to exposure to dust and noise levels, while at work
- Inadequate accommodation facilities for labour, including inadequate sanitation and health facilities
- Discrimination in Employment (e.g. abrupt termination of the employment, working conditions, wages or benefits etc.)
- Sexual harassment at work
- Absence or inadequate or inaccessible emergency response system for rescue of labour/workforce in situations of natural calamities.
- Health risks of labour relating to HIV/AIDS and other sexually transmitted diseases
- Non-payment of wages
- Unclear terms and conditions of employment

- Discrimination and denial of equal opportunity in hiring and promotions/incentives/training opportunities
- Denial for workers' rights to form worker's organizations, etc.
- Absence of a grievance mechanism for labour to seek redressal of their grievances/issues

Brief overview of labour legislation: Occupational health and safety: Refer to Annexure 1

2.2.3 RESPONSIBLE STAFF

See Table below for list of key activities with responsibilities:

S.No.	Activity	Responsibility
1	Engagement and management of Contractors	SPMU of IA (TANGEDCO)
2	Engagement and management of Sub-Contractors	Contractor
3	Occupational Health and Safety (OHS)	E&S Specialist, Dam Manager and Engineer-In-Charge
4	Training of Workers	E&S Specialist, Dam Manager and Engineer-In-Charge
5	Addressing worker grievances	Contractor (with oversight by IA)

2.2.4 POLICIES AND PROCEDURES

These are listed below under the following sub-headings: i) Incidents and Accident Notification; ii) GBV/SEAH related iii) Occupational Health and Safety; and iv) COVID considerations.

i) **Incidents and Accident Notifications:** The contractor will promptly notify to the IA/SPMU within 24 hours any major incident or accident having significant impact on the environment, tangible cultural heritage, communities, the public or workers. They will provide sufficient detail regarding the incident or accident, indicating immediate measures taken to address it, and including information provided by any contractor and supervising entity. Further, the SPMU will appraise this to CPMU and WB.

ii) **GBV/SEAH related:** More than 95% of the contract labor is expected to be men, and women's participation as contract labor or community labor is going to be very low. Contractors will need to maintain harmonious relations with local communities by ensuring laborers/workers adhere to Code of conduct (CoC). The CoC commits all persons engaged by the contractor, including sub-contractors and suppliers, to acceptable standards of behavior. The CoC will include sanctions for non-compliance, including non-compliance with specific policies related to gender-based violence, sexual exploitation and sexual harassment (e.g., termination). The CoC will be written in plain language and signed by each worker to indicate that they have:

- received a copy of the CoC as part of their contract;
- had the CoC explained to them as part of induction process;
- acknowledged that adherence to this CoC is a mandatory condition of employment;
- understood that violations of the CoC can result in serious consequences, up to and including dismissal, or referral to legal authorities.

To mitigate potential risks related to on-site safety and GBV, the Contractor will undertake actions as given in Table below:

S.No.	Action	Timelines
1	Separate, safe and easily accessible facilities for women and men in the place of work and the labour camps. (e.g. toilets should be located in separate areas, well-lit)	Throughout construction period
2	Display signs that the project site is an area where SEA/SH is prohibited.	Throughout construction period
3	Ensure Codes of Conduct are clearly understood and signed by those with a physical presence at the project site;	Upon joining
4	Train project staff on the behavior obligations under the CoCs and Disseminate CoCs (including visual illustrations) and discuss with employees and local communities.	Periodic; every six months

iii) Occupational Health and Safety

IA is committed to:

- Complying with legislation and other applicable requirements which relate to the occupational health and safety hazards.
- Enabling active participation in OH&S risks elimination through promotion of appropriate skills, knowledge and attitudes towards hazards.
- Continually improving the OH&S management system and performance.
- Communicating this policy statement to all persons working under the control of IA with emphasis on individual OH&S responsibilities.
- Availing this policy statement to all interested parties

To avoid work related accidents and injuries, the contractor will:

- Provide adequate number of good quality appropriate PPEs – helmets, gum boots, safety belts, safety harness, gloves, overalls, ear plugs, face masks, life jackets etc.
- provide Training to workers on use of appropriate PPEs and how to respond during emergency
- Display EHS instructions at site
- Make provision of First aid boxes with availability and trained first aiders at site
- Ensure availability of portable fire extinguishers
- Ensure safe handling of welding gas LPG, oxygen or acetylene cylinders.
- Inform of assembly area in the emergency scenario
- Provide adequate number of toilets and arrangement for potable drinking water for all workers.

- Ensure proper disposal of solid waste at designated permitted sites/landfill allocated by the local authorities;

Further to enforce the compliance of environmental management, contractors will be responsible and liable for safety of site equipment, labours and daily workers attending to the construction site and safety of citizens for each work site, as mandatory measures.

Occupational Health and Safety Monitoring

OHS compliance monitoring will carried out by designated E&S Expert every month. Contractor will provide compliance in initial report to Engineer in charge and thereafter submit a compliance report every 3 months. Following shall be covered as part of OHS monitoring:

- Health check-up records of workers
- Accident hot spots on transport route, if any
- Training and awareness of labour – OHS, Emergency Management, Use of PPEs
- Identification of hazardous working locations and marking
- Emergency response procedure
- Availability of PPEs – types, numbers
- Accident reporting

Communication and Consultation (Workers)

Workers consultation will be regular features. However this aspect shall be as per consultation process defined under other plans and ESS4.

Training and Records

Contractor will provide training to all workers before start of work and thereafter every three months. He will maintain training records and share the details with E&S experts of the dam as part of his quarterly progress report. The training should cover the following:

- General awareness about the site, type of works to be carried out and risks involved
- Use of appropriate PPEs for different types of works including dust masks and ear muffs
- Following work instructions for hazardous/risky operations as marked on site
- How to act during emergency including basic rescue operations and accident reporting
- Location of first aid boxes and fire extinguishers and how to use them

Emergency Preparedness and Management

Emergency Preparedness and Management Plan shall be followed as given under ESS 4

Reference to World Bank Group –(WBG) Environmental Health and Safety (EHS) and Other Guidelines

The WBG Guidelines of Environmental Health and Safety (WBGEHS) provide detailed guidance note on health and safety requirement and good practices. The WBGEHS guidelines are intended to be used in conjunction with Indian legislation on OHS at construction sites and shall be referred by contractor and IAs while finalizing site specific contractor's EHS management plan.

iv) COVID Considerations:

COVID considerations: Influx of Migrant Labour is likely as there will be a need to perform high skilled jobs which may not be available locally or even within the state. These are likely to come from other states or adjoining states or districts. Possibly 10-15 persons are required for highly skilled jobs. The remaining – semi-skilled and unskilled labor will be sourced from within the district.

At the time of labour engagement and start of work or anytime during the execution of work, any directives issued by government with respect to labour, movement, labour stay at site, social distancing or any other restriction put in place to contain the spread of infectious disease such as Covid 19

Actions by IA

IA will monitor and ensure that contractor will follow any restriction on movement or advice on distancing as issued by government due to Covid 19 or any other infectious disease during the period of construction. IA will request the details from the Contractor about the measures being taken to address the risks. This may include the following aspects as relevant

a. Conducting pre-employment health checks
b. controlling entry and exit from site/workplace
c. General hygiene
d. Cleaning and waste disposal
e. Adjusting work practices
f. reviewing accommodation arrangements, to see if they are adequate and designed to reduce contact with the community
g. reviewing contract durations, to reduce the frequency of workers entering/exiting the site
h. rearranging work tasks or reducing numbers on the worksite to allow social/physical distancing, or rotating workers through a 24-hour schedule
i. providing appropriate forms of personal protective equipment (PPE)
j. Instances of spread of virus
k. Training and communication with workers
l. Communication and contact with community

i. **Request the Contractor to convene regular meetings** with the project health and safety specialists and medical staff (and where appropriate the local health authorities), and to take their advice in designing and implementing the agreed measures.
ii. **A senior person** should be identified as a focal point to deal with COVID-19 issues e.g. work supervisor or a health and safety specialist
iii. **Request for coordination arrangements,** particularly at site where there are a number of contractors and therefore (in effect) different work forces *(PIU could request the main contractor to put in place a protocol for regular meetings of the different contractors)*
iv. **Check with Contractors** on whether the workers are informed/encouraged to use the existing project grievance mechanism to report concerns relating to COVID-19

2.2.5 AGE OF EMPLOYMENT

The minimum age of employment for this project shall be 18 years and to ensure compliance, all employees will be required to produce a valid proof of age. If any contractor employs a person under the age of 18 years, that contractor will not only be terminated by IA but also be reported to the authorities.

2.2.6 TERMS AND CONDITIONS

Terms and conditions for three types of workers are presented below:

i. The Direct Workers (Dam officials, government officials) are governed by their employment agreements with the Water Resources Department

ii. Contractors will also be required to comply with the most current Regulation of Wages for the Building and Construction Industry which is issued by the Government and reviewed on a regular basis. The Minimum Wage Act specifies the minimum wages, hours of work, overtime pay, leave entitlements, travelling and Subsistence Allowances and the issue of protective clothing. Before a contract is awarded, contractor is required to certify in writing that the wages, hour and conditions of work or persons to be employed by him on the contract are not less favourable than those contained in the most current wages regulation issued by the Labour Commissioner. Where a contractor fails to comply with this requirement, the contract with the contractor may be withdrawn as an approved contractor upon recommendations of the Labour Commissioner.

In ensuring full compliance with the law in this regard, contractors will be required to furnish with copies of the labour license and/ or copies of contract of its entire workforce. As a monitoring mechanism, a contractor shall not be entitled to any payment unless he has confirmed that all employment conditions of the contract are being complied with. The IA would intervene if the contractor defaults in the payment of wages due to any of its employees.

'Community Workers' is further detailed in following sections.

2.2.7 GRIEVANCE MECHANISM

The Grievance Mechanism for Workers will be organized as follows.

i. **Direct Workers (Project Officials):** The Executive Engineer, Dam Authority, will be responsible for providing guidance and advice on all worker related grievances and their redressal, in line with the state and national legislation and the LMP.

ii. **Contract Workers:** While the Contractor will have his own GRM, the IA (Water Resources Department will have oversight) and the overall responsibility for ensuring the establishment and implementing the GRM for project workers. In this regard, the Executive Engineer will be responsible to ensure that the Contractor has established and operationalised the contract workers grievance redress mechanism. In this, Contractor will be supported by Environment and Social nodal officers by IA designated for the purpose. S/he will also be responsible for tracking and resolving workers grievances. S/he shall maintain records where grievances and complaints, including minutes of discussions, recommendations and resolutions made, will be recorded.

COVID considerations: In COVID context, the nature of complaints may be particularly time-sensitive and sensitive in terms of confidentiality. Hence, Contractor should consider streamlined procedures to address specific worker grievances, which would allow workers to quickly report labor issues, such as a lack of PPE, lack of proper procedures or unreasonable overtime, and allow the project to respond and take necessary action.

iii. **Community Workers:** The Executive Engineer, Dam Authority, will be responsible for providing guidance and advice on all community worker related grievances with this LMP.

The designated Social Expert in SPMU will provide overall implementation and capacity building support on resolving all workers grievances and will support the Executive Engineer in this regard. S/HE will also include workers grievance status in the progress report. Grievances will continue to be received through established communication channels. Workers will also be able to submit their grievances through the district Labour Department, whose contacts will be shared with all the contractors and worksites.

2.2.8 CONTRACTOR MANAGEMENT

IA will ensure that contractor monitor, keep records and report on terms and conditions related to labour management. The contractor must maintain records with evidence of all payments made, including social security benefits, pension contributions or other entitlements, as applicable based on workers engagement i.e.-fixed term contract, full-time, part-time or temporary. The application of this requirement will be proportionate to the activities and to the size of the contract, in a manner acceptable to CPMU and the World Bank:

Labour conditions: records of workers engaged under the Project, including contracts, registry of induction of workers including CoC, hours worked, remuneration and deductions (including overtime), collective bargaining agreements;

Safety: reportable incidents and corresponding Root Cause Analysis (lost time incidents, medical treatment cases), first aid cases, high potential near misses, and remedial and

preventive activities required (for example, revised job safety analysis, new or different equipment, skills training, and so forth).

Workers: number of workers, indication of origin (local and migrant), gender, age with evidence that no child labour is involved, and skill level (unskilled, skilled, supervisory, professional, management).

Training/induction: dates, number of trainees, and topics.

Details of any security risks: details of risks the contractor may be exposed to while performing its work; the threats may come from third parties external to the project. Worker grievances: details including occurrence date, grievance, and date submitted; actions taken and dates; resolution (if any) and date; and follow-up yet to be taken; grievances listed should include those received since the preceding report and those that were unresolved at the time of that report.

2.3 RESOURCE EFFICIENCY AND POLLUTION PREVENTION (ESS3)

2.3.1 POLLUTION PREVENTION AND ENVIRONMENT QUALITY MANAGEMENT PLAN (PPEQMP)

Dam rehabilitation work in general can be categorised as civil work including paint work and hydro-mechanical work. requiring labour involvement for works, use of resources such as raw material, water and power during construction, pollution generation from storage and handling of material, generation of waste, use of paints and other chemicals for construction activities and generation of hazardous waste, transportation of raw material, etc. As all the proposed structural interventions are within the dams' premises, no adverse impacts are envisaged on communities including on the disadvantaged or vulnerable people.

Resource Efficiency, Pollution Prevention and Management plan is prepared to address potential risks identified with respect to resource use and pollution generation from civil, hydro-mechanical and painting work and also from labour camps and colonies.

2.3.2 OVERVIEW OF PPEQMP

a) Water Management

The proposed intervention activities are not expected to impact water resources as the interventions are neither disturbing drainages nor impacting ground water resource in any form. Use of resources such as water and power will be optimized before start of work.

Construction related impacts and risks for water quality include:

- Accidental release of fuel or chemicals and contamination from poor waste management practices can affect surface and groundwater; although quantum of waste is expected to be small.
- Fuel/oil leakage from construction machinery working near water bodies
- Construction work along river bank
- Generation of sanitary wastes from labour colony and construction sites finding way to water bodies

Pollution prevention and control measures to avoid surface water pollution shall include:

- Labor camp will have adequate sanitation arrangement in terms of mobile/fixed toilet with arrangement of sewage collection and disposal. No wastewater from the camp/work force site shall be discharged directly without any treatment in to any surface water channels or drain, which eventually joins surface water bodies.
- The oil/lube storage shall be under roofed areas with impermeable cement concrete surfaces and provided with separate drainage system with oil separators. No discharge from oil/lube storage areas shall be directly discharged in to any open surface water channel/ streams.
- No construction debris and/or spills of construction materials are dumped on to stream waterway.

- Construction work along river bank shall be done in lean season when surface water level has receded and clear construction area is available.
- Activities like Rip-rap replacement and work on upstream side of dam (reservoir side) will be taken up only when the water level is low and clear work area is available. Adequate protection needs to be provided to avoid spillage of chemicals/construction material in reservoir.

b) Air Quality Management

Construction activities can give rise to dust emissions if not effectively managed and have the potential to affect receptors near to the main construction sites due to dust generated from demolition, excavation, operation of construction equipment and machinery, increased movement of vehicles, on to the local road network. Earth works will result in exposed areas of soil which will potentially generate dust when the weather is windy. The level and distribution of dust emissions varies according to the duration and location of activity, weather conditions, and the effectiveness of suppression measures.

Gaseous emission during construction will be from machinery, equipment and vehicles used for material transportation. The operation of vehicles and equipment will result in emissions of carbon monoxide, sulphur dioxide, and oxides of nitrogen. In particular, all commercial vehicle driven with diesel fuel is often used in India. Impact is expected to be localised. Keeping in view the quantum of work and requirement of raw material, there will be only 4-5 vehicles required and therefore emission on village road due to vehicular movement will not be significant.

As the project is presently operational and the interventions are not going to alter the project operation in any manner, no operational phase impacts are envisaged on ambient air quality.

Pollution prevention and control measures to avoid air pollution shall include:

Among the air pollutants, dust levels in term of $PM_{2.5}$ and PM_{10}, is the most significant. In order to prevent and control the dust levels, the following measures are to be strictly adhered to:

- The contractor/transporter shall carry valid PUC (Pollution under Control) certificate and only compliant vehicles shall be deployed during construction.
- The vehicles and equipment used during construction should be we well maintained, to ensure minimum emissions. Engineer in Charge will carry out physical inspection to ensure compliance.
- The contractor shall provide wind barrier, if required, depending on most prevailing wind direction and presence of sensitive receptors at downwind side, at perimeter of construction site to arrest or blowing of suspended particle.

- Regular sprinkling of the water will be done on construction sites for dust suppression if there is potential of dust emission from storage of handling of lose material.
- If power connection is not available, Mobile DG sets may be used for lighting only during construction phase and they should meet emission and noise standards as per guidelines/standards issued by CPCB.
- All the construction workers and other staff, who get directly exposed to dust, should necessarily be provided with dust masks.

c) Noise and Vibration Control

Sources of noise will be the vehicles and equipment for construction at the project sites. Due to construction activity in the area, noise levels will increase during the period of construction, however, they will remain limited to the work area mainly where construction activity will progress.

Impact of noise generation due to operation of construction machines and equipment is the exposure of workers operating these machines and other who are working in the surrounding. Such impacts can become significant if they are exposed to high noise for long hours continuously.

Pollution prevention and control measures to avoid Noise pollution shall include:

- DG sets, if required, will have a valid Type Approval Certificate and Conformity of Production certificate as per CPCB guidelines.
- All the construction equipment will be required to use available noise suppression devices and properly maintained mufflers.
- Workers in high noise area, will be provided with ear muffs. Workers exposure (time duration) to high noise will also be controlled.
- Minimize the use of noise producing equipment during night hours to avoid the disturbance to locals and wild animals of surrounding area.
- Vehicles to be equipped with mufflers recommended by the vehicle manufacturer.
- Movement of vehicles on village roads especially heavy vehicles for transportation of construction material, equipment, etc. shall be done during day time only.

d) Waste Management from Hydro-mechanical works

Project interventions include hydro-mechanical work such as repair/replacement of hoists and ropes, repair and general maintenance and up keeping of gates, etc. These activities will generate waste in terms of replaced parts, packaging material, empty containers, use and disposal of oil & grease, iron scrap, etc. There will be a mix of hazardous and non-hazardous wastes. It is important to have a plan ready for disposal of such wastes before start of the activity.

Pollution prevention and control measures with respect to waste management shall include:

Project engineer needs to identify all the waste generated from hydro-mechanical work include replaced parts with estimated quantities and categorisation as hazardous and non-hazardous waste. Storage and disposal of removed parts need to be planned by Executive Engineer; separately for hazardous waste which will be given to authorised vendors only.

e) Muck/Debris Management

Rehabilitation work will generate muck and construction debris due to repair and demolition works such as removal and fresh laying of rip-raps, removal of top layer during road repairs, operation of construction equipment and machinery and waste generation thereof, etc.

Pollution prevention and control measures in respect of Muck/Debris management shall include:

- Muck/debris disposal site shall be identified by contractor and concerned Executive Engineer together and necessarily avoid natural water courses.
- While identifying such locations, Endeavour would be to find low lying areas nearby so as to avoid effort of transporting muck/debris.
- Area on the course of natural drainage should be avoided.
- The construction debris from all operational areas shall be regularly scavenged and disposed off at identified disposal sites only.
- No dump site shall be located in forest area.
- No dump site shall be located on agricultural area.
- The Contractor shall educate his workforce on issues related to disposal of waste.
- The debris disposal sites have to be suitably rehabilitated by levelling and restoring to original conditions
- If required, grass and local shrubs should be planted to rehabilitate the site.

2.3.3 HOW WATER AND OTHER RESOURCE USE WILL BE PLANNED

Resource planning will be done by contractor in consultation with engineer in charge. After award, the contractor will make an estimate of the raw material requirement, sources for procurement and transportation route. Contractor will discuss the plan with Engineer in Charge at site and get approval.

Material to be procured from quarry/borrow area, shall be identified by contractor along with source. Approval status will be submitted to engineer in charge for consent.

Requirement of water and power at various locations for construction work and labour camp shall be established by contractor and discussed with Engineer in charge. Locations, where DG power is to be used, shall be identified along with location of DG set and its noise and emission impacts on labour and community. Mitigation measures such as ear muffs for labour and sound barrier for community, if required shall be established.

2.3.4 ENVIRONMENTAL QUALITY MONITORING PLAN AND PROTOCOLS

This being rehabilitation work limited to dam area only with localised impacts which can be managed by implementing standard ESMP, environment quality monitoring is not required. However, keeping in view that some of the dams are located in proximity to protected areas, environmental quality monitoring will be carried out at such dams only.

Environment Quality monitoring requirements for dam located in proximity to protected areas are tabulated below:

Activity	Parameters	Locations	Frequency	Responsibility
Ambient Air Quality	$PM_{2.5}$, PM_{10} and SO_2 for 24 hours	At two major location of rehabilitation works to be identified by E&S Expert	Once before start of construction, once during the construction period and one at end of rehabilitation work	Contractor through NABL accredited Lab
Sound Levels	dB(A) levels – day and night equivalents – hourly reading during day and night time for 24 hrs	At two major location of rehabilitation works to be identified by E&S Expert	Once before start of construction, once during the construction period and one at end of rehabilitation	Contractor through NABL accredited Lab
Wastewater discharge	Physical inspection to ensure wastewater from rehabilitation work is not being disposed off in river	All rehabilitation worksites using water	Once every month	Engineer in charge through E&S Expert
Muck and debris handling and disposal	Physical inspection to ensure muck/debris from rehabilitation work is being securely disposed off at identified and approved location	All rehabilitation worksites generating muck/debris	Once every month	Engineer in charge through E&S Expert
Storage and disposal of hazardous waste	Physical inspection to ensure hazardous waste is being segregated and securely disposed off to authorised vendors	All rehabilitation worksites generating hazardous wastes	Once every month	Engineer in charge through E&S Expert

2.3.5 REPORTING

Contractor will prepare a Quarterly Progress report (QPR) and submit to Engineer in Charge. The report will cover the compliance status of the Project with the ESMP in their scope and shall include Muck/Debris Management, Resource Conservation and Pollution Prevention Plan implementation. The Engineer in Charge through E&S expert at SPMU will include its own monthly inspection report and submit the report to SPMU/IA every quarter.

2.4 COMMUNITY HEALTH AND SAFETY (ESS4)

2.4.1 OVERVIEW

Dam rehabilitation work, although limited to dam complex, can increase community exposure to risk and impacts. ESS4 addresses the health, safety, and security risks and impacts on project-affected communities and the corresponding responsibility of SPMU/IA to avoid or minimize such risks and impacts, with particular attention to people who, because of their particular circumstances, may be vulnerable. Occupational health and safety (OHS) requirements for project workers are set out in ESS2, and measures to avoid or minimize impacts on human health and the environment due to existing or potential pollution are set out in ESS3. ESDD has identified that there will not be any direct risks and impacts on communities due to proposed rehabilitation work including those who are vulnerable. Following sections propose mitigation measures in accordance with mitigation hierarchy to mitigate any indirect impact on communities

2.4.2 HAZARD IDENTIFICATION

Implementation of sub-project activities does not pose any community health and safety risks as the proposed rehabilitation work will be limited to dam area only. However, transportation of material; setting up of labour camp; influx of workers, though small in number and generally skilled workers only; pollution generation from rehabilitation work; may have indirect impact on community as identified in the ESDD report. The risks are summarized below:

Traffic and Road Safety – Sub-project activities are largely structural interventions categorised as civil works and hydro-mechanical works. This would require transportation of construction material, equipment and machinery, instrumentation, parts and accessories to the dam. In addition, there will be movement of workers (direct and contract workers) to and from site. Transportation of man and material will increase traffic on the village roads during the period of construction leading to increased risk of accidents, spillages, and noise and air emissions on generally deserted village roads. Keeping in view the nature of proposed rehabilitation work, only few vehicles will be added per day, therefore this activity do not pose any risk to community.

Community Exposure to Health Issues – The sub-project activities will require contract workers – skilled and unskilled. It is expected that unskilled workers will be available locally; however, a small number of skilled workforce will come from outside the area and expected to stay at site. Influx of workers and setting up of temporary labour camp interfacing with community may increase the health risk of community. Migrant workers can be potential carriers of new infectious diseases not known in the area and impact the community health. Labour camp in vicinity of community may pose risk of unplanned waste and waste water discharge.

Management and Safety of Hazardous Material – Sub-project civil and hydro-mechanical interventions may require use of hazardous material in limited quantities such as fuels, flammable gases such as acetylene and LPG, etc,. Transportation, storage and handling of these hazardous materials require careful handling and disposal to minimise risk of public exposure or polluting community land and water resource.

2.4.3 HAZARD RISK MANAGEMENT

Following measures are proposed to minimise the community health and safety risks due to sub-project activities:

Traffic and Road Safety

- Transportation of lose construction material will be through covered vehicles only
- PUC for all transport vehicles will made compulsory
- No large scale movement of vehicles at night time
- Drivers will be issued instructions to follow signage and safety norms

Community Exposure to Health Issues

- Health and hygiene requirement of the labour camp will be maintained though out the project cycle – potable water, power, community/individual kitchen, waste management
- Separate toilets for male and female workers staying in labour camp connected to septic tanks/adequate waste collection and disposal arrangement
- Waste management system will be implemented in labour camp by providing adequate number of bins and collection system to avoid littering of waste
- Labour will be sensitized to follow good health and hygiene practices for their as well communities health

Incident Management, OHS monitoring, training:

Labour interaction with communities, Incident prevention and management, OHS monitoring, Health and Hygiene, training are discussed as part of labour management Plan ESS2.

2.4.4 COMMUNICATION AND CONSULTATION (WORKERS & COMMUNITY)

Stakeholder consultation was carried out involving direct workers and community in the month of June / 2020, during ESDD preparation. Direct workers are well aware of rehabilitation work and confirmed these activities remain limited to dam complex only. Community participants welcomed the proposed interventions relating to dam safety and confirmed that there are no pending issues regarding dam construction related resettlement. The participants explicitly mentioned that the dam is their lifeline and strengthening works will help their long term livelihood and therefore welcomed such information. Participants have expressed that they do not have any grievances and as such no grievances were ever reported from their communities/neighbourhoods. Consultations will be continued during various phases of the project by IA.

2.4.5 EMERGENCY MANAGEMENT PLAN

Emergency Management Plan should be displayed prominently at work site in local language for ease of understanding of workers and staff. It should contain following information:

1. Name, Designation & Contact Numbers of the site supervisor and alternate to be informed in case of any emergency;
2. Contact details of nearby hospitals, fire department and police department
3. Location of fire extinguishers, first aid boxes, emergency alarm and assembly points
4. Potential Emergencies Situations such as fire, fall, electric shock, etc. & response measures such as use of fire extinguishers, rescue procedures, switching off main power (can be made pictorially)

Responsibility of site supervisor (or his alternate in case he is not present) will be clearly defined including:

1. Assess the level of emergency
2. Providing first aid/organize rescue, as per the emergency situation
3. Assess the need for hospitalization and call ambulance
4. Evacuate the area/limit entry after assessing type of emergency
5. Assess emergency situation and its potential of expanding and inform IA and first responders, as required (fire, police and medical)
6. Prepare accident report – root cause, corrective action and preventive action

2.4.6 EMERGENCY CONTROL CENTRE

Control room at dam serves as Emergency Control Centre, which has basic communication facilities. The same will be upgraded to serve as emergency control centre with following facilities:

- Display of the name of site emergency controller and all relevant phone numbers – project personnel, police, fire, medical, district administration
- Phone connection – landline/mobile (2 numbers)
- Site layout diagram with entry and exit routes / Assembly points
- Two numbers of first-aid boxes with prescribed first-aid medicines
- Two numbers of blankets
- Drinking water
- Two numbers of rescue ropes
- Two numbers of high beam torches
- Fire extinguisher of DCP and CO2 type.

2.4.7 REFERENCE TO IFC ENVIRONMENTAL HEALTH AND SAFETY GUIDELINES

The IFC guidelines of environmental health and safety provide detailed guidance note on health and safety requirement and good practices. This manual shall guide contractor and IAs while finalizing site specific contractor's EHS management plan.

2.5 BIODIVERSITY CONSERVATION MANAGEMENT PLAN (ESS6)

2.5.1 APPLICABILITY OF BIO CONSERVATION AND MANAGEMENT PLAN (BCMP) TO A SUB-PROJECT

"Protected Area" means a National Park, a sanctuary, a conservation reserve or a community reserve notified under Wildlife Protection Act. Any new or expansion project within or in proximity to protected area, will have to undergo wildlife Clearance, however, rehabilitation work at existing dams in proximity to protected area do not require any clearance/compliances.

WB ESS6, "Biodiversity Conservation and sustainable Management of Living Natural Resources" requires assessing its applicability to a sub-project during ESDD, keeping in view the potential impact on biodiversity or habitat either positively or negatively, directly or indirectly.

Keeping the above in view, Biodiversity Conservation and Management Plan will be prepared for only those sub-projects which are in close proximity to any of the protected areas, to mitigate potential indirect impacts. The requirement is established during ESDD.

2.5.2 SUB PROJECT DESCRIPTION

This section will briefly describe the sub-project including activities/interventions proposed in proximity to protected area, if any.

2.5.3 INVENTORY OF TERRESTRIAL AND AQUATIC FLORA FAUNA

This section will describe the protected area and its importance with respect to terrestrial and aquatic flora and fauna species being protected.

2.5.4 LIKELY IMPACT OF PROJECT ACTIVITIES ON BIODIVERSITY AREAS.

A brief from the ESDD report about likely indirect impacts of sub-project rehabilitation work on protected area.

2.5.5. CONSERVATION AND MANAGEMENT PLAN

Following measures are proposed for conservation of biodiversity:

- Labour will be sensitized to ensure that they do not indulge in tree cutting or hunting.
- Any access/short cut, linking work sites and labour camp through PA will be blocked/fenced
- Project authorities/contractor will be bound by rules and regulation of Wildlife (Protection) Act, 1972 of India and any other rule and guidelines, stipulated by the state Government.
- No dumping site will be identified in the protected area (this is not permitted by law) and no waste dumping (even temporary) will be permitted in that area.
- 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

- In case of any violation, strict action and penalties would be levied in accordance with the law by appropriate authority.

2.5.6 MONITORING, COMPLIANCE REPORTING AND BUDGET

Physical inspection by Engineer in Charge, before start of work and thereafter every month to check:

- Location of labour camp/colony with respect to conservation area and expected locations of breach
- Route of labour movement from camp/Colony to work site and back and any possible interference with the protected area (block any short cuts/access)
- Review of complaints received, if any, reporting labour movement in the protected area and take corrective action
- Review of labour training content and record to ensure labour is sensitized to the need of biodiversity conservation
- Preparing quarterly compliance report

BIODIVERITY CONSERVATION PLAN HAS NOT BEEN PREPARED FOR AVALANCHE DAM SINCE IT IS NOT APPLICABLE.

2.6 TRIBAL DEVELOPMENT PLAN (ESS7)

2.6.1 APPLICABILITY OF TRIBAL DEVELOPMENT PLAN (TDP) TO A SUB-PROJECT

Scheduled Areas are areas in India with a preponderance of tribal population subject to a special governance mechanism wherein the central government plays a direct role in safeguarding cultural and economic interests of scheduled tribes in the area. At present, 10 States namely Andhra Pradesh, Chhattisgarh, Gujarat, Himachal Pradesh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan and Telangana have Fifth Schedule Areas. Schedule VI of Article 244 (2) &Article 275 (1) of the Constitution of India makes separate arrangements for the tribal areas of Assam, Meghalaya, Mizoram, and Tripura. Rehabilitation work proposed at sub-projects will be limited to dam area and no structural interventions are proposed outside, therefore, no direct impact on local community is assessed as part of ESDDs. The project activities do not lead to any direct or indirect impacts on local communities due to structural interventions. Only non-structural interventions such as preparation and implementation of EAP and early flood warning systems will involve engaging with variety of stakeholders including tribal groups, living in the vicinity of the dam and would need to be consulted and informed in culturally appropriate approach – language, techniques that are familiar to them.

Tribal Development Plans will be prepared specifically for those sub-projects which fall in Schedule V and VI areas; to ensure engagement of tribal population in culturally appropriate manner during non-structural interventions.

2.6.2 TRIBAL GROUPS IN THE AREA

This section will describe the tribal groups present in the area. This should also cover the baseline data for the district - demography, occupation, etc. This should also summarise the tribal welfare programs being implemented in the area.

2.6.3 PREVIOUS CONSULTATIONS

This section will describe the stakeholder consultation carried out and concerns/observations of the local population with respect to dam rehabilitation work proposed. Any inputs specific to or from the tribal groups will be captured.

2.6.4 SOCIAL IMPACTS, IF ANY

This section will describe potential positive and negative impacts – direct or indirect, if any of the rehabilitation work on tribal population such as:

Positive Impacts: The tribal households will be indirectly and positively benefited by the dam safety interventions proposed for each sub-project Dam as these will help improve the overall safety of the dams.

Potential adverse impacts:. None

These activities in no way cause restriction on access to land or use of resources by local communities and there is no economic displacement envisaged due to the sub-project. Only non-structural interventions such as preparation and implementation of EAP and early flood warning systems will involve engaging with variety of

stakeholders including tribal groups, living in the vicinity of the dam and would need to be consulted and informed in culturally appropriate approach – language, techniques that are familiar to them.

2.6.5 **MEASURES TO AVOID, MINIMIZE IMPACTS, IF ANY**

As the structural interventions will not lead to any adverse impacts, no specific mitigation measures are required. However, in context of non-structural measures, implementation of EAP and early flood warning system will be shared in meetings and informed in language/techniques which are conversant to them.

2.6.6. FPIC

ESS7 sets out the requirement of obtaining Free, Prior, and Informed Consent (FPIC) of affected Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities in the three circumstances viz.

(a) have adverse impacts on land and natural resources subject to traditional ownership or under customary use or occupation;
(b) cause relocation of Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities from land and natural resources subject to traditional owner- ship or under customary use or occupation; or
(c) have significant impacts on Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities' cultural heritage that is material to the identity and/or cultural, ceremonial, or spiritual aspects of the affected Indigenous Peoples/ Sub-Saharan African Historically Underserved Traditional Local Communities' lives.

If any of the above three circumstance will become applicable, project risk category will change from Low to Moderate to Substantial to High. As such none of the three circumstances are found applicable and therefore, for Low to Moderate Risk project, even if it is located in Schedule V or VI areas, FPIC will not be required.

2.6.7 ACTION PLAN TO BE IMPLEMENTED WITH EAP

.No.	Activities	Q1	Q2	Q3	Q4	Q5
1	Initial kick off meeting with communities including tribal communities on: i. project interventions including likely disruptions if any to water supply ii. Preparation of EAP including likely timelines for mapping exercises of emergency resources (e.g. boats, community volunteers, etc.) iii. Inform them of the project level GRM;					
2	For EAP preparation, • hold consultation with general tribal communities involving Sarpanch and community members • Hold separate meetings with females, disadvantaged and vulnerable groups					
3	Develop culturally appropriate IEC materials (for STs) for dissemination					
4	Disclose draft EAP at Disclosure event with participation from local villages including headmen/Sarpanch					
5	Disseminate key details (or Executive Summary) of EAP by pasting details in local villages					

TRIBAL DEVELOPMENT PLAN HAS NOT BEEN PRAPRED FOR AVALANCHE DAM SINCE IT IS NOT APPLICABLE.

2.7 CULTURAL HERITAGE PROTECTION PLAN (ESS8)

Cultural Heritage Protection Plan will be applicable to those sub-projects, where cultural heritage of significance is identified within the project area and proposed interventions may have interface with cultural heritage of the area requiring plan for heritage protection during project implementation.

ESS8 recognises that cultural heritage provides continuity in tangible and intangible forms between the past, present, and future and the CHPP is prepared for those sub projects which are likely to have risks or impacts on cultural heritage.

2.7.1 SCOPE OF CULTURAL HERITAGE PROTECTION PLAN (CHPP):

CHPP shall meet the following aspects:

1. Identify the presence of Archaeological protected monuments, present in dam or close vicinity of the dam
2. Identify applicable legislative restriction and comply with them.
3. Identify physical, cultural or any religious heritage of importance to communities in the area close to or in the vicinity of dam and is/ are likely to have impact
4. Define procedure for minimising the impact if any on cultural heritage of the areas.
5. To define procedure for dealing with chance find

2.7.2 CHPP PREPARATION AND APPROVAL

CHPP shall be prepared prior to start of construction, by Contractor in consultation with Engineer-In-Charge in accordance with ESMF provisions.

2.7.3 CONTENTS OF SITE SPECIFIC CHPP

i. Identification of cultural resources and likely impact from the project

All archaeologically protected monuments and physical cultural resources of the community shall be identified. Risk and impact of the interventions on these resources shall be determined. Prior legislative permits, if applicable, shall be obtained.

ii. **Undertake community consultation and other stakeholders consultation** so that Community consultation and evolve sustainable protection measures.

iii. Identification and Protection of Chance Find:

Any chance find of historical or archaeological importance shall be informed to authority concerned and it shall be preserved under secure conditions.

iv. Reporting

Contractor shall share the CHPP monitoring reports with Engineer-In-Charge on regular basis.

v. Responsibility

Prime responsibility of developing and implementation of CHPP shall be of the contractor. However, IA will ensure its preparation and implementation in consultation with the Contractor. The IA shall also ensure deployment of experienced Cultural Heritage expert, if required.

2.8 STAKEHOLDER ENGAGEMENT PLAN (ESS10)

2.8.1 IDENTIFICATION OF STAKEHOLDERS

Based on the current set of proposed interventions, the following potential stakeholders were identified and categorized as Affected Stakeholders, Other Interested Stakeholders, and Disadvantaged & Vulnerable Stakeholder.

i. **Affected Persons:** There are no affected persons who shall be directly or indirectly adversely affected by the proposed interventions. It is important to also identify affected persons if gets affected from any impacts related to construction on cultural and religious heritage perspective.

ii. **Other Interested persons**: In relation to structural interventions, these would be contractors, project management consultants, regulatory bodies/institutional stakeholders such as revenue, Pollution control board, forest and wildlife department or other environmental authorities, etc. In relation to non-structural interventions, these would be communities living downstream including farmers, village heads (Sarpanchs), community leaders, district administration, police, state disaster management authority, revenue department, electronic and print media, etc. These communities would be key stakeholders requiring to be involved in the implementation of EAP.

iii. **Disadvantaged and Vulnerable Stakeholders**: Illiterate persons, physically challenged, women and elderly would be key stakeholders – requiring special focus and outreach to ensure that they are well informed about the provisions of the EAP.

Provide details of the stakeholder consultation meetings including outcomes.

2.8.2 STAKEHOLDER ENGAGEMENT AND PROJECT CYCLE

Table 1 lists the different types of information, relevant target audience depending on the nature of information, modes and frequency of engagement with these stakeholders.

Table 1 – Stakeholder Engagement by Activities				
Information to be disclosed	**Target stakeholders**	**Tools of engagement & mode of disclosure**	**Frequency**	**Responsibility**
Provisions related to a. Dam Safety b. Biodiversity around the dam and clearance if any required c. Cultural, religious or monumental heritage around dam , if exist	✓ Contractor ✓ SPMU staff ✓ Forest Department ✓ Pollution control Board ✓ Department of culture, if required ✓ Farmers, Communities (affected/ other interested) in the dam vicinity	✓ Consultation meetings related ESDDs and ESMP ✓ Web disclosure of related ESDDs and ESMP	✓ Multiple ✓ Must before work starts ✓ During implementation	SPMU
Work opportunities for ✓ Structural works ✓	✓ Contractors ✓ Consultants	✓ Website notifications ✓ Tender advertisements in newspaper	✓ Multiple ✓ Continuous	SPMU
Work opportunities for ✓ Petty contracts ✓ Labor	✓ Communities (including disadvantaged persons) ✓ Petty contractor	✓ Meetings to inform Village heads or community representatives ✓ Special meetings for informing tribals (Gram Sabha)	✓ Multiple ✓ Continuous	SPMU and Contractor
GBV related provisions	✓ IA officials ✓ Contractor personnel ✓ Consultant personnel	✓ Office circular and training events ✓ Website notifications ✓ Bid documents and Contract provisions	✓ Multiple ✓ Continuous	SPMU
Labor management procedure	✓ IA officials ✓ Contractor personnel ✓ Consultant personnel	✓ Website notifications ✓ Bid documents and Contract provisions	✓ Multiple ✓ Continuous	SPMU
Grievance mechanisms	✓ Communities (affected/ other interested) ✓ Contractors (for procurement related)	✓ Phone number or Toll free Helpline ✓ Display boards at site with GRM information ✓ Consultative meetings ✓ Website notifications ✓ Meetings to inform Village heads or community representatives	✓ Continuous ✓ Multiple	SPMU

2.8.3 TIMELINES FOR INFORMATION DISCLOSURE AND FEEDBACK

Information to be disclosed with timelines for providing feedback, responding to newspaper advertisements is presented below:

Table 2: Disclosure, feedback and timelines				
Disclosure of information/documents	**Mode of providing feedback**	**Timeline for feedback**	**Conveying of responses by SPMU**	
			No. of days	**Mode**
ESMF, SEF	Email id/website	-NA-		
Draft ESDDs/ESIAs; draft ESMPs	Email id/website	30 days	Within 7 days of end of feedback period	Website notification
Executive Summaries in local languages of ESMP	Email id/website	30 days	Within 7 days of end of feedback period	Website notification

2.8.4 MONITORING AND REPORTING

Quarterly progress reports of IA to include the following parameters

S. No.	Parameters	Status (Nos./description)
1	Number of public hearings, consultation meetings and other public discussions/forums conducted within a reporting period (e.g. monthly, quarterly, or annually);	
2	Number and types of IEC materials used	
3	Number of project events published/broadcasted in the local, regional media	
4	Type and frequency of public engagement activities;	
5	Number and type of grievances received within a reporting period (e.g. monthly, quarterly, or annually) and number of those resolved within the prescribed timeline	

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CHAPTER 3: ENVIRONMENTAL AND SOCIAL MITIGATION AND MONITORING PLAN

3.1 PURPOSE OF ES MITIGATION MANAGEMENT AND MONITORING

For the relevant environmental and social risks identified during the ESDD process of the Project, Management Plans are furnished in Chapter 2. This Chapter provides E&S risk/impacts mitigation and management plan, along with monitoring requirement, responsible entity for implementation of mitigation plan as well as monitoring. The mitigation measures are presented ESS wise at Table 3.1.

Table 3.1 Environment and Social Mitigation and Management Plan

Activity and environmental aspects	Environmental and Social Risks/Impacts	Mitigation Measures	Stage of Action	Monitoring Requirements and Frequency	Responsibility of Implementation of Mitigation Measures	Monitoring Responsibility
Labour Camp (ESS 2)	Labour health, Hygiene, Drinking Water availability and Sanitary waste generation	Provide clean, hygienic and safe camp facilities for workers with provision of safe drinking water, separate canteen facility, first aid, periodic health check-up and waste management.. Make Provision for adequate number of toilets separate for male and female, with arrangement of sewage collection and disposal	Before Construction	Physical Inspection by IA before construction and thereafter every 3 months or if any complaint is received whichever is earlier. Review of complaints should be done every month by IA.	Contractor	IA
	Water and Power requirement	Source of water and power for labour camp as per	Before Construction			

	impacting other competitive users	advisory from IA				
	Tree cutting by labour for cooking and space heating	Provision of community kitchen/kitchen fuel (LPG) for labour. Restriction of cutting any tree	Before Construction			
	Outside labour, may be bringing in new and infectious diseases not known to area	Pre deployment health check -up of labour	Before Construction	Review of records of health check-up before start of construction	Contractor	IA
	SEAH/GBV risk within as well as outside the camp	Training and awareness of workers, identification of GBV hotspots and monitoring, establishing GRM mechanism	Entire duration of project	• Review of training records and identified GBV hotspots and monitoring arrangement at start and every 3 months • Monthly Review of complaints received under GRM	Contractor; IA to establish GRM; GBV support	IA and SPMU for GRM
Labour employment and working conditions (ESS 2)	1. Non-payment of wages and overtime 2. Non-compliance to working hours, number of working days per week, rest day and rest time 3. Inadequate facilities at site - drinking water,	Ensure compliance to BOCW and other applicable legal instruments; latest state government notification issued by Labour Department for minimum wages, working hours, child labour age should be complied with.	Before construction - Contractors Labour License, Insurance, ESI and PF registration Regular review during	Document review such as licenses, record register and muster roll; Physical inspection of working condition at site and labour camp; every 3 months or if any	Contractor	IA

	toilets, food 4. Not providing temporary accommodation for labour free of charge with separate toilet, bathing and lavatory facilities 5. Not providing kitchen and creche, if applicable 6. Employment of child labour		construction	complaint is received whichever is earlier; Review of complaints received under GRM every month		
Occupational Health and Safety during works (ESS 2)	1. Unsafe working conditions – poor marking, instructions, 2. Not enough PPEs for all workers; PPEs not appropriate for all types of risks at site or Poor quality PPEs 3. Inadequate training and awareness of workers in use of PPEs and/or in emergency response,	1. Contractor/Supervisor will inspect the work sites and mark them as high, moderate and low risk areas and ensure workers follow instruction to work in these areas 2. Adequate number of good quality appropriate PPEs to be provided by contractor – helmets, gum boots, safety belts, safety harness, gloves, overalls, ear plugs, face masks, etc. 3. All workers should be provided with training on use of appropriate PPEs and how to respond during emergency 4. Adequate EHS instructions shall be	Before construction – training and availability of PPEs During construction – marking of areas as per risks, rehearsing emergency response and identify training needs	Review of training records, review of availability of PPEs, Review of accident records and corrective preventive action reports – before start of construction thereafter every 3 months	Contractor	IA

		displayed at site 5. Provision of First aid with availability of trained first aiders shall be ensured 6. SOP shall be developed as per best practices and IFC EHS guidelines for unsafe conditions like working on height, working in confined areas, electrical safety, fall prevention, handling of hazardous material like welding gases 7. Adequate provision of life jacket if working on reservoir side 8. Procedure of incident prevention, investigation and corrective preventive action				
COVID 19 conditions	Global Pandemic seriously affecting the employment of labor and working conditions	• Appointing a COVID-19 focal point with responsibility for monitoring and reporting on COVID-19 issues, and liaising with other relevant parties	Before start of mobilization of workers	First hand monitoring and review	Contractor and IA	Contractor and IA
Use of resources – water, power and raw material for dam rehabilitation	Resource wastage, impact on land environment while procuring material from quarry/borrow areas	Resource planning will be done by contractor in consultation with engineer in charge (Estimate of material requirement from quarry/borrow area, identification of nearest	Before start of construction work	Review of resource planning ensuring efficiency Review of quarry and borrow material	Contractor with IA	IA and SPMU

work (ESS 3)		locations with approval status. Ensure that material is sourced from quarries or borrow areas which have valid environmental clearance.		requirement with approval status, validity and environment clearance – once before start of construction		
Pollution generation from rehabilitation work sites and labour camp (ESS 3)	1. Air and noise emissions from storage and handling of raw material and during execution of civil and hydro-mechanical work 2. Water pollution from construction activities and from labour camp 3. Muck generation from excavation work, if any, and debris generation from repair work 4. Hazardous waste generation from civil construction work such as painting and hydro-mechanical work, replacement of parts, etc.	1. Ensuring covered storage of lose material/sprinkling of water to minimize fugitive emissions 2. Maintaining construction equipment and ensuring DG set used for power have valid certificate of Type Approval and also valid certificates of Conformity of Production as per conformance labeling. DG stack height shall be as per the Consent to be obtained from State Pollution Control Board before start of work. 3. Ensuring use of dust masks, if workers are exposed to dust emissions and ear muffs for exposure to high noise for long durations 4. Provision of mobile toilets at work site 5. Wastewater from construction sites not to be discharged untreated	During entire project duration	Ambient Air Quality Monitoring only for projects which are in close proximity to protected areas ($PM_{2.5}$, PM_{10} and SO_2 for 24 hours) at 2 major construction sites, before start of construction (as identified by Engineer in charge) once during construction and once at the end of rehabilitation work Sound Level monitoring (dB(A) levels) only for	Contractor through NABL accredited Lab; Contractor	IA

		(compliance with general discharge standards) 6. Muck and construction debris to be disposed off at pre-identified and approved site 7. Hazardous waste (Empty barrels/containers/liners contaminated with hazardous chemicals /wastes; Contaminated cotton rags or other cleaning materials) to be separately stored and disposed off to authorized vendors only		projects which are in close proximity to protected areas at 2 major construction sites (as identified by engineer in charge), once before start of construction once during construction and once at the end of rehabilitation work Monthly physical inspection to ensure wastewater from rehabilitation work is not being disposed off in river; muck/debris is being disposed off at identified locations. soil level : near construction camp site or active work site area where		

				probability of waste discharge exists Physical inspection of use of PPEs, review of DG specification, wastewater discharge, muck and debris handling and disposal – every month Physical inspection of segregation, storage and disposal of hazardous waste to authorised vendor – every month		
Transportation of material to project site through village roads. (ESS 4)	Increase in the traffic on village roads leading to air and noise emissions as well as risk of accidents.	1. All vehicles used by contractors for transportation of persons and material should have valid PUC 2. Lose material should only be transported in covered vehicles	During entire duration of project	Physical inspection and review of documents before construction and thereafter every 3 months or if any complaint is received whichever is	Contractor	IA

				earlier		
Biodiversity Conservation for sub-projects in close proximity are as as per ESMP (ESS 6)	Indirect impacts due to rehabilitation work in proximity to protected areas involving limited outside labour	1. Sensitizing labour on importance of conservation area and dos and donts	Before start of construction	Physical inspection of location of labour camp wrt PA before start of construction	Contractor and IA	SPMU
Tribal Development for sub-projects in Schedule V or VI areas preparing EAP (ESS 7)	Non-structural interventions such as preparation and implementation of EAP and early flood warning systems will involve consultation with variety of stakeholders including tribal groups, living in the vicinity of the dam and would need to be consulted and informed in culturally appropriate approach – language, techniques that are familiar to them.	During EAP Implementation: 1. Identification of scheduled areas and tribal clusters to prioritise targeting of dispersed indigenous communities in the non-tribal areas as well as for clear targeting of tribal in the schedule V and VI areas 2. Development of culturally appropriate Information Education and Communication (IEC) materials for dissemination in the project areas to avoid panic/rumours and providing correct and accurate information in a manner understood to locals 3. Deployment of local (tribal) Community Facilitators to support	During implementation of EAP	Review of Plan of engagement of tribal population for EAP implementation Review of complaints received before start of construction	IA	SPMU

		awareness generation and mobilization in tribal areas.				
Cultural Heritage for sub projects impacting any protected monuments as identified in ESDD (ESS 8)	Damage to monument/site of cultural heritage	1. Before start of construction, joint inspection by contractor and IA, of cultural heritage site will be undertaken 2. Work plan will be prepared to ensure no direct/indirect impact from work. 3. Labour interference or labour access to the site will be prohibited 4. ASI rules for visit to site or any other regulation will be strictly adhered to 5. Training and awareness of labour to cover protection of site	Before start of construction	Review of work plan vis-à-vis protection requirement to cultural heritage Review of training records	Contractor and IA	SPMU
Stakeholder Engagement (ESS 10)	stakeholder participation, implementing the grievance mechanism, ensuring continuous information transfer through open communication	Establish grievance mechanism and implement	Before construction	Review of complaints received, if any, corrective preventive action and redressal	IA	SPMU

3.2 ES MITIGATION AND MONITORING PLAN – ACTION RESPONSIBILITY MATRIX

Various preparatory action and plans are to be prepared before start of construction work by contractor and Implementing Agency (Reference Chapter 2 and section 3.1) Table below lists actions to be taken by contractor and IA .

By Contractor		
Specific Action/ Preparation requirements	**Reference Document /format**	**Stage of Action /Frequency**
Preparation of Labour Camp Plan(if labour camp are proposed)	Number of workers, number of units required, duration of stay; facilities proposed to be provided – toilets, kitchen drinking water, waste management	Once - Before start of work
Health check-up of workers (if workers are planned to stay at site for more than six months)	Health check records	Once - Before start of work
Training and awareness of labour – GBV/ SEA, Code of Conduct, OHS requirements	Topics covered, date of training and attendance	First before start of work, thereafter after every 3 months
Compliance to labour laws	Copy of Labour license, ESI, PF	First before start of work, thereafter as per expiry/renewal
Identification of hazardous working locations and marking and emergency response plan	List of risky activities	Before start of work
Availability of PPEs	List of PPEs – number of each type	Before start of work
Training of workers on use of PPEs and Emergency Response	Training records	First before start of work, thereafter after every 3 months
Ambient air quality and sound level monitoring for projects in close proximity to protected areas	As per the report of NABL accredited lab	Before start of work, during construction and at the end of rehabilitation work
Identification of authorised vendor of hazardous waste	Name of the vendor, status of authorisation and copy of authorisation	Before start of work
Identification of approved quarry/borrow	Name of the supplier,	Before start of work

area	copy of approval	
Submission of Quarterly Progress Report		Within 2 weeks of end of every 3 months period from start date

By Implementing Agency supported by EMC	
Specific Action/Preparation requirements	**Timeline/Frequency**
Identification of suitable location of labour camp, if applicable	Before start of work
Identification of source of water and power for labour camp, if applicable	Before start of work
Identification of GBV hotspots	Before start of work
Approval of quarry/borrow area	Within one week of submission of details by contractor
Identification of ambient air quality and sound level monitoring locations for projects in close proximity to protected areas	Before start of work
Identification of muck/debris disposal location	Before start of work
Establishing GRM and its awareness - poster/signage with contact details	Before start of work
Ensuring effectiveness of GRM and review of complaints received	Every month during the entire duration of project implementation
Inspection of labour camp ensuring adequate facility	First on set up, thereafter every 3 months
Reviewing contractors documents and ensuring compliance to labour laws	First on setup, thereafter every 3 months
Ascertaining adequacy of good quality PPEs	Once before start of work, thereafter every 3 months
Physical inspection at work site - air emissions, noisy operations, use of PPEs	Every month during the entire duration of work
Submission of Quarterly Progress Report	Within one month, from end of every 3 months period from start date

CHAPTER 4. IMPLEMENTATION ARRANGEMENTS AND ESMP BUDGET

The ESMP implementation is mainly the responsibility of Contractor engaged for the Works. Implementing Agency is responsible for Sub Project level activities not directly addressed by Contractor such as GBV referral mechanism, Stakeholder engagement etc. The EMC engaged by Implementing Agency will support the IA in implementation monitoring of ESMP.

In compliance with ESMF, the framework provisions of ESMP, which shall be implemented by Contractor, will be included as part of Bids and the Contractor upon on boarding shall submit C-ESMP with updated inputs on management plans. The ESMP will be updated, should additional information/ impacts are determined during the project.

4.1 IMPLEMENTATION AND SUPERVISION ARRANGEMENTS

Table below outlines the management measures and implementation and supervision arrangements for the various activities at different stages of the project.

S. No	Project Stage/Activity	Management Measures	Responsibility	
			Planning and Execution	**Supervision/ Monitoring**
1	Establishing Labour Camp before start of construction, if required	Provision of separate toilets for male and female, sanitation and waste collection & disposal facilities, provision of kitchen fuel/community kitchen	**Contractor**	**Engineer in Charge**
2	Health check of labour before induction(in case outside labor are proposed to employ and stay for more than six months)	Health from an authorised government hospital/dispensary and submission of record	Contractor	Engineer in Charge
3	Compliance to labour laws - before start of construction	Ensure compliance to BOCW and other applicable legal instruments including; latest state government notification issued by Labour Department for minimum wages, working hours, child labour age.	Contractor	Engineer in Charge
4	Identification	Physical survey and hotspot	E&S Expert at	Engineer in

S. No	Project Stage/Activity	Management Measures	Responsibility	
			Planning and Execution	**Supervision/ Monitoring**
	of GBV hotspots and accident hotspots on transport route before start of construction	identification	Dam	Charge
5	Workers training	Workers training covering SEA/SEAH and GBV risks and consequences, OHS training and emergency actions, Code of Conduct – awareness and acceptance; biodiversity conservation	Contractor	E&S
6	Occupational Health and Safety of workers during entire duration of project	1. Contractor/Supervisor will inspect the work sites and identify the high risk areas, if any; ensures workers follow instruction to work in these areas 2. Adequate number of good quality appropriate PPEs to be provided by contractor – helmets, gum boots, safety belts, safety harness, gloves, overalls, ear plugs, face masks, etc. 3. All workers should be provided with training on use of appropriate PPEs and how to respond during emergency	Contractor	E&S
7	Resource planning before start of construction	1 Resource planning will be done by contractor in consultation with engineer in charge (requirement of water and power at various location for construction work and labour camp) 2 Estimate of material requirement from quarry/borrow area, identification of nearest locations with approval status	Contractor	Engineer in Charge
8	Pollution prevention during entire project duration	1. Ensuring covered storage of lose material/sprinkling of water to minimise fugitive emissions 2. Maintaining construction equipment and ensuring DG set used for power have valid certificate of Type Approval and	Contractor	E&S

S. No	Project Stage/Activity	Management Measures	Responsibility	
			Planning and Execution	**Supervision/ Monitoring**
		also valid certificates of Conformity of Production as per conformance labeling 3. Ensuring use of dust masks, if workers are exposed to dust emissions and ear muffs for exposure to high noise for long durations 4. Provision of mobile toilets at work site 5. Wastewater from construction sites not to be discharged untreated (compliance with general discharge standards) 6. Muck and construction debris to be disposed off at pre-identified and approved site 7. Hazardous waste (Empty barrels/containers/liners contaminated with hazardous chemicals /wastes; Contaminated cotton rags or other cleaning materials) to be separately stored and disposed off to authorised vendors only		
9	Safe transportation of man and material during entire duration of project	1. All vehicles used by contractors for transportation of persons and material should have valid PUC 2. Lose material should only be transported in covered vehicles 3.	Contractor	Engineer in Charge
10	Inspection of Labour Camp wrt to Conservation Reserve	1. Physical inspection ensuring no easy access to conservation reserve from work site/labour camp and shortcuts 2. Blocking of access/shortcuts 3.	E&S Experts	Engineer in Charge
12	EHS monitoring	To be undertaken throughout the project implementation period with inspection by E& S staff of contractor monthly and report submission	E&S experts of contractor	IA

Reporting by contractor and monitoring by SPMU

Contractor will prepare a Quarterly Progress report (QPR) and submit to E&S Experts/SPMU giving the compliance of ESMP. Details will include status on:

1. Progress on ESMP implementation work plan
2. Status of Compliance with E&S statutory requirements such as labour licenses, insurance, etc.
3. ESHS incidents & supervision
4. Usage (no. required, distributed and used) of Personal Protective Equipment (PPE) such as hard hats, safety shoes and safety vests by workers
5. Safety at work sites like COVID incidents, providing traffic signage, barriers/delineator, management of traffic, drainage and pliable road surface etc.
6. Training conducted, and worker's participation (submit reports with statistics of training and worker's participation)
7. Functioning of GRM relating to labour aspects, including summary details of Workers grievances, if any
8. Community grievances, if any
9. Corrective Actions and planned E&S activities for next quarter

SPMU will prepare its quarterly monitoring report and submit the same along with contractors report to CPMU.

ANNEXURE 1: OUTLINE OF CONTRACTOR'S ESMP

(Will cover all on site issues and responsibility with management; include chance find procedure if applicable)

1. Sub-project activities description under Contractor's Scope

2. Licensing Requirement

2.1 Labour License
2.2 Insurance
2.3 Use of approved quarry/borrow areas, if such material is required
2.4 Any other

3. Workforce management under COVID 19 considerations, if applicable

3.1. Profile of work force – work activities, schedule, contract duration, workforce rotation plan, workers place of stay, workers with underlying health issues
3.2. Measures to mitigate risks on account of COVID 19
3.3. Contingency plan covering – prehealth checkup, access restrictions, hygiene, waste management, accommodation arrangements, PPE provision and usage
3.4. Reporting and handling of Instances of COVID 19 cases, training and communication with workers, training and SOPs on communicating and contact with community

4. Labour Camp (if outside labour is accommodated in a labour camp)

4.1. Location of Labour Camp
4.2. Number of labour to be housed and duration
4.3. Break-up of labour workforce – male, female, children
4.4. Number of Units in Labour Camp
4.5. Source and Provision of Water and Power Connection including Drinking Water
4.6. Cooking Arrangement – Individual Kitchen/community Kitchen
4.7. Source, Type and Provision of Kitchen Fuel
4.8. Toilet facilities – individual/community; fixed/mobile and sewage disposal arrangement
4.9. Waste collection and disposal arrangement
4.10. Identify Risk of Community Interface – any fencing/separation requirement
4.11. Security and general lighting arrangement

5. Resource Planning

5.1. Water and power requirement for works and locations

5.2. Need for water line or electrical wiring
5.3. Raw material requirement and source(s)
5.4. Temporary storage(s) at site and location(s) – cover/uncovered
5.5. Transportation route from source to storage

6. Pollution Prevention

6.1. Potential of dust emission from openly stored raw material and mitigation arrangement – covering, sprinkling, etc.
6.2. Potential of water pollution from spillage and leakage from raw material storage and preventive measures
6.3. Potential of air emissions from works including toxic emissions from paints and chemicals, emissions from DG sets and other construction equipment – locations where potential is high, possibility of community impact, impact on workers, preventive measures such as dust masks for workers, etc.
6.4. Potential of noise generation from works (use of equipment and machinery, demolition work) including from any activity planned at nigh time – locations where potential is high, possibility of community impact, impact on workers, preventive measures such as ear muffs, etc.
6.5. Potential of water pollution from works – possibility of leakage to surface water or accumulation in low lying areas; preventive measures/treatment requirement
6.6. Estimate of excavated earth/construction debris requiring disposal – quantum, sources(s) of generation, identified dumping sites, transportation mode and route, period of dumping and restoration plan

7. Occupation Health & Safety and Emergency Management

7.1. PPE requirement and numbers
7.2. Lists of tasks and work zone critical for hazard prevention, if any
7.3. Location of warning signage for hazard prevention
7.4. Requirement of first aid boxes and portable fire extinguishers
7.5. Key person(s) to be contacted during emergency
7.6. Protocol for deciding the level of emergency – need for hospitalization, information to authorities, etc.
7.7. Process of accident analysis, corrective and preventive measures and need for reporting

8. Addressing GBV Risks

8.1 Preventive measures – provision of lighting, separate toilet areas for men and women, increased vigil and security arrangement for community sensitive GBV hotspots, if identified by dam authorities.

8.2 Sensitizing and awareness of labour on GBV issues including penalties and legal action against offenders
8.3 Awareness about GRM

9. Code of Conduct

9.1 Preparation of Code of conduct
9.2 Making labour aware of conduct with all the provisions, do's and don'ts, penalties for non-compliances, etc.
9.3 Displaying CoC at prominent locations
9.4 Signing of CoC by workers

10. Awareness and Training

10.1 Plan for training and awareness covering Pollution Prevention, OHS, Use of PPEs, Accident reporting and emergency management, CoC, GBV, GRM, etc.
10.2 Training schedule
10.3 Training records

ANNEXURE 2:SUB-PROJECT SPECIFIC E&S SENSITIVE INFORMATION

The Avalanche Dam is located across Avalanche Stream in the Nilgiris district, Tamil Nadu. The proximity villages' areas i.e. villages which fall within 5 km distance from the dam are Emerald, Avalanche, Mulligoor, Yedakkadu and Mukkimalai. There are no Schedule V[1]areas in the state of Tamil Nadu. The district is divided into two revenue Divisions namely Coonoor and Gudalur. The district has six tehsils (talukas) namely Coonoor, Kotagiri, Udhagamandalam, Kundah, Gudalur and Panthalur along with 4 Panchayat Unions (Community Development Blocks); Gudalur, Udhagamandalam, Kotagiri and Coonoor.

The economy of the district is basically dependent on non-agricultural activities & resources. A large number of tea processing industries are the major employment generation for the local people in the district. The brief demographic characteristic of the district is given in the table below:

No. of Households	**1,97,653**	**Household Size**	**04**
Total Population	**7,35,394**	**Population (0-6 age)**	**6 6,799**
Male	3,60,143	Boys (0-6 age)	3 3,648
Female	3,75,251	Girls (0-6 age)	3 3,151
Sex Ratio	1042	Sex Ratio (0-6)	985
Population (SC)	**2,35,878 (32.08 %)**	**Population (ST)**	**32,813 (4.46%)**
Male	1,15,917	Male	16,091
Female	1,19,961	Female	16,722
Literates	**5,69,647**	**Literacy Rate (in %)**	**85.20**
Male	2,99,447	Male	91.72
Female	2,70,200	Female	78.98
No. of Workers	**3,49,974**	**Cultivators**	15,645 (4.47%)
Male	2,12,172	**Agricultural Labours**	79,100 (22.60%)
Female	1,37,802	**Household Industrial Workers**	3,895 (1.11%)
No. of Main Workers	**3,18,924**	**Other Workers**	2,51,334 (71.82%)
No. of Marginal Workers	**31,050**		
			Source: *Census of India, 2011 (District Handbook)*

Schedule tribe population in the district is very limited (4.46%) and are scattered. There are only very few Scheduled Tribe households in the downstream areas and they are mainstreamed in the area with other households. No physical interventions planned in the downstream areas.