ENVIRONMENT AND SOCIAL MANAGEMENT PLAN REPORT (ESMP)

सत्यमेव जयते

IRRIGATION & WATERWAYS DEPARTMENT, GOVERNMENT OF WEST BENGAL

DAM REHABILITATION AND IMPROVEMENT PROJECT (DRIP-II)

(Under World Bank Fund)

ESMP REPORT

For

Kangsabati-Kumari Dam
Bankura, West Bengal

Prepared by

WAPCOS LIMITED
(A Government of India Undertaking)
Ministry of Jal Shakti

ISO 9001:2015

Kolkata office

Jalasampad Bhawan, 10th Floor, Salt Lake,
Kolkata – 700091
Tel.: 033 40082 934/956 E-mail:
kolkata@wapcos.co.in

OCTOBER, 2021

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ANNEXURES

ACRONYMS

AIDS	:	Acquired immune deficiency syndrome
BOCW	:	Building and Other Construction Workers
COVID	:	Corona Virus Disease
CoC	:	Code of Conduct
CPCB	:	Central Pollution Control Board
CPMU	:	Central Project Management Unit
CSWMP	:	Construction debris and Solid Waste Management Plan
CWC	:	Central Water Commission
DCP	:	Dry Chemical Powder
DG	:	Diesel Generator
DRIP	:	Dam Rehabilitation and Improvement Project
DSRP	:	Dam Safety Review Panel
EAP	:	Emergency Action Plan
E & S	:	Environment & Social
EHS	:	Environment Health and Safety
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
ESI	:	Employee's State Insurance
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
I & W	:	Irrigation & Water ways
IEC	:	Information Education and Communication
IFC	:	International Finance Corporation
LMP	:	Labour Management Procedure

LPG	:	Liquid Petroleum Gas
NABL	:	National Accreditation Board for testing & Calibration Laboratories
OHS	:	Occupational Health & Safety
PDO	:	Project Development Objective
PF	:	Provident Fund
PIU	:	Project Implementation Unit
PM	:	Particulate Matter
PPE	:	Personal Protective Equipment
PPEQMP	:	Pollution Prevention and Environment Quality Management Plan
PST	:	Project Screening Template
PUC	:	Pollution under Control
QPR	:	Quarterly Progress Report
RL	:	Reduced Level
RTI	:	Right to Information
SCADA	:	Supervisory Control and Data Acquisition
SDO	:	Sub divisional Officer
SEAH	:	Sexual Exploitation, Abuse and Harassment
SEF	:	Stakeholder Engagement Framework
SEP	:	Stakeholder Engagement Plan
SOP	:	Standard Operating Procedure
SPMU	:	State Project Management Unit
ST	:	Schedule Tribe
TDP	:	Tribal Development Plan
WB	:	World Bank
WBG	:	World Bank Group
WBGEHS	:	World Bank Group's Environment Health and Safety

CHAPTER I

A. PROJECT OVERVIEW AND FINDINGS OF ESDD

A.1. Project Overview

The proposed Dam Rehabilitation and Improvement Project (DRIP II) would complement the suite of ongoing and pipeline operations supporting India's dam safety program.
The DRIP project activities will focus not only on the rehabilitation and improvement of dam structures, but will also address shortcomings in instrumentation, maintenance and provide for improvements in operation of the dams.

The project would finance towards (i) physical and technical dam rehabilitation and improvement; and (ii) managerial upgrading of dam operation and maintenance, with accompanying institutional reforms and strengthening of regulatory measures pertaining to safe and financially-sustainable dam operations.
It aims at assuring the full reservoir capacity of project dams, achieving effective utilization of the stored water, and managing and monitoring the long-term performance of the dams The project development objective (PDO) is to improve the safety and operational performance of selected existing dams in the territory of the participating states. Project comprises three Components namely (i) Rehabilitation and Improvement of Dam and Associated Appurtenances; (ii) Dam Safety Institutional Strengthening and (iii) Project management.

Component 1: Rehabilitation of Barrages and Appurtenant Structures: This component supports improving the safety of barrages through structural and non-structural interventions. Structural measures include measures for seepage reduction, hydrological and structural safety measures (e.g., renovation and strengthening of existing structure, cementations grouting, shaping of embankment, improvement of draining arrangement, removal of vegetation and weeds etc.), enhancing the reliability of operational facilities (e.g., spillway gates, head regulator gates with hoisting system), and improving basic barrage facilities (e.g., access roads, downstream inspection roads). Non-structural measures could include standardized barrage safety instrumentation, monitoring, assessment and reporting protocols for barrage health.

Component 2: Barrage Safety Institutional Strengthening: This component supports further strengthening of Barrage safety management through institutional modernization. A major focus of activities under this component will be increasing the oversight of dam safety by developing dam safety guidelines and by strengthening the capacity of various dam safety actors to carry out the regulatory functions defined in the proposed Dam Safety Bill, which has been passed by the Lok Sabha.

Component 3: Risk-informed Asset Management and Innovative Financing for Sustainable Operation and Maintenance of Dams: This component aims to increase the financing available for periodic dam safety needs and regular O&M by improving asset management and dam risk assessment. Currently, expenditures needed for dam rehabilitation are based on seasonal (pre and post monsoon) inspections, rather than a longer-term needs-based approach grounded in asset management and risk assessment. This component will put in place systems to improve the identification of financing needs for dam safety and develop more sustainable sources of funding for dam safety. An asset management system and risk assessment will identify long-term funding needs for the sector and trade-offs related to investment decisions.

Component 4: Project Management: This component ensures effective implementation of project activities and monitoring and evaluating project implementation progress, outputs and outcomes. The component will support: (i) establishment and operations of State level Project Management Units (SPMUs) within State

implementing agencies, which can hire experts in various fields as and when needed on a contractual basis; (ii) setting up of a monitoring and evaluation system; and (iii) establishment of a Quality Assurance and Quality Control system. This component will also finance consultancies, as well as related material, office equipment and incremental operating costs. The project will provide investment and technical support for the establishment of a Management Information System and Information and Communication Technology systems.

Component 5: Contingent Emergency Response Component: The Contingent Emergency Response Component (CERC) allows provision of immediate response to an Eligible Crisis or Emergency, as needed. For example, following an adverse natural event that causes a major natural disaster, the government may requestthe World Bank to re-allocate project funds to support response and reconstruction. This component will draw resources from the unallocated expenditure category and/or allow the government to request the World Bank to re-categorize and reallocate financing from other project components to partially cover emergency response and recovery costs. This component could also be used to channel additional funds should they become available as a result of the emergency.

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 power services provided by the dams that could be compromised by poor dam performance or failure. In addition to saving lives, improved dam safety will avoid potential flood damage to houses, farm areas, infrastructure (roads, bridges, other public and private infrastructure) and industrial and commercial facilities. Improved dam safety will also reduce the likelihood of service interruptions due to dam failure as well as potentially improving dam service provision, overall efficiency and storage capacity, including during drought periods.

The approximate estimated cost of the works mentioned under Component 1,2, 3, 4 & 5 will be around **Rs. 47 Cr.**

A.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 and S risk screening templates. ESMF mandates that forall Low and Moderate Risk projects, a standard ESMP shall be prepared, which will be updated based on the sub project specific activities. Accordingly, 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 EandS 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.

A.3. Sub-Project Description – Kangsabati Dam

Kangsabati Dam is situated in the district of Bankura, West Bengal. The Dam is located over rivers Kangsabati around 2.0 km upstream of their original confluence point at Gorabari Ambiknagar, Mukutmonipur of

Bankura. It is a Gravity Type Dam with Concrete Spillway. Acute crisis of irrigation water even drinking water in dry period of April-May, had led to initiation of this project in the middle of 20th century and finally the project started its operation in the year of 1965. Total length of the Dam, embankment and spillway is 11.30 km. The spillway has 11 radial gates with a discharge capacity of 6372 Cumec (2,25000 Cusec). The catchment Area at the Dam point is 3626 Sq. km.

A.4. Proposed Interventions/ Activities and Intended Outcomes

The following rehabilitation works are proposed based on the DSRP recommendations and these proposals form the basis for preparation of present ESDD report.

I. Kangsabati Dam Proper earthen embankment portion:

i. Repairing of local sliding of rip rap pitching to resist further disturbance or movement of soil particle just below the filter. U/S toe protection at critical sections by dumping boulder sausage crates.
ii. Rock toe at downstream of dam is damaged and disturbed at few locations Resetting of damaged rock toe portions to resist the piping from the dam body. Repairing of disturbed country side Boulder pitching.
iii. Construction of the toe drain after the rock toe to collect the seepage and to guide to nearest 'V' notch for measuring the quantum of seepage. Necessary slope shall be given towards the nearest notch for easy movement of seepage water thus collected. Restoration of all the chute drains dam top for avoiding the movement of soil particle during surface flow from dam body.
iv. Renovations of all the 'V' notches with proper shape and size stainless steel or Cast Iron 'V' to allow the flow over it. Setting well defined arrangement, free from any kind of obstruction like vegetation of the upstream approach from toe drain up to notch and the downstream drainage system.
v. Construction of bituminous and concrete inspection road along the length of the earthen countryside toe and construction of culverts and protective measures for road embankment.
vi. Make the piezometric well to function properly. Rehabilitation of the chocked path/pipe vent from upstream of reservoir up to this well.
vii. Repair of Spillway structure especially vertical joint crack on left abutment of spillway/retaining structure after spillway proper.
viii. Renewal of Left Bank Head Regulator structure.

II. Restoration of dilapidated Right Bank Head Regulator Structure with Gates:

i. Construction of a Cross-bundh for a height of 12 ft (RL 407.00 - RL 395.00) for renovation of Right Bank Head Regulator Structure with its wing wall and repairing of Gate component.
ii. Replacement of Vertical Gates of Right Bank Canal Head Regulator and its emergency gate, embedded parts comprising of Bottom seal beam, side seal path, roller path (rail), gates (service gate) including its roller assembly, side/top/bottom seal and different components of hoisting system etc. Removal of all damaged gate after observing the same in dry condition by dewatering within the structure up to sill level of 395.00 ft from the Reservoir Level of 404.00 feet, including removal and re-fixing of all side seals and bottom seals of the vertical gates.
iii. Right Bank Canal Head Regulator is having profuse leakage due to perforation in concrete wall and misalignment of gates. Renovation of Hoisting arrangement. Repairing of the concrete surface of RBHR Structure with 37 mm thick guiniting/shotcrete with cement mortar (1:3) on concrete surface after proper fixing of 9 gauge welded mesh of size 50 mm x 50 mm of good quality rust free, with anchors/ clamps on surface.

III. Repair of Staff Quarter and Development of Office Colony at Mukutmanipur

IV. Construction of Control Room.

V. Instrumentation for operation and monitoring.

VI. Preparations of as-built drawings and conducting bathometric survey and other testing's.

A.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.

As per the ESDD exercise, risks/impacts that have been identified relate to Water Quality, Fisheries, Physical Environment, labour and SEAH/GBV. The summarized environmental and social risks of identified activities with level of risk is presented in ESDD report. These risks are low to moderate and localized, short term and temporary in nature which can be managed with simple ESMP and guidelines. Environment risks of air, water, noise, land use, soil and resource use for most of the activities as well as social risks of labour are Moderate. Environment risks of pollution downstream and upstream along with that of fish and aquatic life are categorized as Moderate for paint work due to interface with water bodies. Environmental risk relating to Labour camp has been flagged as Moderate on environment and land.

As per ESMF, Occupational Health and Safety (OHS) risk is envisaged across the project interventions / dams, a separate OHS plan in accordance with WBG Environmental Health and Safety (ESHS) Guidelines and Good Practice Note on Environmental, Health, and Safety approaches for Hydropower Projects (2018) 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 OHS plan and will be part of Contractor's ESMP.

Based on ESDD findings, WB Environmental and Social Standards (ESS) applicability was analyzed and management plan was recommended as given at Table 1.

Table 1 WB-ESS Applicability Analysis and Recommended management plan

WB-ESS	Recommended Management Plan	Applicability
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 Debris Management	**Applicable**

ESS 4: Community Health and Safety	Community Health and Safety Plan	**Applicable**
ESS 6: Biodiversity Conservation	**Stop spillage or other harmful material going into the water.**	**Applicable**
ESS 10: Stakeholder Engagement Plan	**Stakeholder Engagement Plan**	**Applicable**

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

CHAPTER 2

B. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLANS

The Environment and Social 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 its applicability, sets out the framework for other plans and procedures to be developed later in the Project. Contractors of the construction will develop and implement their own site specific C-ESMPs.

B.1. Gender Based Violence or SEA/SH Related Actions(ESS1)

The following key actions are to be ensured during implementation:

Table 2: key actions are to be ensured during implementation:

Sl. No.	Key Action to address GBV/SEA/SH Risks	Responsible
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	**State Project Management Unit (SPMU)**
2	Operationalize Internal Complaints Committee as per Prevention of Sexual Harassment at Workplace procedure	**State Project Management Unit (SPMU) to reinstate -Already Exists**
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.	**Implementation by Contractor under overall supervision by 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.	**Contractor under overall supervision by Engineer in Charge**
5	Undertake regular M&E of progress on SEA/SH prevention and response activities, including reassessment of risks as appropriate.	**State Project Management Unit (SPMU)**

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

B.2. Labor Management Procedure (ESS2)

B.2.1 Overview of Labor use in the Project

- **Number of Project Workers:** Approximately 1,45,000 nos. man days 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 –

  Non Migrant workers - Contractors shall hire unskilled Non-Migrant workers from local area for typical activity, which will be approximately 90% of total worker requirements.

  Migrant workers - Contractors shall bring skilled Migrant workers for some of more specialized tasks, which will be approximately 10% of total worker requirements.

  III. Community workers (or volunteers particularly for EAP).

Table 3 Details of Labour requirements (Contracted Workers)

Sl. No.	Worker Type	Total worker requirement	Locations	Duration	Specification
1.	**Non Migrant workers**	**187 Nos (135247 Mandays)**	Dam Site	24 Months	Un-skilled – Semi-skilled
2.	**Migrant workers**	**10+8 nos. (9981 Mandays)**	Dam Site	18 Months	Skilled

Hence as per WB's guidance note[1], for such workers, Contractor needs to prepare detailed profile of Workforce as per table below:

Table 4: Detailed profile of Workforce

Key work activities	Schedule for such activities	Duration of contract	Rotation	Place of residence		
				Workers from community	Within local community	On site

B.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

B.2.3 Responsible Staff

See Table below for list of key activities with responsibilities:

Table 5: List of key activities with responsibilities

S.No.	Activity	Responsibility
1	Engagement and Management of Contractors	SPMU
2	Engagement and Management of Sub-Contractors	Contractor
3	Occupational Health and Safety (OHS)	Engineer-In-Charge
4	Training of Workers	Contractor under supervision of Engineer-In-Charge
5	Addressing worker grievances	Contractor (with oversight by IA)

B.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 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 apprise this to CPMU and WB.

ii. GBV/SEAH related: Since**,** SHG based activities in the state is widespread and strong most of the woman in rural area are engaged in SHG based income generating activities. They prefer to continue that and comfortably look after the households. As a result, participation of women in construction work is very low. Considering this practice, it can be assessed that more than 95% of the contract labor will 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;
- been explained the CoC 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:

iii. Occupational Health and Safety

Sl.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

Implementing Agency is committed to:

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

To avoid work related accidents and injuries, the contractor shall ensure following Do's and Don'ts at site will:

Dos

- **Pre employment Health Check up**: Ensure that health of each worker is checked and health record is maintained before deputing them to work.
- **Deployment of EHS officer :**Designate a person responsible for OHS who is fully acquaintedwith handling of OHS issues
- **Induction training**: Ensure that every workers is given OHS orientation training which will include use of PPE, first aid, use of fire extinguishers, action to be taken in case of accidents, caution to be exercised during working at height or confined areas, respecting system and procedures evolved at site for safe working. Training shall create enough awareness amongst workers so that they take reasonable care to avoid acts or omissions that are likely to result in injury to self, or the other workers/and other people.
- **First Aid**: Ensure that first aid box is provided at each workplace with easily identifiable location. Few workers shall be trained as first aider including in CPR techniques.
- **PPE**: Ensure availability of PPE. Helmet, boot, earplug (for noisy areas), mask for dusty areas, gloves, safety belt and safety jacket.
- **SOPs for COVOD-19:** A COVID -19 SOP should be preparing for working site, site office as well as labour camp.
- **Ventilation**: Maintain adequate ventilation at confined areas and at workplace.
- **Illumination:** Maintain adequate illumination at all workplaces.
- **Electric Hazards:** Prevent exposure to electrical hazards.
- **Fire Protection:** Ensure adequate fire extinguisher (as per type of fire hazard viz A,B,C) are placed at workplace.
- **Dust Control:** Ensure that workers are not exposed to high dust and noise level which can affect their health. Use dust suppressing system like water sprinkling and muffler or acoustic enclosures for noise generating system.
- **Gas Cylinder handling:** Acetylene and oxygen/gas cylinders shall be handled using trolley where these cylinder are securely separated with each other for its safe use.
- **LPG/ Kerosene for Cooking:** Ensure that LPG/ Kerosene is provided to labour camp/ stuff for cooking purpose.
- **Drinking Water and Sanitation:** Ensure that safe drinking water is available at each work site. Also mobile toilets fitted with anaerobic sewage treatment system are provided at each worksite.
- **Barricading and securing the work areas:** Each hazardous work area, if any, have safety barricading depending on nature of hazard viz trip, fall danger, restricted entry area, electrical hazard.
- **Safety Signage and Mock Drill:** Place adequate safety caution and signage in local languages for awareness to workers. Also conduct periodic mock drill.
- **Back-up Medical facility: I**dentify and tie up with equipped hospital(s) capable of providing ambulance and medical facilities or handling major injuries.
- **Accident Reporting Analysis and Prevention:** Identify the reportable accidents2, analyse the cause of each reportable accident, maintain the record with analysis and take corrective action based on cause analysis for prevention of such accidents in future.
- **Caution from Covid-19 scenario:** Provide multiple entries for workers to avoid crowding depending upon site condition. Ensure that physical distancing is maintained as far as possible at workplace. Each worker shall be provided with face mask. Also, an isolation room will be provide for symptomatic COVID patient

- **Compliance to law:** Ensure those legal requirements are followed like restriction on use of Child labour etc.

DON'TS

- Do anything which may leads to risk to established health, safety and wellbeing rules or relevant health, safety and wellbeing regulatory requirements.
- Jeopardies mental and physical wellbeing or that of people you work with by, for example, imposing unreasonable deadlines or regularly demanding longer working hours.
- 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 be 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, as applicable.
- Provide medical insurance coverage for workers
- Accident hot spots on transport route, if any
- Mark and provide sign boards for hazardous areas such as energized electrical devices and lines
- Provide clean eating areas where workers are not exposed to hazardous or noxious substances
- 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. And the contractor 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 onsite
- 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
- Handling of gas cylinders

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: 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 persons are required for highly skilled jobs. The remaining – semi-skilled and unskilled labor will be sourced from within the district. Hence as per WB's guidance note[3], for such workers, Contractor needs to:

Prepare detailed profile of Workforce as per table below:

Table 6: Detailed profile of Workforce

Key work activities	Schedule for such activities	Duration of contract	Rotation	Place of residence		
				Workers from community	Within local community	On site

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 Implementing Agency

i. IA will monitor and ensure that contractor will follow any restriction on movement or advise 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-hourschedule

i. Providing appropriate forms of personal protective equipment(PPE)
j. Putting in place alternatives to direct contact, like tele-medicine appointments and live stream of instructions.
k. Instances of spread of virus
l. Training and communication with workers
m. Communication and contact with community
n. Ready a Isolation room for quarantine anybody who effected or mild symptomaticby COVID

ii. **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.
iii. **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
iv. **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)
v. **Check with Contractors** on whether the workers are informed/encouraged to use the existing project grievance mechanism to report concerns relating to COVID-19

B.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 AADHAR card or any other 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.

B.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 I & W 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 favorable 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 uponrecommendations 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 all its 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.

B.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 redress, 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 operationalized the contract workers grievance redress mechanism. In this, Contractor will be supported by Environment and Social nodal officers of 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.

B.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.

B.2.9 Community Workers

All OHS related aspects shall be applicable to this category of workers also, if they are engaged.

B.3 Resource Efficiency and Pollution Prevention (ESS3)

B.3.1 Pollution Prevention and Environment Quality Management Plan (PPQEQMP)

Dam rehabilitation work in general can be categorized 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 orvulnerable 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.

B.3.2 Overview of PPEQMP

a) Water Management

The proposed intervention activities are not expected to impact water resources as the proposed interventions are neither crossing, altering or 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 practicescan 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 riverbank
- Generation of sanitary wastes from labour colony and construction sites finding way to water bodiesPollution prevention and control measures to avoid surface water pollution shall include:
- Labour 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 separated 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 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, onto 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 materialtransportation. 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 localized. Keeping in view the quantum of work and requirement of raw material, only marginal increases in number of vehicles is expected and therefore emission on village road due to vehicular movement will not be significant, however, OHS norms and do's and don'ts will be adhered to for vehicular movement.

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 constructionsite to arrest or blowing of suspended particle.
- Regular sprinkling of the water will be done on construction sites for dust suppression if there ispotential 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.
- Damp down the soil and any stockpiled material on site by water sprinkling
- Control dust generation while unloading the loose material (particularly aggregate, soil) at the site by sprinkling water
- Stabilize surface soils where loaders, support equipment and vehicles will operate by using water and maintain surface soils in a stabilized condition

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 Productioncertificate as per CPCB guidelines.
- All the construction equipment will be required to use available noise suppression devices andproperly 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 localsand 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 constructionmaterial, 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: Project engineer needs to identify all the waste generated from hydro-mechanical work including replaced parts with estimated quantities and categorization 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 authorized vendors only.

e) Debris Management

A. Background

Dam rehabilitation activities may generate various type of waste depending on nature of Rehabilitation work involved such as debris and construction waste, empty paints containers, Waste lubricants, electrical waste, and municipal waste from labor camps. Some of these wastes are bio-degradable, some are reusable/saleable and some are non-biodegradable and non reusable. Many of these wastes attract provision of law for its disposal and require controlled handling and disposal. Construction Debris and Solid Waste Management Plan (CSWMP) is aimed to fulfill the requirement of safe handling and controlled disposal of these wastes.

B. Scope

CSWMP shall meet the following aspects

1. Identification of all the waste generation with likely quantity and source.
2. Define transportation, storage and disposal measures for all category of waste with provisionOf re-use where feasible.

C. Content of CSWMP

I. Identification of waste with Quantity and source

CSWMP will document all potential waste generation with likely quantity and characteristics. It willalso define location for storage of construction waste and its disposal methodologies. It will also define caution for its transportation and safe disposal. Example:

(a) The construction and demolition waste can be reused for constructional related filling purposes.

(b) Similarly, biodegradable municipal solid waste can be converted into compost using small portable Composters.

(c) Saleable waste (paper, packaging material) can be sold off by responsible contractor to specified vendor.

(d) The waste oil can be given to oil recyclers.

II. Handling` guidelines for various wastes

Methodology may consider the following waste specific guidelines as well:

Excavated Soil:

Top soil needs to be preserved wherever soil is to be excavated. Top soil shall be considered up to the depth of 15 cm which shall be stripped and stored separately under covered sheds at identified location near construction site. This soil shall be used for plantation or landscaping purposes. Lower layers of excavated soil shall be re-used within the site for filling purpose, or other construction activities. If any extra soil is left , then that should be disposed of to the approved debris disposal site which should be finalized with discussion to the EIC & SPMU

Construction:

Construction waste will comprise of broken bricks, dry cement, discarded timber, metal piece, cement bag, dry asphalt/bitumen, glass, paint/varnishes box, electrical Waste, instrumentation waste, waste oil, stone grits, dismantled concrete pieces etc. These wastes should be segregated into recyclable and non-recyclable waste. Recyclable waste shall be stored in the covered area and Shall be sold to authorized vendors regularly. Non-

recyclable waste shall be disposed at Approved debris site in covered vehicles or reuse for land filling purposes. Waste oil shall be sent for reuse through waste oil recyclers.

Solid Waste (Municipal and other Waste):

Municipal waste will be generated from labour camp. Dustbins for recyclable and non-recyclable waste shall be provided in labour camp area. Recyclable waste shall be sold to authorized vendors.

Biodegradable waste shall preferably be composted in portable mechanical waste composters. Concept of reduce, re-use and recycle shall be followed at site. The non-recyclable, non salable and non-biodegradable wastes shall preferably be disposed at a marked site at project area itself where this waste should be buried underground. Provision of liner shall also be made at this burial site.

Guidelines for selection of Disposal Site: The disposal site shall be selected such that it conforms to the following criteria:

- Disposal sites are located at least 500 m away from sensitive locations like settlements, water body, notified forest areas, conservation areas which is to be finalized after discussion with EIC & SPMU.
- Disposal sites shall not contaminate any water sources so the site should be located awayfrom water body and disposal site should be lined properly to prevent infiltration of water.
- Public perception about the location of debris disposal site has to be obtained before finalizing the location.

Suggested Precaution for safe disposal of waste:

The following caution can be followed for safe disposal of waste at disposal site-

- During the site clearance and disposal of debris, the Contractor will take full care to ensure that public or private properties are not affected, there is no dwellings around the dumpsite and that the traffic is not interrupted.
- The Contractor will dispose debris only to the identified places.
- In the event of any spoil or debris from the sites being deposited on any adjacent land, the Contractor will immediately remove all such spoil debris and restore the affected area to its original state.
- Contractor will adopt dust suppression methods while transporting the waste.
- Materials having the potential to produce dust will not the loaded to a level higher than the side and tail boards and will be covered with a tarpaulin in good condition.
- Any diversion required for traffic during disposal of debris shall be provided with barriers after the discussion with local people.
- During the debris disposal, Contractor will take care of surrounding features and avoid any damage to it. The debris should not be disposed along the bridges & culverts and near the water bodies.
- While disposing debris / waste material, the Contractor will take into account the wind Direction and location of settlements to ensure against any dust problems.
- Contractor should display the board at disposal site stating the name of project, usage of

The site and type of debris being disposed.

- Material should be disposed through covered vehicles only
- No contaminated/hazardous/e-waste shall be disposed at the debris disposal site
- The dump sites once filled shall have to be suitably rehabilitated by planting local Species of shrubs and other plants. Local species of trees has also to be planted so that the landscape iscoherent and is in harmony with its various components.

III. Penalties

CSWMP shall have provision of stringent action & penalties which shall be imposed on contractor/sub-contractor for dumping of materials in locations other than the pre-identified locations by the Engineer-in-charge & SPMU. Grievance Redressal Mechanism should be in place fortaking note on such complaints.

IV. Responsibility

Prime responsibility of developing and implementation of CSWMP shall be of the Contractor. However, SPMU will ensure that plan is implemented in letter and spirit. All applicable legislation shall also be identified and compiled by contractor.

B.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 andtransportation 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.

As far as possible construction camp needs to be located within dam premises, if any camp to be established outside these, then select camp site away from residential area at least 50m buffer shall be maintained. To manage the water quality, construction camp should not be located near (100m) water bodies or any ecological sensitive area. Camp shall be provided with proper drainage, there shall not be any water accumulations. Drinking water will be supplied nearby submersible tank or else water tank will be provided for drinking water, water for other uses, and sanitation facilities for employees.

The water management plan for Kangshabati dam is given below in tabular form:

Water Management Plan

Activity	Requirement of water	Source	Remarks
Construction activity	10-15 KLD	Ground water by constructing bore-well at specified location. Nearby dam body. Storing rain-water by constructing rainwater catching pits.	Groundwater abstraction permits including those of suppliers/contractors should be obtained prior to installation of bore well from the competent authority (if any) and permit conditions should be made in practice.
Daily use for cooking, Sanitation etc.	15-20 KLD	Proper arrangements to be made for taking supply of drinking water from the PHE Department. Ground water by constructing bore-well at specified location. Nearby dam body.	Contractor has to implement all these facilities 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.
Drinking water	0.75-1 KLD	Packaged RO water to be supplied to the Labour hutments. Proper arrangements to be made for taking supply of drinking water from the PHE Department.	Water quality to be checked if any water source is likely to be silted or contaminated, once in a quarter. Contractor has to ensure that safe drinking water is available at each work site. Contractor has to implement all these facilities 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 very month by IA.

B.3.4 Environmental Quality Monitoring Plan and Protocols

This being rehabilitation work limited to dam area only with localized impacts which can be managed by implementing standard ESMP, environment quality monitoring is not required, except for visual inspections. These requirements are indicative and can be altered and modified as per project components and activities proposed.

Environment Quality monitoring requirements are tabulated below:

Table 7 Environment Quality monitoring requirements

Activity	Parameters	Locations	Frequency	Responsibility	Execution
Ambient Air Quality	PM10, PM2.5 NO2, SO2, CO	4 Location, within 1 km of the Barrage area	(i) Once before start of construction. (ii) Half yearly (Yearly 2 times except monsoon season) during construction period until construction period.	Under Supervisor of Engineer in charge	**Contractor.**
Sound Levels	Day time and night time noise levels	4 Location, within 1 km of the Barrage area	(i) Once before start of construction. (ii) Half yearly (Yearly 2 times except monsoon season) during construction period until construction period.	Under Supervisor of Engineer in charge	**Contractor.**
Surface Water (River water)	pH, TDS, Oil& grease, Cl, F, NO3, TC, FC, Hardness, Turbidity BOD, COD, DO, Total Alkalnity and Salinity	3 location in upstream side and one location in down stream	Once before start of construction. (ii)Half yearly (Yearly 2 times) during construction period until construction period.	Under Supervisor of Engineer in charge	**Contractor.**
Debris handling and disposal	Physical inspection to ensure debris from rehabilitation work isbeing securely disposed offat identifiedand approved location	All rehabilitation worksites generating debris	Once every month	Under Supervisor of Engineer in charge	**Contractor.**
Storage and disposal of hazardous waste	Physical inspection to ensure hazardous waste is being segregated and securely disposed offto authorised vendors	All rehabilitation worksites generating hazardous Wastes	Once every month	Under Supervisor of Engineer in charge	Contractor.

B.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 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 every quarter.

B.4 Community Health and Safety (ESS4)

B.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 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 anyindirect impact on communities.

B.4.2 Hazard Identification

Implementations of sub-project activities pose minimum risk to 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:

B.4.3 Traffic and Road Safety

Sub-project activities are largely structural interventions categorized 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, 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 e.g. as acetylene and LPG, etc. Transportation, storage and handling of these hazardous materials requirecareful handling and disposal to minimize risk of public exposure. All the storage, handling of hazardous waste need to be followed Hazardous Wastes (Management

and Handling) Rules. 2016. Residual and hazardous wastes such as oils, fuels, and lubricants shall be disposed of in disposal sites approved by Pollution Control Board. Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate. Store fuel, construction chemicals etc., on an impervious floor, also avoid spillage by careful handling

Hazard Risk Management - Following measures are proposed to minimize 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 nighttime
- 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.

B.4.4 Communication and Consultation (Workers & Community)

Stakeholder consultation was carried out involving direct workers and community on 15th October, 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 mentioned that strengthening works for dam 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.

B.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 ofany 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 asuse 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 definedincluding:

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, asrequired (fire, police and medical)
6. Prepare accident report – root cause, corrective action and preventive action

B.4.6 Emergency Control Centre

Control room at dam serves as Emergency Control Centre, which has basic communication facilities. Thesame 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 CO2type.

B.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.

B.5 Stakeholder Engagement Plan (ESS10)

B.5.1 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.
ii. **Other Interested persons**: In relation to structural interventions, these would be contractors, project management consultants, regulat**ory bodies/institutional** stakeholders such as Pollution Control Board, Forest and Wildlife department or other environmental authorities, etc. In relation tonon-structural interventions, these would be communities living downstream of dam who would be the key stakeholders during 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 arewell informed about the provisions of the EAP.

B.5.2 Stakeholder Consultation

Outcome of the stakeholder consultation are discussed above.

B.5.3 Stakeholder Engagement and Project Cycle

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

Table 8 Stakeholder Engagement by Activities

Information to be disclosed	Target stakeholders	Tools of engagement & mode of disclosure	Frequency	Responsibility
Emergency Action Plans (preparation and implementation)	✓ District Administration, ✓ Revenue department ✓ Police ✓ SDMA, DDMA, NDMA ✓ Print and electronic media ✓ Farmers, Communities (affected/ other interested) in the dam Vicinity	✓ Consultative meetings and EAP Dissemination workshop ✓ Website notifications ✓ SMS alerts ✓ Meetings to inform Village heads or community representatives	✓ Multiple	**SPMU**
Provisions related to Dam Safety	✓ Contractor ✓ SPMU staff ✓ Forest Department ✓ Pollution control Board ✓ 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 implement ation	**SPMU**
Work opportunitiesfor Structuralworks	✓ Contractors ✓ Consultants	✓ Website notifications ✓ Tender advertisements in newspaper	✓ Multiple ✓ Continuous	**SPMU**

Information to be disclosed	Target stakeholders	Tools of engagement & mode of disclosure	Frequency	Responsibility
Work opportunitiesfor • **Petty contracts** • **Labor**	✓ Communities (including disadvantaged persons) ✓ Petty contractor	✓ Website notifications ✓ Meetings to inform Village heads or community representatives	✓ 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**

B.5.4 Timelines For Information Disclosure And Feedback

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

Table 9 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				
Draft ESDDs/ESIAs; draft ESMPs				

Disclosure of information/documents	Mode of providing feedback	Timeline for feedback	Conveying of responses by SPMU	
			No. of days	Mode
Executive Summaries in local languages of ESMP				

B.5.5 Monitoring And Reporting

Quarterly progress reports of IA to include the following parameters

Table 10 Parameters

Sl. No.	Parameters	Status (Nos./description)
1	Number of consultation meetings 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	

CHAPTER 3

C. ENVIRONMENTAL AND SOCIAL MITIGATION AND MONITORING PLAN

C.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 11 Environment and Social Mitigation and Management Plan

Activity and environmental aspects	Environment aland 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 clean eating area, separate canteen facility, first aid, periodic health check-up and waste management. • Provide safe drinking water, water for otheruses, and sanitation facilities for employees • Maintenance of hygienic environment atstaying area, cooking area and toilet • Make Provision for adequate number of toiletsseparate for male and female, with arrangement of sewage collection and	Before Construction	Physical Inspection by IA before construction and thereafter every 3 months or if any complaint is received whichever is earlier. Review ofcomplaints should be done every month by IA.	Contractor	IA

Activity and environmental aspects	Environment aland Social Risks/Impacts	Mitigation Measures	Stage of Action	Monitoring Requirements and Frequency	Responsibility of Implementation of Mitigation Measures	Monitoring Responsibility
		Disposal				
	Water and Power requirement impacting other competitive users	• Source of water and power for labour camp asper advisory from IA	Before Construction			
	Tree cutting by labour for cooking and spaceheating	• 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 notknown to area	• Pre deployment health check -up of labour (ifworkers are planned to stay at site for more than six months) Self- hygiene, regular disinfection of entire camp and toilet, maintaining of social distancing to be continued for protection fromCOVID 19 infection	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	• 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
	Solid Waste Management	• Manage solid waste according to the following preference hierarchy: reuse, recycling	Entire duration	Physical inspection of IA .	Contractor	IA

Activity and environmental aspects	Environment aland Social Risks/Impacts	Mitigation Measures	Stage of Action	Monitoring Requirements and Frequency	Responsibility of Implementation of Mitigation Measures	Monitoring Responsibility
		and disposal to designated areas; • Provide a compost pit for biodegrabale waste, and non-biodegradable / recyclable waste shall be collected and sold in local market. • Dustbins for recyclable and non- recyclable waste shall be provided in labour camp area. • Biodegradable waste shall preferably be composted in portable mechanical waste composters. Concept of reduce, re-use and recycle shall be followed at site. • The non-recyclable, non-salable and non-biodegradable wastes shall preferably be disposed at a marked site at project area itself where this waste should be buried underground. • Disposal sites are located at least 500 m away from sensitive locations like settlements, water body, notified forest areas, conservation areas which is to be finalized after discussion with respective administration. • Disposal sites shall not contaminate any water sources so the site should be				

Activity and environmental aspects	Environment aland Social Risks/Impacts	Mitigation Measures	Stage of Action	Monitoring Requirements and Frequency	Responsibility of Implementation of Mitigation Measures	Monitoring Responsibility
		located away from water body and disposal site should be lined properly to prevent infiltration of water.				
Labour employment andworking conditions **(ESS 2)**	1. Non-payment ofwages and overtime 2. Non-compliance to working hours, number of working days per week, rest day andrest time 3. Inadequate facilities at site -drinking water, toilets, food 4. Not providing temporary accommodation for labour free ofcharge with separate toilet, bathing and lavatory facilities 5. Not providing kitchen and creche, if applicable 6. Employment ofchild labour	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 - ContractorsLabour License, Insurance, ESI and PF registration Regular review during construction	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 complaint is received whichever is earlier; Review of complaints received under GRM every month	Contractor	IA

Activity and environmental aspects	Environment aland Social Risks/Impacts	Mitigation Measures	Stage of Action	Monitoring Requirements and Frequency	Responsibility of Implementation of Mitigation Measures	Monitoring Responsibility
Occupational Health and Safety during works **(ESS 2)**	1. Unsafe working conditions – poormarking, instructions, 2. Not enough PPEsfor 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 ofPPEs and/or in emergency response,	• 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 • 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. • All workers should be provided with training on use of appropriate PPEs and how to respond during emergency • Adequate EHS instructions shall be displayedat site • Provision of First aid with availability of trained first aiders shall be ensured • SOP shall be developed as per best practices and IFC EHS guidelines for unsafe conditions like working on height, working in confined handling of hazardous material like weldinggases • Prepare SOP for COVID 19 Pandemic • Adequate provision of life jacket if working on reservoir side • Procedure of incident	Before construction – training and availability ofPPEs During construction – marking ofareas as perrisks, 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

Activity and environmental aspects	Environment aland Social Risks/Impacts	Mitigation Measures	Stage of Action	Monitoring Requirements and Frequency	Responsibility of Implementation of Mitigation Measures	Monitoring Responsibility
		prevention, investigation and corrective preventive action • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal • Ensure moving equipment is outfitted with audible back-up alarms; • As this place is major tourist attraction, proper safety measures need to be taken during execution of works. Work scheduleneed to be fixed with consultation of dam authorities. • Flagman should be present at the time of heavy construction vehicle movement. • If water release is required for rehabilitation work, local people should be informed in advance areas, electrical safety, fall prevention,				
COVID19 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 otherrelevant parties	Before startof mobilization of workers	First hand monitoring and review	Contractor and IA	Contractorand IA

Activity and environmental aspects	Environment aland Social Risks/Impacts	Mitigation Measures	Stage of Action	Monitoring Requirements and Frequency	Responsibility of Implementation of Mitigation Measures	Monitoring Responsibility
Use of resources – water, power and raw material for dam rehabilitation work **(ESS 3)**	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 locations with approval status. Ensure that material is sourced from quarries or borrow areas which has valid environmental clearance.	Before startof construction work	Review of resource planning ensuring efficiency Review of quarry and borrow material requirement with approval status, validity and environment clearance – once before start of construction	Contractor with IA	IA and SPMU
Pollution generation from rehabilitation work sites and	Air and noise emissions from storage and handling of raw material and	• Ensuring covered storage of lose • /construction material. • Sprinkling of water to minimize fugitive dust emissions for the work of road construction, embankment repairing, GSB Laying, Box	During entire project duration	Ambient Air Quality and Noise Level: environmental monitoring will conducted and ensure that air emission / noise levels from	Contractor	IA
labour camp **(ESS 3)**	1. During execution of civil and hydro-mechanical work Air & noise pollution from vehicles movement due to transportation of construction materials. 2. Water pollution from construction activities and	• 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 labelling. DG stack height shall be as per the Consent to be obtained from State Pollution Control Board before start of work. • Ensuring use of dust masks, if workers are exposed to dust emissions and ear muffs for exposure to high		rehabilitation work is not affecting the labour / community Water Quality: conducted half yearly water quality monitoring to ensure any wastewater from rehabilitation work is not being disposed off in river; Solid & hazards waste: debris is being disposed off at identified locations. Physical inspection of use of PPEs, review of DG		

Activity and environmental aspects	Environment aland Social Risks/Impacts	Mitigation Measures	Stage of Action	Monitoring Requirements and Frequency	Responsibility of Implementation of Mitigation Measures	Monitoring Responsibility
	fromlabour camp 3. Debris generationfrom excavation work, if any, and debris generationfrom repair work 4. Hazardous waste generation from civil construction work such as painting and hydro-mechanical work, replacement of parts, etc.	noise for long durations • Provision of mobile toilets at work site • Wastewater from construction sites not to be discharged untreated (compliance with general discharge standards) • Place storage areas for fuels and lubricants away from any drainage leading to water bodies • construction debris to be disposed off at pre-identified and approved site • 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		specification, wastewater discharge, 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.	• A traffic management plan should beprepared for controlling traffic • All vehicles used by contractors for transportation of persons and material shouldhave valid PUC • Lose material should only	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 earlier	Contractor	IA

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
		be transported incovered vehicles				
Stakeholder Engagement Plan (ESS 10)	Stakeholder participation, implementing the grievance mechanism,ensuring continuous information transfer Through open communication	Grievance mechanism should be prepared EAP consultations, dissemination material, awareness sessions, print and electronic media campaigns	Early in theproject Throughout the project across various activities		IA	IA

CHAPTER 4

D. 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 onboarding shall submit C-ESMP with updated inputs on management plans. The ESMP will be updated, should additional information/ impacts are determined during the project.

D.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.

Table 1: The management measures and implementation and supervision arrangements

S. No	Project Stage/Activity	Management Measures	Responsibility	
			Planningand 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 Provision of solid waste collection should be available in labour camp.	**Contractor**	Engineerin 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	Engineerin Charge
3	Compliance to Labour laws of before start 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

S. No	Project Stage/Activity	Management Measures	Responsibility	
			Planningand Execution	Supervision/ Monitoring
4	Identification of GBV hotspots and accident hotspots on transportroute before start of construction	Physical surveyand hotspot identification	E&S Expertat Dam	Engineer in 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	Engineer in Charge
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 4. Provide Medical Insurance for all worker. 5. Ensure that qualified first-aid is provided at all times. Equipped first-aid stations shall be easily accessible throughout the site. 6. Potable drinking water should be supplied in all working place. 7. Provide clean eating areas where workers are not exposed to hazardous or noxious substances	Contractor	Engineer in Charge
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 locationfor 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

S. No	Project Stage/Activity	Management Measures	Responsibility	
			Planningand Execution	Supervision/ Monitoring
8	Pollution prevention during entire project duration	1. Ensuring covered storage of lose material/sprinkling of water to minimize fugitive emissions. 2. Maintaining construction equipmentand ensuring DG set used for power have valid certificate of Type Approval and also valid certificates of Conformity of Production as perconformance labeling 3. Ensuring use of dust masks, if workers are exposed to dust emissions and ear muffs for exposure to high noise for longdurations	Contractor	Engineer in Charge
		4. Provision of mobile toilets at worksite 5. Wastewater from construction sites not to be discharged untreated (compliance with general dischargestandards) 6. 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. Ensured moving equipment is outfitted with audible back-up alarms. 3. Lose material should only be transported in covered vehicles	Contractor	Engineer in Charge
10	EHS monitoring	To be undertaken throughout the project implementation period with inspection by E& S staff of contractor	E&S expertsof 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 I: OUTLINE OF CONTRACTOR'S ESMP

(Will cover all on site issues and responsibility with management)

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

2. Licensing Requirement

2.1 Labour License
2.2 Insurance
2.3 PUC
2.4 Use of approved quarry/borrow areas, if such material is required
2.5 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 – pre-health 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 vehicle moment. 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 forreporting

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- II
Approx. Cost for EMP Implementation

Component	Description	Number	Cost per Unit (INR)	Cost (INR)	Sourceof Funds
Tree plantation	Compensatory plantation	About 90 trees	800/-	72,000.00	Project Management cost/ PMU
Dust Suppression at subproject sites	Application of dust suppression measures during construction phase.	As required	Lump sum	1,25,000.00	By contractor
Air- Construction phase	Once before start of construction. (ii)Half yearly (Yearly 2 times except monsoon season) during construction period until construction period in 4 location for 36 month construction period	28	10,000 per sample	2,80,000.00	By contractor
Noise- Construction phase	Once before start of construction. (ii)Half yearly (Yearly 2 times except monsoon season) during construction period until construction period in 4 location for 36 month construction period	28	1,000 per sample	28,000.00	By contractor
Water Sample collection & analysis for Construction phase	Once before start of construction. (ii)Half yearly (Yearly 2 times) during construction period until construction period. In 3 locations for 36-month construction period	21	8,000 per sample	1,68,000.00	By contractor
Debris handling anddisposal	All rehabilitation worksites generating debrisand disposed in approved designated area.	As required	Lump sum	1,25,000.00	By contractor
SEP activities	Sensitization & Awareness programme	8	Lump sum	50,000.00	By contractor
			Total-	**8,48,000.00**	