

Contractor's Environmental and Social Management Plan
For Proposed 100 Bedded District Hospital in Kaliapani
District - Jorhat, Assam



Under
**ASSAM STATE SECONDARY HEALTHCARE INITIATIVE FOR SERVICE
DELIVERY TRANSFORMATION (ASSIST) PROJECT**

Submitted to:
**World Bank Funded Assam State Secondary Healthcare Initiative
for Service Delivery Transformation (ASSIST) Project**

**Assam Health Infrastructure Development and Management Society
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ABBREVIATIONS

ADC	Autonomous District Council
ANM	Auxiliary nurse midwife
ASHA	Accredited social health activist
BMW	Bio-medical Waste
CBWTF	Common Biomedical Waste Treatment Facility
CERC	Contingent Emergency Response Component
CHC	Community Health Centre
FRU	First Referral Unit
BPHC	Bureau of Primary Health Care
CMO	Chief Medical Officer
DH	District Hospital
DOHFW	Department of Health and Family Welfare
E&S	Environmental and Social
ESF	Environmental and Social Framework of World Bank
ESMF	Environmental and Social management Framework
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Standard
FPIC	Free, Prior, and Informed Consent
GBV	Gender Based Violence
GOI	Government of India
GOA	Government of Assam
GRM	Grievance Redress Mechanism
HCF	Health Care Facility
HR	Human Resource
HWC	Health and Wellness Centre
ICT	Information and communication technology
IEC	Information, Education, and Communication
IPA	Internal performance agreement
IPF	Investment Project Financing
IPM	Internal Performance Management
IT	Information Technology
MMR	Maternal Mortality Rate
MO	Medical Officer
MOHFW	Ministry of Health and Family Welfare
NCD	Non-communicable diseases
NGO	Non-governmental Organization
NHM	National Health Mission
NQAS	National Quality Assurance Standards
OHS	Occupation and Health Safety
OOPE	Out-of-pocket expenditure
OSC	One Stop Centre
PDO	Project Development Objective
PHC	Primary Health Centre
PMU	Project Management Unit
PPE	Personal Protective
PPP	Public Private Partnership
RKS	Rogi Kalyan Samiti
SBCC	Social and Behaviour Change Communication
SC	Sub-Centre
SEA/SH	Sexual exploitation and abuse/Sexual harassment
SEP	Stakeholder Engagement Plan
SOP	Standard Operating Procedure
WCD	Women and Child Development

EXECUTIVE SUMMARY

Government of Assam is implementing World Bank assisted “Assam State Secondary Health Care Initiative for Service Delivery Transformation (ASSIST) Project” under Assam Health Infrastructure Development & Management Society (AHIDMS), Medical Education and Research Department (MERD) with financial assistance from the World Bank. Major objective of the project is to initiate improvement in the quality and delivery of secondary health care system in the state. Under this project, 9 (Nine) new 100 to 200 bedded District Hospitals are going to be constructed in 9 districts of the state.

One of the proposed sites is Jorhat in the Kaliapani district of the state where a new 100 Bedded District Hospital is proposed to be constructed in the premise of Jorhat Community Health Centre. The CHC is situated at the heart of Jorhat. The DH will be constructed on EPC mode and the contract of the project at Kaliapani has been assigned to M/S SBP Commercial Pvt Ltd, Guwahati by AHIDMS.

There is a high shortage of public healthcare services in this area as well as in the district. The facilities provided by those available are not sufficient as they are limited to the services of primary care, preventive services, and maternity care. The proposed DH at Kaliapani which will be equipped with advanced facilities and infrastructure is an utmost need of the people in the region, as it will facilitate an easy access to the ever-growing demand for advanced and specialized healthcare services of the people. The proposed DH at Kaliapani will come a long way in fulfilling the gap in providing access to secondary health care services to the people of the area and benefitting all sections of the people in the society.

World Bank Environmental and Social Standards (ESS)-1: “Assessment and Management of Environmental and Social Risks and Impacts” sets out the requirement of identification and assessment of environmental and social risks and impacts associated with construction of DH at Kaliapani under ASSIST Project; and subsequent mitigation management plans. The objective is to prevent and mitigate undue harm to people and their environment in the construction process.

In view of the above, ASSIST commits to adopt the site-specific Contractor’s Environment and Social Management Plan (C-ESMP) for the proposed DH at Kaliapani. Once adopted, the C-ESMP has to be implemented throughout the period of pre-construction to the construction period by the SBP Commercial Pvt Ltd, who will be responsible to adhere to the same for compliance of environmental and social safeguards of the project. The C-ESMP will be updated as and when required or in case addition of any activity which is not a part of this C-ESMP.

The baseline environment and social attributes of the proposed DH site and the vicinity have been assessed to identify possible impacts of construction of DH on the same. The screening of environmental parameters showed that all the results are within norms and thereby it can be derived that impacts arising during the construction works of the proposed project is not likely to have any major impact on the environment. However, anticipated site issues include disturbance to topsoil and existing green cover of the site, soil erosion and contamination, flooding due to surface runoff and water contamination, air pollution due to dust and smoke, noise pollution due to vibrations and noise coming out of construction activity.

Likewise social issues may occur at site which includes risks related to community health and safety, public inconveniences and disruption of medical service at Jorhat CHC due to construction activity, conflict between migrant workforce and local, risks of Gender based violence and SEA/SH at site and its vicinity and occupational health and safety of labours at site.

The C-ESMP has been prepared considering the identified risks and impacts of construction of proposed DH at Jorhat for taking up the responsibility for respective mitigation actions in a specified time period starting from the pre-construction period to construction period.

As a part of mitigation measures, there is a need to obtain Consent/ Permit/ Clearance/ No Objection Certificate (NOC), etc. for establishment of new DH, RMC/ Batching Plant, Labour Camp, Storage for construction materials, tree cutting/relocation, use of vehicles and equipment, connections of water supply, electricity etc.

The mitigation measures are planned against the identified environmental and social risks of the pre- construction and construction period of proposed project at Kaliapani. Proposed mitigation measures aim to protect, prevent and minimize environmental issues of disturbance of land, water, soil and air arising out of construction activity at site and surrounding areas. Further, the mitigation measures addressing the social issues will minimize and prevent risks to community health and safety, occupational health and safety of labours, and inconveniences and disturbance to public. The measures will also address road safety, stakeholder engagement for awareness and involvement in the project and prevent or mitigate risks of SEA/SH to community members, particularly women and children by contractors’ workers during construction period, workplace sexual harassment at project site (Consultants and contractors’ staff & labourers).

World Bank's ESS10 recognises that effective engagement with the stakeholders can significantly improve the project outcomes and their sustainability through better community acceptance and ownership, enhance the environmental and social sustainability of the project, and hence make a significant contribution to successful project implementation.

In view of the above, Stakeholder engagement activities like consultation and meeting were conducted for making the community and hospital staff aware of the proposed DH, facilities to be provided through the proposed DH and making them aware of the possible public inconveniences during the construction of the proposed DH. Suggestions and inputs from stakeholders were also considered while preparing the C-ESMP.

The DH design and construction materials will conform to the seismicity of the region as it falls under seismic Zone (v). Further, environment friendly building materials and technologies that are appropriate for the project site and surrounding environment will be used in the project. The proposed DH will be equipped with necessary contemporary healthcare facilities as per IPHS, 2022 norms and the building will be human centric and GRIHA v.2019 compliant.

Details of Sub Project

Assignment Title:	Design & Construction of 100 Bedded New District Hospital in Kaliapani, Assam in EPC Mode
Name of Contractor (EPC)	M/S SBP Commercial Pvt Ltd.
Project Name:	Assam State Secondary Healthcare Initiative for Service Delivery Transformation (ASSIST)
Financial Assistance:	World Bank
Name of (PMU):	Assam Health Infrastructure Development and Management Society (AHIDMS), Government of Assam.
Name of Project Management Consultant (PCCMC):	Mott MacDonald Pvt. Ltd.
Contract Number:	IN-AHIDMS-368375-CW-Kaliapani

CHAPTER-I

1. Introduction and Background

1.1 Introduction

Assam, located in the easternmost part of India, is characterized by a diverse landscape of mountains, valleys, and two major river systems—the Brahmaputra and the Barak. It is the largest state in the northeastern region by population and ranks second in terms of area, covering approximately 78,438 square kilometres. Assam shares its borders with Bhutan and Arunachal Pradesh to the north; Nagaland, Arunachal Pradesh, and Manipur to the east; Meghalaya, Tripura, Mizoram, and Bangladesh to the south; and West Bengal to the west. The state is administratively divided into 35 districts, grouped into five regions: Barak Valley, Central Assam, Lower Assam, North Assam, and Upper Assam.

According to the 2011 Census, Assam's population stood at 31,205,576, with 15,939,443 males and 15,266,133 females, representing about 2.58% of India's total population at that time. The population density of Assam is 398 persons per square kilometre, slightly above the national average of 382 persons per square kilometre.

Assam is continuously working towards development of the health sector. During 2017-19 Assam was one of the states with highest maternal mortality rates (MMR), with around 205 deaths per 100,000 live births. However, NHFS data of (NFHS 2019-2021, and 2005-2006) indicates an improvement in other health outcomes, with 87 percent of women giving birth in a facility now as compared to 24 percent in 2005. Antenatal care has also improved from 66 to 85 percent. These improvements in the indicators can be attributed to several interventions of the Govt. of Assam in the health sector.

However, at the district hospital (DH) level bed availability is lower in the state compared to national average: at present, DHs in Assam have 18 beds/100,000 population compared to the national average of 24 beds. The proportion of communicable, maternal, neonatal, and nutritional diseases (CMNND) contribute to 34.06% of total disease burden. Diarrheal diseases, lower respiratory tract infections, neonatal pre-term birth and tuberculosis are the leading causes of deaths due to CMNND in the State. ¹

To improve access and the quality of secondary healthcare services, the Assam Health Infrastructure Development & Management Society (AHIDMS), under the Medical Education and Research Department of the Government of Assam, is implementing the "Assam State Secondary Healthcare Initiative for Service Delivery Transformation (ASSIST)" project, financially supported by the World Bank.

As part of this initiative, nine new district hospitals, each with 100 to 200 beds, are planned across various districts in Assam. One such hospital will be established in Jorhat district, where a 100-bedded district hospital will be constructed in Kaliapani. The new facility aims to address the existing gap in secondary healthcare services not only for the immediate vicinity but also for the broader district population. It is expected to provide critical health services previously unavailable within a 20 km radius, thereby benefiting all sections of the community and saving lives.

The contract for this project has been awarded to SBP Commercial Pvt Ltd by AHIDMS. As part of their contractual obligations, SBP Commercial Pvt Ltd is responsible for conducting an Environmental and Social Impact Assessment (ESIA) for the proposed district hospital site and preparing a site-specific Contractor's Environment and Social Management Plan (C-ESMP). This plan will guide the management of environmental and social issues during project implementation and will be updated as necessary to reflect any changes or additions in project activities. SBP Commercial Pvt Ltd will ensure strict adherence to the C-ESMP throughout the project lifecycle to comply with all environmental and social safeguard requirements.

1.2 Objectives of the ESIA and C-ESMP:

1.2.1 ESIA: The major objectives of ESIA are:

- a) Assessment and collection of primary and secondary data on physical, ambient, ecological and social environment, of the proposed site.
- b) Review of existing National and State level policies, legislations and regulations along with that of policies and frameworks of World Bank and examine applicability of the relevant one in implementing the project at the proposed site.
- c) Assessment and identification of environmental, and social risks and impacts of the proposed site.

¹ ESMF Document of World Bank ASSIST Project.

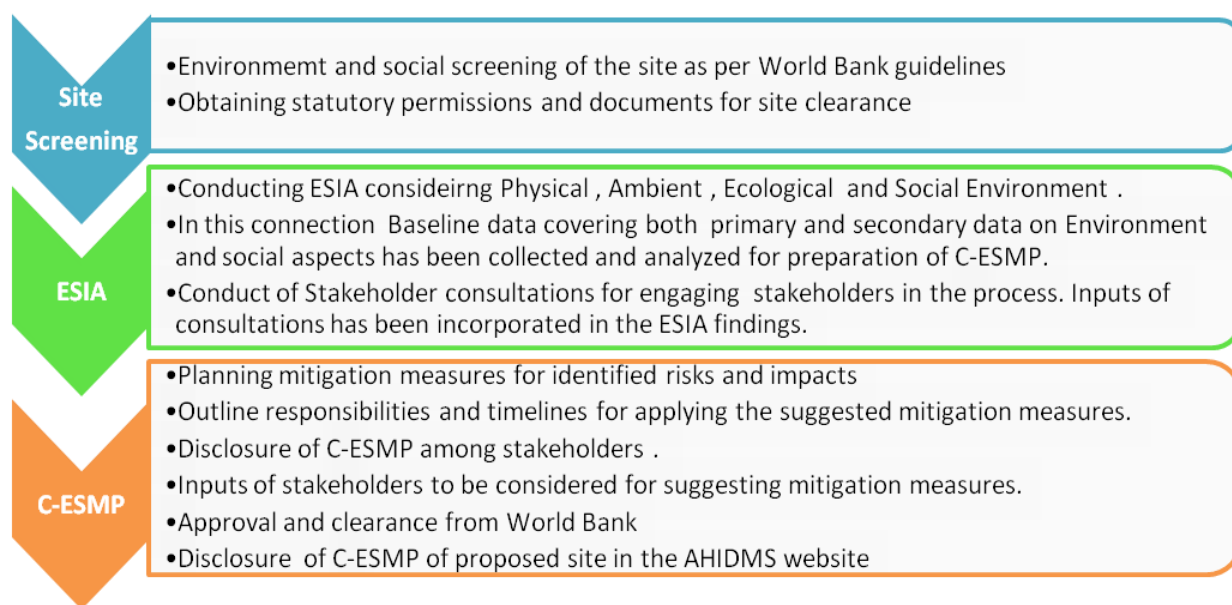
- d) Identification of Stakeholders of the project in the district and implementing Stakeholder engagement programme at the proposed site to involve all stakeholders in the project implementation process and to generate awareness for the local community.

1.2.2 C-ESMP: The major objectives of C-ESMP are:

- a) To manage all identified environmental and social impacts, risks and liabilities during preconstruction, construction and maintenance and operation of the project
- b) To plan and implement strategies for Environment, social, health, and safety (ESHS) safeguard elements
- c) To comply with all applicable regulations and standards related to Environment, Social and Labour management and safeguards.
- d) To avoid, mitigate and manage negative impacts on heritage and cultural properties.
- e) To plan and provide better living environment to labours at labour camps and work sites and maintain Water, Sanitation and Hygiene (WASH) standards.
- f) To prevent as well as redress grievances on possible risks of Sexual Exploitation and Abuse and Sexual Harassment (SEA/SH) and Gender-Based Violence (GBV), of workers and community and sensitization of both on the same.
- g) Disclosure of C-ESMP

1.3 Methodology:

The methodology for conducting the ESIA and preparing the C-ESMP is broadly divided into the following 3 parts as given below:



CHAPTER-II

2. Project Description

2.1 Location

The location of proposed District Hospital is situated at Kaliapani in Teok Revenue Circle of the Jorhat District of the State. It is located 33 KM towards East from the district headquarter, Jorhat. Tamulichiga (6 KM), Boloma (9 KM), Balijan (10 KM), Bongaon (14 KM) are the nearby Villages to Kaliapani. Kaliapani is surrounded by Gaurisagar towards North, Amguri towards East, Longchem towards South, Sivasagar towards East. Mariani, Sibsagar, Jorhat, North Lakhimpur are the nearby towns and Selenghat Railway Station, Amguri Junction Railway Station are the very nearby railway stations to Kaliapani.

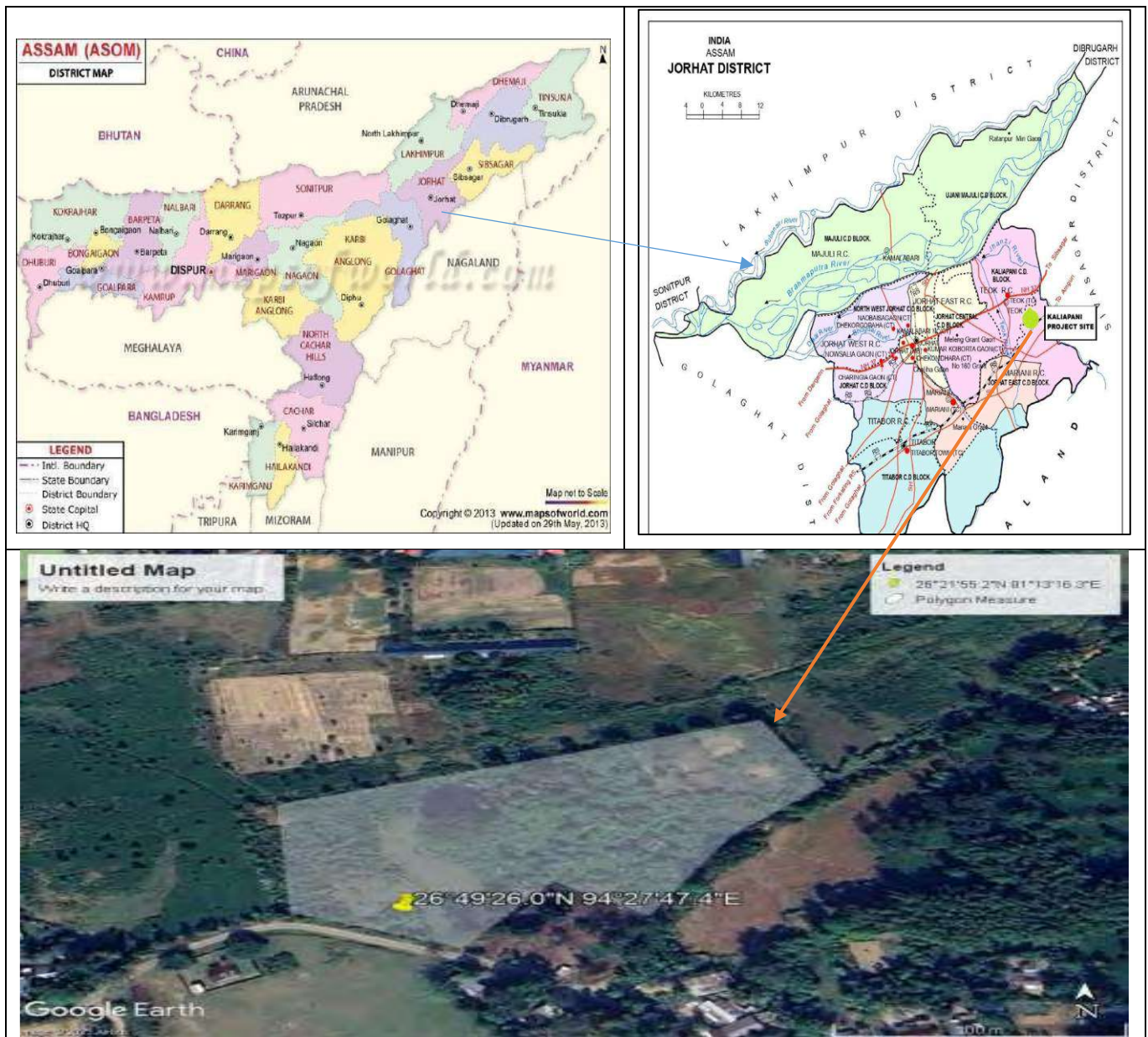


Figure 1: Location of proposed District Hospital Site at Kaliapani

2.2. Introduction of the proposed project site:

An area of 13,380.0 sqm (approximately 10 bighas) was initially allotted for the proposed DH at Kaliapani by the CO, Teok Revenue Circle. However, with the inclusion of the LMO facility, the originally approved land parcel was found to be inadequate. Consequently, an additional 1.270 bighas (1,699.335 sqm) of land has been proposed and is currently under approval.

The identified land is currently an open area, located approximately 5.1 km from Teok and about 29.7 km from Jorhat town. Vegetation is present along the proposed project site, which will require clearance. A detailed assessment of the vegetative cover should be undertaken to ensure minimal felling and clearance.

The establishment of this new District Hospital, equipped with modern facilities and infrastructure, is essential to meet the growing demand for healthcare services in the region. It will significantly enhance accessibility for residents of the area and neighbouring localities. Photograph of the proposed site is provided below.



Figure 2: Proposed District Hospital Location

The allotted land was found to be insufficient as ancillary services like Liquid Medical Oxygen (LMO) tank cannot be accommodated in the site and so DC, Jorhat has been requested to provide an additional land of 1 bigha for the project and the process is still under process.

The design of the proposed 100 bedded DH design will be human centric and user friendly as well as GRIHA compliant. Project envisages achieving 3-star GRIHA rating for the DH. Planned building design and summary of specification for construction is given in Annexure -2.

2.3. Proposed Components for the Project Site

The proposed 100-bedded District Hospital (DH) will be designed to be human-centric, user-friendly, and compliant with GRIHA standards, with the objective of achieving a 3-Star GRIHA rating. The building will incorporate universal access features such as ramps, handrails, and appropriate fixtures on all floors. Fire safety provisions, including an additional staircase or ramp for emergency evacuation, will also be integrated into the design. The project will include an Effluent Treatment Plant (ETP) with a capacity of 20 KLD and a Sewage Treatment Plant (STP) with a capacity of 80 KLD. A dedicated biomedical waste storage facility has also been incorporated into the design.

Ground Floor: The ground floor will accommodate the Emergency Care Unit and the Outpatient Department (OPD), ensuring easy accessibility for patients requiring immediate medical attention and routine consultations.

First Floor: The first floor will house the Outpatient Department (OPD) and the Administrative Unit, facilitating efficient hospital management and coordination of outpatient services.

Second Floor: The second floor will be dedicated to the mother and Child Hospital, providing specialized facilities for maternal and paediatric healthcare services.

Third Floor: The third floor will include a waiting area with public toilets, lift lobby, and staircase, along with supporting facilities such as the Doctor's Lounge, Nurse's Lounge, Pantry, and Nurse's Station to enhance staff comfort and operational efficiency.

Fourth Floor: The fifth floor will accommodate the Blood Bank, High Dependency Unit (HDU) Ward, and Operation Theatre (OT) Complex, providing critical care and advanced medical treatment facilities.

In addition to the above, the hospital will be equipped with a comprehensive biomedical waste management system, including three categories of BMW rooms and collection areas on each floor. Supporting infrastructure will include an Effluent Treatment Plant (ETP) of 20 KLD capacity, a Sewage Treatment Plant (STP) of 80 KLD capacity, and a dedicated biomedical waste storage area. Other supporting facilities will include waiting and reception areas, body viewing and cold storage facilities, post-mortem and embalming rooms, instrument and storerooms, X-ray and supervisor rooms, changing rooms, and adequate toilet facilities to ensure smooth, hygienic, and environmentally compliant hospital operations. The details of the proposed site design and project components are provided in Annexure 2.

CHAPTER-III

3. Environmental and Social Baseline

3.1 Introduction

The Environmental and Social Baseline Study is undertaken to assess the existing characteristics of the project area prior to development, thereby establishing its initial environmental and social status. The key objectives of the study are:

- To evaluate the current environmental and social conditions, quality, and key concerns of the project site and its surrounding areas.
- To identify environmental and social factors that may potentially hinder or restrict the implementation of the proposed project.

The baseline environmental quality has been evaluated through field surveys conducted within the probable impact zones, supplemented by secondary data for various environmental components, including air, water, noise, land/soil, and socio-economic conditions.

In line with the World Bank's Environmental and Social Safeguard Guidelines, the EPC contractor, M/s SBP Commercial Pvt Ltd., is responsible for conducting an Environmental and Social Impact Assessment (ESIA) and preparing a Contractor's Environmental and Social Management Plan (C-ESMP) and subsequently implementing the plan.

The proposed project site is situated on government-owned land, involves no land acquisition, and is therefore not expected to have any impacts on indigenous peoples.

3.2. Physical Environment

3.2.1 The institutions that exist in and around the proposed Kaliapani site

Hospital	Health and Wellness Centre, Tipomia is located approximately 40 meters from the boundary of the proposed hospital site.
Market	The Kaliapani weekly market is located approximately 1.8 km from the proposed hospital site.
Police station	Kaliapani Police station is approx. 6.9 km away from the proposed site.
Educational Institutions	Kaliapani College is approx. 3.2 km away from the proposed site. Kaliapani Boys High School is approx. 5.8 km away from the proposed site. Kaliapani Girls College is approx. 6.4 km away from the proposed site. Tipomia LP School is located approx. 100 meters from the proposed DH
Temple (Naamgar)	A Naamghar is located adjacent to the hospital, on its eastern side.
Topography	The terrain is generally flat to gently sloping, with elevations averaging between 80–100 meters above mean sea level. The area is primarily composed of fertile alluvial soils, supporting agriculture and scattered vegetation.
Land Use Pattern	The predominant land use in the study area consists of built-up areas, followed by open vegetation and tea gardens on two sides. The proposed hospital site is located within a zone primarily characterized by open vegetation.

3.2.2 Environment Baseline Survey

The Environmental Baseline Study is conducted to determine the characteristics of a project area prior to development and to establish its initial environmental status. The primary objectives of the study are:

- To assess the current environmental quality and potential environmental impacts.
- To identify environmentally significant factors that may hinder project development from an environmental perspective.

Baseline environmental quality is evaluated through field surveys within the probable impact zones for various environmental components—air, water, noise, and land/soil—along with secondary data for the socio-economic profile. The study covers a 5.0 km buffer zone around the proposed site, with monitoring carried out at five sampling locations, including the project site. The baseline assessment encompasses the following environmental components:

- Air Environment
- Noise Environment
- Soil Environment
- Biological Environment
- Socio-economic Environment

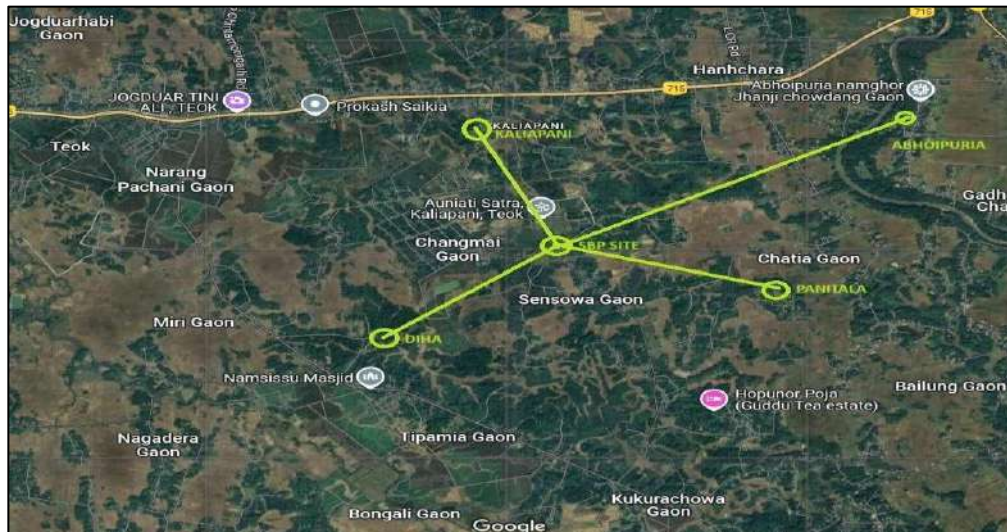


Figure 3: Environment Baseline data collection location

Table 1: Details of locations for collection of Baseline Environment data

Sl. No.	Sampling Location	Distance from DH site	Direction from the DH site
Location 1	Abhaypuria Kaliapani	Approx. 4.0 km	North
Location 2	Proposed DH Kaliapani	--	--
Location 3	Diha Kaliapani	Approx. 3.9 km	North
Location 4	Panitola Kaliapani	Approx. 2.0 km	West East
Location 5	Kaliapani Gate	Approx. 2.5 km	South

3.2.3 Ambient Air Quality Monitoring:

Methodology: To establish the baseline air quality, Ambient Air Quality (AAQ) monitoring was conducted from August to September 2024, with air quality monitoring stations and a weather station installed at the designated data collection locations.

For assessing the air quality, Particulate Matter PM₁₀, PM_{2.5}, SO₂ and NO₂ were monitored in the ambient air at identified locations to establish baseline for air quality prior to the start of the construction activity. The air quality parameters were monitored in accordance with the National Ambient Air Quality Standards as given in Table 2.

Table 2: Ambient Air Quality Baseline Data

Sl No	Pollutant	Methods of Measurement	Time Weighted Average	NAAQ (2009) Standards	Ambient Air Quality Baseline Results (µg/m ³)				
					Locations				
					1	2	3	4	5
1	PM 10	IS 5182 (23)	24 hours	100 µg/m ³	40	41	34	39	37
2	PM 2.5	GEEC/SOP/01 USEPA TS 5182(24)	24 hours	60 µg/m ³	17	19	18	18	19
3	Sulphur Dioxide (SO ₂)	IS 5182 (2)	24 hours	80 µg/m ³	<25	<25	<25	<25	<25
4	Nitrogen Dioxide (NO ₂)	IS 5182 (6)	24 hours	80 µg/m ³	12	11	15	9	14

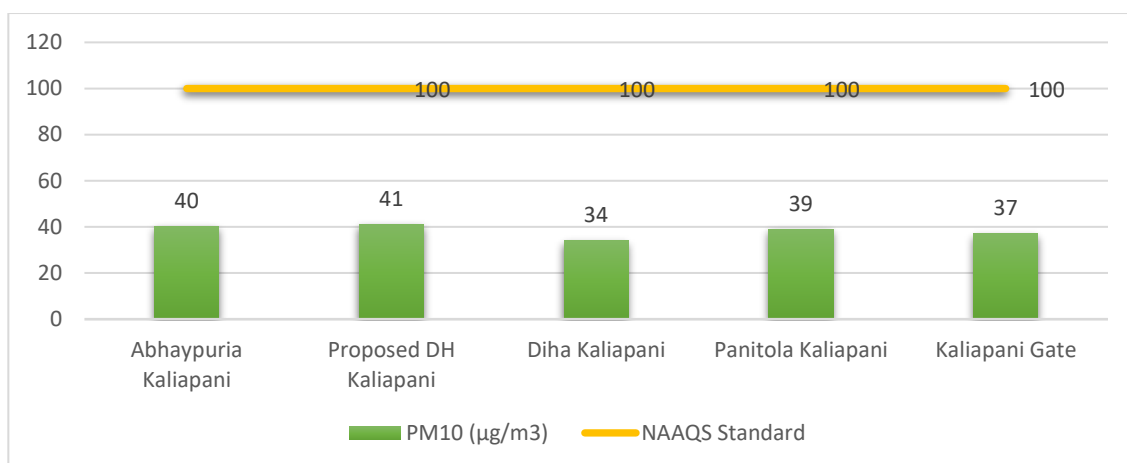


Figure 4: PM10 Concentration in Ambient Air along the Project Area

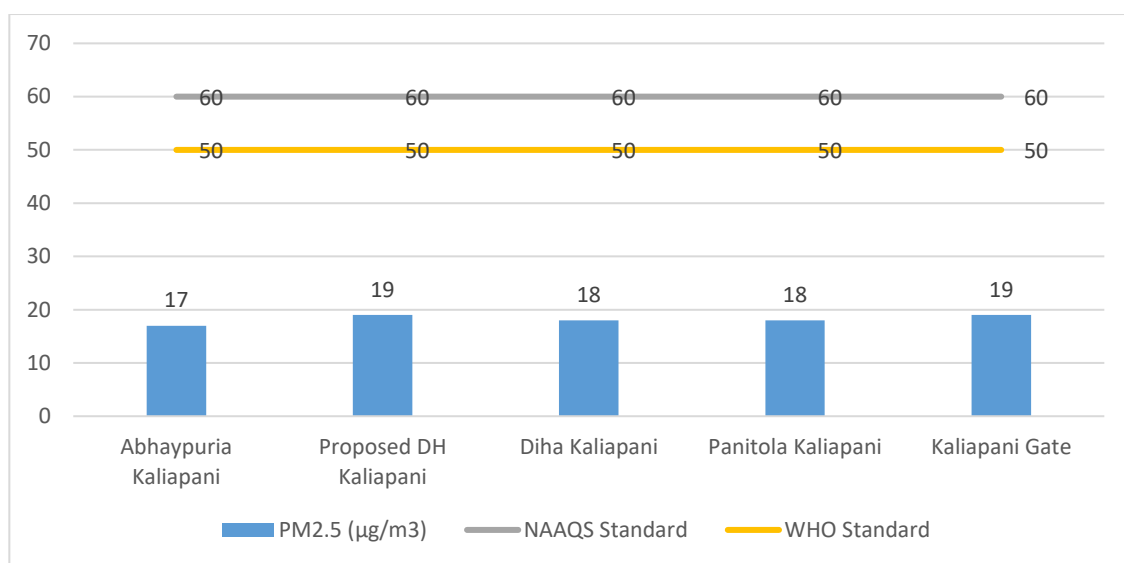


Figure 5: PM2.5 Concentration in Ambient Air along the Project Area

The monitored values were compared with the National Ambient Air Quality Standards (NAAQS) prescribed by the Central Pollution Control Board (CPCB) and the World Health Organization (WHO) guidelines. The results indicate that ambient air quality levels at the proposed construction locations comply with the national standards for rural and residential areas. Overall, the air quality in the proposed project area is well within the NAAQS limits set by the MoEF&CC.

3.2.4 Noise Quality Monitoring

A preliminary noise level monitoring was undertaken to establish baseline of noise level and to identify the major noise generating sources in the project area. To assess prevailing noise levels in the surroundings of project area, an ambient noise monitoring was carried out. Noise in the project area and at three different locations was assessed according to the provision of the Noise Pollution (Regulation and Control) Rules 2000 and as amended up to date, notified by the Ministry of Environment, Forest and Climate Change, Govt of India.

The results of noise level monitoring at the designated locations are presented in Table-3. The selected monitoring locations are representative of commercial, residential cum rural area. The background noise level at the monitoring location is generated from normal activities, congested marketplaces and traffic on the road section in the rural area.

Methodology:

Sound Pressure Level (SPL) measurement was taken at an interval of 1 minute using a sound level meter of Lutron make Digital Sound Level Meter. At the monitoring locations, daytime noise levels were monitored during the period 6 am to 9

pm and night-time noise levels during the period 9 pm to 6 am. The readings were analysed and a frequency distribution table prepared from which 24-hourly and average Leq noise levels were calculated.

It can be seen from the results that the ambient air quality in terms of noise levels at the proposed construction site and its surrounding areas are within the permissible limits.

Table 3: Baseline Noise Level Data

Sl. No	Location	Ambient Noise Standards (CPCB) for commercial area		Average Noise Level in dB	
		Day time	Nighttime	Day time (Leq)	Nighttime (Leq)
01	Location 1	<65dBA	<55dBA	50.8	41.9
02	Location 2	<65dBA	<55dBA	62.3	42.6
03	Location 3	<65dBA	<55dBA	54.8	43.7
04	Location 4	<65dBA	<55dBA	52.4	43.5
05	Location 5	<65dBA	<55dBA	54.1	43.4

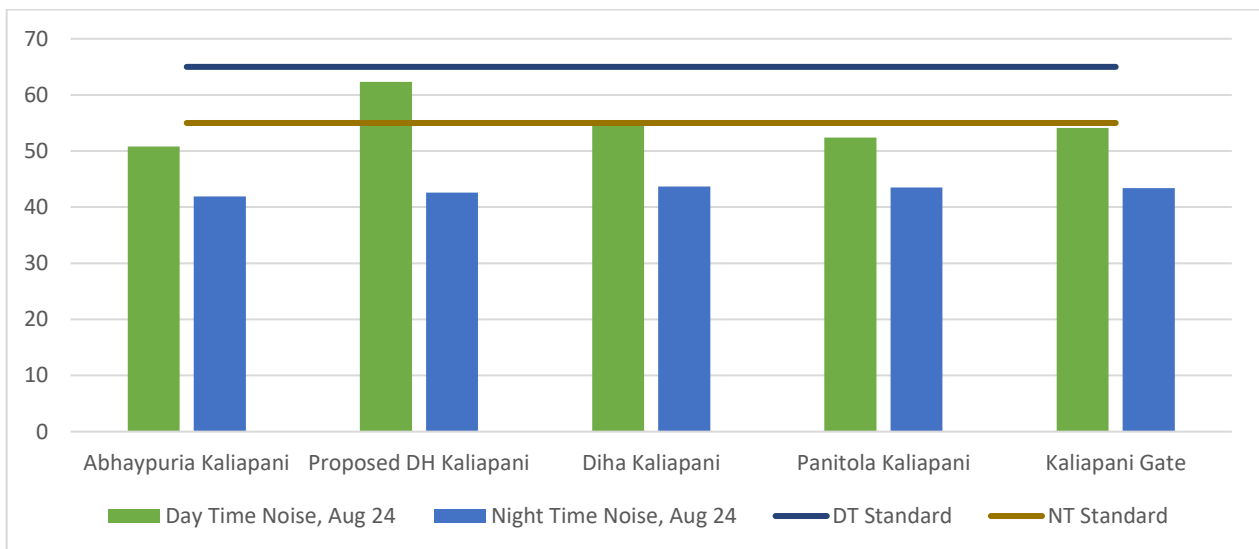


Figure 6: Ambient Noise Level in decibel (A) along the subproject location

3.2.5 Ground Water Quality Monitoring

To assess the ground water quality of the study area four surface water samples were collected from different locations within 5 km radius area of the proposed project site. The sampling locations are detailed in the Table 4.

Methodology: Samples were collected as per IS- 2488 (Part I-V). Sample was analysed as per IS: 10500-1991. Grab sample was collected from water source and was analysed for various physio- chemical parameters as per the procedures laid down in the APHA and BIS. Atomic Absorption Spectrophotometer and UV/VIS Spectrophotometer were used for analysis of water samples according to the necessity.

The analysis result of the collected water sample shows that the quality ground water in the project meets the IS: 10500-1991 standards for drinking water. Hence, the groundwater of the study area is neither contaminated nor high in any metallic contamination from any natural sources. The baseline results of ground water quality are given in Table 4.

Table 4: Baseline Ground Water Quality data

Sl. No	Description	Method	Unit	IS- 10500:2012					
				Abhaypuri (Borewell)	Proposed DH location (Tubewell)	Diha (Ring Well)	Panitola (Tubewell)	Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
1	pH	IS 3025 Part 112022	-	6.54	6.53	6.58	6.50	6.5-8.5	No relaxation
2	Conductivity	IS 3025 Part 14 1984 (RA:2019)	Ms/Cm	0.296	0.188	0.056	0.187	--	-
3	Colour	IS 3025 Part 4 2021	Hazen	Colourless	Colourless	Colourless	Colourless	5	15
4	Taste	IS 3025 Part 7&8 1984	—	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Total Dissolved Solids	IS 3025 Part 16 1984 (RA:2017) s	Mg/l	150	102	58	106	500	2000
6	TSS	IS 3025 Part 17 1984 (RA:2017)	Mg/l	<10	<10	<10	<10	-	-
7	Turbidity	IS 3025 Part 10 1984 (RA:2017)	NTU	<1	<1	<1	1	1	5
8	Dissolved Oxygen	IS 3025 Part 38 1989 (RA:2019)	Mg/l	4	3.2	3.7	3.5	-	-
9	Alkalinity	IS 3025 Part 23 1986 (RA:2019)	Mg/l	130	95	25	85	200	600
10	Calcium	IS 3025 Part 40 1919 (RA-2019)	Mg/l	19.2	16.8	10.4	14.4	75	200
11	Chlorides	IS 3025 Part 32 1988 (RA:2019)	Mg/l	<1	<1	3	<1	250	1000
12	Copper	IS 3025 Part 42 1992 (RA:2019)	Mg/l	<0.05	<0.05	<0.05	<0.05	0.05	1.5
13	Fluoride	IS 3025 Part 60 2008 (RA:2019)	Mg/l	<0.5	<0.5	<0.5	<0.5	1	1.5
14	Hardness	IS 3025 Part 21 2009 (RA:2019)	Mg/l	137.6	99.2	25.6	76.8	200	600
15	Iron	IS 3025 Part 53 2003 (RA:2019)	Mg/l	0.16	<0.18	0.17	0.26	0.30	No relaxation
16	Lead	IS 3025 Part 47 1994 (RA2019)	Mg/l	<0.01	<0.01	<0.01	<0.01	0.01	No relaxation

Sl. No	Description	Method	Unit	IS- 10500:2012					
				Abhaypuri (Borewell)	Proposed DH location (Tubewell)	Diha (Ring Well)	Panitola (Tubewell)	Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
17	Odour	IS 3025 Part 5 1983 (RA:2017)	–	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
18	Oil & Grease	IS 3025 Part 39 2021	Mg/l	<2	<2	<2	<2	-	-
19	Sulphates	IS 3025 Part 24 1986 (RA:2019)	Mg/l	21.6	3.8	10.6	6	200	400
20	Zinc	IS 3025 Part 23 1986 (RA:2019)	Mg/l	<0.5	<0.5	<0.5	<0.5	5	15
21	Aluminium	IS 3025 Part 55 2003 (RA:2017)	Mg/l	<0.03	<0.03	<0.03	<0.03	0.03	0.2
22	Boron	–	Mg/l	<0.5	<0.5	<0.5	<0.5	0.5	1
23	Cadmium	IS 3025 Part 41 1992 (RA:2019)	Mg/l	<0.003	<0.003	<0.003	<0.003	0.003	No relaxation
24	Chromium (Hexavalent)	IS 3025 Part 52 2003 (RA:2019)	Mg/l	<0.05	<0.05	<0.05	<0.05	0.05	No relaxation
25	Magnesium	IS 3025 Part 46 1994 (RA:2019)	Mg/l	<2	<2	<2	4	30	100
26	Manganese	IS 3025 Part 59 2006 (RA:2019)	Mg/l	<0.1	<0.1	<0.1	<0.1	0.1	0.3
27	Nitrate	IS 3025 Part 34 1988 (RA:2019)	Mg/l	<5	<5	<5	<5	45	No relaxation
28	Residue Chlorine	IS 3025 Part 26 2021	Mg/l	<0.2	<0.2	<0.2	<0.2	0.2	1
29	E. Coli	HI Media Kit	Present/Absent	Absent	Absent	Absent	Absent	Absent	Absent
30	Faecal coliform	APHA 23 rd Edition 2017	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent
31	Total coliform	APHA 23 rd Edition 2017	Present/ Absent	Absent	Absent	Absent	Absent	Absent	Absent

3.2.6 Surface Water Quality Monitoring

For surface water baseline, sample from Kaliapani Pond is collected. The pond flows at a distance of 0.3 km in the eastern direction of the proposed DH location.

Methodology: Sample was collected as per IS- 2488 (Part I-V) and analysed as per IS-10500:2012. Grab samples were collected from water source and was analysed for various physio- chemical parameters as per the procedures laid down in the APHA and BIS. Atomic Absorption Spectrophotometer and UV/VIS Spectrophotometer were used for analysis of water samples.

The analysis result of the collected water sample shows that the quality surface water in the project meets the IS: 10500-1991 standards for drinking water. The table of surface water quality result mention in Table-5.

Table 5: Baseline Surface Water Quality data

Sl. No	Description	Method	Unit	IS- 10500:2012					
				Abhaypuri (Pond)	Proposed DH location (Natural Drain)	Diha (Namseshu River)	Panitola (Pond)	Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
1	pH	IS 3025 Part 11 2022	-	6.54	6.63	6.59	6.57	6.5-8.5	No relaxation
2	Conductivity	IS 3025 Part 14 1984 (RA:2019)	Ms/Cm	0.076	0.062	0.052	0.078	—	—
3	Colour	IS 3025 Part 4 2021	Hazen	15	10	15	10	5	15
4	Taste	IS 3025 Part 7&8 1984	—	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5	Total Dissolved Solids	IS 3025 Part 16 1984 (RA:2017) s	Mg/l	40	32	28	41	500	2000
6	TSS	IS 3025 Part 17 1984 (RA:2017)	Mg/l	<10	<10	<10	<10	—	—
7	Turbidity	IS 3025 Part 10 1984 (RA:2017)	NTU	5.8	2.5	5.5	7.2	1	5
8	Dissolved Oxygen	IS 3025 Part 38 1989 (RA:2019)	Mg/l	4.1	4.2	3.9	4.5	—	—
9	Alkalinity	IS 3025 Part 23 1986 (RA:2019)	Mg/l	30	10	20	25	200	600
10	Calcium	IS 3025 Part 40 1919 (RA:2019)	Mg/l	5.6	5.1	2.8	6.4	75	200
11	Chlorides	IS 3025 Part 32 1988 (RA:2019)	Mg/l	6.9	<1	5.9	5.96	250	1000
12	Copper	IS 3025 Part 42 1992 (RA:2019)	Mg/l	<0.05	<0.05	<0.05	<0.05	0.05	1.5
13	Fluoride	IS 3025 Part 60 2008 (RA:2019)	-	<0.5	<0.5	<0.5	<0.5	1	1.5
14	Hardness	IS 3025 Part 21 2009 (RA:2019)	Mg/l	22.4	8	6.4	16	200	600
15	Iron	IS 3025 Part 53 2003 (RA:2019)	Mg/l	0.30	0.12	0.22	0.29	0.30	No relaxation
16	Lead	IS 3025 Part 47 1994 (RA2019)	Mg/l	<0.01	<0.01	<0.01	<0.01	0.01	No relaxation
17	Odour	IS 3025 Part 5 1983 (RA:2017)		Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
18	Oil & Grease	IS 3025 Part 39 2021	Mg/l	<2	<2	<2	<2	—	—
19	Sulphates	IS 3025 Part 24 1986 (RA:2019)	Mg/l	20.2	3.4	5.6	21.1	200	400
20	Zinc	IS 3025 Part 23 1986 (RA:2019)	Mg/l	<0.5	<0.5	<0.5	<0.5	5	15
21	Aluminium	IS 3025 Part 55 2003 (RA:2017)	Mg/l	<0.03	<0.03	<0.03	<0.03	0.03	0.2
22	Boron		Mg/l	<0.5	<0.5	<0.5	<0.5	0.5	1
23	Cadmium	IS 3025 Part 41 1992 (RA:2019)	Mg/l	<0.003	<0.003	<0.003	<0.003	0.003	No relaxation
24	Chromium (Hexavalent)	IS 3025 Part 52 2003 (RA:2019)	Mg/l	<0.05	<0.05	<0.05	<0.05	0.05	No relaxation

Sl. No	Description	Method	Unit	IS- 10500:2012					
				Abhaypuri (Pond)	Proposed DH location (Natural Drain)	Diha (Namseshu River)	Panitola (Pond)	Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
25	Magnesium	IS 3025 Part 46 1994 (RA:2019)	Mg/l	<2	<2	<2	<2	30	100
26	Manganese	IS 3025 Part 59 2006 (RA:2019)	Mg/l	<0.1	<0.1	<0.1	<0.1	0.1	0.3
27	Nitrate	IS 3205 Part 34 1988 (RA 2019)	Mg/l	<5	<5	<5	<5	45	No relaxation
28	Residue Chlorine	IS 3025 Part 2021	Mg/l	<0.2	<0.2	<0.2	<0.2	0.2	1
29	E. Coli	Hi Media Kit	Present/Absent	Absent	Absent	Absent	Absent	Absent	Absent
30	Faecal coliform	APHA 23 rd Edition 2017	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent
31	Total coliform	APHA 23 rd Edition 2017	Present/Absent	Absent	Absent	Absent	Absent	Absent	Absent

3.2.7 Soil Quality Monitoring

To establish soil quality baseline in the proposed Construction areas, five samples of soil was collected from the construction location and analysed for 6 parameters. The result of soil quality at the construction area is given in Table-6 below.

Methodology: Samples were collected as per IS- 2488 (Part I-V). Soil samples were collected during 3rd and 4th January, 2024, Samples were analysed as per IS-2720, IS-14767, IS-15106.

Table 6: Baseline Soil Quality data

Sl. No.	Parameters	Unit	Result as per IS-2720, IS-14767, IS-15106 standards				
			Location 1	Location 2	Location 3	Location 4	Location 5
1	pH Value (1:5)	-	6.51	6.29	6.53	6.35	6.19
2	Sulphite	Mg/kg	10	10	16	12	14
3	Chloride	Mg/Kg	16	16	22	18	18
4	Water Soluble salts as	Ms/m	238	290	325	306	265
5	Organic Matter	%	1.9	2.1	1.9	1.8	2.1
6	Moisture Content	%	20.4	18.3	18.8	21.3	21.4

3.2.8 Weather Data

The climate of Jorhat is classified as mesothermal wet, characterized by a highly humid atmosphere, abundant rainfall, and relatively cool conditions. The summer season extends from May to July, while winter begins in November and lasts until January. The rainy season, influenced by the southwest monsoon, is marked by heavy rainfall accompanied by storms and thunderstorms. Temperatures begin to drop from November and gradually rise from March each year.

3.2.9 Rainfall data of Jorhat District

Rainfall in the district is fairly well distributed throughout the year, with the majority occurring between March and September. The amount of rainfall increases from the southwest toward the northeast, with an annual average of approximately 2,699 mm. The district experiences southwest monsoon rains from June, continuing until September or October. The highest rainfall is recorded in areas near the foothills of the Arunachal Himalayas, located in the northern part of the district.

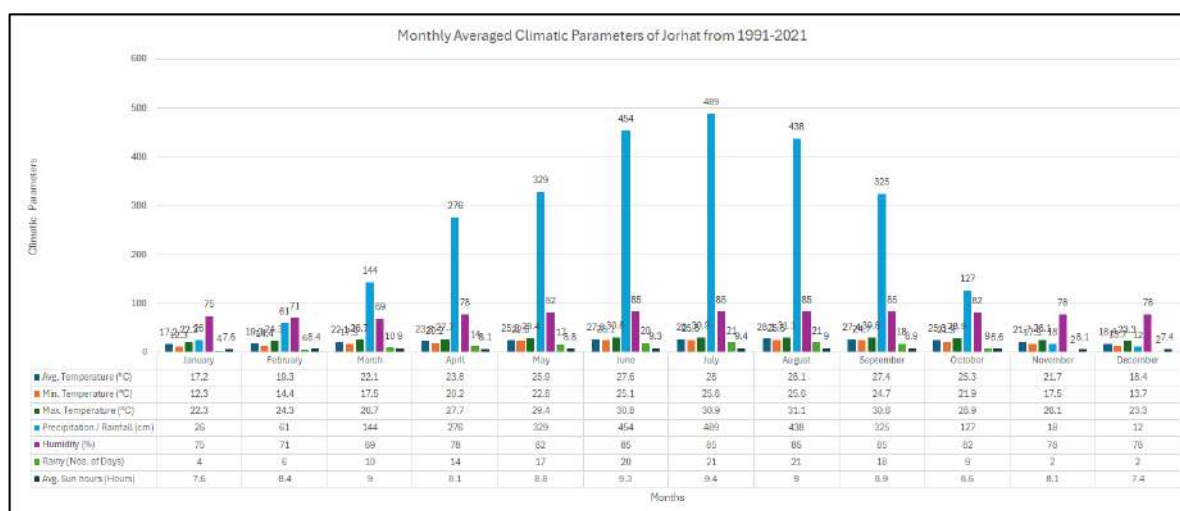


Figure 7: Monthly averaged Climatic Parameters of Jorhat from 1991 to 2021²

3.2.10 Flood data of Teok:

Teok, in Jorhat district, experiences frequent and severe flooding, primarily due to embankment breaches along rivers such as the Jhanji, poor maintenance of flood control structures, and intense monsoon rainfall. Recent events, including the June 2025 floods, submerged over 100 households and disrupted schools, while earlier floods have affected 50–60 villages,

² <https://en.climate-data.org/asia/india/assam/jorhat-764433/>

damaged infrastructure, and inundated sections of National Highway 37, cutting off connectivity. Historical records show that in years like 2019 and 2023, flooding impacted tens of thousands of residents across multiple villages, with occasional fatalities. The recurrent nature of these floods highlights the urgent need for strengthened embankments, improved drainage systems, and resilient infrastructure planning in the region³.

3.2.11 Seismicity

Jorhat district lies in a seismically active region and falls under Seismic Zone V, as classified by the Bureau of Indian Standards (BIS). This is the highest risk zone in India, indicating a very high probability of experiencing severe earthquakes. The seismic vulnerability of the district is attributed to its location in the northeastern part of the country, which is influenced by the complex tectonic interactions between the Indian Plate, the Eurasian Plate, and the Indo-Burmese Arc.

Given this high seismic risk, infrastructure development in Jorhat, including hospitals and other public buildings, must strictly adhere to earthquake-resistant design and construction standards specified in the National Building Code (NBC) and relevant IS codes.

Table 7: Earthquake Data of Jorhat district

Year	Earthquakes	Magnitude				
		M0	M3	M4	M5	M6
2020	1		1			
2021	3	1	2			
2022	5	1	2	2		
2023	10		3	6	1	
2024	4		1	3		

Source- State Disaster Management Authority, Assam

3.3 Biological Environment:

Jorhat district, located in the upper Brahmaputra Valley of Assam, supports rich biodiversity owing to its fertile alluvial plains, favourable climate, and proximity to ecologically significant areas. The district's vegetation includes tropical semi-evergreen forests, moist deciduous forests, bamboo groves, and tea plantations, interspersed with agricultural fields.

The proposed District Hospital site does not fall within any Protected Forest or Reserve Forest. Additionally, no Protected Areas—such as National Parks, Wildlife Sanctuaries, or Biosphere Reserves—are located within a 5 km radius of the site.

3.3.1 Rare or Endangered Species

The proposed DH site covers green cover of shrubs and bushes. The local forest department was consulted to verify the presence of any endangered or protected species of flora and fauna within the project's formation width. Forest department officials have confirmed that no endangered species are available in the site.

During the construction period, if any endangered and or protected species of flora found within the surrounding project site, necessary mitigation measures will be adopted to protect such species. Also based on the joint inspection, a suitable compensatory afforestation plan will be prepared to mitigate the loss of vegetative cover due to the construction activities.

3.3.2 Flora and Fauna

Common tree species found in the district include sal (*Shorea robusta*), hollong (*Dipterocarpus retusus*), gamari (*Gmelina arborea*), simul (*Bombax ceiba*), and various fruit-bearing trees. The area also has significant patches of grassland and wetlands that provide habitats for a variety of flora and fauna.

The wetlands and beels (oxbow lakes) support aquatic vegetation such as water hyacinth (*Eichhornia crassipes*), lotus (*Nelumbo nucifera*), and various sedges, which in turn provide breeding grounds for fish and attract numerous resident and migratory bird species.

Avifauna includes lesser whistling ducks, egrets, herons, storks, and various kingfishers. Mammals recorded in and around the district include rhesus macaque, capped langur, leopard cat, and small Indian civet. Amphibians and reptiles such as frogs, monitor lizards, and various non-venomous and venomous snakes are also found.

³ Assam State Disaster Management Authority (ASDMA) daily flood reports

The Gibbon Wildlife Sanctuary situated in district is Assam's only sanctuary dedicated to the protection of the hoolock gibbon (*Hoolock hoolock*), an endangered primate species. The proposed District Hospital site is located approximately 16 km (aerial distance) from the sanctuary. This sanctuary and surrounding reserve forests serve as biodiversity hotspots, contributing to the district's ecological significance. The biological environment is, however, under pressure from rapid urbanization, deforestation, tea garden expansion, and seasonal flooding, necessitating conservation-oriented development planning.

There will be limited scope of disturbance to flora & fauna due to construction activities at proposed site. However strict observation will be made during construction for no disturbance. **List of Flora and Fauna found in the area is in Annexure:**

3.4 Social Environment

The social environment of Jorhat district, Assam, is shaped by a predominantly Assamese population, along with significant tea tribe communities. The district has a high literacy rate and a diverse religious composition, primarily comprising Hindu and Muslim populations. Its cultural identity is deeply rooted in the region's history, particularly the Ahom heritage. Jorhat is known for its vibrant social life, with strong emphasis on education and cultural activities, although certain areas still experience social and economic disparities.

3.4.1 Socio-Economic Characteristics of Jorhat District

The socio-economic data of the district has been collected from different secondary sources viz. Census of India 2011, District Census Handbook: Jorhat District, 2011, Directorate of Health, District Administration, Jorhat and so on. The socio-economic data of the districts well as in the context of revenue circle is analysed below.

3.4.1.1 Population and Households

The Jorhat district is inhabited by a total 1092256 of people residing in nos. 236262 of households. Of the total population, 535451 are females which accounts for 49.02% and 556805 are males which account for 50.97%.

Out of the total population of the district, 871722 (79.80%) falls under rural and 220534 (20.19%) are under urban areas of the district. In rural areas 442968 (50.81%) and 428754 (49.18%) are males and female respectively. Accordingly, 113837 (51.61%) and 106697 (48.38%) are males and females respectively in urban area of the district. As urban population accounts for only 20.19 per cent, it can be observed that majority of the population dwell in the rural areas of the district.

The district consists of 6 Revenue Circles viz. Jorhat East, Jorhat west, Titabor, Teok, Mariani and Majuli and 91 Gaon Panchayats. And the proposed project site falls under Teok Revenue Circle. The total number of villages in the district is 621 as per 2011 Census Data. The Table 10 below gives a glimpse into the number of villages and various population data viz. population, sex-ratio, % of Children below 7 years and SC & ST population and literacy rates across the Revenue Circles as per Census 2011.

(As per the data available in the District Census Handbook 2011, Majuli was a part of Jorhat District. In 2016, Majuli became the first island to be made a district in India. However, as the data source is Census of India, 2011 Population data includes data of Majuli also)

It has been observed from the table above that Teok revenue circle where proposed project will be implemented covers approx. 150 (24.15%) villages of the total villages inhabited by 184611 (16.91%) of the total population of the district. Here, SC population is 4.74% while ST population accounts for 4.64% of the total Population of the Teok Revenue Circle.

Table 8: Demographic Profile of Jorhat District

Indicator	Value
Total Population (2011)	10,92,256
Population Growth (2001–2011)	~9.2%
Area	2,851 km ²
Population Density	~383 inhabitants/km ²
Sex Ratio	962 females per 1,000 males
Literacy Rate (Overall)	82.15% (Male: 87.63%, Female: 76.45%)
Urban Population	220,534 (20.2%)
Rural Population	871,722 (79.8%)

Indicator	Value
Scheduled Caste (SC) Population	8.1% of total (88,665 persons)
Scheduled Tribe (ST) Population	12.8% of total (139,971 persons)
Religious Composition	Hindu: 91–92%, Muslim: 5–6%, Christian: 2%, Others: ~1%
Main Languages (Mother Tongue)	Assamese: ~88.6%, Bengali: ~3.8%, Hindi: ~3.0%, Mishing: ~1.6%

(Source-As per Census of India, 2011)

Table 9: Revenue Circle wise population of Jorhat district

Revenue Circles	Area (sq.km.)	Population (2011)	Density per sq.km.
Majuli	158.1	1,95,398	~1,236
Jorhat West	383	2,11,539	~552
Jorhat East	1,093.30	1,67,304	~153
Teok	407.2	1,31,613	~323
Titabor	419.2	1,84,611	~440
Mariani	390.3	2,01,791	~517

(Source-As per Census of India, 2011)

The population distribution and density across the revenue circles of Jorhat district indicate significant variation in settlement patterns. Majuli, with an area of 158.1 sq. km and a population of 1,95,398, has the highest population density at approximately 1,236 persons per sq. km, reflecting its compact settlement structure. In contrast, Jorhat East is the largest revenue circle in terms of area (1,093.30 sq. km) but has the lowest density of around 153 persons per sq. km, suggesting a more dispersed population. Jorhat West, Mariani, and Titabor show moderate densities of ~552, ~517, and ~440 persons per sq. km respectively, while Teok has a relatively lower density of ~323 persons per sq. km. These variations highlight the differences in urbanization, land availability, and population concentration across the district's revenue circles.

Table 10: Bifurcation of Rural and Urban population of Jorhat district

Sl. No	Revenue Circles	Total	Rural	Urban
1	Majuli	1,53,400	1,53,400	0
2	Jorhat West	1,87,782	1,57,001	30,781
3	Jorhat East	1,77,548	65,551	1,11,997
4	Teok	1,71,542	1,71,542	0
5	Titabor	1,84,700	1,77,155	7,545
6	Mariani	1,24,249	1,03,252	20,997
District Total		9,99,221	8,27,901	1,71,320

(Source-As per Census of India, 2011)

The demographic distribution of Jorhat district across its six revenue circles shows notable variations in population concentration between rural and urban areas. Majuli, Jorhat West, Teok, and Titabor are predominantly rural, with Majuli and Teok having no urban population. Jorhat East stands out as the most urbanized circle, with 1,11,997 urban residents, accounting for a significant share of the district's total urban population. Jorhat West also has a considerable urban population of 30,781, followed by Mariani with 20,997 and Titabor with 7,545. Overall, Jorhat district has a total population of 9,99,221, of which 8,27,901 (82.8%) reside in rural areas and 1,71,320 (17.2%) in urban areas, reflecting the district's predominantly rural character despite certain pockets of urban concentration.

Table 11: Decadal change in population of Revenue circles by residence 2001–2011

Tahsils	Population						Percentage Decadal Variation 2001-2011		
	2001			2011					
	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
Majuli	1,53,400	1,53,400	0	1,67,304	1,67,304	0	9.06	9.06	0.00
Jorhat West	1,87,782	1,57,001	30,781	2,11,539	1,63,620	47,919	12.65	4.22	55.68
Jorhat East	1,77,548	65,551	1,11,997	1,95,398	70,299	1,25,099	10.05	7.24	11.70
Teok	1,71,542	1,71,542	0	1,84,611	1,75,816	8,795	7.62	2.49	0.00
Titabor	1,84,700	1,77,155	7,545	2,01,791	1,83,871	17,920	9.25	3.79	137.51

Mariani	1,24,249	1,03,252	20,997	1,31,613	1,10,812	20,801	5.93	7.32	-0.93
	9,99,221	8,27,901	1,71,320	10,92,256	8,71,722	2,20,534	9.31	5.29	28.73

Source- District Census Handbook, Jorhat, 2011

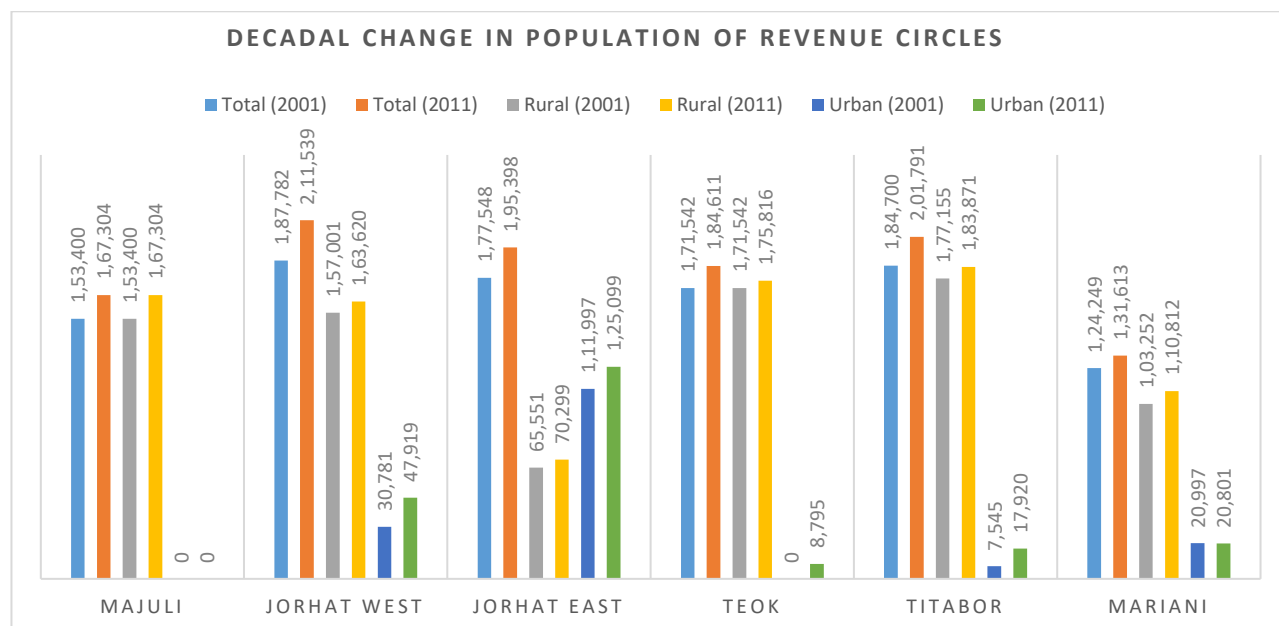


Figure 8: Decadal change in population of Revenue circles by residence 2001—2011

Table 11 & Figure 8 for Jorhat district between 2001 and 2011 reveals notable demographic changes across its revenue circles. Overall, the district's population increased from 9,99,221 in 2001 to 10,92,256 in 2011, marking a decadal growth rate of 9.31%. Rural areas experienced a modest growth of 5.29%, while urban areas saw a significant rise of 28.73%, indicating a trend towards urbanization. Jorhat West recorded the highest total growth rate (12.65%), driven largely by a substantial urban population increase of 55.68%. Titabor exhibited the highest urban growth rate (137.51%), although its total growth was 9.25%. In contrast, Mariani showed a slight urban population decline (-0.93%) despite a rural growth rate of 7.32%. Majuli and Teok had no change in urban population, with Majuli recording a total growth of 9.06% and Teok the lowest total growth at 7.62%. These figures highlight a shifting demographic pattern with growing urban centers, especially in Jorhat West and Titabor, while rural growth remains relatively stable.

3.4.1.2 Population Density

As per the 2011 Census, Jorhat district has a total area of 2,851 km² and a population of 1,092,256, resulting in a population density of about 383 persons per km². Within the district, Teok subdivision covers an area of 419.15 km² and has a population of 184,611, giving it a higher population density of approximately 440 persons per km². This indicates that Teok is more densely populated than the district average, reflecting relatively higher settlement concentration in the subdivision.

3.4.1.3 Sex Ratio:

Figure 9 presents the sex ratio across various Revenue Circles of the district. The highest overall sex ratio is recorded in the Teok Revenue Circle at 978, while the lowest is observed in the Jorhat East Revenue Circle at 939.

In rural areas, the Mariani Revenue Circle has the highest sex ratio of 986, whereas the Majuli Revenue Circle records the lowest at 955.

For urban areas, the highest sex ratio is found in the Jorhat West Revenue Circle at 974, while the Jorhat East Revenue Circle again records the lowest at 925. Notably, the Majuli Revenue Circle does not have any urban population.

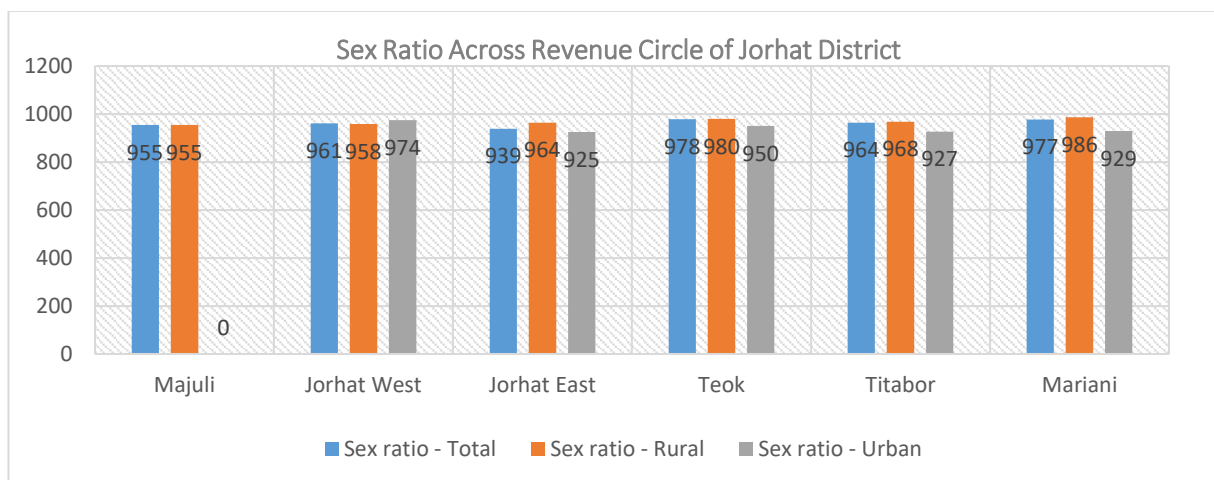


Figure 9: Sex Ratio across Revenue Circles of Jorhat District

3.4.1.4 Community Groups

Out of the total population of 10,92,256 in the district, 8.12% belong to Scheduled Castes (SC) and 12.81% to Scheduled Tribes (ST). In rural areas, the SC population accounts for 8.31%, while in urban areas it stands at 7.36%. As for the ST population, 15.41% reside in rural areas, compared to just 2.54% in urban areas. Among the Revenue Circles, Majuli recorded the highest percentage of Scheduled Castes at 14.27%, while Mariani had the lowest at 2.26%. For Scheduled Tribes, Majuli again recorded the highest percentage at 46.38%, whereas Mariani Revenue Circle reported the lowest at 1.47%.

The religious composition of Jorhat district reflects a predominantly Hindu population, accounting for approximately 92.31% of the total population. Islam is the second most followed religion, comprising around 5.01%, while Christianity makes up about 1.93%. Other religions such as Buddhism, Sikhism, Jainism, and those not specified collectively represent a very small fraction of the population.

In Teok town, the religious distribution shows a slightly more diverse picture. Hindus make up about 89.6% of the population, followed by Muslims at 9.45%, and Christians at 0.75%. Other religious groups, including Sikhs, Buddhists, and Jains, constitute less than 1% combined.

Looking at the broader Teok Revenue Circle, which includes both urban and rural areas, Hinduism remains the dominant religion with 93.46% adherence. Muslims represent about 4.53% of the population, while Christians account for roughly 1.68%. Other religions have minimal presence, collectively forming less than 1% of the circle's population. Overall, both Jorhat and Teok display a religious landscape where Hinduism is the majority faith, with small but notable Muslim and Christian communities, particularly in urban areas like Teok town.

3.4.1.5 Literacy

In Jorhat district, the average literacy rate stands at around 82.15%, with males at 87.63% and females at 76.45%. Notably, urban areas within the district show an even higher literacy rate of 90.39%, compared to 80.01% in rural areas. In contrast, Teok presents a tale of two different geographies. Teok town (the urban center) exhibits a remarkably high literacy rate of 92.09%, with male literacy at 94.67% and female literacy at 89.36%. When considering Teok Revenue Circle (which captures both the town and surrounding rural regions), the overall literacy rate is 81.17%—reflecting the combined contribution of rural and urban populations—with male literacy at 87.52% and female literacy at 74.68%.

3.4.2 Occupational Pattern:

In the district, a total of 4,98,618 individuals is engaged in work, comprising 3,20,746 males and 1,77,872 females. Among them, cultivators represent 29.26% of the workforce, with 29.44% of males and 28.93% of females involved. Agricultural labourers make up 10.66% of the total, with a notable gender gap—7.76% of males compared to 15.89% of females. Household industry workers account for 6.33% of all workers, including 3.93% of males and 10.65% of females, again showing a higher female participation. The 'Other Workers' category forms the largest share at 53.76%, with 58.87% of male workers and 44.53% of female workers engaged. Overall, the data reveals that female participation is significantly higher in agricultural labour and household industries, while males dominate the 'Other Workers' category.

Table 12: Proportion of Main, Marginal and Non-workers across Jorhat District

Sl. No.	Revenue Circle	Total Population	Total Workers	Non-Workers	Main Workers	Marginal Workers
1	Majuli	167304	84873	82431	53484	31389
2	Jorhat West	211539	90820	120719	66871	23949
3	Jorhat East	195398	78998	116400	61451	17547
4	Teok	184611	85277	99334	51478	33799
5	Titabor	201791	98749	103042	61621	37128
6	Mariani	131613	59901	71712	43730	16171
	District	1092256	498618	593638	338635	159983

Source- District Census Handbook, Jorhat, 2011

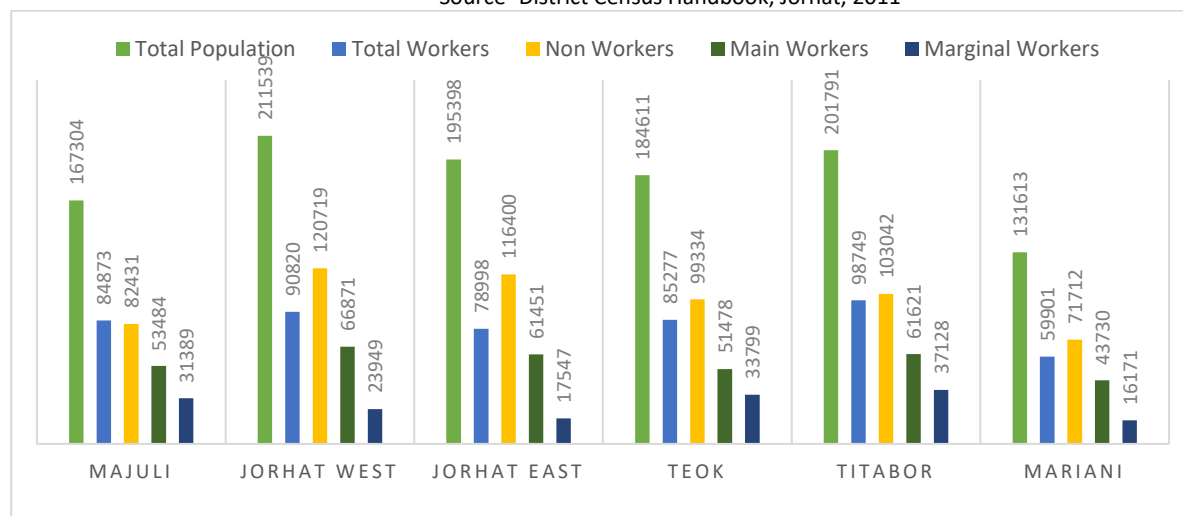
Figure 10: Proportion of Main, Marginal and Non-workers across Jorhat District ⁴

Table 13 presents the distribution of workers across four categories of economic activity in the sub-districts of the district. According to the table, the total number of workers in the district is 4,98,618. Among them, 29.26% are engaged as cultivators, while 10.66% work as agricultural labourers. Workers involved in household industries account for 6.33% of the total workforce. The largest share falls under the 'Other Workers' category, which comprises 53.76% of the total workers. This data highlights that more than half of the district's workforce is engaged in activities outside agriculture and household industries.

Table 13: Occupational Pattern of Main Workforce of in Jorhat District

Revenue Circle	Total Workers	Cultivator	Agricultural Labour	Household Industry Worker	Other Worker
Majuli	84873	53703	7337	6260	17573
Jorhat West	90820	23517	6516	6622	54165
Jorhat East	78998	6174	3147	5202	64475
Teok	85277	26134	11911	4694	42538
Titabor	98749	28358	17008	6568	46815
Mariani	59901	7999	7234	2197	42471

Source- District Census Handbook, Jorhat, 2011

3.4.3 Health Infrastructure

Health infrastructure of Jorhat district comprises both government and private facilities. It is home to one medical college—Jorhat Medical College and Hospital—which offers advanced care with specialized units like NICU, SCNU, and ICU. The district also has a Sub-Divisional Civil Hospital, a First Referral Unit (FRU), 144 Sub-Centres, 44 Primary Health Centres (PHCs), 5 Community Health Centres (CHCs), and 9 state dispensaries. In total, the district has 812 hospital beds

⁴ Source- District Census Handbook, Jorhat, 2011

and a sizable medical staff including doctors, pharmacists, nurses, and midwives serving both rural and urban populations. Additionally, there are 22 private polyclinics and 24 diagnostic centres. Teok, a sub-division of Jorhat, is served by an FRU and benefits from the district's broader health infrastructure, including access to government and private hospitals in nearby Jorhat town. Overall, both Jorhat and Teok enjoy access to a comprehensive and growing healthcare network. Table-14. gives the details of the Health Infrastructure of the Jorhat District.

Table 14: Health Infrastructure in Jorhat District

Type	Numbers
Medical College & Hospital	1 (JMCH)
District Hospital	0
Community Health Centre (CHC)	5
Sub-Divisional Hospital	2
Primary Health Centre (PHC)	44
Sub-Centres (SC)	144

Source: Directorate of Health Services, Jorhat

3.4.4 Education

Jorhat district has a well-developed educational infrastructure ranging from primary schools to prestigious higher education institutions. The district has a large network of government-run schools, including 860 rural and 23 urban lower primary schools, 165 upper primary schools, and numerous high and higher secondary schools, most of which are equipped with basic amenities like toilets, libraries, electricity, and playgrounds. Jorhat is also home to notable institutions such as Jorhat Institute of Science and Technology (JIST), HRH The Prince of Wales Institute of Engineering and Technology (POWIET), Assam Women's University, and the National Institute of Design (NID), which offer undergraduate and postgraduate programs in diverse fields. In contrast, the Kaliapani area in the Teok region has a more modest setup, with schools like Kaliapani High School and Kaliapani M.E. School providing basic education and facilities but lacking modern infrastructure such as computers and internet access. Overall, while Jorhat town offers access to quality education at all levels, rural areas like Kaliapani still rely on foundational schooling with limited resources.

Table 15: School, colleges in Jorhat District

Name of CD block	Total population	Pre-primary school	Primary school	Middle school	Secondary school	Senior secondary school	Degree college	Engineering College	Medical college
Majuli	98457	103	111	84	79	38	8	0	0
Ujani Majuli	68847	70	78	65	60	25	4	0	0
Northwest Jorhat	125093	102	105	81	72	44	7	0	0
Jorhat	165377	104	113	85	65	11	1	0	0
Jorhat Central	94062	48	70	45	25	4	3	0	1
Kaliapani	75958	55	79	61	37	5	0	0	0
Jorhat East	89776	31	56	42	30	6	3	0	0
Titabor	154152	128	131	112	97	16	3	0	0

Source- District Census Handbook, Jorhat, 2011

3.4.5 Connectivity

Jorhat is well connected to the rest of Assam and beyond through a network of road, rail, and air links. National Highway 37, along with several state highways, connects Jorhat to major cities such as Guwahati, Dibrugarh, and Sivasagar, with regular bus and taxi services operating on these routes. Rail connectivity is provided by Jorhat Town Railway Station and Mariani Junction, which link the district to key destinations across the Northeast and other parts of India. Air travel is facilitated by Rowrah Airport, located about 7 km from the city centre, with flights to Guwahati, Kolkata, and select other cities.

Kaliapani, situated in Jorhat district, is connected mainly by road. It lies about 27–30 km from Jorhat town and can be reached via state and district roads, with Teok serving as the nearest major junction. Local buses, shared taxis, and private vehicles ensure regular travel between Jorhat and Kaliapani. For rail access, the nearest stations are Mariani Junction and Jorhat Town Railway Station, both located around 25–30 km away. The closest air connectivity is through Rowrah Airport in Jorhat, approximately 32 km from Kaliapani.

3.4.6 Land use & Land Cover Pattern

Jorhat district's land use is predominantly agricultural, with vast stretches under paddy cultivation, tea plantations, and seasonal crops. Tea estates form a major component of the district's economy and landscape, particularly in the central and eastern parts. Built-up areas include Jorhat town, peri-urban settlements, and rural habitations spread across the district. The district also features patches of reserved and unclassified forests, wetlands (locally known as beels), and riverine areas along the Brahmaputra and its tributaries. Plantation crops, homestead gardens, and mixed vegetation intersperse the rural areas, while the urban core is characterized by commercial, residential, and institutional land uses.

Kaliapani, located within Jorhat district, has a land cover dominated by open vegetation, agricultural land, and scattered settlements. The immediate surroundings comprise paddy fields, tea gardens, and homestead plantations, with some roadside commercial establishments near the main approach roads. The built-up area is limited, with most structures being low-rise residential houses, community facilities, and small-scale shops. Vegetation cover includes scattered trees, shrubs, and grassland patches, while natural waterbodies are minimal in the vicinity. The overall land use pattern reflects a semi-rural character, with agriculture as the primary land use, complemented by institutional and residential functions.

4. Legal and Institutional Framework

This Chapter outlines existing National and State level policies, legislations, and regulations that are relevant to the project (Table-11). Further World Bank Environmental and Social Standards are set out to prevent and mitigate undue harm to people and their environment in the project implementation process (Table-13). There must be harmony between both sets of frameworks, but should there be any discrepancies between these, the guidelines of the World Bank shall supersede those of the country.

Table 16: Applicable National & State Laws and Policies

Sl. No	National and State Legislations/ Policies/ Regulations	Regulatory Bodies
1	The Constitution of India (especially, Articles 15, 16 and 46)	Govt. of India/Govt. of Assam
2	Biomedical Waste (Management and Handling) Rules 2016, and subsequent amendments	Ministry of Environment, Forest and Climate Change (MoEF & CC) / Central Pollution Control Board (CPCB) / State Pollution Control Board Assam
3	E-Waste (Management and Handling) Rules 2011 as Amendment up to 2018	MoEF & CC/CPCB/ State Pollution Control Board Assam
4	- Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules 2008 - Hazardous and Other Wastes (Management and Tran's boundary Movement) Amendment Rules, 2016.	CPCB/MOEFCC /Assam State Pollution Control Board
7	Plastic Waste Management Rules 2016	MoEF &CC/CPCB/ State Pollution Control Board Assam
8	- The Epidemic Diseases Act 1897 - The Epidemic Diseases (Amendment) Ordinance, 2020	Parliament of India Ministry of Law and Justice
9	- The Water (Prevention & Control of Pollution) Act 1974. - The Air (Prevention & Control of Pollution) Act 1981.	MoEF &CC/CPCB/ State Pollution Control Board Assam

Sl. No	National and State Legislations/ Policies/ Regulations	Regulatory Bodies
	Environment Protection Act (and Rules), 1986 and 1996 Environment (Protection) Second Amendment Rules 2002	
10	The Water (Prevention and Control of Pollution) Cess Act, 1977 Rules framed under the water (Prevention & Control of Pollution) Act, 1974 (Assam Rules 1977)	MoEF &CC/CPCB/ State Pollution Control Board Assam
11	Environmental Impact Assessment (EIA) Notification 2006 & and subsequent amendments	MoEF &CC/CPCB/ State Pollution Control Board Assam/SEIAA
12	- Central Pollution Control Board Guidelines: CPCB Guidelines for CBWTFs (2003). - CPCB Guidelines for BMW Incinerators (2003). - Draft Guidelines for Biomedical Waste Incinerator, 2017 - Revised guidelines for Common Biomedical Waste Treatment Facilities (2016). - Guidelines for Bar Code System for Effective Management of Biomedical Waste - Standards for treatment and disposal of Bio medical waste by Incineration	MoEF &CC/CPCB/ State Pollution Control Board Assam
	Environmentally Sound Management of Mercury Waste Generated from Health Care Facilities	MoEF&CC/ CPCB/ State Pollution Control Board Assam
13	The Assam Air (Prevention and Control of Pollution) (Amendment) Rules, 2010	Assam State Pollution Control Board
14	Noise (Regulation and Control) Rules 2000 amended in 2010	MoEF &CC/CPCB/Assam State Pollution Control Board
15	National Disaster Management Act 2005	National Disaster Management Authority, State Disaster Management Authority & District Disaster Management Authority
16	Solid waste management rules, 2016	MoEF &CC/CPCB/ State Pollution Control Board Assam
17	Construction and demolition waste management rules, 2016	MoEF &CC/CPCB/ State Pollution Control Board Assam
18	Guidance notes on Liquid Medical Oxygen (LMO) Storage Tanks, April 2021	Petroleum and Explosives Safety Organisation (PESO)/ DoHFW
19	Maternity Benefit Act, 1961 and Assam Rules, 1965	Ministry of Labour & Employment/ Commissionerate of Labour, GoA
20	Child Labour (Prohibition and Regulation) Act 1986 and Assam (Amendment) Rules, 2017	Ministry of Labour & Employment /Commissionerate of Labour, GoA
21	Contract Labour (Regulation and Abolition) Act, 1970 and Assam Rules 1971	Ministry of Labour & Employment / Commissionerate of Labour, GoA
22	Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and Assam Rules, 2007	Ministry of Labour & Employment / Commissionerate of Labour, GoA
23	Inter-State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1979 and Assam Rules 1981	Ministry of Labour & Employment / Commissionerate of Labour, GoA
23	Equal Remuneration Act, 1976 Minimum Wages Act, 1948 and Assam Rules, 1952	Ministry of Labour & Employment / Commissionerate of Labour, GoA
24	Payment of Wages Act, 1936 and Assam Rules 1937	Ministry of Labour & Employment / Commissionerate of Labour, GoA
25	Employees' Compensation Act, 1923	Ministry of Labour & Employment / Commissionerate of Labour, GoA
27	National Policy on Tribal Development, 1999	Ministry of Tribal Affairs (MoTA)/Department for Welfare of Plain Tribes and Backward Classes, GoA

Sl. No	National and State Legislations/ Policies/ Regulations	Regulatory Bodies
28	Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989 and Rules, 1995	Department of Social Justice, GoI/ Department for Welfare of Plain Tribes and Backward Classes, GoA
29	Rights of Persons with Disabilities (PWD) Act, 2016	Commissioner for Persons with Disabilities, GoA
30	Sexual Harassment of Women at Workplace Prevention, Prohibition, and Redressal Act 2013	Ministry of Women and Child Development /Directorate of Women and Child Development, GoA/ DOHFW, GoA
31	Right to Information Act, 2005	Ministry of Law and Justice, GoI / DoHFW, GOA

Table 17: World Bank Environment and Social Standards (ESS) applicable to the Project

Sl. No	Environment and Social Standards (ESS)	Applicability to the Project	References of relevance of ESS to the Project
1	ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant	Establishment of new 100 bedded DH infrastructure require C-ESMP
2	ESS 2: Labour and Working Conditions	Relevant	Labour force will be required for construction activities
3	ESS 3: Resource Efficiency & Pollution Prevention and Management	Relevant	Protection of the natural resources and efficient utilization of the resources during Construction
4	ESS 4: Community Health and Safety	Relevant	Establishment of 100 bedded DH may cause discomfort to the community
5	ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Relevant	Not Relevant. The proposed DH site is owned by the Health Department.
6	ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Not Relevant	Not Relevant.
7	ESS7: Indigenous peoples	Not Relevant	Not Relevant.
8	ESS 8 Cultural Heritage	Not Relevant	Not Relevant.
9	ESS 9 Financial Intermediaries	Not Relevant	Not Relevant.
10	ESS 10 Stakeholder engagement and information disclosure	Relevant	Stakeholders will be consulted during the construction phase whenever required.

Table 18: A comparison between existing Legislation and WB Policies relevance to Project

Sl. No	Government Laws	World Bank Policy	Relevance to the proposed DH under project
1	- Construction and demolition waste management rules, 2016. - Biomedical Waste (Management and Handling) Rules 2016, as amended up to 2019. - Biomedical Waste Management (Amendment) Rules, 2018. - E-Waste (Management and Handling) Rules 2011 as Amendment up to 2018 - Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules 2008. - Hazardous and Other Wastes (Management and Tran's boundary Movement) Amendment Rules, 2016. - Plastic Waste Management Rules 2016.	ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	- The proposed Kaliapani DH is planned to be developed in an open area. - Bio medical waste will not be generated as a part of construction activities. If any BMW generated through first aid at site, it will be disposed of at the nearest BMW Disposal facility. - No major e-waste generation is anticipated during construction activities. - Hazardous waste may be generated through leakage or spills from the fuel, lubricants etc. - Plastic waste may be majorly generated from the packaging material. However, C-ESMP will be designed considering the magnitude of impact and mitigation measures to avoid any damages to the society and the environment.
2	- Contract Labour (Regulation and Abolition) Act, 1970 and Assam Rules 1971 - Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and Assam Rules, 2007 - Inter-State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1979 and Assam Rules 1981 o - Equal Remuneration Act, 1976 - Minimum Wages Act, 1948 and Assam Rules, 1952 - Payment of Wages Act, 1936 and Assam Rules, 1937 - Employees' Compensation Act, 1923	ESS 2: Labour and Working Conditions	- Construction activities will require labour force in large number. - Protecting their rights and providing comfortable environment to the labour may be a challenge for the contractor. - Labour Management Procedures will address and take care of the labour comfort and their rights.

Sl. No	Government Laws	World Bank Policy	Relevance to the proposed DH under project
3	- The Water (Prevention & Control of Pollution) Act 1974. - The Air (Prevention & Control of Pollution) Act 1981. - Environment Protection Act (and Rules), 1986 and 1996 - Environment (Protection) Second Amendment Rules 2002 - Environmental Impact Assessment (EIA) Notification 2006 & and subsequent amendments - The Assam Air (Prevention and Control of Pollution) (Amendment) Rules, 2010 - Noise (Regulation and Control) Rules 2000 amended in 2010 - Solid waste management rules, 2016	ESS 3: Resource Efficiency & Pollution Prevention and Management	- Construction activities are a major cause for environmental pollution and degradation of the natural resources. To assess the extent of impacts, baseline survey will be required. - However, a well-designed C-ESMP will anticipate the impacts and mitigation measures.
4	- Child Labour (Prohibition and Regulation) Act 1986 and Assam (Amendment) Rules, 2017 - Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989 and Rules, 1995 - Rights of Persons with Disabilities (PWD) Act, 2016 - Sexual Harassment of Women at Workplace Prevention, Prohibition, and Redressal Act 2013	ESS 4: Community Health and Safety	- The labour may include child labour also. Protection of rights of the vulnerable can be challenging during construction activities. - To avoid any mismanagement by the contractor, stringent policies will be required from the project side and effective GRM need to be in place.
5	- Assam Scheduled Castes and Scheduled Tribes (Reservation of Posts in Services) Act, 1978 - Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989 and Rules, 1995 - National Policy on Tribal Development, 1999	ESS7: Indigenous peoples	- Protection of rights of the vulnerable can be challenging during construction activities. - To avoid any mismanagement by the contractor, stringent policies will be required from the project side and effective GRM need to be in place.
6	The Ancient Monuments and Archaeological Sites and Remains Act (or AMASR Act), 1958	ESS 8: Cultural Heritage	Not Relevant.
7	The Constitution of India (especially, Articles 15, 16 and 46)	ESS 10: Stakeholder engagement and information disclosure	Stakeholder engagement with all the stakeholders to be a continuous process to build transparency during the construction activities.

Table 19: Environmental Statutory Clearance & Approval Pre-Construction Phase

National and State Statutory Clearance	Regulatory Bodies	Salient Points
<u>Consent to Established for Projects</u>	<u>PCBA, Assam</u>	- The unit shall install a Display Board as per the Boards notification No. & date - Proper housekeeping shall be maintained - Burning of any waste within the premises is prohibited. - The project proponent shall develop a greenbelt/plantation area with native trees only at least 33% of the total plot area. - As per the provisions of the Water (Prevention and Control of Pollution) Act, 1974 as amended and the Air (Prevention and Control of Pollution) Act, 1981, as amended, any Officer empowered by the Board on its behalf shall have without interruption, the right at any reasonable time to enter the unit for inspection, collection of sample for analysis and may call for any information as deemed necessary. Denial of this right will cause withdrawal of the CTE.
<u>Ground Water Abstractions</u>	<u>GoI, Department of Water Resources, CGWA</u>	- Installation of tamper proof digital water flow meter with telemetry on all the abstraction structure(s) shall be mandatory for all users seeking No Objection Certificate and intimation regarding their Installation shall be communicated to the CGWA within 30 days of grant of No Objection Certificate. - Proponents shall mandatorily get water flow meter calibrated from an authorized agency once in a year. - Construction of purpose-built observation wells (piezometers) for ground water level monitoring shall be mandatory as per Section 14 of Guidelines. Water level data shall be made available to GWA through web portal. Detailed guidelines for construction of piezometers are given in Annexure-II of the guidelines. - Proponents shall monitor quality of ground water from the abstraction structure(s) once in a year. Water samples from bore wells/ tube wells/dug wells shall be collected during April/May every year and analysed in NABL - The project proponent shall take all necessary measures to prevent contamination of ground water in the premises failing which the firm shall be responsible for any consequences arising there upon. - In case of violation of any NOC conditions, the applicant shall be liable to pay the penalties as per Section 16 of Guidelines.
<u>Consent to Establish for Batching Plant</u>	<u>PCBA, Assam</u>	- The unit shall install a Display Board as per the Boards notification No. PCBA/LGL 95/2021/Notification/01 dated 11.11.2021. - The project proponent shall develop a greenbelt/plantation area with native trees only at least 33% of the total plot area. - The unit shall install permanent boundary line/ partition wall of minimum 10 ft height with tin/asbestos sheet or other non-porous partition material with installation of permanent boundary posts. - The Project Proponent must obtain NOC from CGWA within one month from the date of issue of CTO unless falling in exempted category as per MoJS Guidelines dated 24.09.2020 and amendments dated 29.03.2023 thereto
<u>Consolidated Consent and Authorization for Batching Plant Consent to Operate</u>	<u>PCBA, Assam</u>	- The project authority shall install a Display Board as per the Boards notification no. No. PCBA/LGL 95/2021/Notification/01 dated 11.11.2021. - The project proponent shall develop a greenbelt/plantation area with native trees covering at least 33% of the total plot area. - As per the provisions of the Water (Prevention and Control of Pollution) Act, 1974 as amended and the Air (Prevention and Control of Pollution) Act, 1981, as amended, any Officer empowered by the Board on its behalf shall have without interruption, the right at any reasonable time to enter the unit for inspection, collection of sample for analysis and may call for any information as deemed necessary. Denial of this right will cause withdrawal of the CTO - The unit shall not discharge any untreated effluent outside its premises.

		• Proper housekeeping shall be maintained. The unit shall not burn any waste inside the factory premises. • The unit shall install Screening machine, if any, with proper enclosure and dust extraction mechanism.
<u>FIRE NOC</u>	<u>FIRE and Emergency Services Assam</u>	• Construction permission from the concerned authority • Approved Drawings / Site Plan/ Layout from concerned government authority • Installation of portable fire extinguisher as per IS 15683:2006 • Good housekeeping should be maintained • Electrical wiring of the building should be either conduit or concealed type • Signage for emergency exit/entry shall be provided • Display of directional sign like entry and exit point shall be provided • Emergency lights shall be provided in the corridor/stairway

5. Environmental & Social Risks and Impacts

Construction related Environmental and Social risks and impacts with suggestive mitigation approach are discussed here. The risks, impacts and mitigation approach for design and preconstruction phase are discussed in Table 19. The risks, impacts and mitigation approach for construction phase are discussed in Table 20.

Table 20: Anticipated Impacts and Mitigation Approach – Design & Preconstruction Phase

Project Activity	Possible Impacts	Mitigation Approach
DESIGN & PRE-CONSTRUCTION PHASE		
- Design and layout of proposed DH - Obtaining Consents/ Permits/ Clearances/ No Objection Certificate (NOC), etc. for establishment of new DH, RMC/ Batching Plants, Labour Camps, Storage for construction materials, tree felling, use of vehicles and equipment, connections of water supply, electricity	- Anticipated no negative impacts on Physical, Ambient, Ecological and Social Environment during Design & Pre-construction phase. - The proposed DH is planned to be constructed in an open area. - The preliminary screening of the site reveals that the project does not anticipate any land acquisition/ resettlement. - The Hospital building will be constructed on the open area. So, no demolition activities will be carried out.	- The design of proposed DH will follow relevant National/State and design guidelines. - The proposed DH will be GRIHA compliant, human centric & based on IPHS guidelines. - The hospital design will focus on measures for universal access such as ramps, handrails and other fixtures etc. For comfort of the patients - Emergency exits, including a second staircase/ramp for evacuation, will be incorporated into the hospital design.
Tree cutting/shifting	- As per the initial site assessment, no significant tree cutting, relocation, or removal was observed at the proposed site. - Tree plantation has been proposed for landscaping purposes at the site.	- If tree cutting is required, all terms and conditions of the Forest Department will be followed, and compensatory plantation will be carried out at the Kaliapani site in a minimum ratio of 1:3. - The site is devoid of big trees; however shrubs and bushes covered the site which needs to be cleared for the project.
Consultations	- Lack of awareness among community may restrict public participation in decision making - Lack of knowledge on the facilities to be provided by the proposed DH at their own neighbourhood will prevent them from availing the facilities. - Lack of prior intimation of the demolition and construction activities may lead to health hazards caused by probable air, water and noise pollution.	- Awareness on proposed DH and facilities to be provided among the community. Prior intimation to the local community about the Schedules of construction activities. - Stakeholder consultations at specific intervals represented by all sections of the community including women.
Grievance Redressal Mechanism for community grievances	- Public resistance anticipating negative impacts of the project like air, land and water pollution due to heavy construction activities - Accessibility issues of public - Land demarcation issues.	Proper GRM Mechanism to be developed at site with a protocol to address the grievances of community.

Anticipated Impacts and Mitigation Approach – Construction Phase

Project Activity	Possible Impacts	Mitigation Approach
CONSTRUCTION PHASE		
A. Physical Environment		
Location and design	Disturbance to the adjacent lands and the people due to overall construction activities.	• Use of the approved construction design and drawing of building construction facility and other structures. • Implementation of mitigation measures such as setting up of the hospital boundary, hard barricading, on site mitigation measures for controlling environmental pollution etc. will minimize the impacts.
Interference with drainage patterns	Temporary flooding at site and nearby areas and contamination of the nearby water bodies due to construction activities of proposed DH	• Use of contour plan and design drawing prepared considering Highest Flood level (HFL) data of that area. • On site mitigation measures such as provision of septic tank/soak pit with the toilets so that the wastewater will not be discharged into the drainage system, • Proper drainage system for controlling runoff, spill control plan, etc will minimize the impacts.
Site clearance	• Disturbance to topsoil • Disturbance to existing green cover soil erosion and surface runoff	• Conservation of the topsoil • Compensatory afforestation • Construction to be avoided in heavy rain days • Provision and maintenance of drains and retention ponds.
Resource Efficiency Strategies (Energy, Water, Materials)	• High energy use • Excess potable water demand • High embodied materials impact • Construction waste generation	• Reduce energy consumption through design optimization, efficient systems, and renewable energy • Reduce potable water demand, treat and reuse wastewater, harvest rainwater. • Minimize embodied energy, use sustainable and local materials, and reduce construction waste. • Comply with Energy Conservation Building Code (ECBC) in HVAC, envelope, lighting controls. • Capture roof runoff and recharge groundwater or credit toward non-potable demand.
B. Ambient Environment		
Surplus earth work/soil	• Runoff to cause water pollution, solid waste disposal.	• Keeping record of soil quantity excavated from the site and reused in filling the foundation. • Proper disposal of excessive soil from the project at approved designated areas. • Proper bunding at the soil storage area will prevent the soil from loosening at getting carried away with runoff. • Disposal of solid waste in scientific manner
Topsoil removal	• Loss of topsoil • Siltation of stacked soil	• Preservation of topsoil • Keeping record of soil quantity excavated from the site and reused in filling the foundation. • Construction of appropriate drainage system. • Removal of silt and trash choking the drainage from the construction land.

Project Activity	Possible Impacts	Mitigation Approach
Construction works and machine operations	• Air pollution due to airborne dust in the area causing dusty conditions. • Smoke from the DG Set, operation of machinery • Smoke from the transportation of construction vehicles • Release of finer particulate matter from sand, cement etc. during transportation of construction vehicles	• Sprinkling of water within the work area and stack the loose soil and contain it with covers to control air pollution. • Maintenance of construction equipment and machines. • Provide required PPE to workers. • Reporting and recording of incidents and accidents at project site. • Proper maintenance & active PUC Certification vehicles and machinery to be used at project site. • Proper Covering of the material during transportation • Avoid transportation during busy traffic hours and scheduling of time for transportation of construction materials in consultation with the authorities concerned
	• Noise and vibrations from the construction activities. • Nuisance caused by noise to neighbouring areas. • Exposure to noise level from the civil work construction causing nuisance to properties • Noise, vibration, equipment wears and tear. • Injury and sickness of workers and locals. • Accidents including electrocution may occur due to lack of proper awareness among the workers.	• The existing HCF will be segregated through hard barricading • Construction activities undertaken during the daytime as per scheduled timings for construction. • Avoid transportation during busy traffic hours • Following noise control regulations • Implementation of approved health and safety plan. • Provide required PPE to workers. Proper training to the workers and to ensure the use of PPE and safety gears/ harness etc • Reporting and recording of incidents and accidents at project site. • Prepare the Traffic Management Plan. • Installation of adequate cautionary signage
	• Excessive Ground water extraction • Pollution/contamination to water resources	• Non potable water to be used for dust suppression, curing etc. • Water requirement during peak construction activities will be met through the local water supplier. • Measures to avoid excessive water usage to be adopted • Direct discharge of wastewater into the water stream to be avoided • The hazardous material to be kept leak proof; spills to be collected and recycled
Storage of Construction materials	• Contamination of land, water, air	• Storage of fuel and other materials on paved surface with spill control and limited access; spills to be collected and recycled • Record of spill control during the project with details of type and quantities of chemical spilled. • Construction waste to be stored in a segregated manner at a designated area only • Burning of Plastic and rubber to be prohibited •

Project Activity	Possible Impacts	Mitigation Approach
Environment Health & Safety		
Emergency preparedness and response	• Temporary flooding may happen during monsoons in the site. Proposed site also located in earthquake Zone V also. • Fire and explosion (due to fuel storage, welding, electrical faults) • Structural collapse or excavation failure • Extreme weather events (heavy rainfall, flooding, cyclones)	• An Emergency Response Team shall be formed, including trained personnel for firefighting, first aid, evacuation, and communication. • Emergency contact details (hospital, fire station, police, District Disaster Management Authority – DDMA) will be displayed prominently at the site. Temporary structures shall comply with earthquake-resistant design practices. • Immediate evacuation to open safe areas after shaking stops. • No re-entry into structures until safety clearance is provided. • Inspection of scaffolding, cranes, excavations, and formwork before resumption. • Monitoring of weather forecasts during monsoon season. • Temporary stoppage of work during heavy rainfall or storm warnings. • Safe collection and disposal of contaminated materials as per Hazardous Waste Rules. • Mandatory induction training for all workers on emergency procedures. • Periodic mock drills for fire and earthquake scenarios (at least once every six months). • Specialized training for Emergency Response Team members. • Toolbox talks focusing on seasonal risks (monsoon, heat stress).
C. Ecological Environment		
Felling of Trees for stie Clearance	Loss of native flora as well as fauna.	• Proper marking of vegetation to be cleared, and strict control on clearing activities • Details on trees to fell for construction will be provided after completion of field survey and processing tree cutting approval from forest department. Site survey to be done with Forest Department for identification of any endangered flora or fauna; if found, conservation plan to be implemented Developing strategies for compensatory afforestation. • However the site is devoid of any big trees, it is covered with shrubs and bushes grown which needs to be cleared for the project.
Labour Camp	• Loss of vegetation and deforestation. • Effect on fauna (including avifauna). • Loss of native flora as well as fauna Contamination of land, water, air	• Trees not to be cut/felled for construction of labour camp or any other related activities • Preventing workforce from using and disturbing the flora, fauna including tree felling for fuel; hunting of animals and fishing in water bodies to be prohibited.

Project Activity	Possible Impacts	Mitigation Approach
D. Social Environment		
Involuntary resettlement or land acquisition	Proposed DH at Kaliapani will be constructed at government land which is vacant	The proposed DH is planned to be constructed in a vacant land and Project do not anticipate any land acquisition/resettlement.
Encroachment into farmland/rented land (Batching plant installation)	Disputes, Environmental degradation, and social unrest.	Land use of specific land will be taken into consideration to avoid impact on productivity of the same. Work will be started on the sites with client approval and prior consultation with authority.
Interference with drainage patterns/ Irrigation channels/ rivers	Flooding hazards, Contamination of water, loss of crop production	Construction of appropriate drainage system at the site as per approved design drawing and field verification considering existing natural drainage and slope. Waste management plan to be in place
Construction works at project site and material transportation	- Community disturbance and health and safety. - Community health and safety due to air pollution and increase in noise level. - Human and Animal interference in Construction area. - Potential conflict between migrant workforce and local may took place. - Chances of finding archaeological /cultural artefacts. - Loss of agricultural productivity. - Road safety	- Proper storage of construction material at specified places so that no disturbances can be caused to public and worker movement. - And avoid contamination of soil and water with proper storage. - Prior intimation to the community regarding the schedule, scope of construction. as well as the possible unavoidable discomfort at site - Proper safety signage at appropriate locations; adequate hard barricading and green netting; and provision of security services round the clock will ensure community health and safety during construction phase. - Scheduling of fixed time for movement of vehicles carrying construction machineries and materials in consultation with the school, health facility situated nearby to ensure safe movement of the school goers, patients as well as passersby.
Disturbance to public utility services- Water supply, sanitation	- Public inconveniences to avail services/medical treatment from the existing health care facility - Disruption of supply of power, water or sanitation facilities	- Prior intimation to the community regarding the schedule, scope of construction as well as the possible unavoidable discomfort at site ensuring restoration of utilities immediately after project activity - Alternative accessibility or provision of utilities during construction without any disruption and hindrances. - In case, any utility to be shifted Contractor to make arrangements hard barricading, safety signage and 24 x 7 security in the newly installed site to avoid any inconveniences to the community - Provision of Signage, boards at appropriate locations. Scheduling fixed time for movement of vehicles carrying construction machineries and materials to ensure safe movement of people.
Engagement of Contractors staff and Labours in the proposed project	Risks of SEA/SH to community members, particularly women and children by contractors' workers during construction period	Sensitization of all staff and labourers of project site of Kaliapani on prevention of Gender Based Violence (GBV) and SEA/SH incidents and POSH Act.

Project Activity	Possible Impacts	Mitigation Approach
	Risks of workplace sexual harassment at project site (consultants and contractors' staff & labourers)	- Registering of grievances of contractor's staff, labourers, local community /SH incidents and redress the same following Grievance Redressal Mechanism under the Project. - Signing of Code of Conduct by Contractor, Contractor's Staff and labourers engaged in implementation of proposed DH at Kaliapani 24x7 security in and around project area. - Installation of important signage's like entry /no entry, exit, diversion, danger signs at appropriate locations, toilets for women and men etc in both project site and labour camps. - Provision of basic amenities at Labour camps
	- Occupational Health and Safety - Potential conflict between migrant workforce and local may took place.	- Following labour management procedures and provision of basic amenities to labourers as guided by Labour Management Procedures under ASSIST Project. - Sensitization of workforce on good health and hygiene practices; use of PPE and safety gears/ harness etc, prevention of GBV & SEA/SH and POSH, occupational health and safety. - Clearance of migratory labour under Interstate Migrant Workmen.
Consultations	Lack of prior intimation of the construction activities may lead to health hazards caused by probable air, water and noise pollution, accidents a site.	- Awareness among the community on the proposed DH and the facilities to be provided there. - Prior intimation to the community regarding the schedule, scope of construction as well as the possible unavoidable discomfort at site - Stakeholder consultations at specific intervals represented by all sections of the community including women - Provision of proper barricading, signage etc. at the proposed site for ensuring safety of local community.

6. Stakeholder Engagement

Stakeholder engagement in the project is designed to ensure inclusive and effective participation of all stakeholders, with particular attention to poor and vulnerable groups. Meaningful, continuous, and well-structured consultations with key stakeholders, supported by timely and transparent disclosure of information, are essential for maintaining public trust and addressing potential grievances. To achieve this, all relevant information regarding the project's objectives, design, schedule, potential impacts, and anticipated benefits must be communicated to stakeholders in a timely manner and in formats and languages that are easily understood by the intended groups.

6.1. Key Stakeholders

Stakeholder mapping has been carried out as guided by Stakeholder Engagement Plan (SEP)⁵ of the Project and thereby mapping has been done for the proposed DH site at Kaliapani.

Table 21: Identified key stakeholders for the proposed project at Kaliapani

Sl. No.	Categories	Key Stakeholders
A	Directly affected personnel/ community of proposed DH site.	- Contractor and Contractors' workers - Vendors of the marketplace in and around proposed DH site - Community customers who come to the marketplace regularly
B	Parties or communities of the locality of Kaliapani and the District who can have potential impact on the project	- Community-based organizations (CBOs) and Non-Govt Organizations (NGOs) of the district - Social & cultural groups functioning at Kaliapani. - Media including print and electronic media. - Vendor associations and labour union federations - Community leaders and local public representatives (PRI Members) - Women groups working on gender-related activities and Self-help Groups - Line Department: - Department of Forest, Wildlife, Ministry of Environment, - Department of Water Resources, - Archaeological Survey of India - Women and Child Development Department - Commissionerate of Labour - Police & Traffic Contril Department - Fire and Emergency Service - District Administration/ O/o Revenue Circle
C	Vulnerable Groups to be included for their inclusion in the implementation of the project to ensure equal representation.	- Poor people living below poverty line - Flood affected people - Elderly, persons with disabilities, female and minor □ patients - Scheduled tribes (ST), scheduled castes (SC), and communities living in remote and hilly locations

6.2. Stakeholder engagement approach and methodology

World Bank's ESS10 recognises that effective engagement with the stakeholders can significantly improve the project outcomes and their sustainability through better community acceptance and ownership, enhance the environmental and social sustainability of the project, and hence make a significant contribution to successful project implementation. The approach and methodology for stakeholder engagement is detailed with the Figure:11 below.

The stakeholder engagement process starts in the preconstruction phase with identification of the stakeholders. Table 23 gives a glimpse into the identified key stakeholders for the proposed project at Kaliapani. To make the process more

⁵ Link for SEP : https://ahidms.assam.gov.in/sites/default/files/public_utility/Revised%20Stakeholder%20Engagement%20Plan.pdf

inclusive, several tools like conducting Consultations, using IEC tools of pamphlets, Public Information Boards, installing Cautionary signs at the site using Print and electronic media for dissemination of information and awareness generation on the project is planned to be adopted during the entire process of implementation of the proposed project at Kaliapani. Recording of the key outcomes of the interaction forms an integral part which completes the process.

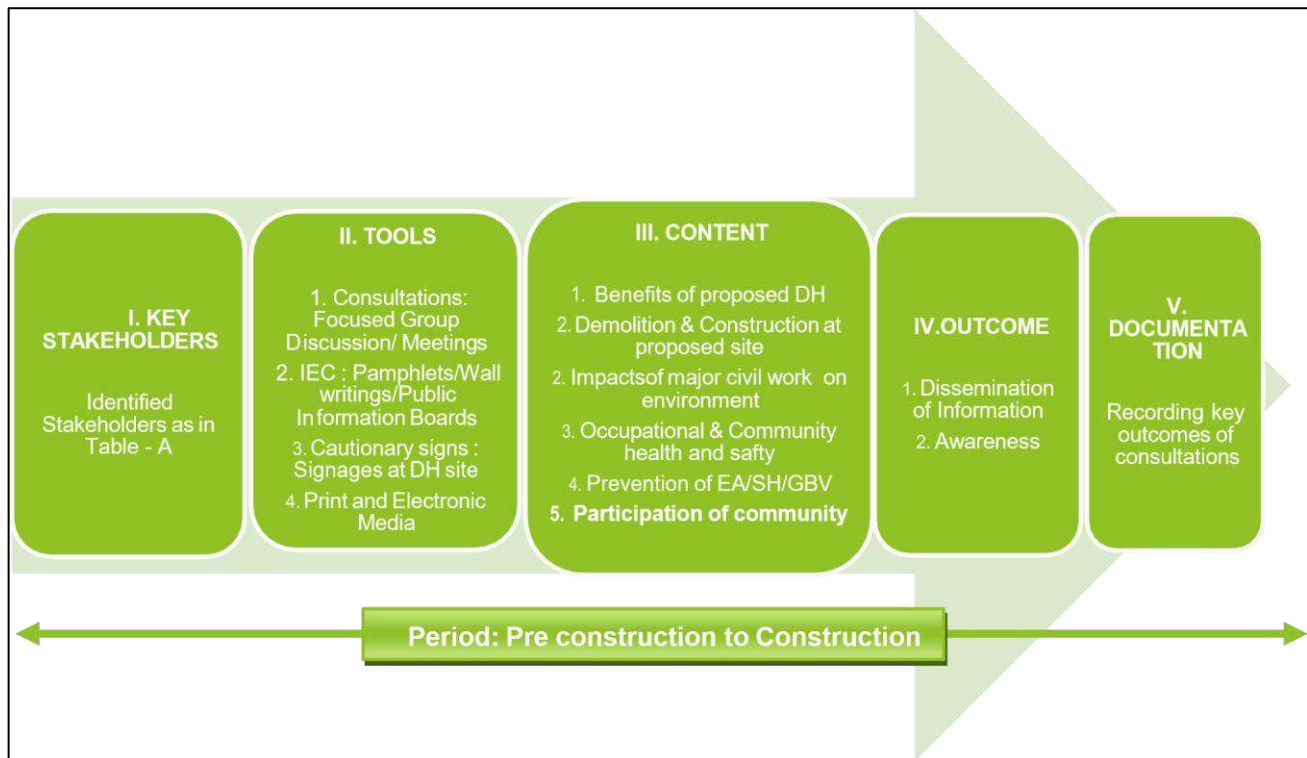


Figure 11: Approach and Methodology for Stakeholder Engagement

6.3 Stakeholder Engagement conducted for proposed DH at Kaliapani and key outcomes:

24 numbers of stakeholder consultations have been conducted since commencement of the project with an aim to disseminate information and awareness of the project. The consultations helped in comprehending their expectations from the project and finding ways to enhance community participation for addressing social aspects.

6.3.1 1st Stakeholder Consultation:

The 1st stakeholder engagement programme was a Focus Group Discussion (FGD) held on 27th November 2024 involving community stakeholders from nearby villages who visit Kaliapani DH Project site. List of Participants attended the meeting is enclosed as Annexure – 4.

The key interactions that came out of the focused group discussion are as follows:

- Lack of following health care facilities in the existing CHC
 - Advance medical treatment facility
 - Emergency trauma facility
 - Advance medical equipment's
 - Mortuary building bed facilities
- Lack of ambulance affect emergency facility of the existing medical facility
- Non-availability of specialized Doctors of to provide proper and required medical assistance to the patients in the existing medical facilities in this area.
- The community members will be benefitted with:
 - Advanced medical facilities to avail proper healthcare services that is lacking in the CHC
 - Employment opportunities will be created once the project is completed



Figure 12- 1st Stakeholder Consultation meeting held on 27-11-2024 at proposed Kaliapani DH premise.

PARTICIPATION LIST OF PUBLIC CONSULTATION WITH STAKEHOLDERS						
Mrs SSP Commercial Pvt.Ltd						
Attendance sheet of 1st Community consultation for stakeholder engagement						
(List of Participants)						
S.No.	Name	Village	Sex	Age	Occupation	Signature
1	Bruna gogoi	Tipomna	F	37	Housewife	Bruna gogoi
2	Borinchi Gogoi	Tipomna	F	19	"	Borinchi Gogoi
3	Mome gogoi	Tipomna	F	33	"	Mome gogoi
4	Purnima Saha Boruah	Tipomna	F	35	"	P.S Boruah
5	Bona Gogoi	Panitula	F	38	"	Bona Gogoi
6	Monisha Gogoi	Panitula	F	35	"	Monisha Gogoi
7	Raku mani Gogoi	Panitula	F	30	Student	Raku Gogoi
8	Freddie Er. Gogoi	Tipomna	Male	58	Business	Freddie Gogoi
9	Bismita Gogoi	Tipomna	M	28	"	Bismita Gogoi
10	Ramoni Gogoi	DO	Male	55	Service	Ramoni Gogoi
11	Nilamoni Gogoi	Panitula	Male	20	Student	Nilamoni Gogoi
12	Supranta Boruah	Tipomna	Male	22	Student	Supranta Boruah
13	Ran Gogoi	Tipomna	Female	56	"	Ran Gogoi
14	Dipa Gogoi	DO	F	"	"	Dipa
15	Pragyan Gogoi Bora	Tipomna	Male	23	Business	Pragyan
16	Shamsham Gogoi	Tipomna	Male	23	Student	Shamsham
17	Moushumi Boruah	Panitula	F	35	"	Moushumi
18	Maikha Phukon	Panitula	F	35	"	Maikha Phukon
19	Sangita Phukon	Panitula	F	39	"	S Phukon
20	Kalpana Phukon	Panitula	F	55	"	K Phukon
21	Jalmani Lalun Gogoi	Panitula	F	35	"	J. Lalun Gogoi
22	Jule gogoi	Panitula	F	42	"	J Gogoi
23	Rumi Gogoi	Tipomna	F	48	"	Rumi Gogoi
24	Ritu Jan Gogoi	"	M	21	"	Ritu
25						
26						
27						
28						
29						

6.3.2 2nd Stakeholder Consultation:

The engagement of stakeholders in the project has been commenced with the conduct of 2nd Stakeholder Consultation meeting held on 29-11-2024 at Kaliapani proposed DH premise.

The consultation meeting was attended by officials and staff of the Kaliapani DH, Anganwadi Worker, Accredited Social Health Activist (ASHA) Kaliapani, Community Health Officer (CHO) and Multipurpose Worker (MPW) from Ayushman Arogya Mandir Kaliapani and Staff of Patanjali Ayurved Kaliapani. A total of 24 participants attended the meeting.

The key points of the interactions with the stakeholders are as follows:

- The stakeholders were made aware of the following:
 - Project objectives, duration and institutional arrangement for the project,
 - Modern facilities and infrastructure that will be provided in the proposed DH
 - 14 nos. of essential health care facilities to be provided in the proposed DH

- Separate services in the proposed DH will be manned with required staffing for providing the respective services.
- Safety norms, facilities and staffing that will be provided will conform to IPHS 2022 norms
- The local community expressed happiness to have a DH in their own place as such a facility had been an utter requirement for the people of the place since a long time



Figure 13- 2ndStakeholder Consultation meeting Conducted by the Contractor held on 29th November, 2024

S.No	Name	Village	Sex	Age	Occupation	Signature
1	Arundhati Suresh	Telavara	F	42	Self	A. Suresh
2	Arundhati Suresh	Telavara	F	56	M. Teacher	A. Suresh
3	Arundhati Suresh	Telavara	M	41	M. Teacher	A. Suresh
4	Arundhati Suresh	Bhamburda	F	26	B.O. Worker	A. Suresh
5	Arundhati Suresh	Bhamburda	F	37	Worker	A. Suresh
6	Arundhati Suresh	Telavara	M	28	Worker	A. Suresh
7	Arundhati Suresh	Telavara	F	55	R.B.H.N.	A. Suresh
8	Arundhati Suresh	Telavara	M	45	Worker	A. Suresh
9	Arundhati Suresh	Telavara	F	23	Worker	A. Suresh
10	Arundhati Suresh	Telavara	F	42	R.B.H.N.	A. Suresh
11	Arundhati Suresh	Telavara	F	50	R.B.H.N.	A. Suresh
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7. Contractor's Environmental and Social Management Plan (C-ESMP)

The Construction Environmental Management Plan (C-EMP) is designed for implementation during the construction phase of the DH. It covers activities such as site surveying, establishment of labour camps, storage of construction materials and equipment in designated laydown areas, excavation, sourcing and storage of materials, batching plant operations, construction of buildings and substations, and traffic management. Based on the baseline data, the environmental condition at Kaliapani is observed to be very good. No major adverse impacts are anticipated during the construction phase, and any minor impacts identified will be mitigated at the source. Furthermore, positive social benefits are expected once the facility becomes operational, as the surrounding community will gain access to healthcare services within their locality.

However, the C-ESMP is developed to avoid, reduce, and minimize any impact which can harm the environment as well as the community. The C-ESMP gives an account of the risks and impacts that have been identified and its mitigation measures to avoid or minimize the impacts. The C-ESMP also outlines the responsibilities and timelines for complying the suggested mitigation measures.

7.1 C-ESMP for proposed DH at Kaliapani

Table 22: Contractor's Environment & Social Management Plan

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
Pre-Construction Phase				
Site Clearance	- As per the initial site assessment, the site is devoid of big trees or any structures, so no cutting of trees and demolition of structures are required. - However, the existing green cover consists of shrubs and bushes at the site - Public resistance for lack of information or anticipation of negative impacts	- The existing green cover consisting of shrubs and bushes needs to be cleared from the site. - The proposed DH is planned to be constructed at a government owned vacant land. - Further, proper and visible display of boards are to be installed at site informing community about construction of new DH	Contractor, Project Manager & EHS Officer	Pre-Construction

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
Regulatory Compliances	- Environmental pollution & degradation - Green cover clearance - Use of Ground Water - Inconvenience to public	- Consent to Establish will be obtained from Pollution Control Board Assam prior to initiating the construction and related activities under Air & Water Act as well as BMW Rules 2016 - Forest Department will be requested to identify trees not to be felled. - Permission will be sought from Central Ground Water Authority for use of ground water for construction purposes - NOC from local Panchayat will be obtained prior to initiating the construction and related activities. - An area of 13,380.0 sqm (approximately 10 bighas) was initially allotted for the proposed DH at Kalipani by the CO, Teok Revenue Circle. However, with the inclusion of the LMO facility, the originally approved land parcel was found to be inadequate. Consequently, an additional 1.270 bighas (1,699.335 sqm) of land has been proposed and is currently under process for approval. - Source approval of borrow areas, sand, aggregate mining etc.	Contractor, Project Manager & EHS Officer	Pre-Construction as well as construction phase
Biodiversity related	- Loss of green cover and loss to biodiversity. - Disturbance to existing green cover - Loss of vegetation and deforestation. - Effect on fauna (including avifauna). - Loss of green cover for Site clearance and for storage of construction material - Exploitation of resources in establishment of Labour Camp	- Identification of any endangered flora from Forest Department - Permission for tree cutting/shifting from Forest Department will be obtained - Marking of vegetation to be cleared and strict control on clearing activities to ensure minimal clearance. - Construction workers will be prohibited from felling and burning wood in the project area during their employment. - Construction workers should be provided gas cylinders for cooking. - Penalty on workforce from disturbing the flora, fauna including hunting of animals and fishing in water bodies. - GRIHA V 2019 to be complied for preservation and plantation of native vegetation - Compensatory afforestation in the ratio of 1:3 will be done on site during the course of construction, and its survival will be monitored.	Contractor, Project Manager/ EHS Staff	Pre-Construction phase to 1 year

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		Tree plantation has been proposed for landscaping purposes at the site		
Labour management	- Selection of proper site for Labour Camp - Provision of basic facilities and amenities for the labour camp	- GI sheets with MS pipes will be utilized for construction of Labour Camp. Ply sheets with MS pipes will be provided for beds, the camp floor will be PCC floor, overhead water tank will be provided with toilets to minimize dependency on the natural resources. - LPG will be provided in the kitchen for cooking food. - Detailed Labour management plan is enclosed as Annexure-6	Contractor, Project Manager & EHS Officer	Throughout pre as well as construction phase
Grievances of community	- Public resistance for the project anticipating negative impacts of the project like green cover clearance, air and land and water pollution due to heavy construction activities - Accessibility issues of public	- Public consultation to gather data on the proposed site while also raising awareness about the potential impacts and benefits of the project. - Installation of Drop Boxes with proper signages at entry gate so that it is visible to community to drop grievances. - Display of contact number and e-mail dedicated for GRM at entry gate - Developing of Grievance Redressal Protocol to address the grievances received at site (Annexure 9) - Designation of manpower to register the grievances at site - Developing proper formats to capture all the relevant details of complainant for registering grievances of Community (Annexure-9)		
Resource Efficiency Strategies (Energy, Water, Materials)	- Elevated GHG emissions and high operating cost for high energy use - Inefficient HVAC & lighting - High embodied materials impact - Construction waste generation	- ECBC compliance; passive design; LED lighting; BMS controls; renewables - Reduced building end-use energy and lower grid electricity demand and smaller cooling loads and improved occupant comfort. - Capture roof runoff and recharge groundwater or credit toward non-potable demand. - Low-flow fixtures; rainwater harvesting; STP reuse - Use of fly ash bricks, AAC blocks, PPC cement with recycled content. - Procure materials locally to reduce transport emissions.	Contractor, Project Manager & EHS Officer	Throughout pre as well as construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		- Use of low-VOC paints, sealants, and adhesives to improve indoor air quality - Building will be GRIHA v.2019 compliant		
Soil fertility and pollution	Loss of topsoil Soil erosion due to surface runoff	- Topsoil shall be preserved and protected during construction activities. - Excess fill material from foundation excavation will be reused at locations within the site where earth filling is required. - A record will be maintained of the quantity of soil excavated from the site and the amount reused for foundation filling. - An appropriate drainage system will be constructed to manage surface runoff effectively. - Regular removal of silt and waste materials will be carried out to prevent choking of drains within the construction area. - Surplus excavated soil will be stored properly at designated and approved locations - Necessary permissions/NOCs will be obtained from the local authority (Gram Panchayat/Municipality) for collection and disposal of solid waste generated from project activities and labour camps at approved disposal sites. - Soil management practices will be carried out in compliance with GRIHA V.2019 guidelines.	Contractor, Project Manager & EHS Officer	Pre-Construction phase to 1 year
Water pollution/ discharge in natural resources	- Temporary flooding at site and nearby areas - Wastewater disposal and construction water runoff - Contamination of existing water bodies - Sewage water from the Labour Camp	- A sedimentation tank has been constructed at the lowest elevation of the site to facilitate the discharge of treated runoff into the natural drainage channel. The hospital's drainage network will be connected to this system for final discharge once completed. - Adequate drainage facilities shall be provided and maintained to ensure proper disposal of surface runoff. - Any spills or leakages of fuel, lubricants, or similar materials shall be contained and managed at the source to prevent entry into nearby water streams or drainage systems. - Toilet blocks at the labour camp shall be equipped with septic tanks and soak pits for safe sanitation management.	Contractor, Project Manager & EHS Officer	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		All water management practices shall be carried out in compliance with GRIHA V.2019 guidelines.		
Ground water exploitation	- Excessive extraction of ground water for construction activities - Depletion in the ground water table	- Optimum utilization of resources shall be ensured throughout the construction phase. - Non-potable water will be used for activities such as dust suppression and curing to conserve potable water. - Water requirements during peak construction periods will be met through outsourcing, thereby reducing dependency on groundwater resources. - Proper records of resource utilization shall be maintained. - Groundwater, if used for construction purposes, shall only be extracted after obtaining the necessary permissions from the competent authorities. - Regular monitoring of both water consumption and groundwater levels shall be carried out. - Monitoring reports shall be reviewed periodically, and corrective measures will be implemented wherever required. - Monitoring reports shall be submitted to the concerned authority in accordance with prescribed norms.	Contractor, Project Manager & EHS Officer	All throughout construction phase
Air Pollution	- Airborne dust due to drilling, excavation, etc. - Airborne cement, sand particles at batching plant - Fugitive emissions during various construction activities	- Dust suppression shall be carried out by sprinkling non-potable water within the work area at least twice daily; loose soil shall be stacked and covered where necessary. - Hard barricading shall be provided around the site and at locations with maximum dust generation. - Green nets shall be installed wherever required to minimize dust dispersion. - Only PUC-certified construction machinery and vehicles shall be used at the site. - Construction materials shall be properly covered during transportation to prevent spillage and dust emission. - Appropriate air pollution control equipment shall be installed and maintained at the batching plant.	Contractor, Project Manager & EHS Officer	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		- Necessary personal protective equipment (PPE) shall be provided to all construction workers, including those at the batching plant, in line with requirements. - Strict compliance shall be ensured to confirm that all labourers and staff consistently use the prescribed PPE.		
Noise Pollution	Noise and vibrations from the construction activities and batching plant	- The existing HCF will be segregated through hard barricading - Acoustic enclosures will be provided to the machinery, wherever required. - Construction activities for the project work will not be performed during the night. - Construction as per scheduled timings only. - Selection of construction techniques and machinery to minimize ground disturbance. - Regular maintenance of all vehicles, machinery and equipment will be conducted, and fitness certificate will be submitted to PCCMC & SPMU from time to time. - Necessary PPE's will be provided to construction workers mandatorily as per requirement and training will be provided for use of PPE and safety gears/ harness etc.	Contractor, Project Manager/EHS Staff	All throughout construction phase
Construction site establishment	- Fire due to electrical faults, fuel oil, and chemical storage, welding works - Fire and explosion	- ABC-type fire extinguishers at fuel storage, electrical panels, and work fronts will be provided - Prohibit smoking near fuel storage - Proper earthing and periodic inspection of electrical installations - Maintain sand buckets and fire blankets - Store fuels in designated, ventilated, and bunded areas - Limit storage quantity as per NBC norms - Maintain MSDS and spill kits onsite	Contractor, Project Manager/EHS Staff	All throughout construction phase
All construction activities including Excavation and structural works	Earthquake (Seismic Zone V) and Collapse, serious accidents	Follow NBC and seismic-resistant construction practices. Considering Kaliapani's location in Seismic Zone V, earthquake preparedness measures has been including clearly marked evacuation routes, designated safe assembly points, periodic mock drills, and awareness training for workers and site staff	Contractor, Project Manager/EHS Staff	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		- Secure scaffolding, formwork, cranes, and temporary structures - Identify open evacuation areas - Provide shoring and slope stabilization for excavations - Restrict access to deep excavations - Continuous supervision by safety officer - Maintain first-aid kits and stretchers and Tie-up with nearby hospitals for emergency treatment		
Monsoon Season activities	Flooding, waterlogging, extreme rainfall	- Monitor weather forecasts - Suspend work during heavy rainfall warnings - Proper drainage around the site will be ensured - Mitigation plan for monsoon to be prepared	Contractor, Project Manager/EHS Staff	All throughout construction phase
Training	Lack of emergency awareness	- Site-specific Emergency Preparedness and Response Plan has been prepared and implemented prior to commencement of construction, in accordance with ESS4 requirements. - Induction training on emergency procedures - Conduct mock drills for fire, natural disasters such as floods, earthquakes and storms earthquake, accidents, fatalities, disease / pandemic outbreaks etc. Toolbox talks on seasonal risks - Coordination will be maintained with local fire services, police, health facilities, and District Disaster Management Authority (DDMA) for emergency response and support.	Contractor, Project Manager/EHS Staff	All throughout construction phase
Emergency Response Plan	- Construction accident (fall, hit by object, machinery injury) - Fire outbreak at site or labour camp - Flooding / heavy rainfall / water logging - Earthquake, Storm / high wind / cyclone - Disease outbreak / pandemic	- Mandatory PPE, work permits for height and lifting, regular toolbox talks, proper barricading, and deployment of trained operators are ensured. - Fire extinguishers will be provided, safe electrical wiring maintained, no-smoking zones enforced, and fuel stored safely - Sedimentation tanks and temporary drainage are provided, materials are stored at raised levels, and a monsoon preparedness plan is in place. - Earthquake-resistant design is adopted, awareness	Contractor, Project Manager/EHS Staff	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		signage is displayed, and mock drills are conducted. - Loose materials are secured, temporary structures are properly anchored, and weather conditions will be regularly monitored. - Confirm that clean drinking water and sanitation facilities are provided, hygiene awareness is promoted, PPE such as masks and gloves is supplied, and a designated isolation space is maintained at site. - To prevent electric shock, proper earthing is ensured, insulated cables are used, and routine inspections are carried out. - To prevent collapse, proper shoring and slope stabilization are ensured, entry without adequate support is prohibited, and inspections are conducted after rainfall. - Site-specific Emergency Response Plan has been provided in Appendix 10		
Tree cutting	Impact on flora and fauna	No trees were identified on site and marked for removal to facilitate construction of the proposed hospital and labour colony. No tree removal shall be made through appropriate layout planning, alignment adjustments, and adaptation to site conditions.	Contractor, Project Manager/EHS Staff	All throughout construction phase
C&D waste management	Impact on solid and water quality	- Kaliapani Project handed over to the EPCC Contractor as green field. There are no existing facilities or any other structures needed for demolition. - The generated C&D wastes shall be stored at a designated area inside the existing premises. - The waste shall be covered with tarpaulin to avoid emission from the dumping and runoff from the dumping to prevent water contamination - will try to reuse C&D waste to the maximum extent within the site for other construction works. - The remaining C&D waste will be disposed as per the C&D waste rules 2016 and after consultation and approval of PMU; Prepare C&D waste management plan with clear	Contractor, Project Manager/EHS Staff	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		scheduling on storage, transfer, recycling, disposal - Check for contamination and adopt appropriate cleaning, storage and transport - A site-specific C & D Waste management plan attached in Appendix 5		
Community Health and Safety	- Risks to community health and safety due to air pollution and increase in noise level - Nuisance in the neighbouring areas.	- Periodic monitoring of ambient air quality and noise levels shall be carried out in accordance with the ESMF guidelines. - All accidents or incidents shall be properly recorded and reported to the PMU. 24x7 security shall be deployed at high-risk locations such as boreholes, excavation sites, and other vulnerable areas. - An effective traffic management plan shall be implemented at the site and during the transportation of construction materials. - Construction areas shall be securely hard-barricaded, and appropriate safety signage shall be displayed, including "No Entry for Public," "Work in Progress – Be Careful," "Way to IPD," "Reinforcement Area," "Construction Zone," and diversion indicators. - All measures shall be undertaken in compliance with GRIHA V.2019 requirements for preventing and mitigating air and noise pollution.		
Hazardous material handling and disposal	- Air, water and soil contamination - Injury and sickness of workers and locals. - Accidents including electrocution may occur due to lack of proper training and awareness among the workers.	- Leakage-proof containers shall be used for storage and handling of liquids. - Fuel and hazardous materials shall be stored on paved surfaces with spill control measures and restricted access. - A record shall be maintained of all spill incidents during the project, including details of the type and quantity of chemicals spilled. - Hazardous materials shall be stored adequately and safeguarded against exposure to animals or other living species.	Contractor, Project Manager/EHS Staff	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		• Proper procedures shall be followed for the handling and disposal of hazardous materials, with mandatory use of appropriate PPE. • Safety Data Sheets (SDS) shall be prominently displayed to ensure that workers in and around storage areas take necessary precautions. • Scheduled maintenance of all construction equipment and machinery shall be carried out to minimize risks. • Required PPE shall be provided to all workers, and strict compliance shall be ensured to confirm that labourers and staff wear PPE at all times. • All incidents and accidents occurring at the project site shall be properly recorded and reported. • Drivers of construction vehicles shall be instructed to strictly adhere to road safety regulations. • Adequate signage and barriers shall be installed around energized or high-risk components, with clearly visible warning and safety signs such as "Danger," "Detour," "Cross Here," "Work in Progress," and "People at Work" at designated locations.		
Construction material storage	Contamination of land, water, air.	• Storage of construction materials shall be strictly prohibited alongside roads, near water bodies, residential areas, or common property resources (CPRs). • Construction materials shall be adequately covered with tarpaulin sheets wherever necessary to prevent dust dispersion and spillage. • Water sprinkling shall be carried out at regular intervals to minimize dust generation. • All construction machinery shall be properly maintained to ensure efficient operation and reduce environmental impacts. • A comprehensive Traffic Management Plan shall be prepared for the project works.	Contractor, Project Manager/EHS Staff	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		- Workers shall be instructed not to remove any unidentified or suspicious articles, if found, and to immediately inform the EPC Supervisor and subsequently the Environmental Specialist of the PMU. - Regular monitoring of material inflow and outflow data shall be carried out and recorded. - All construction materials shall be properly covered during transportation to prevent spillage. - Material storage areas shall be secured with hard barricading. - Appropriate cautionary signages shall be installed to prevent accidents and safeguard stored materials. - Construction areas shall be hard barricaded to minimize risks of accidents and injuries. - Orientation and training programs shall be provided to the workforce on proper handling and storage of construction materials, with emphasis on maintaining personal safety during such activities.		
Construction waste	- Air, Water, Soil pollution - Inconvenience to neighbouring people	- Construction waste will be stored in a segregated manner at designated area only. - Onsite composting of organic waste will be undertaken - The inorganic waste will be disposed of to the recyclers - Detailed Construction waste management plan is enclosed an Appendix – 5.	Contractor, Project Manager/EHS Staff	All throughout construction phase
Stakeholder Engagement	- Project indirectly or directly, positively or negatively impacts community. - Disruption of supply of power, water or sanitation facilities for site clearance. - Hazards of flooding in the site and nearby areas due to construction activity. - Community health and safety	- Prior intimation to the public about the time and the duration of the utility disruption through concerned agency. - Restoring the utilities immediately after project activity completion or end duration declared for disruption of supply of power, water or sanitation facilities or provision of alternate facilities till the new DH comes up. - Store and workshops will be established within construction site premises - Installation of adequate and clearly visible warning signs such as danger, detour, cross here, works in progress, people at	Contractor, Project Manager/ EHS Staff	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
	Loss of agricultural productivity.	work, etc will be posted at designated sites while scaffolding will be placed over road crossing points. - Registration and Redressal of grievances of all type of grievances including SEA/SH/GBV of community as per GRM protocol set up under the project. - Following road regulations as per Traffic Management Plan. - Stakeholder engagement activities for the Stakeholders as identified (6.1. Key Stakeholders) under the project will be guided by the Stakeholder Engagement Plan of ASSIST Project in Link⁶ below. - Stakeholder consultation at specific intervals with representation from all the sections of the community in and around the proposed site including women members of the community. - Site specific mitigation measures as per Plan of Stakeholder engagement activities under the Project at Kaliapani detailed at Table 19.		
Traffic Movement & and Road safety	- Inconveniences and disturbance to public due to movement of heavy vehicles for carting and mobilization of construction materials and manpower. - Road safety concern in and around proposed site.	- Movement of vehicles transporting construction machinery and materials shall be scheduled at fixed times to ensure the safe passage of pedestrians and road users. - Safety signages and directional messages for entry, exit, and diversions shall be displayed prominently throughout the construction phase. - Vehicles transporting construction materials shall be properly covered to prevent spillage and dust generation. - Regular water sprinkling shall be carried out within and around the construction site to control dust. - A detailed Traffic Management Plan is provided in Appendix–6.	Contractor's Project Manager/EHS Staff	All throughout construction phase

⁶ https://ahidms.assam.gov.in/sites/default/files/public_utility/Revised%20Stakeholder%20Engagement%20Plan.pdf

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
Labour Management	• Risks of occupational health and safety • Lack of knowledge on operation of equipment's, machines, work procedures and processes at sites including both DH site and Batching Plant site • Conflict between migrant workforce and locals • Maintenance of health and hygiene • Risks of GBV & SEA/SH • Grievances of Workers	• Labour management plan of Kaliapani enclosed as Appendix-4 details to be implemented at site • Provision of basic amenities to the labourers: ○ Proper sanitation: Separate toilets for male and female workers staying in labour camp connected to septic tank/ adequate waste collection and disposal arrangement ○ Adequate solid & liquid waste disposal and management provisions: Waste management system to be implemented in labour camp by providing adequate number of bins and collection/drainage system to avoid littering of wastes. ○ Sleeping space along with bedding provision. ○ Separate Kitchen/Cooking space along with fuel requirement for cooking ○ Supply of safe drinking water. ○ The drinking water will be tested quarterly through a NABL accredited laboratory ○ Bathing space with water provision for male and female workers separately ○ Sufficient lighting facility along with required numbers of fans. • Orientation on good health and hygiene practices, use of PPE and safety gears/ harness etc., prevention of GBV & SEA/SH and POSH, occupational health and safety • It will be ensured that the Labours and staff is wearing the PPE • Registration and Redressal of grievances of all type including SEA/SH/GBV of Labourers as per GRM protocol set up under the project. • Clearance of migratory labour under Inter-state Migrant Workmen.	Contractor's Project Manager/EHS Staff	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		- Following labour management procedures and provision of basic amenities to labourers as guided by Labour Management Procedures under ASSIST Project as in the Link7 below. - No tobacco smoking policy, signage, penalty - Occupational Health & Safety Policy of SBP Commercial Pvt Ltd. will be applicable to labour and staff of employed at the construction site which is enclosed as Appendix - 5 - Grievances of the workers to be addressed following GRM at Appendix-9		
SEA/SH/GBV	- Risks of SEA/SH to community members, particularly women and children by contractors' workers during construction period - Risks of workplace sexual harassment at project site (consultants and contractors staff & labourers)	- EHS Officer of PCCMC to be designated as the Nodal Officer for POSH at the construction site - Assessment of the GBV/SEA/SH risks at respective site - Develop GRM responsive to GBV/SEA/SH complaints - Sensitization of all staff and labourers of project site on occurrence/ prevention of GBV/SEA/SH incidents and POSH Act. - Awareness to workers on: (a) CoC; (b) GRM responsive to GBV/SEA/SH complaints for workers. (c) Local Complaints Committee (LCC) notified under POSH Act by District Commissioner to receive complains on GBV/SEA/SH from establishments where Internal Committee has not been constituted; and (d) referral services. - To prevent SEA/SH at site, Contractors are to: ✓ provide a safe secure working environment for workers like provision of lighting around project sites and labour camps, including around latrines and access routes, separate and lockable toilets for female construction workers etc.	Contractor, EHS Staff	All Throughout the Project

⁷ https://ahidms.assam.gov.in/sites/default/files/public_utility/Revised%20%20Labor%20Management%20Procedures%20%20%281%29.pdf

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		✓ 24X7 security services at site ✓ display of the following at the sites: ✓ CoC ✓ warnings which say “Respect the dignity of women”; “Project site is an area where GBV/SEA/SH is prohibited” alike at conspicuous positions in site premises ✓ order constituting the Local Complaints Committee (LCC) ✓ available referral services viz. District Social Welfare Officer; District Hub for Empowerment of Women; Women Helpline - 181; Childline – 1098 (For Girls up to 18 years of old); One Stop Centre; Police – 100; IC/LCC • organize regular training on: ✓ CoC – all clauses ✓ prevention of GBV/SEA/SH to all workers, including contractors, subcontractors, core suppliers, and relevant consultants and clients ✓ sensitization on Local Committee (LCC) • ensuring all employees attend regular training programs on the prevention of GBV/SEA/SH in the workplace, including training for new workers/employees maintaining attendance sheets and documenting photographs. • treat Sexual harassment as misconduct and initiate action for such misconduct. • Facilitating complainants by providing referral services/ linkages with the following: ✓ District Social Welfare Officer ✓ District Hub for Empowerment of Women ✓ Women Helpline -181 ✓ Childline – 1098 (For Girls up to 18 years of old) ✓ One Stop Centre		

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		✓ Police – 100 ✓ IC/LCC		
Grievance Redressal Mechanism	- Major civil work of construction of DH at Kaliapani may have direct or indirect, positive or negative impacts on Laborers as well as Public. - People may have grievances or enquiry for any information on the project. - So, provision of information or Redressal of grievances will ensure transparency and accountability under the project. - GRM sensitive to GBV/SEA/SH cases	GRM at proposed DH Site (Manual): - GRM contact number and Email as provided by PMU has been displayed at site - Drop Box is installed in the proposed DH site for receiving complaints at site - Contractor's Grievance Redress Committee in Appendix - 9 Sensitization of Contractor's Staff and Labourers on GRM Protocol (Process flow) under ASSIST and Formats to register grievances. - Grievance Redressal Mechanism is detailed at Appendix 9. <u>GRM Portal (Online)</u> - An online GRM Portal to be developed for grievance online submission and redressal of the grievances of the workers and community. The grievances received through drop boxes, email, online entry, mobile phone will be registered on the online portal, and the redressal will be done following a protocol developed for the purpose. The stakeholder departments will have the credentials to redress and escalate the grievances. The complainant will be communicated receipt and final redressal of the grievances with SMSs. <u>GRM sensitive to SEA/SH complaints</u> <u>GRM sensitive to SEA/SH complaints is a part of the</u> Grievance Redressal Mechanism detailed at Appendix 9.	Contractor, EHS Staff	All Throughout Project

Table: 23 Construction Phase Environmental Plan

Monitoring field	Monitoring location	Monitoring parameters	Frequency	Responsibility
Ambient air quality	Location – Proposed DH Kaliapani Site, Kaliapani Gate, Panitola Kaliapani, Abhaypuri Kaliapani	PM 10 μ m, PM 2.5 μ m, Sulphur Dioxide (SO ₂) and Nitrogen Dioxide (NO ₂)	Once before start of construction. Quarterly (except monsoon) During construction	SBP Commercial Private Limited
Surface Water	Location – Proposed DH Kaliapani Site (Natural Drain) & Abhaypuri (Pond) & Diha (Namseshu River)	Physical parameters: pH, Colour, Taste, Turbidity, Conductivity, TSS, TDS, Hardness Chemical parameters: Chlorides, Sulphates, Nitrate, Fluoride, Iron, Lead, Oil & Grease, Calcium, Zinc, Boron, Chromium, Chromium (Hexavalent), Residue Chlorine, Aluminium, Magnesium, Manganese, Boron, Calcium Biological Parameters: Total Coliform, Faecal Coliform	Once before start of construction. Quarterly (except monsoon) During construction	SBP Commercial Private Limited
Ambient Noise	Location – Proposed DH Site Kaliapani, Kaliapani Gate	Day time and night-time	Once before start of construction. Quarterly (except monsoon) During construction	SBP Commercial Private Limited
Ground Water Quality	Location – Abhaypuri Kaliapani (Borewell), Proposed DH Site Kaliapani (Tubewell), & Panitola Kaliapani (Borewell)	Physical parameters: Colour, Odor, pH, Turbidity, Taste, TSS, TDS, Chemical parameters: Chlorides, Residue Chlorine, Sulphate, Nitrate, Fluoride, Oil & Grease, Heavy metals (Copper, Nickel, Lead, Zinc, Manganese, Cadmium, Chromium (Hexavalent), Iron), Magnesium, Manganese Biological Parameters: Total Coliform, Faecal Coliform	Once before start of construction. Quarterly (except monsoon) During construction	SBP Commercial Private Limited
Soil Quality	Location – Proposed DH Site Kaliapani, Panitola Kaliapani and Abhaypuri Kaliapani	Physical parameters: Moisture Content, Organic Matter, Water Soluble salts as Chemical parameters: pH, Sulphite, Chloride	Once before start of construction. Quarterly (except monsoon) During construction	SBP Commercial Private Limited

7.2 Plan of Stakeholder engagement activities under the Project at Kaliapani:

Contractor has to undertake stakeholder engagement activities as detailed in the Table 23 below

Table 24: Plan of Stakeholder engagement activities under the Project at Kaliapani

Category	Key Stakeholders	Stakeholder Engagement Tools	Content	Periodicity	Responsibility
Group A	Contractor and Contractors' workers Community around the proposed DH site	Consultations: Focused Group Discussion/Meetings IEC: Pamphlets/Wall writings/Public Information Boards Installation of adequate and clearly visible Cautionary signage's such as danger, detour, cross here, works in progress, people at work, etc. will be posted at designated sites while scaffolding to be placed over road crossing points.	• Benefits of the Project Construction at proposed site • Impacts of major civil work on environment • Occupational Health and Safety • Community Health and Safety • Prevention and Redressal of Sexual Exploitation & Abuse (SEA)/Sexual Harassment (SH)/Gender based violence (GBV) Participation of Community in implementation of project	2 (Twice) a year	Contractor with support from Kaliapani CHC, JT, DHS, PWD, PMU
Group B	• Community-based organizations (CBOs) and Non-Govt Organizations (NGOs) of the district • Social & cultural groups functioning at Kaliapani. • Media including print and electronic media. • Vendor associations and labour union federations • Community leaders and local public representatives (PRI Members) • Women groups working on gender-related activities and Self-Help Groups • Line Departments viz. Forest & Wildlife, Environment, Water	Consultations: Focused Group Discussion/ Meetings IEC: Pamphlets/Wall writings/ Public Information Boards Print and Electronic Media	Benefits of the Project Community Health and Safety Participation of Community in implementation of project	Once a year	Contractor with support from Kaliapani CHC, JT, DHS, PWD, PMU

Category	Key Stakeholders	Stakeholder Engagement Tools	Content	Periodicity	Responsibility
	Resources, Archaeological Survey of India, Women and Child Development Department, Labour, Police & Traffic Control, Fire and Emergency Service and District Administration/ O/o Revenue Circle				
Group C	Poor people living below poverty line Flood affected people Elderly, persons with disabilities, female and minor patients ST, SC, and communities living in remote and hilly locations	Consultations: Focused Group Discussion/ Meetings IEC: Pamphlets/Wall writings/Public Information Boards Print and Electronic Media	Benefits of the Project Community Health and Safety Participation of Community in implementation of project	2(Twice) a year	Contractor with support from Kaliapani CHC

8. Analysis of Alternatives

8.1 Overview

The project design has been strengthened to simultaneously address environmental and social risks while also incorporating opportunities for enhancement. The Analysis of Alternatives (AoA) aims to evaluate the effectiveness, cost implications, and associated risks of various options that can potentially bridge identified capability gaps and support subsequent process improvements.

The Impact criteria are mainly categorized into five groups as given below.

- a) Natural Resource Impacts
- b) Ecological impacts
- c) Socio-Economic Impacts
- d) Political Impacts
- e) Financial & Economic Impacts

8.2 Without Project Alternatives

In cases where a project involves development on a specific property, the “No Project” alternative refers to the scenario in which the proposed project does not move forward. If rejection of the project is likely to lead to alternative proposals by other parties, such potential outcomes should also be considered. Under this alternative, the project site would remain as an undeveloped open space, and the local community would be deprived of access to secondary healthcare facilities, including 14 specialized departments, within their vicinity.

8.3 Alternative Analysis during Detailed Design Study of Alternative

Alignment – Site Level

Generally, Bentonite solution is used for piling work which is not an environmentally friendly option. In this project, instead of Bentonite, polymer will be used at the time of piling work of the building construction. The pile bearing capacity is higher when the polymer is used as a support fluid. The negative impact of bentonite on the environment is more significant than that of polymer. The polymer mixing and pumping equipment are less than bentonite. The overall cost is lower when using the polymer.

Selection of Design and Construction Standard

As per seismic zone (v), the design and construction standards of the project has been maintained. No change in design and construction standards will be done. However, some changes in the design, architectural part and construction material will be anticipated based on achievement of GRIHA V.2019 three-star rating to the new construction. The changes will be environment friendly only to make the infrastructure sustainable.

9. Chance Find Procedures

The Environmental and Social Management Framework (ESMF) for the project in accordance with the World Bank Environmental and Social Framework (ESF), establishes relevance with all the Environmental and Social Standards (ESSs) that are applicable to the project, including **ESS-8: Cultural Heritage**.

ESS-8: Cultural Heritage recognizes that cultural heritage provides continuity in tangible and intangible forms between the past, present and future. People identify with cultural heritage as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions. Cultural heritage, in its many manifestations, is important as a source of valuable scientific and historical information, as an economic and social asset for development, and as an integral part of people's cultural identity and practice. ESS8 sets out measures designed to protect cultural heritage throughout the project life cycle.

In line with ESS-8, the ESMF recognizes that **chance finds of physical cultural heritage** may occur during excavation or construction, particularly in greenfield or previously developed sites. And it mandates that **all subprojects and contractors** implement a **Chance Finds Procedure (CFP)**. The Chance Finds Procedure shall be included in:

- ESIA / ESMP
- ESMP (C-ESMP)
- Bidding and contract documents

1. Objectives

- To protect cultural heritage from the adverse impacts of project activities and support its preservation.
- To address cultural heritage as an integral aspect of sustainable development.
- To promote meaningful consultation with stakeholders regarding cultural heritage.
- To promote the equitable sharing of benefits from the use of cultural heritage.

2. Scope of Application

- a) The applicability of ESS-8 is established during the environmental and social assessment described in ESS1.
- b) The term 'cultural heritage' encompasses tangible and intangible heritage, which may be recognized and valued at a local, regional, national or global level, as follows:
 - i) Tangible cultural heritage, which includes movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Tangible cultural heritage may be located in urban or rural settings and may be above or below land or under the water.
 - ii) Intangible cultural heritage, which includes practices, representations, expressions, knowledge, skills—as well as the instruments, objects, artifacts and cultural spaces associated therewith— that communities and groups recognize as part of their cultural heritage, as transmitted from generation to generation and constantly recreated by them in response to their environment, their interaction with nature and their history
- c) The requirements of this ESS8 will apply to all projects that are likely to have risks or impacts on cultural heritage. This will include a project which:
 - i) Involves excavations, demolition, movement of earth, flooding or other changes in the physical environment.
 - ii) Is located within a legally protected area or a legally defined buffer zone.
 - iii) Is located in, or in the vicinity of, a recognized cultural heritage site; or
 - iv) Is specifically designed to support the conservation, management and use of cultural heritage.
 - v) The requirements of ESS8 apply to cultural heritage regardless of whether or not it has been legally protected or previously identified or disturbed.
- d) The requirements of ESS8 apply to intangible cultural heritage only if a physical component of a project will have a material impact on such cultural heritage or if a project intends to use such cultural heritage for commercial purposes.

3. Stakeholder Consultation & Identification of Cultural Heritage

The Project will carry out meaningful consultations with stakeholders in accordance with **ESS10** in order to identify cultural heritage that may be affected by the potential project; consider the significance of the cultural heritage affected by the project; assess the potential risks and impacts; and explore avoidance and mitigation options.

In case project site contains cultural heritage or prevents access to previously accessible cultural heritage sites, based on consultations with users of the site, the project will allow continued access to the cultural site, or will provide an alternative access route, subject to overriding health, safety and security considerations.

4. Protection Of Cultural Heritage Areas, Archaeological Sites & Materials, Built Heritage and Natural Features with Cultural Significance

- a) **Legally protected cultural heritage areas:** If the proposed project is located within a legally protected area or a legally defined buffer zone, the project will take necessary action to
- comply with local, national, regional or international cultural heritage regulations and the protected area management plans
 - consult the relevant stakeholders of the protected area
 - implement appropriate programs to promote and enhance conservation aims of the protected area.
- b) **Archaeological sites and material:** If any archaeological sites and materials are discovered during the project life cycle, the project will map, investigate and document the location and characteristics of the same and provide the documentation to the national or subnational cultural heritage authorities. If discovered, the project in consultation with cultural heritage experts will determine whether archaeological material discovered during the project life cycle requires: (a) documentation only; (b) excavation and documentation; or (c) conservation in place, and will manage the archaeological material accordingly. The project will determine ownership and custodial responsibility for archaeological material in accordance with national and subnational law, and until such time as custody has been transferred, will arrange for identification, conservation, labelling, and secure storage and accessibility to enable future study and analysis.
- c) **Built heritage:** The project will identify appropriate mitigation measures to address the impacts on Built Heritage, which includes groups of buildings, structures and open spaces constituting past or contemporary human settlements that are recognized as cohesive and valuable from an architectural, aesthetic, spiritual or sociocultural perspective. The measures may include:
- Documentation
 - conservation or rehabilitation *in situ*; and
 - relocation and conservation or rehabilitation.

During any rehabilitation or restoration of cultural heritage structures, the project will maintain the authenticity of form, construction materials and techniques of the structure(s).

- d) **Natural features with cultural significance:** The project in consultation with project-affected parties will identify Natural features with cultural significance which include sacred hills, mountains, landscapes, streams, rivers, waterfalls, caves and rocks; sacred trees or plants, groves and forests; carvings or paintings on exposed rock faces or in caves; and paleontological deposits of early human, animal or fossilized remains. The significance of such heritage may be localized in small community groups or minority populations. Most natural features with cultural heritage significance are best protected by preservation *in situ*. If it is not possible to preserve the natural features in their existing location, the transfer of the cultural heritage to another location will be conducted in consultation with project-affected parties, in accordance with GIIP.
- e) **Movable cultural heritage which includes** historic or rare books and manuscripts; paintings, drawings, sculptures, statuettes and carvings; modern or historic religious items; historic costumes, jewellery and textiles; fragments of monuments or historic buildings; archaeological material; and natural history collections such as shells, flora, or minerals. The project in consultation with relevant cultural heritage authorities will identify movable cultural heritage objects that may be endangered by the project and make provisions for their protection throughout the project life cycle. The project will inform religious or secular authorities or other custodians with responsibility for overseeing and protecting the movable cultural heritage objects of the schedule for project activities and alert them regarding the potential vulnerability of such items. Proper measures to be undertaken to guard against theft and illegal trafficking of movable cultural heritage items affected by the project and will notify relevant authorities of any such activity.

5. The Context: Assist Project

The state of Assam contains a large number of sites and natural heritage with significant religious, cultural, archaeological and historical importance. Although the sites for upgradation of district

hospitals are already known and most of them are existing public health care facilities, the project will also be investing renewable energy systems and water supply systems to make these facilities fully operational. The operations of these hospitals will involve increase in the generation of waste and wastewater streams which need to be treated and disposed in order not to have any indirect or downstream impacts on built or natural heritage.

The construction works in the project will generate construction wastes as well as exhausts and emissions that may pose risks to the nearby heritage structures. These will be managed by incorporating appropriate provisions in the construction contracts for prevention of such emissions and discharges and wastes management as well as awareness of contract workers.

6. Chance Finds Procedure

In accordance with the World Bank Environmental and Social Framework (ESF), ESS-8 on Cultural Heritage, and applicable national and state legislation, the following Chance Finds Procedure shall be followed during hospital construction or renovation works in Assam:

Step-1: Immediate Stop of Work

In the event of discovery of any archaeological, historical, religious or cultural remains, artifacts or structures, all construction activities in the vicinity of the find shall be immediately suspended.

Step-2: Protection of the Find

The Contractor shall secure and cordon off the area to prevent damage, disturbance, theft or Vandalism and resist access to authorized personnel only.

Step-3: Notification

The Contractor shall immediately inform the Project Engineer/PMU. The PMU shall notify the Directorate of Archaeology, Government of Assam, and where applicable, the Archaeological Survey of India (ASI) in accordance with the AMASR Act, 1958.

Step 4: Inspection and Guidance

No works shall recommence in the affected area until the competent authority has inspected the site and issued written clearance or instructions on the appropriate course of action.

Step 5: Management of Finds

Based on guidance from the competent authority and cultural heritage experts, the finds shall be managed through documentation, excavation and documentation, or conservation in situ, as required.

Step-6: Resumption of Work

Construction activities shall resume only after formal approval from the competent authority and implementation of all prescribed mitigation measures.

Step-7: Awareness and Training

The Contractor shall ensure that all site personnel are briefed and trained on the Chance Finds Procedure prior to and during the execution of works.

7. Institutional Responsibilities for Exercising Chance Find Procedure

<u>Entity</u>	<u>Responsibility</u>
Contractor	Stop work, protect site, notify
PCCMC	Monitor implementation and supervise ESMF compliance
PWD	Support in undertaking regulatory compliance
PMU	Regulatory liaison, WB reporting
World Bank	Review and clearance

6. Capacity Building

- Workers shall receive training on chance finds procedure. The training will cover:
 - Need of Chance Find Procedure (CEP) at site
 - Significance of the cultural heritage; assessment of potential risks and impacts; and explore avoidance with mitigation options.
 - CEP to adopt at Site
- Simplified instructions shall be displayed at construction sites

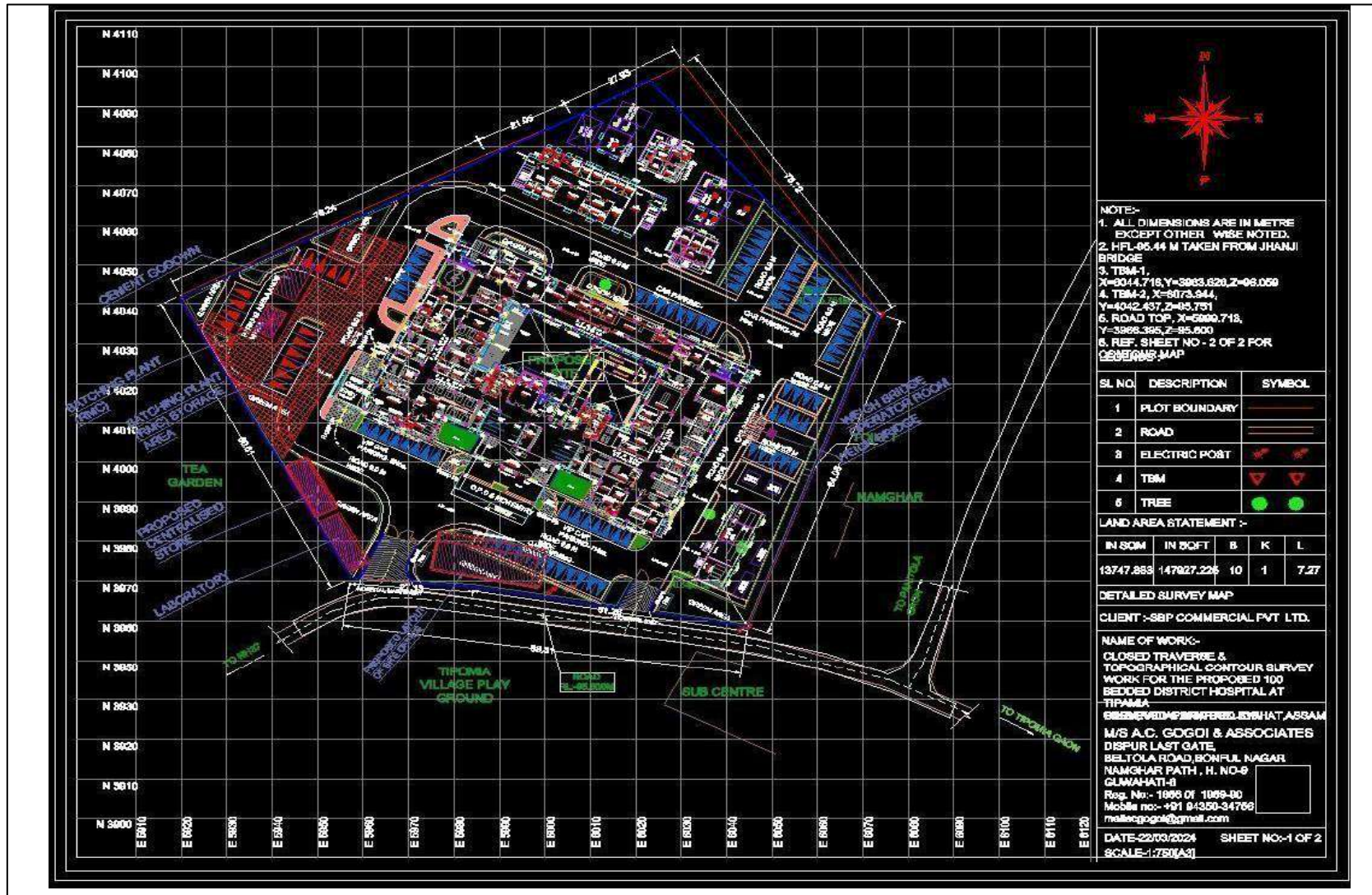
Source:

1. Environment & Social Framework for IPF Operations, ESS8: Cultural Heritage, World Bank
2. The WORLD BANK Environmental and Social Framework

ANNEXURES

APPENDIX 1: SITE PLAN OF PROPOSED DH AT KALIAPANI





APPENDIX 2: PLANNED BUILDING DESIGN AND SUMMARY OF SPECIFICATION FOR CONSTRUCTION

The design of the proposed 100 bedded Kaliapani will be human centric and user friendly as well as GRIHA compliant. All the facilities in each of the floors to have universal access e.g. ramps, handrails and other fixtures etc. as recommended and fire safety e.g. second staircase/ ramp for evacuation etc. Project envisages achieving 3-star GRIHA rating for the Kaliapani. Proposed hospital building will have 4 floors with a ground floor, total height of the infrastructure is considered as +20.850 meter & total ground area of the proposed site is estimated as 3,388.3 sqm. Planned building design and summary of specification for construction is given below.

A. Ground • Emergency care Unit • Emergency Entrance Lobby, Emergency Help Desk/ Reception • Police Post • Triage Room with 3 No. Yellow zone beds, 2 no. Paediatrics beds, 1 Isolation bed, Toilet, Nurse's station, Cu & DU. • Plaster and Plaster Cutting room. • Trolley wash area/ Decontamination area. • 3 No. Red zone beds with Nurse's Station • Examination /Treatment Room. • Doctor's Room • CCMO Room with attached toilet and Medico-Legal Case • Duty Doctor Room • 3 No. Pre & Post-Operative beds. • Change rooms. • Emergency OT Lobby, Patient Holding Area, Emergency TSSU, OT Pharmacy, Sterile store, Dirty Utility • 1 No. Emergency Operation theatre • AHU Room • Effluent Treatment Plant • Sewage Treatment Plant • Drinking water treatment plant • Bio-medical waste temporary storage room	Outpatient Department • OPD & MCH Entrance Lobby (Double Height) • OPD & MCH Registration (3 Counters) • Pharmacy with 3 counters and Pharmacy store • General Public toilet, Lift Lobby and Staircase • Radiology with 1 X-ray, ECG, Mobile X-ray, Dark room Printing, Dental Room, USG with colour Doppler, Reporting Room and Radiology Waiting Area • Laboratory with Sample collection Area, Clinical pathology Lab, Pathology lab, BSC Room, lab In-charge room with toilet. • OPD consultation rooms: Ortho, Psychiatry, Wellness clinic, Family Medicine, Immunization/Cold chain room and patient waiting hall. • Support Services (Dietary): Cold storage, dry store, washing area, toilet and cooking area. Room for storage of 4 categories of BMW Effluent Treatment Plant (Capacity 20 KLD) Sewage Treatment Plant (Capacity 80KLD)
B. First Floor Outpatient Department: • Waiting Area with Lift Lobby, public toilets, staircase • OPD consultation rooms: Counselling room, NCD, Adolescent clinic, Dermatology, ENT, PAC Room, Surgery, Specialty clinics, Physiotherapy, Tele-consultation room, Wellness clinic, PFT/ECG Room. • District Early Intervention Centre: Examination room, Nourishing nutrition, Psych, lang, Laboratory, RCG, Play Area, Hearing assessment room, soundproof audiometry, Dental examination room, Vision Assessment room, Early Interventional	Administrative unit: • Waiting area, Medical Superintendent • Room with attached toilet, Nursing-in-charge room, Hospital manager room, Office Area with supervisors' cabins, meeting hall. Ward Complex • 6 beds Day care ward, Nutrition Rehabilitation Centre, Treatment room, Nurse's station, CU & DU. • Dialysis Complex: change rooms with toilets, Dialysis ward with 4 beds and nurses' station, Isolation room, Wash Area, RO Room, toilets.

occupational therapy, Sensory Integration, Anthropometry.	
C. Second Floor	
Mother & Child Hospital: - MCH Triage 2 beds, change rooms, Doctor's room with toilet, Delivery complex reception and Lobby, MW Room, change rooms, MW LDR Complex-3 Nos with NBCC and toilet, Isolation LDR with NBCC and toilet, Minor OT, AHU Room. • Obstetrics Critical Care unit: Air lock, patient changing area, Change room, Obstetrics HDU-6 Nos., Obstetrics ICU, Isolation Room, CU room, Linen room, Toilet, Critical Equipment room, Nurse-in-charge, Therapeutic diet prep. - OPD Consultation room: Paediatrics 2 Nos., Child Play Area, OBS & Gynae-2 nos., USG Room, waiting area. - Mother's & newborn Ward: 12 bedded mothers & newborn ward, Nurse's Lounge, Duty doctor with toilet, Nurse's Station, patient toilet. - SNCU & NICU: Triage + Radiant warmer Area, Doctor's Lounge with toilet, dirty Linen & Sluice room, pantry, out born (06 beds), In born (06 beds), 04 beds ventilator NICU, Isolation-2 Nos., Nurses station, feeding room, Point of care, AHU Room. - Hospital Stores.	
D. Third Floor	
- Waiting area with public toilet, lift lobby and staircase. - Burn unit: 04 beds ward, 2 beds Isolation, treatment room, Nurse's Station, Duty doctor, CU & DU, Toilet complex - General ward complex: 42 beds ward complex, Nurse's station, Treatment room, CU & DU, Duty doctor, toilets - Paying Cain complex: 18 rooms with attached toilet, Almira and attendant's sleeping couch, Doctor's Lounge, Nurse's Lounge, Pantry	
E. Fourth Floor	
- Waiting area with public toilet, lift lobby and staircase. - Blood bank: Reception with waiting area, Testing & Counselling, Donor's room, refreshment area, laboratory, Doctor's room, Sterilization cum washing area, components. Separation room, blood storage room. - HDU Ward: HDU Waiting, counselling room, patient change, change room with toilet, Paediatrics HDU beds-2 Nos., general HDU beds-4 Nos., 1 No. isolation bed, duty doctor with attached toilet. - OT Complex: Change rooms (Doctor's, nurse's and staff change), Trolley exchange area, 2 No. preoperative and post-Operative ward, Nurse's station, Toilet, Doctor's room, Nurse's room, Airlock, Sterile corridor, patient Holding area, Scrub Area, sterile store, Operation Theatre-2 Nos., TSSU, Ahu rooms, Dirty Corridor	

List of Facilities (BMW Room): 3 categories of room for BMW

List of Facilities (Mortuary & Gas manifold Room):

- Waiting and reception.
- Body viewing area.
- Store
- Body cold storage area
- At source primary treatment of BMW effluent
- Change rooms, post-mortem room, Embalming room, Instrument room. X-ray room, Supervisor room, Toilets.

Vehicle Parking:

Two-Wheeler Vehicle Parking:

Four-Wheeler Vehicle Parking:

EV Charging Station: Provision for 2 fast charging points with single gun OR 1 fast charger with double gun

APPENDIX 3: Flora and Fauna Details in Project Area

Flora Details:

The Jorhat Forest division of very dense floral diversity. The detail list of different flora has been discussed in the followings:

Vernacular name	Scientific names
Ajhar	<i>Lagerstroemia flosregine</i>
Am	<i>Mangifera indica</i>
Amal	<i>Myristica kingie</i>
Amora	<i>Spondias Mangifera</i>
Amchoi	<i>Beilschmiedia assamica</i>
Badam	<i>Mansonia dipikae</i>
Bandordima	<i>Dysoxylum procerumand</i>
Barun	<i>Crataeva religiosa</i>
Bhe	<i>Salix tetrasperma</i>
Bhelkor	<i>Trewia nudiflora</i>
Bhomloti	<i>Symplocos spicata</i>
Bhomora	<i>Terminalia belerica</i>
Bonbogori	<i>Pterospermum lanceafolium</i>
Chalmugra	<i>Hydnocarpus kurzii</i>
Dalchini	<i>Cinnamomum spp.</i>
Dhuna	<i>Canarium spp.</i>
Galranga	<i>Flaeocarpus aristatus</i>
Gomari	<i>Gmelina arborea</i>
Gorumora	<i>Crypteromia paniculata</i>
Gagra	<i>Schima wallichii</i>
Haldusopa	<i>Adina oligocephala</i>
Hatipoila	<i>Pterospermum acerifolium</i>
Hingori	<i>Castanopsis indica</i>
Jalpai	<i>Elaeocarpus floribundus</i>
Jamuk	<i>Eugenia jambolana (Syzygium cumin)</i>
Jawa	<i>Holigarna longifolia</i>
Karipan	<i>Ficus nervosa</i>
Kathal	<i>Artocarpus intergrifolia</i>
Kathal sopa	<i>Michelia mannii</i>
Koliori	<i>Diospyros variegata</i>
Kuhir	<i>Bridelia retusa</i>
Leluk	<i>Belischmedia brandisii</i>
Lemtem	<i>Gynocardia odorata</i>
Machkotia	<i>Callicarpa arborea</i>
Madar	<i>Erythrina suberosa</i>
Maiphak	<i>Evodia meliaefolia</i>
Naghba	<i>Schima wallichii</i>
Nagadalchini	<i>Cinnamomum obtusifolium</i>
Nagudal	<i>Sterculia guttata</i>
Nahor	<i>Mesua ferrea</i>
Outenga	<i>Dillenia indica</i>
Pahari	<i>Sterculia alata</i>
Pan sopa	<i>Michelia montana</i>
Paroli	<i>Stereospermum chelonoides</i>
Patihunda	<i>Cinnamomum tamala</i>
Phakdima	<i>Trema orientalis</i>
Phul – gomari	<i>Endospermum chinense</i>
Phulkat	<i>Styrax serrulatum</i>

Vernacular name	Scientific names
Phul sopa	<i>Mengliotia insignis</i> & <i>Pachylarnax pleiocarpa</i>
Pichala	<i>Kidia calycina</i>
Poma	<i>Cedrela spp.</i>
Ranambih	<i>Aesculus punduana</i>
Roghu	<i>Anthocephalus cadamba</i>
Rudraksha	<i>Elaocarpus capiturs</i>
Sam	<i>Artocarpus chalasa</i>
Satiana	<i>Alstonia Scholaris</i>
Simul	<i>Salmalia malabaricum</i>
Thawthowa	<i>Meliosma smiplicifolia</i>
Thekera	<i>Garcinia spp.</i>
Thutmala	<i>Garuga pinnata</i>
Tita – sopa	<i>Michelia oblonga</i> & <i>talauma phellocarpa</i>
Udal	<i>Sterculia villosa</i>
Urium	<i>Bischofia javanica</i>
Bogitora	<i>Alpinia molluccensis</i>
Bon – madhurium	<i>Pyrenaria diospyricarpa</i>
Bonposola	<i>Sarauj roxburghiana</i>
Dighloti	<i>Saprosma ternatum</i>
Dhoptita	<i>Litsaea salicifolia</i>
Coch bhedeli	<i>Pholgacanthus curviflorus</i>
Heloch	<i>Antidesma spp.</i>
Kasidoria	<i>Ambianthus multiflorus</i>
Jatibet	<i>Calamu tenuis</i>
Jengu	<i>Calamus erectus</i>
Lajaibet	<i>Calamus floribundus</i>
Raidangbet	<i>Calamus flagellum</i>
Tokopat	<i>Livistonia jenkinsiana</i>
Wakoi	<i>Bambuse pallid</i>

Fauna Details:

Jorhat forest division of the district consists of very rich and diverse fauna. Faunal diversity of the district has been discussed in the followings:

English name	Local name	Scientific name
Mammals		
Assamese macaque	Bandar	<i>Macaca assamensis</i>
Barking deer	Sagoli pohu	<i>Muntiacus muntjak</i>
Capped langur	Honuman bandar	<i>Presbytis entellus</i>
Elephant	Hati	<i>Elephas maximus</i>
Fox	Siyal	<i>Vules bengalensis</i>
Hog deer	Hugori pohu	<i>Axis porcinus</i>
Hollock gibbon	Halau bandar	<i>Hylobates hoolock</i>
Indian hare	Soha pohu	<i>Lepus ruficaudatus</i>
Indian civet	Johamal	<i>Viverricula indica</i>
Indian flying fox	Baduli	<i>Pteropus giganteus</i>
Jungle cat	Bon mekuri	<i>Feles chaus</i>
Jackal	Siyal	<i>Canis aureus</i>
Leopard	Nahar phutuki bagh	<i>Panthera pardus</i>
Leopard cat	Lota mekuri bagh	<i>Felis bengalensis</i>
Mongoose	Neul	<i>Herpestis javanica</i>
Otter	Uud	<i>Lutra lutra</i>
Pallas's squirrel	Kerketua	<i>Callosciurus erythracus</i>
Porcupine	Ketela pohu	<i>Hystrix brachyura</i>

English name	Local name	Scientific name
Pengolin	Bonrou	<i>Manis pentadactyla</i>
Rhesus macaque	Bandar	<i>Macaca mulatta</i>
Slow loris	Lajuki bandar	<i>Nycticebus coucang</i>
Sambor	Sor pohu	<i>Cervus unicolor</i>
Tiger	Dhekie patia bagh	<i>Panthera tigris</i>
Wild boar	Bonoria gahori	<i>Sus scrofa</i>
Wood rat	Indur	<i>Mus booduya</i>
Reptiles		
Assam roofed turtle	Kacho	<i>Kachugur sylhetensis</i>
Box turtle	-	<i>Cuora amboinenis</i>
Black krait	-	<i>Bungarus niger</i>
Bamboo viper	-	<i>Trimicerus</i>
Brown tortoise	-	<i>Geochelone emys</i>
Cobra	Feti sap	<i>Naja naja</i>
Common krait	Masowa sap	<i>Bungarus cacerubus</i>
Gecko	Keko	<i>Gecko gecko</i>
Indian python	Ajagar	<i>Python molrus</i>
King cobra	Raja feti sap	<i>Naja hannah</i>
Monitor lizard	Gui sap	<i>Varanus bengalensis</i>
Pond turtle	-	<i>Geodemys hamiltonii</i>
River turtle	-	<i>Kachuga tecta</i>
Rat snake	Dharasap	<i>Ptyas mucus</i>
Birds		
Adjutant stork	Bortokola	<i>Leptoptilos dublus</i>
Alexandrine parakeet	Bhatou	<i>Psittacula eupatria</i>
Black stork	-	<i>Ciconia nigra</i>
Barheaded goose	Dhritaraj	<i>Anser indicus</i>
Black vulture	Shogun	<i>Sarcogyps calvus</i>
Bronzewinged jacana	-	<i>Methodidius indicus</i>
Blackwinged silt	-	<i>Himantopus Himantopus</i>
Brown hawk owl	Fenchu	<i>Binox scutulata</i>
Blue tailed bee-eater	-	<i>Merops orientalis</i>
Blue throated barbet	Hetululka	<i>Megalaima asiatica</i>
Blackheaded oriole	-	<i>Oriolus xanthornus</i>
Black drongo	Fechu	<i>Dicrurus adsimilis</i>
Bronzewinged dove	Kapou	<i>Chalcophaps indica</i>
Cattle egret	Bogoli	<i>Babulcus ibis</i>
Cormorant	Panikauri	<i>Phalacrocorax carbo</i>
Common teal	Ghila hanh	<i>Anas crecea</i>
Cotton teal	-	<i>Nattapus coromanelianus</i>
Crow-pheasant	-	<i>Ceutropus chinensis</i>
Common grey hornbill	Dhanesh	<i>Tockus birostris</i>
Darter	-	<i>Anhinga rufa</i>
Fishing eagle	-	<i>Ichthyophaga nana</i>
Forest wagtail	-	<i>Melecia indica</i>
Grey heron	-	<i>Ardea cinerea</i>
Great pied hornbill	Dhanesh	<i>Buceros bicornis</i>
Great horned owl	Fecha	<i>Bubo bubo</i>
Indian roller	Nilakantha	<i>Eurystomus orientalis</i>
Indian ring dove	Kapou	<i>Streptopelia decaocto</i>
Jungle owlet	Fecha	<i>Glaucidium eneuloides</i>
Fishes		
Aari	-	<i>Mystus aor</i>

English name	Local name	Scientific name
Barali	-	<i>Wallagu attu</i>
Bariola	-	<i>Aspido morar</i>
Bami	-	<i>Mastacembelis armatus</i>
Chanda	-	<i>Chanda nama</i>
Chital	-	<i>Chitala chitala</i>
Cheng	-	<i>Channa gaeema</i>
Gangatop	-	<i>Tetradon cutculia</i>
Gedgedi	-	<i>Nanus nandus</i>
Garua	-	<i>Clupisoma garua</i>
Gaur	-	<i>Bagarius bagarius</i>
Gagol	-	<i>Mystus menoda</i>
Kanduli	-	<i>Notopterus notopterus</i>
Karati	-	<i>Gudusia chapra</i>
Kaoi	-	<i>Anabus testudineus</i>
Khalikhana	-	<i>Colisa fasciata</i>
Moa	-	<i>Aplocheilus panchay</i>
Magur	-	<i>Clarius batrachus</i>
Naga cheng	-	<i>Channa marufius</i>
Pabha	-	<i>Ompok pabo</i>
Singhi	-	<i>Heteropneustes fossilis</i>
Tengra	-	<i>Mystes tengra</i>
Vacha	-	<i>Gutropiicthys vacha</i>

APPENDIX 4: Worker Management Plan/Guidance

1. Project Description

The proposed project involves construction of a 100-bedded Kaliapani District Hospital (DH) which is designed to be human-centric, user-friendly, and compliant with GRIHA standards, aiming for a 3-star rating. The site development includes dismantling existing structures and relocating utilities, with all necessary permissions obtained from relevant government departments. The building design features a G+4 structure, housing the Main District Hospital Mortuary, Gas Manifold, and BMW and ESS Blocks. The project area of 13,380 sqm (Approximately 11.270 Bighas, including a boundary wall of 415 meters.

Given the scale of civil works expected under the project, skilled, semi-skilled and unskilled workers will be hired by the contractors on a need basis/intermittently. The volume and diversified nature of the of construction works at the site demands for a large number of workers of different job roles. This necessitates developing and implementing **a site-specific Labour Management Plan** based on the **Labour Management Procedures (LMP) of the Project⁸**.

2. Key Potential Labour Risk

- a) Selection of proper site for Labour Camp
- b) Provision of basic facilities and amenities for the labour camp
- c) Risks of occupational health and safety
- d) Lack of knowledge on operation of equipment's, machines, work procedures and processes at sites including both DH site and Batching Plant site
- e) Lack of knowledge on maintenance of health and hygiene
- f) Potential conflict between local labour and expats or interstate Labours
- g) Community and labours
- h) Contractor staff and labour
- i) Risks of GBV/SEA/SH to community members, particularly women and children by contractors' workers during construction period
- j) Risks of workplace sexual harassment at project site (consultants and contractors' staff & labourers)
- k) Grievances from labours

3. Objectives of Labour Management Plan

- a) To ensure fair and lawful employment practices by providing equal opportunity, fair wages, and decent working conditions in compliance with applicable labour laws and standards.
- b) To maintain safe and healthy working conditions by identifying and mitigating occupational health and safety risks to prevent accidents, injuries, and work-related illnesses of the workers.
- c) To prevent child labour, forced labour and discrimination by ensuring strict adherence to applicable labour laws and standards.
- d) To manage labour-related GBV/SEA/SH risks by minimising these risks and promoting a respectful, harassment free work environment through Codes of Conduct and awareness measures.
- e) To establish an effective worker grievance redress mechanism by providing accessible, and transparent channels for workers to raise concerns and obtain timely resolution.

⁸ LMP disclosed at AHIDMS website:
https://ahidms.assam.gov.in/sites/default/files/public_utility/Revised%20%20Labor%20Management%20Procedures%20%20%281%29.pdf

4. Legal Framework

The Contractor and its Subcontractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of Government and Government Instrumentality and any other labour law (including rules), regulations, byelaws that may be passed or notification that may be issued under any labour law in future either by the Government and Government Instrumentality.

- (a) Employees Compensation Act 1923: The Act provides for compensation in case of injury, disease or death arising out of and during employment.
- (b) Payment of Gratuity Act 1972: gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years' service or more or on death at the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.
- (c) Employees P.F. and Miscellaneous Provision Act 1952 (since amended): The Act provides for monthly contribution by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are:
 - (i) Pension or family pension on retirement or death, as the case may be.
 - (ii) Deposit linked insurance on the death in harness of the worker.
 - (iii) Payment of P.F. accumulation on retirement/death etc.
- (d) Maternity Benefit Act 1961: The Act provides maternity leave, leave for illness arising out of pregnancy, delivery, premature birth of child or miscarriage and payment of maternity benefit to the women concerned as per laid down guidelines.
- (e) Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013: This Act defines sexual harassment in the workplace, provides for an enquiry procedure in case of complaints and mandates the setting up of an Internal Complaints Committee or a Local Complaints Committee
- (f) Contract Labour (Regulation & Abolition) Act 1970: The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by law. The Principal Employer is required to take Certificate of Registration, and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ 20 or more contract labour.
- (g) Minimum Wages Act 1948: The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, Runways are scheduled employments.
- (h) Payment of Wages Act 1936: It lays down the mode, manner and by what date the wages are to be paid, what deductions can be made from the wages of the workers.
- (i) Equal Remuneration Act 1976: The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against Female employees in the matters of transfers, training and promotions etc.
- (j) Payment of Bonus Act 1965: The Act is applicable to all establishments employing 20 or more employees. Some of the State Governments have reduced this requirement from 20 to 10. The Act provides for payments of annual bonus subject to a minimum of 8.33% of the wages drawn in the relevant year. It applies to skilled or unskilled manual, supervisory, managerial, administrative, technical or clerical work for hire or reward to employees who draw a salary of ₹ 10,000/- per month or less. To be eligible for bonus, the employee should have worked in the establishment for not less than 30 working days in the relevant year. The Act does not apply to certain establishments.

- (k) Industrial Disputes Act 1947: the Act lays down the machinery and procedure for resolution of Industrial disputes, in what situations, a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.
- (l) Trade Unions Act 1926: The Act lays down the procedure for registration of trade unions of workmen and employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.
- (m) Child Labour (Prohibition & Regulation) Act 1986: The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of Child Labour is prohibited in the Building and Construction Industry.
- (n) Inter-State Migrant workmen's (Regulation of Employment & Conditions of Service) Act 1979: The Act is applicable to an establishment which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home up to the establishment and back, etc.
- (o) The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996 and the Building and Other Construction Workers Welfare Cess Act, 1996 (BOCWW Cess Act): All the establishments who carry on any building or other construction work and employ 10 or more workers are covered under these Acts. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be notified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as Canteens, first – Aid facilities, Ambulance, Housing accommodations for workers near the workplace etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.
- (p) Factories Act 1948: the Act lays down the procedure for approval of plans before setting up a factory engaged in manufacturing processes, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power.
- (q) Weekly Holidays Act -1942
- (r) Bonded Labour System (Abolition) Act, 1976: The Act provides for the abolition of bonded labour system with a view to preventing the economic and physical exploitation of weaker sections of society. Bonded labour covers all forms of forced labour, including that arising out of a loan, debt or advance.
- (s) Employer's Liability Act, 1938: This Act protects workmen who bring suits for damages against employers in case of injuries endured in the course of employment. Such injuries could be on account of negligence on the part of the employer or persons employed by them in maintenance of all machinery, equipment etc. in healthy and sound condition.
- (t) Employees State Insurance Act 1948: The Act provides for certain benefits to insured employees and their families in case of sickness, maternity and disablement arising out of an employment injury. The Act applies to all employees in factories (as defined) or establishments which may be so notified by the appropriate Government. The Act provides for the setting up of an Employees' State Insurance Fund, which is to be administered by the Employees State Insurance Corporation. Contributions to the Fund are paid by the employer and the employee at rates as prescribed by the Central Government. The Act also provides for benefits to dependents of insured persons in case of death as a result of an employment injury.

- (u) The Personal Injuries (Compensation Insurance) Act, 1963: This Act provides for the employer's liability and responsibility to pay compensation to employees where workmen sustain personal injuries in the course of employment.
- (v) Industrial Employment (Standing Order) Act 1946: It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and get the same certified by the designated Authority.

5. Policy & Procedure for Contract Workers for Civil Work

The key procedure at the construction site includes as follows:

- Equal pay/wage for men and women labours.
- No child labour and/or forced labour at construction site for all works
- All labourers to be provided with photo ID cards for accessing the construction site.
- Personal Protection Equipment (PPE) – safety helmet and shoes, secured harness when working at heights, electrical gloves, eye protection for welding etc., for all workers without which entry to the construction site shall not be allowed.
- Steps necessary to prevent SEA/SH and any discrimination based on religious, political and/or sexual orientation.
- Facilities to be provided at the labour camp:
 - Hygienic living conditions and safe drinking water
 - Segregated toilets for male and female workers
 - Use of fireproof wiring and good quality electricals
 - Cooking gas for labours
 - Monthly health checkup for all labours/family.
 - Awareness campaign for social distancing and general health and hygiene
 - Posters and signages at/around the site, with images and text in local languages relating to personal safety, health and hygiene
 - Security measures to be provided at the camps
 - Emergency response plan including availability of assembly points and mock drills.
 - The measures proposed in a site-specific Action Plan for managing construction related workplace occupational health and safety

Civil works contractors' workers will be managed by the contractors, and their terms and conditions must be consistent with the WB ESF (ESS2), GoI laws and regulations. As a minimum standard for workers under civil works contracts (including subcontractors) the provisions and codes of conduct outlined in the Contractors Environmental and Social Management Plan will provide the minimum standards required. OHS, GBV/SEA and SH and general worker behaviour are managed through the CESMPs.

¹ Labour Management Procedures (LMP) under ASSIST Project

6. Anticipated Risks & Impacts in Terms of Labour Management & Corresponding Mitigation Measures, Responsibility with the Timeline

Sl. No	Risk & Impact	Mitigation Measures	Responsibility	Timeline
1	Identification of site for accommodation of Labours	- The location to be identified for establishment of labour camps to be encroachment free of suitable size with ease of access and no significant environmental features – - The site selected for the labour camp is a government land situated within project premises. - NOC from PWD Territorial Building Division, Jorhat has been obtained for establishment of the labour camps. - The identified site is adequate for accommodating the peak labour volume (<u>200 persons</u>) with all amenities. - Separate entry/exit gates for the labour camp provided and is away from the construction site. - One mango tree exists on the site and it is well conserved 25 to 35 nos. of rooms will be constructed with 200 Wooden beds with mattresses will be provided. The camp floor will be PCC floor; overhead water tank will be provided with toilets for facilitating running water in the toilets and bathrooms. Basic amenities to be provided	EPC Contractor	Pre Construction to Construction phase
2	Maintenance of health and hygiene	- Basic labour camp amenities to be provided to the labours - Individual sleeping space along with bedding provision. - Separate kitchen / cooking space along with fuel requirement for cooking - Supply of safe drinking water. The drinking water will be tested quarterly through a NABL accredited laboratory - Separate toilets for men and women and different than the ones used by the community - Bathing space with water provision for male & female workers separately - Sufficient lighting facility along with required numbers of fans - Adequate solid and liquids waste disposal and management provisions / system to be implemented in labour camp by providing adequate	EHS Officers of EPC Contractor and PCCMC	Through out the project period

Sl. No	Risk & Impact	Mitigation Measures	Responsibility	Timeline
		number of bins and collection / drainage system to avoid littering of wastes • First aid facilities shall be always provided and accessible b) Monthly health check-up for workers and their families and for the purpose EPC contractor to tie-up with a nearby health facility / hospital c) Training to workers: • Daily toolbox talks conducted before start of works covering topics of the safety compliance • Training on OHS to workers prior to commence of works, consistent with the national / state laws and world bank health and safety guidelines • Orientation on good health and hygiene practices, use of PPEs to ensure that the labours and staff are wearing the PPE and safety gears / harness etc. and occupational health and safety • Good labour practices • No tabaco, smoking policy and penalty d) Labour management procedures under Assist Project as in the link below to be followed at site		
3	Risk of occupation health & safety The key OHS risk during construction works include injuries due to accident arising out of poor work conditions and unsafe practices e.g., working at height, fall into deep excavation, injuries due to movable mechanical parts, slip and trip risk and poor housekeeping in workplaces etc. In addition, exposure to hazardous chemicals and	a) Adequate PPEs for the labour and periodic stock replenishment to maintain availability b) Safe work practices, usage of engineering controls e.g., exhaust ventilation, isolation of hazardous work areas and administrative controls (e.g. access control, barricading the dangerous areas and work permit systems etc) are key measures required to be implemented at the site c) Regular period monitoring of compliances at site and labour camps d) Occupational Health & Safety Policy of our company will be applicable to labour and staff of employed at the Construction site which is enclosed as Appendix – 7 of the C-ESMP	Project Manager and EHS Officer/Staff of PCCMC and EPC Contractor	During construction period

Sl. No	Risk & Impact	Mitigation Measures	Responsibility	Timeline
	gases e.g. diesel exhaust, silica dust and paints etc. may also happen			
4	Lack of knowledge on operation of equipment's, machines, work procedures and processes at sites including both DH site and Batching Plant site	a) Periodical training of labours on operational procedures b) safe work practices c) Daily inspection and reporting	Project Manager and EHS Officer/Staff of PCCMC and EPC Contractor	All through out the construction phase
5	Conflict between migrant workforce and locals	a) Singing of code (CoCs) of conduct by workers b) Orientation of the workers on the good conducts, conditions laid down in CoCs and penalties for misconduct. c) Provision of basic amenities at labour camp d) Declaring the construction site and labour camp as "No Smoking" and "No Alcohol" zones e) Monitoring the construction site and the labour camp daily basis by EHS officer / staff of contractor f) Stakeholder consultations on a periodical basis with representatives of the community residing in and around the DH site	Project Manager and EHS Officer/Staff of PCCMC and EPC Contractor	All through out the construction phase
6	Statutory clearance	a) Clearance of migratory labour under Inter-state Migrant Workmen.	Project Manager and EHS Officer/Staff of PCCMC and EPC Contractor	Pre-Construction
7	GRM for Worker	a) Submission of grievances by workers by following ways: - o Direct reporting. EHS Officer of PMC to register the grievance will all details in registers with specific formats. - o Submitting grievances in Drop Boxes installed at sites. Proper signages of Drop Boxes in local language at workers camp and at entry gate to be displayed so that it is visible to workers.	Project Manager and EHS Officer/Staff of PCCMC	Through out the project period

Sl. No	Risk & Impact	Mitigation Measures	Responsibility	Timeline
		- o Calling in the Toll-Free Number of the project i.e. 1800 569 2952 b) Grievance Redressal Protocol to address the grievances physically received at site is attached at Appendix 9 of the C-ESMP. Sensitization of workers on the existing physical GRM mechanism at site.		
8	Risk of SEA/SH a) Risks of SEA / SH to community members, particularly women and children by contractors' workers during construction periods b) Risk of workplace SH at all establishment by Co-workers under the project	a) Contractor shall be required to ensure all workers (Including those of sub-contractors) sign a code of conduct (CoCs) to mitigate the risk of SEA /SH b) Awareness training on SEA /SH for workers. There are some risks associated with community health such as exposure of communities and beneficiaries to communicable diseases, and SEA /SH however these will be addressed through appropriate mitigation measures c) GRM sensitive to SEA /SH complaints is detailed at Appendix 9 of the C-ESMP	Project Manager and EHS Officer/Staff of PCCMC and EPC Contractor	Through out the project period

¹ https://ahidms.assam.gov.in/sites/default/files/public_utility/Revised%20%20Labor%20Management%20Procedures%20%20%281%29.pdf

7. Record and Maintenance at Site for Labour Management

It is mandatory on the part of the principal employer to seek registration under Contract Labour (regulation & abolition) Act 1970. The Act makes it obligatory on the part of every contractor not to undertake any work through contract labour without obtaining the valid license. The following registers and records are maintained:

- a. Muster roll (Gender wise)
- b. Register of wages (Equal wages as per Act 1976)
- c. Register of deductions
- d. Register of over time
- e. Register of fines
- f. Register of advances

The Labour Management Plan and provisions for Contract Labour are summarized below:

Table: Labour management and Provisions for Contract labour

Component	Details
Labor License	LL No.: CLL/2024/QE1714221571755RM Valid: 26/04/2025
Labour screening	Aadhar No.
	Photo
	Blood group
	Emergency contact numbers
	Family Details
	Details of spouse
	Two References/ Known Persons
ID Cards to Laborers	ID Cards with details
Labour Insurance (ECA1923 and other insurances)	Number of Labour: 130 Policy Number: 4010/377330985/00/000 Date of issuance: 23/01/2025 Policy effective from 22/01/2025 Expiry Date: 21/01/2026
Labour Camps- Facilities to be provided	Temporary residential accommodation suitable to workers with proper ventilation and lighting cooking arrangements Potable water Sanitation facilities (Separate toilets for women) Provision of soak pits/ disposal in sewers Dustbins-Separate dustbins for different types of waste Fire safety arrangements, First Aid kits, Safety and Security arrangements Good House Keeping Regular Cleaning of Labour camps Clearing of Labour Campsite at the closure of the Contract
Migrant Labour Screening	Aadhar-No, Blood group, State of domicile Emergency contact numbers Details of Family Members on site Details of spouse Two References/ Known Persons ID cards. Registration details of migrant labour
Labour Grievances	GRM Registers/ Dropbox/Phone; Grievance Redressal committee
Labour safety	Fire Safety, Adequate PPE, etc. and timely replenishment
Display	Emergency contact details of doctor, police station, fire station and

Component	Details
Emergency contact numbers	Project Manager for emergency purposes will be displayed in office as well as site and vehicles.
Display of Project details at campsite	Project details are displayed in office and at workers accommodation
Protection of Women workforce cell.	As protection of Women from Domestic Violence Act, 2005, for sexual harassment at workplace; sexual harassment includes unwelcome sexually determined behaviour (whether directly or by implication) as a) Physical contact and advances, b) A demand or request for sexual Favors, c) Sexually coloured remarks, d) Showing pornography. Any other unwelcome physical, verbal or no-verbal conduct of sexual nature. Formation of Internal Complaints Committee at client and contractors' organizations, if female staffs are present. - Sensitization on Gender based Violence, SEA/SH for all personnel at site. - Signing of Code of Conduct by all personal at site (Contractors personal and labourers')
Health Camps (Medical camps and HIV/AIDS awareness campaigns, should conduct every alternate month)	Organization of Medical camps and HIV/AIDS awareness campaigns for means of controlling the spread of such diseases at all camps and sites. Link up with SACS (State Aids Control Society) for awareness generation camps and IEC materials, and supply of condoms at concessional rate (or free) to the male workers may help to a large extent in this respect. Required to conduct Water, Sanitation and Hygiene (Wash awareness camps.

Reporting Format for Work force Management will be as mentioned below:

A. REPORTING FORMAT FOR WORKFORCE MANAGEMENT

Sr. No.	Project Details	Date of reporting:
1	Name and address of the Contractor	M/S SBP Commercial Pvt. Ltd 4 Antara Tower Rod Dinesh Road. Pan Bazar, Guwahati
2	Contract Date and duration	12-03-2024 (24 MONTH)
3	Status and completion of the project	Civil works yet to start.

B. SITE DETAILS

Sr. No.	Category of work force	Work force in the Previous Month (No.)	Work force added in the reporting month (No.)	Work Force left in the reporting month (No.)	Total Workforce in the reporting Month (No.)
1	Unskilled Laborers				
2	Skilled Laborers				
	Sub Total				
	Grand Total				

C. Categorization of work force

S.	Category of	Male	Female	Employment Status	Residential Status

No.	workforce	<18 yrs.	>18 Yrs.	<18 Yrs.	>18 yrs.	Regular	Temporary	Migrant ⁷	Local	Staying in Labour camp/Quarters	Other
1	Unskilled Laborers										
2	Skilled Laborers										
	Total										

D. Details of non- working migrated people, living in the labour camp/ Staff Quarters as part of work force

No of children (0-6 yrs.)			No of children (>6 yrs.)			No of adults			Grand total
Male	Female	Total	Male	Female	Total	Male	Female	Total	

E. Submission Details

Signature & Date		
Name		
Designation	PROJECT MANAGER	SITE INCHARGE
	Remarks by engineer in Charge / Project manager	

F. Registration Format of Grievances Received from Labours at Site Under Assist Project

DH Site	District	Name of Complainant	Gender	Phone Number	Date of Registering Complaint	Complaint submitted by		Nature & type of Complaint (Related to sexual exploitation and abuse harassment / non receipt of facility at labour camp / PPE related / Non receipt of dues / workplace discrimination / excessive workload / any other Protocol of GRM Mechanism as Provided by PMU Assist to be Followed for Further Action	Complaint Description To include Date, time and place of occurrence / What happened/ Name of those involved etc.	Redressal			Not Addressed
						Actual Complaint	Representative of Complainant In this case, please attach a copy of the representational authority signed by the complainant(s)			Yes / No	No of days for redressal Timeframe: First action to be taken by EPCC contract or in 24 hours	If addressed ,complainant satisfied or dissatisfied Complainant to be communicated about the action	Reason
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-

G. Accident Reporting Format

No.	Details of Accident/incidence	Responses
1	Date & Time	
	Location	
	Type of incident (major accidents/minor injuries/ fatalities)	
	No. of Affected Persons	
	Category of affected person (Staff/Labour/Visitor/Passerby/Other)	
	Details of Treatment provided	
	Were the treatment expenses born by the employer? (Full/partial/no liability)	
	Number of rest days prescribed by the treating doctor	
	Whether the rest days were paid? (full payment/partial payment/no payment)	
	Did the affected person resume duty/work post treatment? (Yes/Not able to perform duties/relieved from duties by the employer)	
	Has the accident reported in Incidence Register at site?	
	Corrective and Preventive Actions (CAPA) Taken	
	2	Date & Time
Location		
Type of incident (major accidents/minor injuries/fatalities)		
No. of Affected Persons		
Category of affected person (Staff/Labour/Visitor/Passerby/Other)		
Details of Treatment provided		
Were the treatment expenses born by the employer? (Full/partial/no liability)		
Number of rest days prescribed by the treating doctor		
Whether the rest days were paid? (full payment/partial payment/no payment)		
Did the affected person resume duty/work post treatment? (Yes/Not able to perform duties/relieved from duties by the employer)		
Has the accident reported in Incidence Register at site?		
Corrective and Preventive Actions (CAPA) Taken		
3		Date & Time
	Location	
	Type of incident (major accidents/minor injuries/fatalities)	
	No. of Affected Persons	
	Category of affected person (Staff/Labour/Visitor/Passerby/Other)	
	Details of Treatment provided	
	Were the treatment expenses born by the employer? (Full/partial/no liability)	
	Number of rest days prescribed by the treating doctor	
	Whether the rest days were paid? (full payment/partial payment/no payment)	
	Has the accident reported in Incidence Register at site?	
	Corrective and Preventive Actions (CAPA) Taken	

H. Monthly Progress Reporting

Contractor to report prepare Monthly Progress Reports (MPR) with the support of **Project Management Consultancy (PMC) under the Project positioned at the site and** submit to PMU for onward submission to World Bank

Sl. No	Parameters related to workers to be reported in the monthly Progress Report		
1	Health and safety incidents, accidents, injuries that require treatment and all fatalities (If yes, specify in terms of nos., date, time, location and type of incidents - major accidents/minor injuries/fatalities)		
	Number of First Aid Injuries		
	Number of Near Miss Reported		
2	Health & Safety Supervision	Average number of workers (no.)	
		Number of work hours (no.)	
		% of workers with Full personal protection equipment (PPE) (%)	
		% of workers with Partial personal protection equipment (PPE) (%)	
		Worker violations observed (%)	
3	Worker Accommodation Campsite	Number of expats labours housed in accommodation (migrated from foreign country) (No.)	
		Total number of Labours (No.)	
		Number of Local Labours (No.)	
		Number of Inter State Migrant Workers (No.)	
		Date of last inspection (dd/mm/yy)	
		Highlights of Inspection	Sanitation maintained (Y/N)
			Waste disposal and management maintained (Y/N)
			Bedding and sleeping space provided (Y/N)
			Cooking space and fuel provided (Y/N)
			Supply of safe drinking water (Y/N)
			Bathing space with water provision (Y/N)
			Actions taken for improvement (Y/N), If Yes, Specify area of improvement
			Adoption of vector control measures (Y/N), If Yes, Specify areas/location
4	Health Service Provided to Workers	Tie-up with Hospital (Y/N)	
		Information & Training on Health Services provided (Y/N), If yes, specify topics/areas	
		Monthly Health Checkup done (Y/N) If Y Mention dates in remarks	
		Location of clinic	
		Number of workers diagnosed and treated for non-safety diseases or illness (Y/N) If yes, specify in terms of nos.	
5	Gender Issues	For Local Workers	Number of female workers (No.)
			Percentage of work force (%)
			Number of Gender issues raised (No.)
			Number of Gender issues resolved (No.)
		Interstate migrant workers	Number of female workers (No.)
			Percentage of work force (%)
			Number of Gender issues raised (No.)
			Number of Gender issues resolved (No.)
6	Training	Number of new workers (No.)	
		Number of workers receiving Induction training (No.)	

		Number of Toolbox talks (No.)
		Number of workers receiving Occupational Health and safety training (No.)
		Number of workers receiving Environmental & Social Training (No.)
		Number of sensitization programme/ training on Communicable diseases (including STDs) (No.)
		Number of Gender sensitization training (No.)
		Number of Flag person training (No.)
		Number of workers (under Contractor) receiving Code of Conduct training (No.)
		Other (Plz Specify) Training Name and (No.) of workers participated
7	Grievances	Worker's Grievances (No.)
		Worker's Unresolved Past Grievances (No.)
		Grievances resolved (No.)

APPENDIX 5: CONSTRUCTION & OTHER WASTE MANAGEMENT PLAN (WMP)

Introduction:

The Waste Management Plan (WMP) addresses management of all solid and liquid refuse, including hazardous and non-hazardous waste, produced as a result of Project activities within the Kaliapani site. The WMP covers the construction and operational phases. This report constitutes the initial draft which will require amendment and updating as construction activities changes timely.

Purpose:

The WMP aims to provide guidelines on waste reduction, segregation, collection, and disposal practices in accordance with international best practices, to avoid deterioration of the natural environment and negative impacts on the health and safety of communities in the Project Area. The Project is committed to applying the waste hierarchy and will seek to be a zero-waste discharge facility. This plan is the primary tool to guide employees toward waste management.

- ✓ To encourage sustainable use of materials
- ✓ To reduce waste and disposal costs
- ✓ Reduced legal and financial liability
- ✓ To be more efficient and cost-effective with materials
- ✓ To protect the environment and society
- ✓ Improved workplace and public safety
- ✓ Improved community trust and relations

Waste Management Plan

Type of waste	Management Plan
Liquid Waste	
Effluent from the Bathroom & Toilet Blocks	Septic tank with soak pit will be provided for disposal of effluent coming from the toilets and bathrooms at the labour camp as well as the camp office toilet blocks
Solid Waste	

Construction site waste	All waste materials resulting from construction activities shall be identified appropriately in order to ensure effective waste management. Waste which may result from construction activities (metals, concrete, pipes, tiles, cables etc) shall be segregated as hazardous and non-hazardous. The waste will be stored at the designated location within the premises. Depending on the type of waste, efforts will be taken to reused wherever possible. The waste such as cement bags, plastic, paint cans, lubricant cans etc. will be returned to the supplier or handed over to the recyclers. Separate records will be maintained regarding generation and disposal of the construction waste. Construction waste will be managed as per C&D Waste Management Rules 2016.
Hazardous waste	Used lubricants or oils will be collected in spill proof containers and stored at designated area only. It will be handed over to the CPCB authorized recyclers
Organic Waste	Organic waste will be majorly generated at the canteen and labour camp It will be collected in a separate bin. This waste will be converted to compost at the site and the compost will be utilized for gardening purpose

APPENDIX 6: TRAFFIC MANAGEMENT PLAN

Traffic Management Plan for proposed DH at Kaliapani site has been prepared based on the anticipated traffic movement in and around the site. The carting of Mobilization of construction heavy vehicle movement will be done in a manner creating least inconvenience/ disturbance/ nuisance/ interference to the flow of vehicular and pedestrian traffic. The temporary diversions, where introduced, will for a minimum required duration and shall conform to standards/guidelines.

Following measures will be taken by Contractor during transportation of Mobilization of construction heavy vehicle.

- Obey the existing traffic management rules and signs of local Transport Authority (district Jorhat of Assam) as far as possible and take advance approval/permission of local Transport Authority/PWD/Police/concerned authority to work on roads. This could include Highways, PWD Roads, and Panchayat Roads, other major and minor roads, streets / lanes and roads in industrial, commercial and residential areas.
- If any changes are required to the existing traffic management system, advance approval/permission of local Transport Authority/PWD/ concerned authority will be taken to work/ transport material on the roads.
- Notify the road users and communities (through community consultations and project information display board) along the planned route clearly and sufficiently in advance, by providing them with the traffic management plans and creating awareness on the modification made.
- Guidance to road users by using signs, delimitates, barricades, cones, pylons, pavement markings and flashing lights etc. wherever required.
- Flag men to control and divert traffic.
- Adequate measures will be provided to control driver behaviour through project's operational zones.
- Traffic cones of 500mm, 750mm and 1000mm high and 300mm to 500mm in diameter or in square shape at base and are often made of plastic or rubber and normally have retro-reflector red and white band will be used wherever required.

- Drums about 800mm to 1000mm high and 300mm in diameter can be used either as channelizing or warning devices. These are highly visible, give the appearance of being formidable objects and therefore command the respect of drivers.
- In the same way barricades protect the road users from the danger due to equipment and other temporary structures falling off from height
- All barricades shall be erected as per the design requirements of the Employer, numbered, painted and maintained in good condition and also maintain a barricade register on site.
- The vehicle transporting construction/ earth filling material will be fully covered; and also water the same to avoid flying dust.
- Loading and unloading will not be carried out at carriageways obstructing the free flow of vehicular traffic
- Cleanliness of roads and footpaths by deploying proper manpower will be ensured. Park the vehicles used for carting the earth only in designated areas at project site.
- Vehicles need to follow the speed limits i.e., 60kmh or mentioned road speed limits on highway. A register and logbook for each of the vehicles deployed will be maintained.
- No vehicle will be kept idling for more than 10 seconds; however, for not more than 30 seconds.
- Both at the material sourcing locations and at unloading locations, all construction workers should be provided with high visibility jackets with reflective tapes. The conspicuous of workmen at all times shall be increased so as to protect from speeding vehicular traffic. In addition to these the following shall be followed:
 - a. Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the working area from the risk of accidents due to speedy vehicular movement.
 - b. Provide safe and clearly marked work and buffer zones.
 - c. All vehicles entering site shall meet the requirements prescribed.
 - d. The contractor shall follow the speed limits as per site guidelines (maximum 20km/hr at village road).
- Proper Traffic Management & circulation with adequate lighting and signage system.
- Provision of adequate parking spaces as per Norms.
- Trained and qualified drivers/operators.
- Separate routes for the movement of machineries and vehicles away from the patients/visitors route.
- Regular checks and inspections for the ambulances and other vehicles.

Traffic Management for Batching Plant to proposed DH site of Kaliapani

Route		Road Condition	Proposed mitigation approach	Responsibility	Monitoring
From	To				
Kaliapani Hospital Construction	Entry gate of Kaliapani gate, linked with national highway NH – 47	Road condition is good	Following traffic guidelines as given in the traffic management Plan in Annexure	Contractor	PCCMC & PMU
Batching Plant Installed inside	Hospital Construction				

project premises					
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Map 2: Transportation route from Batching plant to Proposed DH Site, Kaliapani

MONITORING CHECKLIST FORMAT

Name of Project:

Location:

Location of batching plant: Distance from Construction area
to Batching plant:

Date of Monitoring:

Sl. No.	Particulars	Yes	No	Remarks
1.	Disclose and distribute the Traffic Management Plan on site			
2.	Working Hours per day as per TMP			
3.	Following the occupational and community health and safety guidelines given in the CESMP			
4.	Obey the existing traffic management rules and signs of local Transport Authority			
5.	Provided guidance to road users by using signs, barricades, temporary markings and flashing lights etc. wherever required			
6.	Provide adequate measures that control driver behaviour through project's operational zones			
7.	Park the vehicles used for carting the earth only in designated areas			
8.	Crash Helmets must be made mandatory for both driver and pillion riders on the roads that are being used for transportation of concrete mixed material.			
9.	Maintain a register and logbook for each of the vehicles deployed			
10.	Both at the material sourcing locations and at unloading locations, all construction workers should be provided with high visibility jackets with reflective tapes			
11.	Contractors to conduct, weekly training on Traffic Safety and Barricading			
12.	The contractor shall follow the speed limits as per site guidelines			
13.	All vehicles entering site shall meet the requirements prescribed			

Sl. No.	Particulars	Yes	No	Remarks
14.	Flag men to deploy at the hospital's construction site during peak construction activities such as excavation, slab casting, etc.			

**OCCUPATIONAL HEALTH AND SAFETY
PLAN OF CONSTRUCTION OF 100 BEDDED
NEW DISTRICT HOSPITAL IN
KALIAPANI**

ASSAM

PREPARED BY

SBP COMMERCIAL PVT LTD

2024



.0 INTRODUCTION:

Health services are one determinant of health status. Good health services will ensure good health for the community as well. The development of hospitals as health care facilities in Indonesia has recently been very rapid, both in terms of the number and utilization of medical technology. A hospital as a health service institution for the community is a workplace that has a high risk to the safety and health of the hospital human resources, patients, patient companions, visitors and hospital environment.

In the framework of managing and controlling risk in a hospital, it is necessary to organize occupational safety and health to create a hospital that is healthy, safe, secure, and comfortable. Occupational safety and health is an effort to provide safety guarantees and improve the health status of workers by preventing Occupational Accidents (KAK) and Occupational Diseases (PAK) through effort to control hazards in the workplace, health promotion, treatment and rehabilitation (Menkes, 2016).

Occupational health deals with all aspects of health and safety in the workplace and focus on the primary prevention of hazards. Health has been defined as "A state of complete physical, mental and socio well-being and not merely the absence of disease or infirmity". Occupational health is a multidisciplinary field of health care concerned with enabling an individual to undertake their occupation in the way that causes the least harm to their health (Mazhila and Joshi, 2019)

Workplace hazards can be seen as part of workplace challenges that must be identified and a solution must be proffered to promote safety and safe systems of work in an organization, all employers are required to carry out the symmetric and critical assessment of the risks in the workplace and the precautions put in place to protect people from harm. The occupational risk assessment should ensure that significant risks are identified and addressed (Fasoranti and Joseph, 2015).

Hospital and other medical facilities have occupational hazards similar and risks that are unique to the healthcare environment. COVID-19 has emphasized on the importance of emergency response strategies, building capacity in healthcare systems and most importantly the role of health professionals in managing this dreaded viral infection. The public health emergency has placed all functions under scrutiny and the procedures to control and mitigate risk and hazards have gathered pace. As healthcare extends into community and home environment, hazards and risk to healthcare workers increase manifold.

While their sole purpose lies in improving, protecting and developing the health of the community and individuals within, they might personally experience health problems ranging from infections diseases to radiation related cancers etc. Arduous tasks are inherent in healthcare jobs- lifting and transferring ill or unconscious patients attending to patients who carry pathogens or underlying medical conditions which may be contagious, responding to emergency situations such as cardiac arrest and dealing with the victim of community disasters (earthquakes, fires, crashes) and pandemics (currently COVID-19).

They are also at a far greater risk of psychosocial stressors and face challenging situations like dealing with unruly patients or even verbal abuse. Constant demands of their time, energy and professional skills, along with the extreme stress of direct responsibility of patient care, exposure to



All individuals exposed to hazardous health-care waste are potentially at risk, including those within health-care establishments that generate hazardous waste and those outside those sources who either handle such waste or are exposed to it as a consequence of careless management. The main group at risk are medical doctors, nurses, health-care auxiliaries, and hospital maintenance personnel, patients in health-care establishments or receiving home-care, visitors to health-care establishments; workers in support services allied to health-care establishments, such as laundries, waste handling and transportation & workers in waste disposal facilities (such as landfills or incinerators), including scavengers. Following possible infections could occur due to careless/handling/management of waste management.

INFECTION TYPES	EXAMPLE OF CAUSATIVE ORGANISMS	TRANSMISSION ROUTES
Gastroenteric infections	Enterobacteria, e.g. Salmonella, shigella spp; vibrio cholera; helminths	Feces and/or vomit
Respiratory infections	Mycobacterium tuberculosis; Measles virus; streptococcus pneumonia	Inhaled secretions, saliva
Ocular infection	Herpes virus	Eye secretions
Genital infections	Neisseria gonorrhoeae; Herpes virus	Genital secretions
Meningitis	Neisseria meningitidis	Cerebrospinal fluid
Acquired Immunodeficiency syndrome	Human Immunodeficiency virus (HIV)(AIDS)	Blood, sexual secretions
Hemorrhagic fevers	Junin, lassa, Ebola and marburg viruses	All bloody
Septicemia	Staphylococcus spp	Blood
Viral hepatitis B&C	Hepatitis B&C viruses	Blood and body fluids



3.0 PREVENTION OF OCCUPATIONAL DISEASES IN HOSPITAL:

To prevent the occupational diseases and accident, hospital will carry out following:

- Waste management & occupational health and safety (OHS) Committee will be formed.
- Necessary safety materials like safety gears like jackets, gloves, boot, caps and masks for staff involved in different department will be provided.
- Instruction on health and safety related activities/issues including emergency preparedness plan will be developed and posted.
- Awareness will be generated on safe handling of construction equipment and chemicals, health and safety issues, fire hazards, earthquake etc.
- Emergency preparedness plan will be prepared, implemented and documented. Water hydrant and fire extinguishers, water hoses, lift, emergency ladder will be installed at various locations. The CC cameras will be installed in required places.

4.0 HEALTH AND SAFETY ASPECTS IN HOSPITAL OPERATION STAGE:

Antiseptics or antimicrobial agents (term used interchangeably) are chemical that are applied to the skin or other living tissue to inhibit or kill microorganisms (both transient and resident) thereby reducing the total bacterial count. Types of antiseptics used in hospitals and uses of antiseptics are in hand hygiene. Skin preparation prior for surgical procedures. Cervical or vaginal preparation, wound dressing etc. which are;

- 60-90% alcohol (ethyl, isopropyl or "methylated spirit")
- 4% chlorhexidine gluconate (Hibitane, Hibiscrub, Hibiclenz)
- Chloridine gluconate and cetrimide, in various concentration (savlon)
- 3% Iodine aqueous iodine and alcohol containing (tincture of iodine) products. 7.5-10%
- Iodopors, various concentration (betadin or wescodyne)
- 0.5-4% chloroxylenol (para-chloro-metaxylene or PCMX) various concentrations (Dettol)
- Antiseptics and disinfectants for the hospital should be safe, instruction for use available, cost effective, accepted by the government/authority, disposal not hazardous to the community and environment and user-friendly. The effectiveness factors to be considered before choosing antiseptics and disinfectants are nature of what is to be disinfected, number of microorganisms and time needed (the higher the number, the longer the time). Concentration to be used, type of surface (smooth v. rough)—rough surfaces require longer treatment time & presence of organic materials (e.g. soiled instrument).



- Storage and dispensing condition of antiseptics should be done well. Unless supplied commercially in small quantities, the antiseptic should be poured into a small, reusable container for daily use. This prevents evaporation and contamination. The antiseptic dispensers will not be top off. The gauze or cotton wool will not be stored in antiseptics because this promotes contamination. The reusable containers will be washed thoroughly with soap and clean water and will be rinsed with boiled water if available and drip dry before refilling. The reusable containers will be labelled with the date each time they are washed, dried and refilled.
- Storage and dispensing conditions of antiseptics should be done well. Unless supplied commercially in small quantities, the antiseptic should be poured into a small, reusable container for daily use. This prevents evaporation and contamination. The antiseptic dispensers will not be top off. The gauze or cotton wool will not be stored in antiseptics because this promotes contamination. The reusable containers will be washed thoroughly with soap and clean water and will be rinsed with boiled water if available and drip dry before refilling. The reusable container will be labelled with the date each time they are washed, dried and refilled.
- All containers should have lids which should be well tightened. The concentrated antiseptic solutions will be stored in a cool and dark area. These will never be stored in direct sunlight or in excessive heat (e.g. upper shelves in a tin-roofed building). All chemicals producing fumes, such as chlorinated lime, will be handled using the appropriate personal protective equipment (PPE) like heavy duty rubber gloves, full face mask or nose/mouth mask and goggles, apron & gumboots.
- In addition to the PPE, the rooms will be well lit and ventilated so as to allow good air circulation. Chlorine solution should never be mixed with cleaning products containing ammonia, ammonium chloride gas, which causes nausea, eye irritation, tearing, headache and shortness of breath. If one is exposed to an unpleasantly strong odor following the mixing of a chlorine solution with a cleaning product, leave the room or area immediately until the fumes have cleared completely.
- Hand hygiene will be performed by running water, friction and soap. The drying will be made in cases like before and after performing invasive procedures, before and after caring for susceptible patients, before and after handling wounds, drains, catheters etc. before and after gloving when carrying out invasive procedures & after contact with blood and body secretions especially in situations where microbial contamination is likely.

Following steps will be adopted for hand washing:

- Thoroughly wet hands,
- Apply plain liquid soap (antiseptic agent is not necessary)
- Vigorously rub all areas of hands and fingers, remembering to get under fingernails and between fingers. Rinse hands thoroughly with clean water,
- Dry hands with a paper towel, a dry, clean single-use, or air dry them.
- Use a paper towel when turning off the tap if the tap is not elbow-controlled or automatic shut off.

The alcohol-based hand rub steps can be adopted by applying enough alcohol-based hand rub to cover the entire surface of surface of hands and fingers (about a teaspoonful), rubbing the solution vigorously into hands, especially between fingers and under nails, until dry & using 5 ml for each application and continue rubbing the solution over the hands until they are dry (15-30 seconds). Hand rub is more effective in killing transient and resident flora than hand washing with antimicrobial agents or plain soap and water but should not be used when hands are visibly soiled. When hands are visibly soiled hands must be washed following the procedure above. Gloves should not be regarded as a substitute for hand washing.

However, the surgical hand scrub steps will be performed as follows:

- Removed rings, watches and bracelets,



- Thoroughly wash hand and forearms to the elbow with soap and water,
- Clean nails with nail cleaner,
- Rinse hand and forearms with water,
- Apply an antiseptic agent,
- Vigorously wash all surface of hands, fingers and forearms for at least 2 minutes,
- Rinse hands and arms thoroughly with clean water, holding hands higher than elbows,
- Keep hands up and away from the body, do not touch any surface and dry hands with clean, dry, single-use towel or air dry by shaking,
- Put on sterile gloves. On putting sterile surgical attire, it is essential that one do not contaminate the sterile items, sterilized surgical gowns are considered sterile in front from the chest to the level of the sterile field, sleeves are sterile from 5 cm above the elbow to the cuff. The neckline, shoulders, underarms and back of the gown are considered to be unsterile.

5.0 OCCUPATIONAL HEALTH AND SAFETY PLAN :

The health and safety management committee will be formulated to safeguard the employees through provisions of safety education and training of management, supervision and operatives. The provision of a safe and healthy working environment all times for all employees and visitors during construction and operation of hospital is required. A safe system of work will be designed by a health and safety management committee to protect personal and company asset from unforeseen injury, loss and damages. The committee will provide the safety rule, safety training information and communication, supervision, health and safety training. Similarly, the proponent will compel the workforce to use the personal protective equipment to keep safe occupational health.

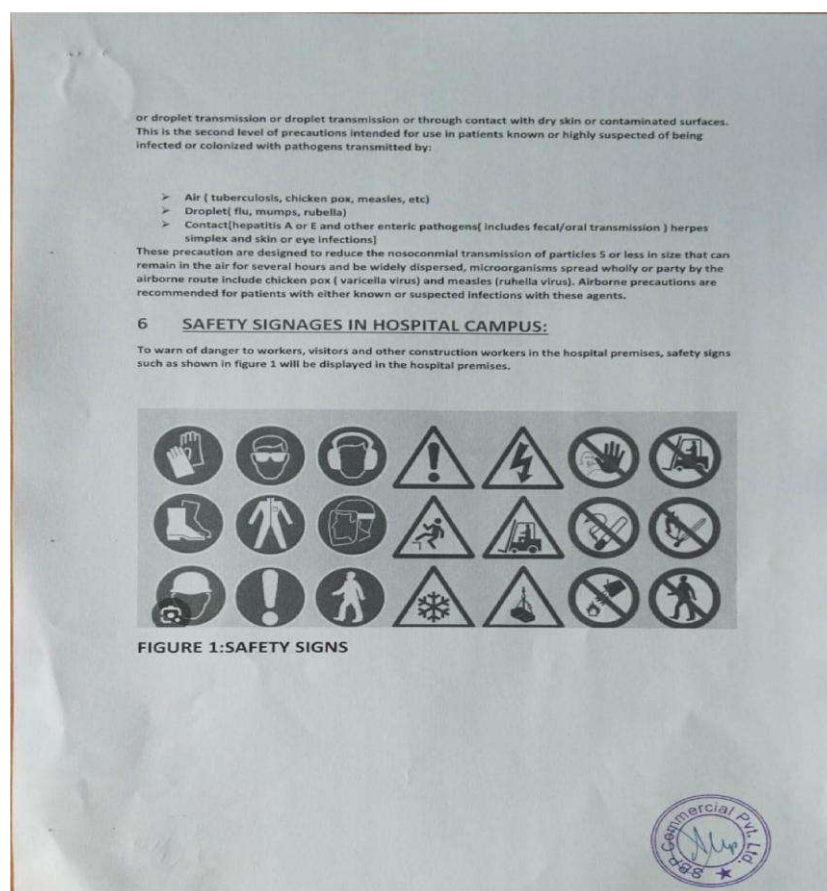
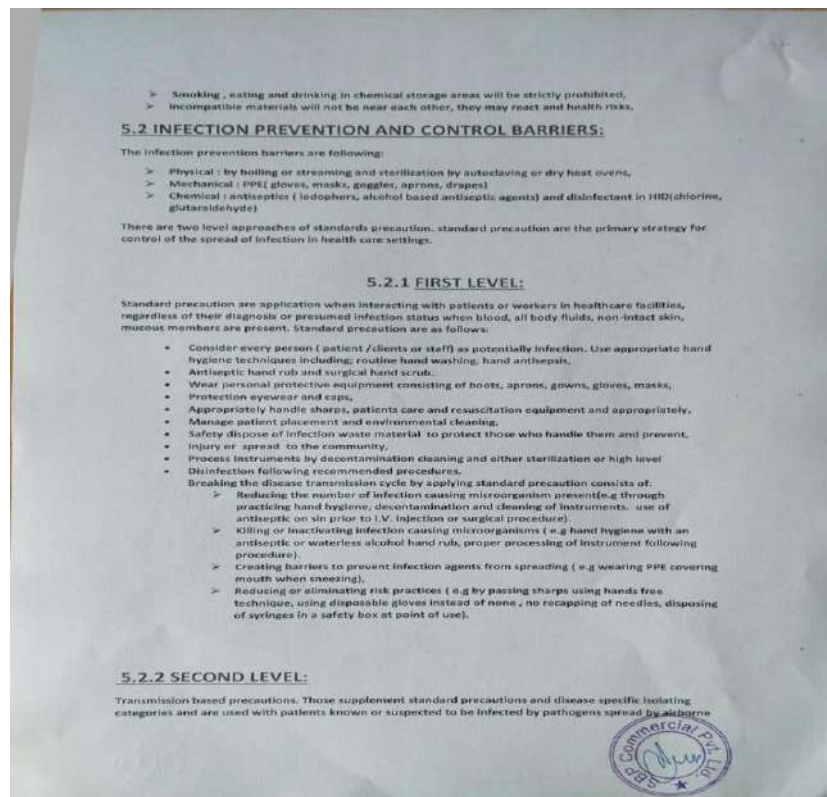
The proponent believes that by encouraging management and the work force working of the project to take an active role in safety and safe working procedures. Prior the construction and operation phase the role and responsibilities of the health and safety management committee will be prepared in detail and according dealt. Safe management of chemicals will be everyone responsibility, including supervisors, health managers and staff to ensure that chemicals are used in a safe manner. The foremost thing is labelling. The label contains all the information regarding the health and safety measures to be taken when the chemical is in use or in case of emergencies. The label will contain information like trade name of chemical. Identity of the chemical, hazard symbols, nature or special risks associated with the use of the chemical & safety precautions.

Unlabeled chemical can put staff and patients at serious risk. Handling and use of chemicals are important task. The control of chemical hazards include isolation (contact between the user and the product is minimized by incorporating physical barriers) and ventilation, which involves the removal or dilution of the hazardous chemicals in the air, so they are no longer a health risk. PPE may be a bit uncomfortable, but it must be used when risk of exposure is anticipated.

5.1 GENERAL PRECAUTIONS FOR STORAGE OF CHEMICALS:

- No unauthorized person will be allowed access to stored chemicals,
- Only the minimum possible amounts will be stored and the chemicals will be kept in a cool, dry and dark place,
- All containers being stored will be properly labelled ,
- Firefighting and personal protective measures will be readily available in storage areas,





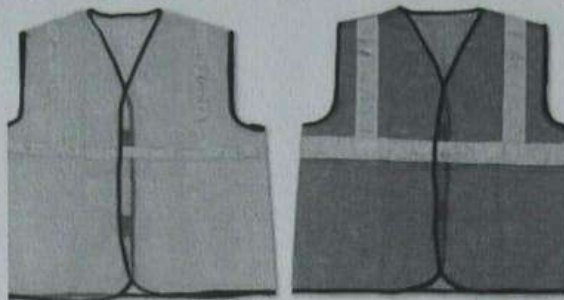


FIGURE2:FLUORESCENT JACKET

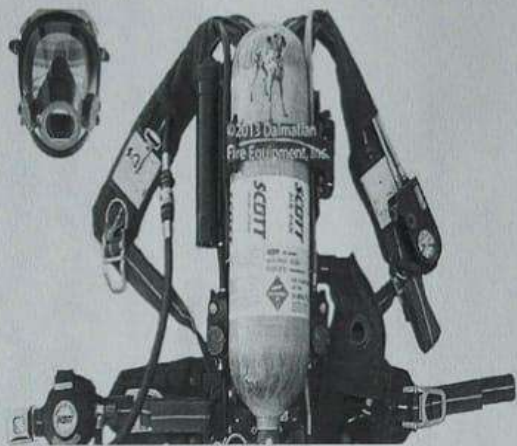
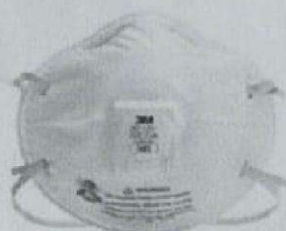


FIGURE3:SELF BREATHING APPARATUS





FIGURE6: Hearing protection



N95 disposable respirator



Half mask respirator



Dual cartridge respirator



Powered air purifying respirator

FIGURE7: Respiratory protection



APPENDIX 8: Photographs Of Baseline Data Collection

AMBIENT AIR QUALITY MONITORING



Date of Sampling: 28/08/2024
N:26°49'37", E:94°28'17"

Assignment Title:
Design & Construction of
100 Bedded District Hospital at Kaliapani, Jorhat

SOIL SAMPLING



Date of Sampling: 30/08/2024
N:26°49'28", E:94°27'48"

Project Name:
Design & Construction of
100 Bedded District Hospital at Kaliapani, Jorhat

WATER SAMPLING



Site Bore Well
Date of Sampling: 30/08/2024
N:26°49'28", E:94°27'48"



Natural Drain
Date of Sampling: 30/08/2024
N:26°49'28", E:94°27'48"

Project Name:
Design & Construction of
100 Bedded District Hospital at Kaliapani, Jorhat

NOISE LEVEL MONITORING



Date of Sampling: 27/08/2024
N:26°49'28", E:94°27'47"



Assignment Title:
Design & Construction of
100 Bedded District Hospital at Kaliapani, Jorhat

APPENDIX 9: Grievance Redressal Mechanism

- 1. Grievances under the Project:** The possible grievances of the community as envisaged, and which could be addressed through this project include:

Grievances of workers

- The workers at the construction site may have grievances due to non-receipt of basic facilities, PPE related, non- Receipt of dues, workplace discrimination, excessive workload etc.
- Potential conflict between migrant workforce and local may take place.

Grievances of Community

- Tree felling for site clearance.
- Inconveniences caused to community by construction activities like dust, water source contamination, noise, water logging, etc.
- Community health and safety concerns.
- Community residing nearby site or passers-by may have grievances related to non-disclosure of project information.
- Public resistance for the project anticipating negative impacts of the project like tree felling for site clearance.
- Accessibility issues of public.
- Land demarcation issues.

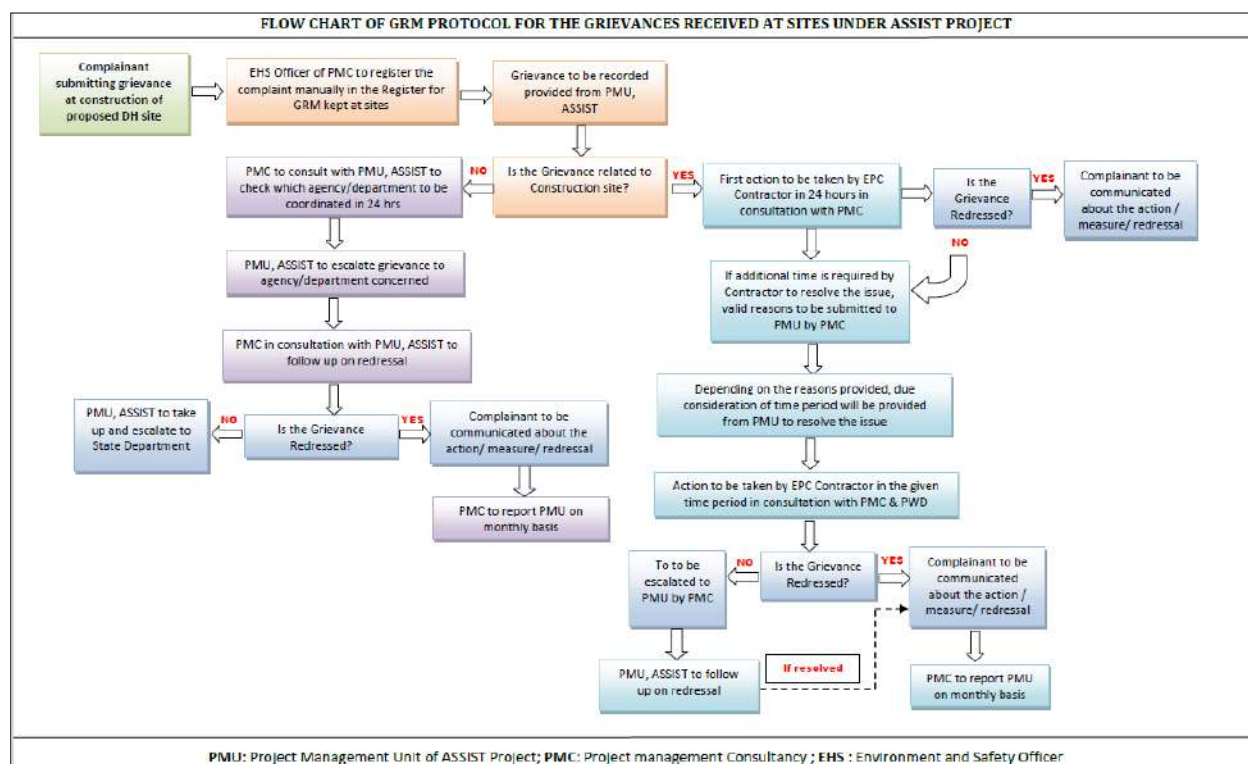
2. Functioning of GRM

All complaints and concerns will be addressed through a transparent, gender responsive, culturally appropriate process through a GRM protocol developed under the project. The following channels are established to receive inquiries/comments and concerns /grievances of the citizens/compliant:

- Calling in the GRM toll free number /phone number of ASSIST
- Physically registering complaint at sites in person & sending by posts or submission in the drop box installed at sites
- Sending in GRM email of ASSIST
- Online Submission in the ASSIST GRM Portal (to be developed)

The EPC Contractor at site will be monitored by a Project Management Consultancy (PMC) and the Environment and Safety Officer of PMC will be responsible to register the grievances received from the community as well as workers of the site. The protocol for Grievance Redressal Management is shown with the help of the flow chart below:

2.1. The protocol for Grievance Redressal Management is shown with the help of the flow chart below:



2.2. Grievances Registration Format

2.2.1. For registering complaints of Community

[illegible]

Assam Annexure

2.2.2. For registering complaints of Workers

[illegible]

Contractor Grievance Redress Committee

Sr. No	Name and details	Designation	Status in the GRC (Convener/ Member)	Contact Details
1	Mr. Ajay Kumar Dey	Project Manager	Chairperson (Contractor Representative)	9678089932
2	Mr. Biswadeep Das	Senior Project Manager	Member (AHIDMS Client Representative– Senior project manager for the package)	03613501033
3	MD Akram	EHS Officer	Member (PMC Engineer)	7065347308
4	Krishna Mohan Varanasi	Project Manager	Member (PMC Engineer)	8919730724
5	Mr. Ritu	Community Member	Member (Community Member)	7896371871
6	Diganta Gogoi	Community Member	Member (Community Member)	8876245992
7	Ramesh Mahasaya	Contractors EHS Officer	Convener (Contractors EHS Officer)	6294029427

4. Grievance Redressal Mechanism (GRM) Responsive To GBV/SEA/SH Under the Project

A. Available options for lodging GBV sensitive complaint:

- 1) Calling in the GRM toll free number/phone number of ASSIST
Female operator to be engaged and trained to receive GBV sensitive complaints
- 2) Physically registering complaint at HCFs, Project Intervention sites and Entities and at O/o AHIDMS in person, by posts, call or email
Designated trained focal persons at each of the entities to register GBV sensitive complaints
- 3) Sending in the GRM email of ASSIST
Designated trained focal persons to open email and take necessary action for the GBV sensitive complaints
- 4) Online Submission in the ASSIST GRM Portal

A separate section will be created in the GRM portal to handle GBV-sensitive grievances. Such complaints will be addressed through a survivor-centred approach and, where applicable, referred to the Internal Committee (IC) or Local Complaints Committee (LCC) in accordance with the POSH Act. Safe and confidential channels for submitting GBV grievances will also be identified and established.

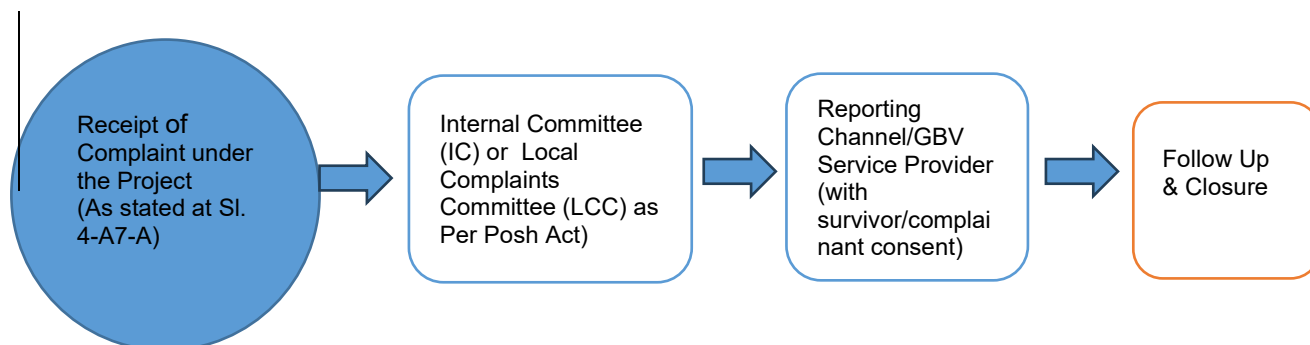
B. To approach the reporting channels that exists in the State as stated below for submission of grievances safely and confidentially. In the process, to respect and acknowledge complainant's right to approach any reporting channel.

Reporting Channels for the Project

- a) District Social Welfare Officer (DSWO)
- b) District Hub for Empowerment of Women (DHEW)
- c) Women Helpline -181
- d) Childline – 1098 (For Girls up to 18 years of old)
- e) One Stop Centres (OSCs)
- f) Police – 100
- g) Internal Committee/ Local Complaints Committee
- h) Project GRM mechanisms:
 - i. Project GRM Portal
 - ii. Drop Boxes at construction site, Complaints Boxes at existing Hospitals, Nursing Institutes/COE
 - iii. GRM Toll Free Number and Email

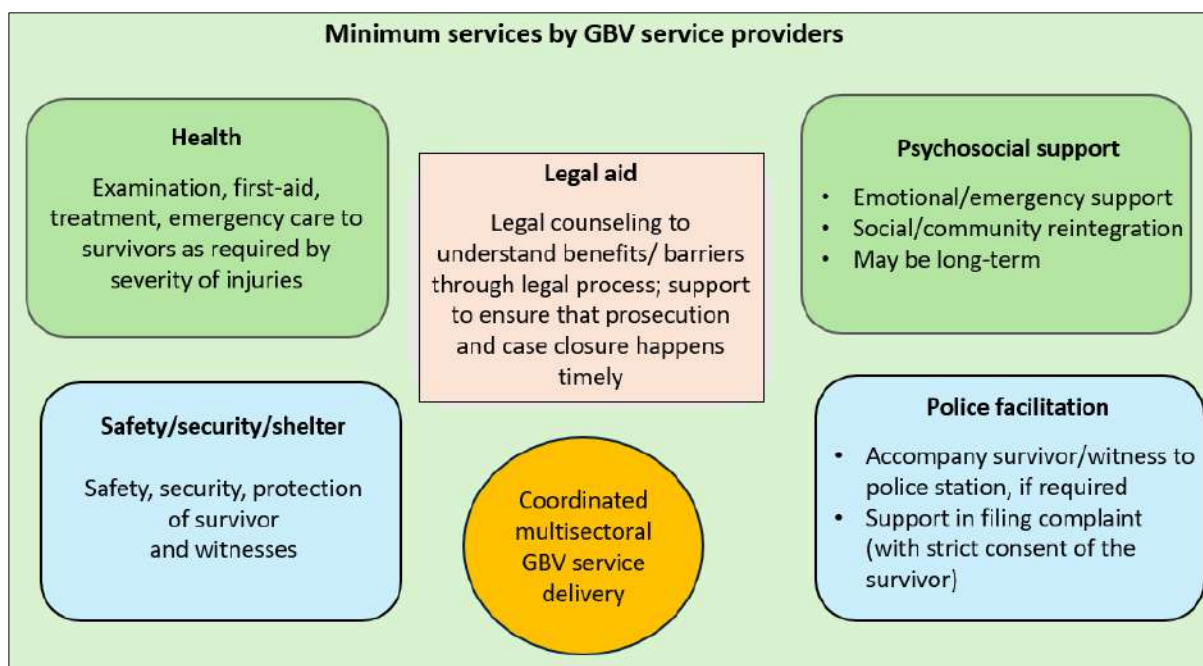
C. Display information on all uptake channels at all Program sites and offices.

D. Process Flow

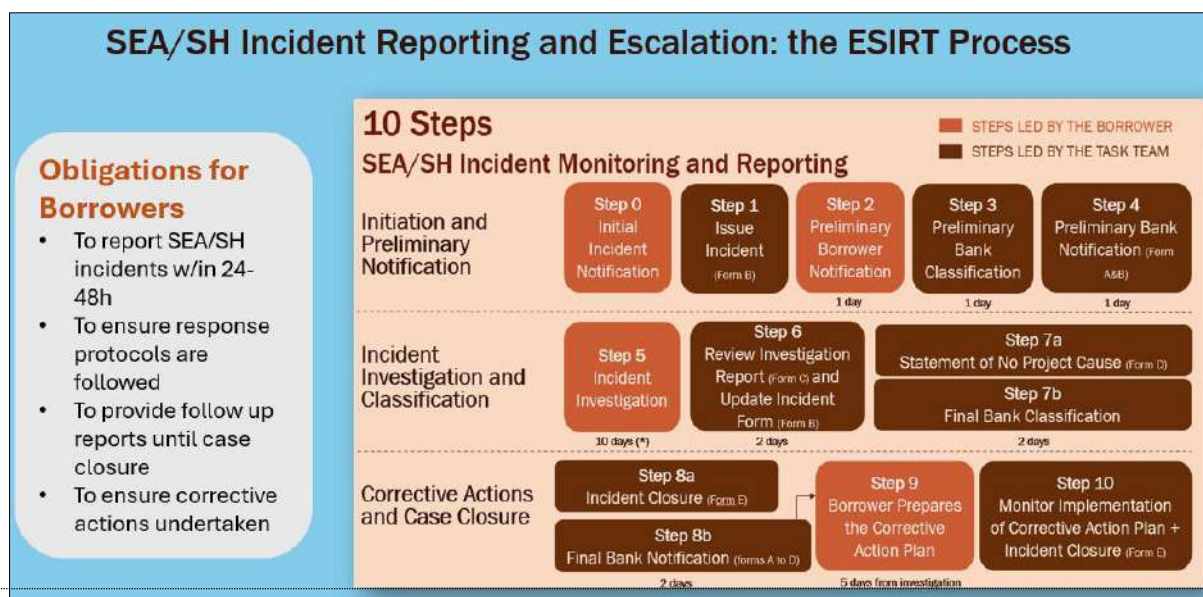


- *Survivor consent must be taken at every stage of the resolution process*
- *Confidentiality must be strictly maintained at every stage; information about identity of complainant and accused must not be shared outside people involved directly in the resolution process.*

E. Minimum services to be provided by the service providers



F. World Bank ESIRT (Environmental and Social Incident Response Toolkit) Process: SEA/SH incidents reporting and escalation



G. Details of District Social Welfare Officer (DSWO), District Hub for Empowerment of Women (DHEW) and One Stop Centres (OSC) Officials, Women & Child Development Department, Assam

Sl No	Name of the Districts	Name of the DSWO/ (i/c) DSWO	Contact No.	Email ID	Contact person of DHEW for referral services	Contact No.	Contact person of the OSC for support services	Contact No.
1	Bajali	Jyoti Kumar Das	9401821333	dswobajali@gmail.com	BHAGYASHREE DAS	9706123668	Papi Devi	9706491268
2	Baksa	Simenta Pradip Choudhury	9435123527	dswobas2017@gmail.com	Santosh Ramchiary	7002361507	LEELA BRAHMA	9613981356
3	Barpeta	Bodiozzaman Ahmed	7002717992	dswobar2017@gmail.com	SUNAYANA DAS	9365956982	Nazma Heptullah	700297227
4	Biswanath	Mainul Hoque Choudhury	7002616102	dswobiswanath@gmail.com	Monali Beniya	8134826921	Manoshi Dawka	7578046687
5	Bongaigaon	Jayanta Kr. Das	9435023320	dswobon2017@gmail.com	Barasha Ray	9387306586	Puja Konwar	7002395134
6	Cachar	Deepa Das, ACS	9582379341	dswocac2017@gmail.com	Bonani Bhattacharjee	9706701254	Rupali Akura	9957990006/
7	Charaideo	Smti. Jyatsna Biswas	9707403318	dswochaideo2019@gmail.com	HERUSIKHA HATIMURIA	7576868367	HERUSIKHA HATIMURIA	7576868367
8	Chirang	Shyameswar Mushohary	7636609511	dswochi2017@gmail.com	Srai Srai Wary	8133025927	ANSUMAI DAIMARY	6003858929
9	Darrang	Kukheswar Borah	8638010484	dswodar2017@gmail.com	Dhirukalpa Saikia	9678093103	Jaya shree Kalita	6000673645
10	Dhemajuli	Sukanya Das	9435143322	dswodmj2017@gmail.com	Hudipta Borgohain	8876775781	Jyotsna Dowarah	6009964110
11	Dhubri	Pranamika Phukan	7896599527		Meghali Roy	9954365656	HIRAMANI PATHAK	8011055713
12	Dibrugarh	Prasanta Bora	8011443022	dswodibrugarh@gmail.com	Mousumi Manki	9957985006	Trishna Devi	8638515471
13	Dima Hasao	Jyoti Bikash Dutta	7896854196	dswodim2017@gmail.com	Sarada Langthasa	8134836268	Desmaidi Hagler	9127162656
14	Goalpara	Abu Mostafa Arsa d Hussain	9954323707	dswogoa2017@gmail.com	Himashree Sinha	9101116735	FARHIN NASIBA ISLAM	8638874808
15	Golaghat	Sri Dudu Dutta	7002713324	dswogol2017@gmail.com	IJUP SAIKIA	8399957089	Monjulika Gogoi Sing	8752878553
16	Hailakandi	Manjeet Das	7099104821	dswohai2017@gmail.com	Amit Kumar Das	9707251447	Nasrin Sultana Mazur	7896867730 / 7002263009
17	Hojai	Nileswar Ray	9365182833	hojaiswo@gmail.com	Tina Bhattacharjee	8133970839	MOMI BEGUM	8638622864
18	Jorhat	Sri Jatish Baruah	9954111635	dswojor2017@gmail.com	Sanjukta Bhuyan	8486455983	Leena Chakravarty	9706227040
19	Kamrup	Bhupen Bhattacharyya	9435073084	dswokamr2017@gmail.com	Gulashmi Rekha Borah	7637845575	JAYSHREE DEKA	8486067980
20	Kamrup (Metro)	Santosh Kutum	7636804618	dswokamrupmetro@gmail.com dswokamrupmetro@gmail.com	Anamika Sarma	9613064776	ILUSMITA KONWAR	984012581
21	Karbi Anglong	Syed Nasir Rahman	8638960682	dswokarbianglong2019@gmail.com	Ms. Romali Teronpi	8837482338	Cimmi Sarma	8103956724
22	Karimganj	Syed Ahidul Islam	9854080014	dswokganj2023@gmail.com	Roopakatha Chakraborty	9101386213	ISHITA TERANGPI	9954299724
23	Kokrajhar	Jintu Moni Phukan	9435063432	dswokok2017@gmail.com	Daiji Basumatary	8876020894	BAISHALI NATH	9101306812
24	Lakhimpur	Anjana Brahma	9864074662	dswolak2011@gmail.com	PRANGANA BORAH	8761058136	Khvir Brahma	7002814896
25	Majuli	Uttam Adhikari	9101762224	dswomajuli12@gmail.com	Kuki Boruah	6000927152	Priyanka Borah	9101254327
26	Morigaon	Manika Borthakur	9365690739	dswomor2017@gmail.com	Pinkhi Moni Devi	8638670421	Kakali Baruah	7086955354
27	Nagaon	Bholanath Pegu	9435879432	dswonag2017@gmail.com	Sowansiri Das	9957996236	Porimoni Borah	8638127912
28	Nalbari	Manoj Das	8376832333	dswonal2017@gmail.com	Antariksha Parashar	6001251902	Bhonita Deka	6000827184
29	Sivsagar	Upama Saikia	9678743665	dswosiv2017@gmail.com	Dikshita Barman	8638265070	PUJA KONWAR	7002314783
30	Sonitpur	Rubi Kalita	8876502873	dswoson2017@gmail.com	Bidisha Dutta	8721985968	Nirmali Bezbaruah	6000649207
31	South Salmara Mankachar	Nandita Saharia	8638230565	dswossm@gmail.com	SHILPI SAIKIA	9864438593		
32	Tamulpur	Irani Thakuria	9365969590	dswotamulpur22@gmail.com	Mizanur Rahman	9101299835	Nasima Khatun	6001676069
33	Tinsukia	Monika Kakoty Bharali	7670007893	dswotin2017@gmail.com	Anupa Basumatary	9864430656	Saya Basumatary	7896741153
34	Udalguri	Dhiraj Kumar Talukdar	7002174660	dswouda2017@gmail.com	Jayashree Gogoi	7002386106	Barasha Kalita	8473817559
35	West Karbi Anglong	Helen Terangpi	9854963097	dswowka@gmail.com	Malnaoshri Boro	7086486646	Monita Daimari	9394367879
					Jery George Millick	8134947523	JIRLEEN RONGPIPI	8812873913

Source: Women & Child Development Department, Assam



EMERGENCY PREPAREDNESS AND RESPONSE PLAN

FOR

100 BEDDED NEW DISTRICT HOSPITAL KALIAPANI (JORHAT) ASSAM

1. Objectives: The main objectives of the emergency preparedness plan shall be:

- Preserving the life, property and environment from the consequences of emergencies arising within the site & office.
- Systematic coordination of emergency control action to arrest escalation of emergency, to Evacuate personnel within or outside the site when necessary and rehabilitate them.
- Restoring normalcy in site operation with minimum loss of time.

2. Scope:

This procedure shall be applicable to all SBP COMMERCIAL PVT LTD. GUWAHATI employees and hence effective control of any emergency within this complex will be the responsibility of concerned officers. All control measures, procedures, mechanics including all tools / tackles / equipment's / appliances / manpower etc. required for handling & control of emergency is the responsibility of concerned agency, where the emergency has occurred. Concerned agency shall take required care & precautions to prevent escalation of emergency or spread of emergency to nearby areas. Site emergency plan shall be prepared by agency for their respective area.

3. Emergency Response Team

An Emergency Response Team is constituted as under.

Team Controller	Mr Ajay Kumar Dey (9678089932)
Team Leader	Mr Ramesh Mahasaya (6294029427)

Members: -

Mr. Ajay Kumar Dey	9678089932
Mr. Ramesh Mahasaya	6294029427
Mr.Roktim Gogoi	9101290961
Mr.Bidut Lahon	7002622551
Mr.Abhijit Pachoni	7002598414
Mr. Gopal Sharma	9983822900
Mr. Santanu Bose	9775885070
Mr. Mithun Banarjee	9680487338
Mr. Pulendra K Sah	8383970172



4. Resident Team Leaders:

- Acts as advisor to the Emergency Response Team.
- Communicates the occurrence of emergency and steps being taken to the Team Controller and other concerned authorities at SBP Commercial PVT. Ltd
- Approving authority for expenditure, if any, in connection with the management of the emergency.

5. Emergency Response Team Leader:

- As leader of Emergency Response Team, he is responsible for activating the emergency plan and assuming over-all command during the emergency.
- He shall immediately arrange for on-the-spot meeting of the Team at a suitable location to take care of the situation and initiate necessary measures.
- Take on the spot decision regarding the procedure to carry out specified task as decided in the on-the-spot meeting.
- Authorize Team members to carry out specified task as decided in the on-the-spot meeting.
- To give feedback to Team Controller and all members, after the emergency is under control.

6. Safety Team:

- Shall provide essential co-ordination with ERT & Security guard.
- Ensure that necessary first aid facilities are available to meet the emergency.
- To render all assistance, as demanded by the situation.

7. Members:

- To attend the emergency meeting.
- To interact and liaise with respective agencies for smooth management of the emergency.
- To assist Member-HR in his operations.
- Attend the on-the-spot emergency meeting.
- Arrange all the required facilities through concerned departments for the medical aid, manpower, money, conveyances etc, if required.
- Ensure necessary arrangement for evacuation of injured to the nearest hospital / medical facilities.
- Coordinate with external agencies such as local police, fire station, Assam Corporation administration etc, if required.
- Make necessary arrangement for manpower, vehicles etc, required for rescue operations as decided in the on-spot meeting
- To gather all employees, visitors at the assembly point
- To carry out head count at the assembly point to rule out any missing personnel
- They are responsible for controlling the traffic on the road and keep them clear of any obstruction for free movements of emergency vehicles

8. Emergency Contact Information:

- Telephone numbers of key personnel who may be required to be contacted in case of emergency are readily available and are appended to this plan.

9. Potential Emergency Situations:

The following is indicative list of situations which can cause an emergency requiring operation of the emergency response plan.

- Fire
- Explosion
- Collapse of structures,
- Flood
- Cyclone
- Earthquake
- Contagious Diseases
- Electrical Emergency
- Pandemic- Corona Or Covid 19
- Snake bite
- Vehicle incident
- Heat Stroke

10. Evacuation and Rescue Plan

- Based on the magnitude of an emergency, the need for evacuating / rescuing personnel from the complex shall be decided by the Incident controllers.
- Localized evacuation may be affected by moving people to assembly point of the plant.

11. Assembly Points

- Assembly points are identified however it can be shifted to the least affected upwind/ cross wind direction.
- All the assembly points inside the site shall be clearly marked by a conspicuous notice
- Assembly points within office premises are as follows: In front of site Office



12. Emergency Handling Strategies For Different Scenario

12.1 General Emergency Procedures:

- All emergencies are to be handled by the highest-ranking person present and assisted by the emergency squad.
- The highest-ranking person shall assist job to responsible person for making emergency calls.
- emergency phone numbers are to be displayed at the entrance gate and assembly point.
- The need of the ambulance or other emergency equipment shall be determined by the highest-ranking person present.
- Medical person present, except where a catastrophic event has occurred, on that time anybody can call for an ambulance.
- In all instances the top management shall be notified immediate by phone.

12.2 Fire & Explosion

- Evacuate the people to a safe distance & attend to the injured, if any.
- Rush to the spot and take charge of the rescue and control work if you are trained in handling fire and emergency.
- If you are not trained in firefighting, please move to the assigned assembly point for your location as displayed in the emergency plan for your location
- Try to quench the fire available with firefighting equipment.
- Isolate the power supply in case of electrical emergencies.
- Arrange all required facilities for the necessary medical aid, manpower, money, conveyance etc.
- Be concerned about your own safety and that of others.
- Try to remove flammable/ dangerous materials lying in the vicinity without endangering yourself
- Inform the clients & the concerned Government departments, if necessary.
- Inform Fire station, if the fire is getting out of control.
- Investigate cause of the leakage & measure the concentration / Limit Values.
- Take remedial measures.
- Ensure that the leakage / fire is stopped.

Assess the Environment to ensure safety of persons & if found ok, allow the people to come back to the work area.

12.3 Collapse of Structure, Emergency:

- Evacuate the people to a safe distance & attend to the injured, if any.
- Cordon off the affected area & isolate the power supply in case of electrical emergencies.
- Arrange all required facilities for the necessary medical aid, manpower, money, conveyance etc.
- Investigate cause of the accident / emergency.
- Take remedial measures.

12.4 Lightning, Storm, Flood:

- Initiate shut down of operation and its related facilities if situation demands.
- Evacuate people from areas, which are likely to be affected.
- Switch off all electrical supply until the situation comes to normal.
- Ensure adequate communication facilities are made available.
- Monitor all open drainage for inadvertent entry of water stream.
- Ensure adequate dewatering pumps are ready.
- Medical team to monitor hygiene and sanitation facilities and take step to prevent spread of any communicable diseases.
- Extra care shall be taken to chlorinate drinking water.
- Flood may occur due to heavy torrential rain during monsoon and clogging of storm water drains / outlets. Hence special preventive care shall be taken for this.
- In case of heavy rain and indication of floods, people should take shelter only in top floors of the buildings
- People should not stay by the side of weak walls, loose structures, trees, electric poles, metal objects etc.
- Snake Bite case: - Immediately after someone is bit by a snake, contact, or designate someone to contact, medical help immediately. If the individual received a bite from a poisonous snake, the sooner they receive medical treatment the better.
- Avoid using telephone, in case of lightning.

13. Cyclone:

The contingency actions during a cyclone shall be based on the weather forecast received from local meteorological department. Some important actions to be carried out in such situations are:

13.1 Prior to Cyclone:

- Establish regular contact with local meteorological department.
- If the cyclonic condition is severe, initiate necessary preparatory actions immediate PMIL.
- Appraise the installations about the situation.
- Carefully review shut down of operations and its related facilities if situation warrants.
- Ensure readiness of all emergency vehicles, medical Care and Medicines.
- Metallic sheets, loose materials and empty drums and other light objects shall be properly secured.
- If necessary, shut down all electric power sources.



13.2 During Cyclone:

- Remain Calm
- Do not go outdoors
- Do not seal the office completely as difference in atmospheric pressure inside and outside the room, can rip open the window or door by breaking window glass.

13.3 After Cyclone:

- After cyclone never touch electric lines or appliances.
- Don't go nearby the damaged structures/ equipment or buildings

14. Earthquake

Earthquake cannot usually be forecasted and therefore precautions prior to such event are not usually possible. Hence emergency recovery plans shall be considered by the emergency response team as per the situation and site condition.

- If you are inside the office building when an earth quake occurs:
 - Stay under cover until the shaking stops.
 - Stay away from windows, large panels of glass, ceiling tiles, file cabinets, book cases, heavy furniture, electrical equipment and appliances.
 - Crawl under a desk or sturdy table and hold onto it. If it moves, move with it.
 - Watch out for falling plaster or ceiling tiles.
- If you are outside in the construction field:
 - Move to a clear area away from unbalanced/ unsupported/ partly erected structure/ equipment/buildings and electrical wires and poles that may fall.
 - Stay clear of falling objects and find a place to duck, cover and hold on.
 - Stay near an interior wall and protect your head with your arm.
 - Do not try to leave until the shaking is over.

15. Pandemic- Corona

- When any person is identified as possible COVID-19 case while screening at the time of entry to work place or project sites he/she to be isolated with immediate effect then suspend operations of gates / work place immediately.
- Medical team including ambulance driver handling COVID-19 patient / suspect must wear Surgical nose mask or equivalent in addition to other PPEs like gown, head cap, gloves, face shield etc. as per the directives received by Head office/ Ministry of Health
- Govt. authorized ambulances only to be used for transporting suspected cases to health care facilities
- A site-specific COVID 19 emergency response shall be evolved based on these SOP requirements and,
- Recommendations and/or directions from local (identified health care) authorities
- Availability of assistance from local authority
- Disinfect the area where any suspect/ individual found.
- Contact tracing of people worked with the suspected individual & Proper reporting to all required authorities.
- Restrict or suspend deployment of man power from that particular community till receipt of clearance from local administrations.

15.1 Contagious Diseases

- Bar all entry to visitors
- Inform Medical Regulatory bodies about the incident immediately
- Isolate the area from Personnel Movement except those related to Medical Relief
- Declare Emergency Situation if required
- Control Mob / onlookers
- Mobilize Medical teams, Medical Supplies, Movement Vehicles, Associated Hospitals / Labs
- Ensure Electricity supply and Communication
- Ensure Essential supply of Medical Team
- Inform Relatives of the affected people and arrange their travel as required
- Check for communication to interested parties including neighbours and statutory and regulatory bodies
- Open Helpline at affected site
- Upon deciding shifting affected persons to identified hospitals, shift the personnel
- Deploy assistance teams at the hospitals as required
- OHS coordinator shall report formally both internally and to statutory and regulatory bodies about the incident
- Handle Media and External communication as per policies 16. Prepare Report of the situation.

15.2 In case Of Heat Stroke:

This is attributed to failure of the heat regulating mechanism. It is characterized by very high body temperature, which may rise to 110°F (43.3° C) and profound central nervous system disturbances including delirium, convulsions & partial or complete loss of consciousness. The skin is dry & hot. The patient needs immediate hospitalization. The outcome of heat stroke is often fatal. About 50% to 60% patients affected by heatstroke succumb even after treatment.

- **Preventive Measures:**

1. **Replacement Of Water**

- Persons working under conditions of high temperature and humidity will be encouraged to drink cool water. It has been found in India that a man doing hard labor under the sun requires about 1 litre of water per hour.
- For a worker working indoor or in the shade under hot and humid conditions, the requirement is about half this quantity.
- Avoid working on open sun light during the period of 12.00Noon to 3.00PM

2. **Regulation of work**

- Duration of continuous exposure to a hot and humid work environment shall be cut down. There will be periods of rest in between intense work. If signs, such as headache and dizziness are reported, the concerned person shall be removed from the place of work to cooler environment and necessary treatment given. Employers will be educated on this aspect and provisions for emergency medicine shall be ensured at the workplace during hot and humid months, including ORS. And rush to nearby Hospital.

16. Electric Shocks

- Isolate the affected circuit from electric supply
- Provide first-aid to the injured for o Shock o Burns
- Temporary breathlessness
- Declare Emergency Situation if required
- Control Mob / onlookers
- Depending on the nature of injury, decide to shift the patient to the medical assistance or request medical assistance on-site through ambulance
- Inform relatives of the affected person
- Install sign boards on the affected circuits
- Repair, Rectify and Restore the healthiness of the circuit involved
- If required, informed statutory and regulatory bodies for any checks and validations before using the affected facility.
- Update records for further analysis for corrective and preventive actions

17. Hit by Moving Vehicles:

- Provide First-Aid to the injured personnel
- Isolate area\vehicle from operations
- Control Mob / onlookers
- Mobilize support and shift injured to medical room/Hospital
- Arrange for taking injured home after Out-patient treatment
- If necessary, admit injured to the hospital. Coordinate patient / Hospital Needs
- Inform relatives
- Inform Police
- Prepare Report of the situation
- Handle Media and External communication as per policies
- Update records for further analysis for corrective and preventive actions
- Isolate area from operations
- Declare Emergency Situation
- Control Mob / onlookers
- Mobilize support and shift injured to medical room
- Arrange for taking injured home after Out-patient treatment
- If necessary, admit injured to the hospital. Coordinate patient / Hospital Needs
- Inform statutory and regulatory bodies as needed
- Collapsed soil to be removed from the location
- Check the soil condition and follow the excavation procedure
- Restore site condition to safe normal situation
- Prepare Report of the situation
- Handle Media and External communication as per policies
- Update records for further analysis for corrective and preventive actions.

18. Training And Mock Drill

Each occupant should know that evacuation is necessary. A method of training occupants in the requirements of the emergency evacuation plan is to give all employees a thorough briefing and demonstration. Team Leader shall ensure that training is provided & mock drill shall be conducted at regular interval. Personnel to evacuate from their work place through stairs up to the assembly point, Mock drill shall be conducted at least annually and observations shall be recorded in Mock Drill report format as mentioned below and be reviewed periodically on its shortcomings and the same shall be incorporated for future compliance.

MOCK – DRILL REPORT

Mock Drill Subject:

Mock Drill Date:

No. of personnel attended Mock Drill	Dept. / Work Area	Action Taken by Participants during Mock Drill	Short Coming, if any noticed during Mock Drill	Corrective Action Taken	Remarks

18.1 Post Emergency Recovery Plan

The post-emergency recovery plan is an essential element of an emergency response plan. Its purpose is to put the Site back into operation as soon as possible after an emergency.



18.2 **Action In Post Emergency Recovery**

Fire, Accident or any other emergency affecting the work premises

- Identify the cause of emergency by analysing the available evidence.
- Take adequate measures to eliminate the causes of emergency.
- Assess the damages to critical equipment's and get the same repaired. After checking all required parameters, start the critical equipment's.
- Check emergency handling equipment's i.e. fire extinguishers get them fully charged/repaired as required.
- Take corrective action to prevent its recurrence. If required, update the procedure. Details of the event to be intimated to corporate HSE group.

18.3 **Arrangements for Medical Treatment**

The injured will be rendered first aid and if required will be sent to the nearest hospital. Further if any specialty treatment is required as per the advice of the doctor, the same will be provided. The list of the emergency contact details shall be displayed.

18.4 **Information to the Relatives of the Injured**

The relatives of injured will be informed by HR/RCM. The employees residential address file will be available at HR Dept/SITE and as a part of Onsite emergency plan, the communications to the relatives of injured will be passed through Telecom or by messenger with a car. Clear address of the injured person (Local residential address / address if hospitalized) will be communicated to his relatives, by the HR/RCM

1	Mr. Ajay Kumar Dey	Team Advisor	9678089932
2	Mr. Bidyut Lahon	Team member	7002622551
3	Mr. Ramash Mahasaya	Team Member	6294029427
4	Mr. Abhijit Pachoni	Team Member	7002598414
5	Mr. Raktim Gogoi	Team Member	9101290961
6	Mr. Mithun Banarjee	Team Member	9680487338
7	Mr. Gopal Sharma	Team Member	9983822900
8	Mr. Santanu Bose	Team Member	9775885070

Record of sequence of events for mock drill (sample format)

Pre evacuation drill:

Sl.	Time	Activity	Responsibility	Remarks
1.	03:00	Arrival of Response team	Team member	To be briefed at Reception
2.	03:15	Round / inspection of the office and site	Response Team	Physical check of the Office Premises and evacuation poin
3.	03:25	Obtain Occupancy status of the Site Premises (Staffs, Visitors, Contractual staff, Labors etc	Team Advisor	To obtain status of personnel in all sections
4.	03:35	Arrival of Ambulance	HR	Briefing to the Ambulance staff.
5.	03:41	Briefing to Emergency team members	Team Leader	
6.	03:45	All Emergency Response team prepare for Evacuation Drill.	All Concerned	All Personnel detailed to take stock of their area and report
7.	03:51	Emergency Response team to take their respective positions.	All concerned	All personnel on confirming their readiness shall report to the Team leader on their readiness.
8.	03:59	Check the availability of Police team and Traffic Police team near the building.	HR	Call up and confirm their availability and maintain close liaison with them.

During Evacuation Drill

Sl.	Time	Activity	Responsibility	Remarks
1.	04:11	Commencement of Exercise. Announcement of Fire Exercise	Team Leader	Evacuation Drill to commence on the order received from higher authorities.
2.	04:15	Order for Emergency Evacuation	Team Leader	Briefing on Evacuation Drill and action to be undertaken
3.	04:35	Completion of Head count at Assembly area	Team Leader	Physical check of each area of the site by Emergency Response Team Members.

Post Evacuation Drill

Sl.	Time	Activity	Responsibility	Remarks
1.	04:40	Final Head count	Team Member	Proper accounting of personnel and finalization of head count in coordination with Emergency Response Team Members.
2.	04:45	Debrief of the Evacuation Drill	Team Leader	Debrief of the evacuation Drill.
3.	04:48	Termination of Drill	Response Team Members.	All personnel to proceed to their respective work locations