

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

**For Proposed 100 Bedded District Hospital in Dudhnoi**

**District - Goalpara, 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**

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## ABBREVIATIONS

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

## **EXECUTIVE SUMMARY**

Government of Assam (GoA) 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, 10 (Ten) new 100 to 200 bedded District Hospitals are going to be constructed in 10 districts of the state.

One of the proposed site is Dudhnoi in the Goalpara district of the state where a new 100 Bedded District Hospital is proposed to be constructed in the premise of Dudhnoi Community Health Centre. The CHC is situated at the heart of Dudhnoi. The DH will be constructed on EPC mode and the contract of the project at Dudhnoi has been assigned to M/S Tribeni Construction Limited, 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 Dudhnoi 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 Dudhnoi 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 Dudhnoi 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 Dudhnoi. Once adopted, the C-ESMP has to be implemented throughout the period of pre-construction to the construction period by the Tribeni Construction Limited, 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 has 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 includes disturbance to top soil 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 Dudhnoi 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 Dudhnoi 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 Dudhnoi. Proposed mitigation measures aims 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.

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### Details of Sub Project

<b>Assignment Title:</b>	<b>Design &amp; Construction of 100 Bedded New District Hospital in Dudhnoi, Assam in EPC Mode</b>
<b>Name of Contractor (EPC):</b>	M/S Tribeni Construction Limited, Guwahati
<b>Project Name:</b>	Assam State Secondary Healthcare Initiative for Service Delivery Transformation (ASSIST)
<b>Financial Assistance:</b>	World Bank
<b>Name of (PMU):</b>	Assam Health Infrastructure Development and Management Society (AHIDMS), Government of Assam.
<b>Name of Project Management Consultant (PCCMC):</b>	Mott MacDonald Pvt. Ltd.

# 1. Introduction and Background

## 1.1 Introduction

The state of Assam interwoven by mountains, valleys and two major river systems viz. Brahmaputra and Barak is situated in the eastern most part of India. It is the largest north-eastern state in terms of population while second in terms of area. Assam covers an area of 78,438 km<sup>2</sup>. The state is bordered by 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. At present, Assam has 35 administrative districts which are further divided into five regions namely Barak Valley, Central Assam, Lower Assam, North Assam and Upper Assam.

As per the Census 2011, the total population of Assam is 31,205,576 of which 15,939,443 are males while females are 15,266,133. Thus, the population of Assam forms 2.58 percent of India in 2011. And the population density stands at 398 per square km which is higher than the national average of 382 per square km.

Assam is lagging as compared to most Indian states in terms of size of its economy and poverty reduction. The health scenario of the state shows that Assam is one of the highest maternal mortality rate (MMR) states, with around 205 deaths per 100 000 live births in 2017-19. Although NHFS (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, 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. Further, the burden of non-communicable diseases (NCDs) is growing in Assam.<sup>1</sup>

In order to have enhanced access to and structural quality of secondary care, Assam Health Infrastructure Development & Management Society (AHIDMS), Medical Education and Research Department, Govt. of Assam is implementing "Assam State Secondary Healthcare Initiative for Service Delivery Transformation (ASSIST)" Project with financial assistance from the World Bank. Under the project 10 nos. of 100-200 Bedded District Hospital will come up in 10 districts of the state. One of the proposed location is Goalpara district where 100 bedded District Hospital will come up in the premises of existing CHC, Dudhnoi. It has been envisioned that the proposed DH at Dudhnoi will come a long way in fulfilling the gap in providing secondary health care services not only to the vicinity and nearby locations but also to the entire district. Benefitting all section of people of the district, proposed DH not only save life but also provide access to important health facilities that were not available in around 20 km.

The project Contract has been assigned to Tribeni Construction Limited by AHIDMS. In order to address Environmental and Social Issues during implementation of the project, Tribeni Construction Limited is responsible for conducting ESIA of the specific sites of proposed DH and prepare the site-specific Contractor's Environment and Social Management Plan (C-ESMP) for the proposed DH at Dudhnoi which is also a part of contract obligation. Throughout the project implementation process, Tribeni Construction Limited will be responsible to adhere to this C-ESMP for compliance of environmental and social safeguards. 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.

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<sup>1</sup>ESMF Document of World Bank ASSIST Project.

## 1.2. Objectives of the ESIA and C-ESMP:

### 1.2.1. ESIA: The major objectives of ESIA are:

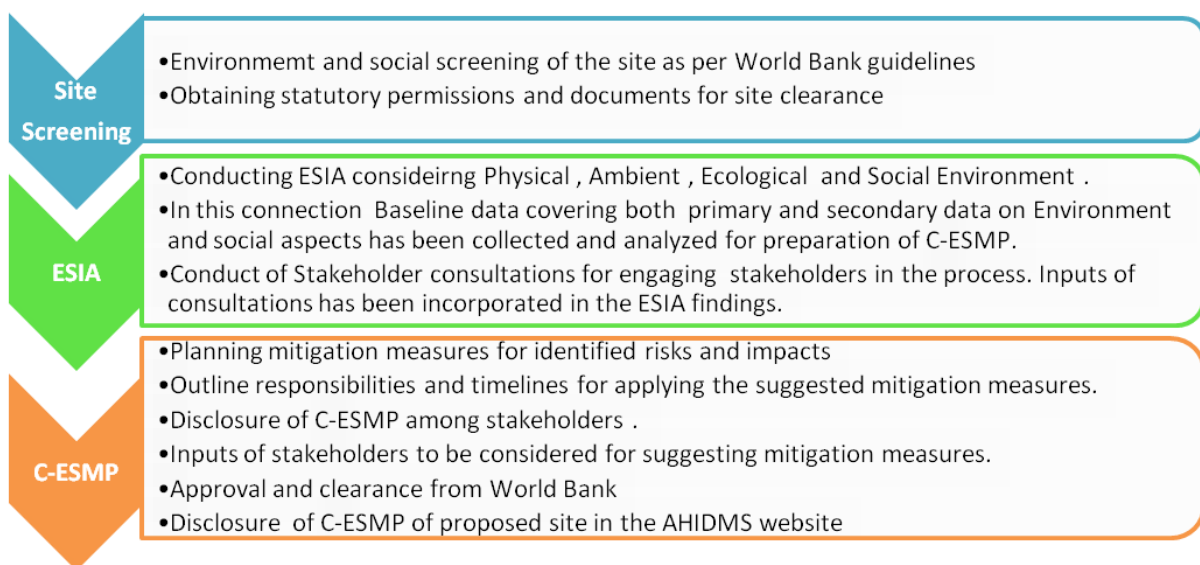
- a) Assessment and collection of primary and secondary data on physical, ambient, ecological and social environment, of the proposed site.
- b) Review of existing National and State level policies, legislations and regulations along with that of policies and frameworks of World Bank and examine applicability 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.
- 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 pre-construction, 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:

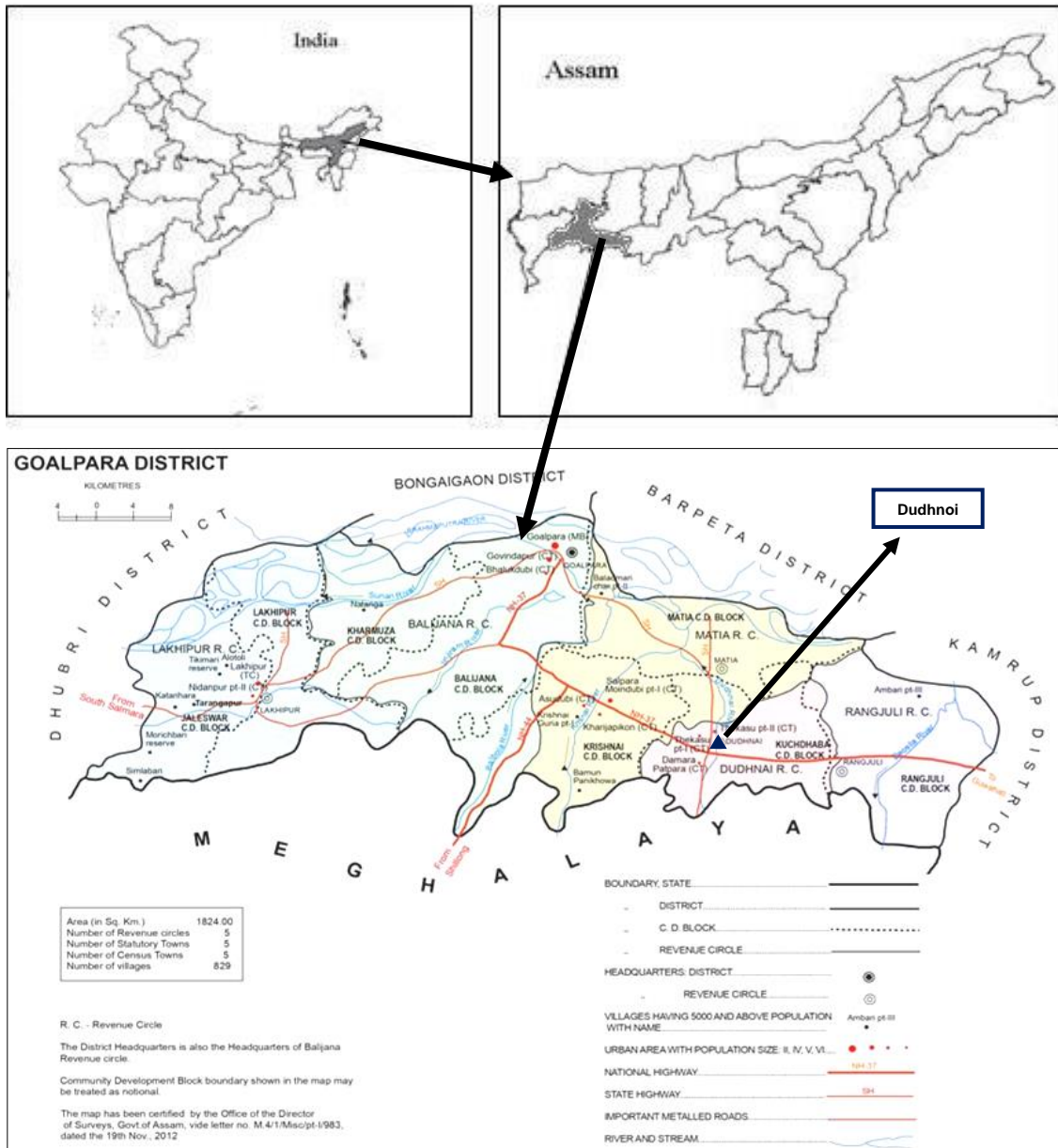
The methodology for conducting ESIA and preparation of C-ESMP is broadly categorized in the 3 parts as given below:



## 2 Project Description

### 2.1 Location

The Proposed Location of the District Hospital is in the premise of Dudhnoi FRU situated at Dudhnoi Revenue Circle of the Goalpara District of Assam as shown in Map-1 below. The Geographical coordinates of the site is 25°58'56"N Latitude and 90°47'20" E Longitude. In the North it is bounded by -Sialmari and Tangabari village and railway road, in the East is the River of Dudhnoi, in the South is the 37 National Highway and Thekasupt – I and in the West Dudhnoi Weekly Bazaar and Bishnupur is located. The Total land area covered by the Dudhnoi FRU is 31514.76 Sqm (7.79 Acre, 23 Bigha 2 Katha 15.71 Lessa).



**Map-1: Location of proposed District Hospital Site at Dudhnoi**

### 2.2. Introduction of the proposed project site:

Dudhnoi CHC & FRU consist of an old British building structure built in the year 1889 is considered a heritage structure through it is not identified by Archaeological Survey of India. This structure is still in very good condition hence, project decided to conserve this structure. All the activities designed in the project will be away from this building and due care will be taken not to affect this



structure during construction activities. In addition to this structure, other infrastructure available in this campus is as detailed below in Table-1. Proposed DH is planned in the open area centrally available in the existing CHC campus as seen in Photograph 1 and the British era infrastructure is depicted as Photograph 2. Site plan of the existing CHC showing the existing structures and proposed location is enclosed as Annexure 1.

**Table-1: Details of infrastructure at the premise of Dudhnoi CHC &FRU**

Sl. No	Building Details	Age of Building	Area of the Building	To be Demolished/ to be retained
1	British Era Heritage building	135 years	3520.79sqf	To be conserved
2	Staff Quarters	30 yrs	400sqf	To be Demolished
3	Staff Quarters	35yrs	400sqf	To be Demolished
4	Staff Quarter Old building	45yrs	200sqf	To be Demolished
5	Old Hospital Building	65yrs	800 sqf	To be Retained
6	Old Hospital Building	25yrs	700sqf	To be Retained
7	Old Hospital Building	20yrs	630sqf	To be Demolished
8	Old Hospital Building	35yrs	220sqf	To be Demolished
9	CHC OPD/ IPD Building	25yrs	33000 sqf	Not Effected



**Photograph-1: Proposed District Hospital Location**



**Photograph-2: Existing British Era Hospital Building**

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.

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### 3. Environmental and Social Baseline

#### 3.1. Introduction

The Environment and Social data have been collected for assessment of quality of environment and know about actual Environmental and social condition of proposed project area. Environmental quality management parameters for monitoring of air, water, noise and soil was conducted in the proposed construction area through a NABL accredited laboratory. The samples were collected considering study area of 5 km radius from the proposed DH location. The results of monitoring parameters in the project area were analysed to assess the impacts of proposed construction activities on the environment.

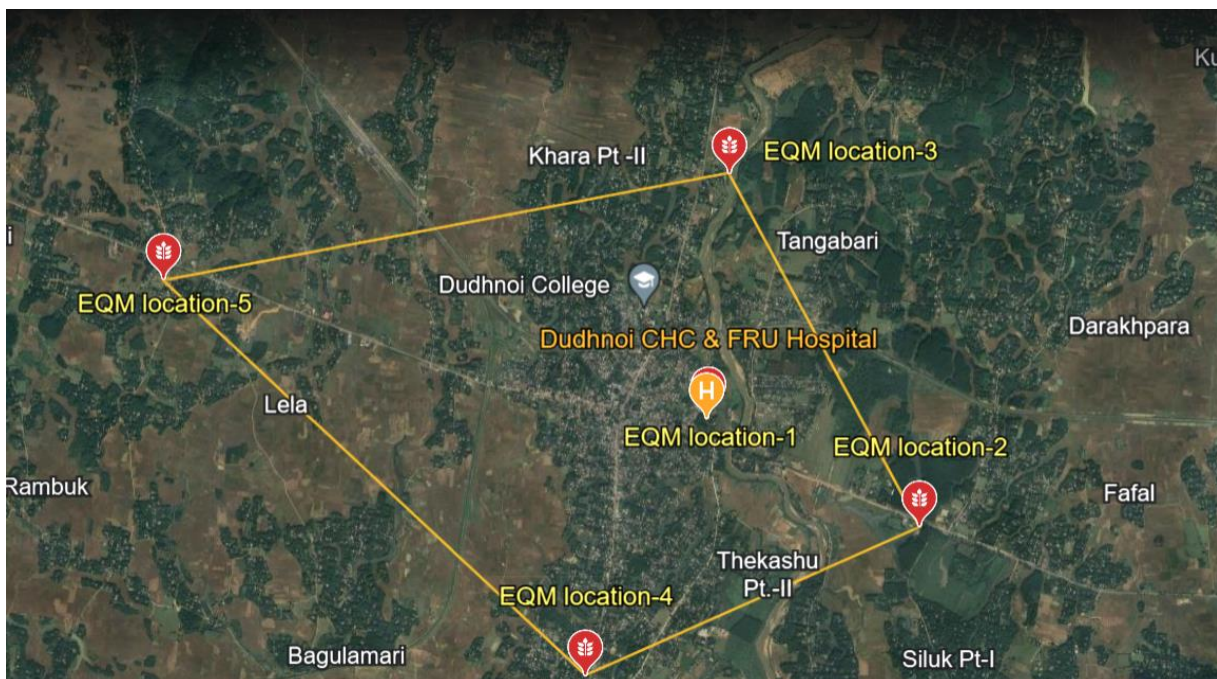
#### 3.2 Physical Environment

##### 3.2.1 The institutions that exist in and around the proposed DH site

<b>Hospital</b>	<ul style="list-style-type: none"> <li>• Dudhnoi CHC &amp; FRU Hospital inside of hospital boundary</li> <li>• HRM hospital is approx. 1 km away from the proposed site</li> </ul>
<b>Market</b>	<ul style="list-style-type: none"> <li>• Dudhnoi weekly market held near the construction boundary area site.</li> </ul>
<b>Police station</b>	<ul style="list-style-type: none"> <li>• Dudhnoi Police station is approx. 600 m away from the proposed site</li> </ul>
<b>Educational institutions</b>	<ul style="list-style-type: none"> <li>• ST Thomas School is approx. 500 m away from the proposed site.</li> <li>• Dudhnoi College is approx. 1.5km away from the proposed site.</li> <li>• Dudhnoi Boys High School is approx. 1 km away from the proposed site.</li> <li>• Dudhnoi Girls College is approx. 1 km away from the proposed site.</li> </ul>
<b>Temple</b>	<ul style="list-style-type: none"> <li>• A temple is located adjacent to the hospital.</li> <li>• Banabakhi temple is located approx. 3 km away from the proposed site</li> </ul>

##### 3.2.2 Environment Baseline Survey

The baseline data survey was conducted during January to March, 2024. Air, water, soil and noise samples were collected from the locations as tabulated below in Table-2to examine the baseline environmental quality.



**Fig1: Environment Baseline data collection location**

**Table- 2:Details of locations for collection of Baseline Environment data**

Sl. No.	Sampling Location	Distance from DH site	Direction from the DH site
Location 1	Dudhnoi, Thekasupt-(i)	--	--
Location 2	Fafal, Dudhnoi,	Approx. 2.0 km	East
Location 3	Kharapt-(ii), Dudhnoi	Approx. 4.0 km	North
Location 4	Balachara thekasupt-(ii)	Approx. 3.5 km	South
Location 5	Lela, Dabli,Dudhnoi	Approx. 4.9 km	North West

### 3.2.3 Ambient Air Quality Monitoring:

**Methodology:** To establish the baseline air quality, Ambient Air Quality (AAQ) monitoring was carried out during **January to March, 2024** and air quality monitoring stations along with weather station were set up at the data collections locations.

For assessing the air quality, Particulate Matter PM10, PM2.5, SO<sub>2</sub> and NO<sub>2</sub> 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-3.

**Table-3 : Ambient Air Quality Baseline Data**

SI No	Pollutant	Methods of Measurement	Time Weighted Average	NAAQ (2009) Standards	Ambient Air Quality Baseline Results (µg/m <sup>3</sup> )				
					Locations				
					1	2	3	4	5
1	PM 10	IS 5182 (23)	24 hours	100 µg/m <sup>3</sup>	64	56	58	55	61
2	PM 2.5	GEEC/SOP/01 USEPA FRM 40 CFR	24 hours	60 µg/m <sup>3</sup>	29	27	30	27	32
3	Sulphur Dioxide (SO <sub>2</sub> )	IS 5182 (2)	24 hours	80 µg/m <sup>3</sup>	6	<5	6	7	7
4	Nitrogen Dioxide (NO <sub>2</sub> )	IS 5182 (6)	24 hours	80 µg/m <sup>3</sup>	12	11	9	10	12

The monitored values are compared with National Ambient Air Quality Standards prescribed by Central Pollution Control Board (CPCB) and IFC EHS for residential and rural areas. The Ambient air quality levels meet the National air quality standards for rural and residential area along the proposed construction locations. Overall, the air quality in the proposed construction areas is well within the National Ambient Air Quality Standards (NAAQS) prescribed by MoEF&CC. However, the concentration values for PM10 and PM2.5 are slightly higher than the IFC EHS standards.

### 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 was assessed using the GoI and IFC EHS noise guide values which are similar for day and night time residential and night time industrial land uses.

Locations identified for noise level measurement are depicted in Table-4. The selected monitoring location is representative of residential cum rural area. The background noise level at the monitoring location is generated from normal activities, congested market places 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 at proposed construction location, the ambient noise levels are within the permissible limits for residential areas prescribed by CPCB and also by IFC EHS standards of <65dB(A) and <55dB(A) for daytime and night-time respectively.

**Table-4: Baseline Noise level data**

Sl. No	Location	Ambient Noise Standards (CPCB) for commercial area		Average Noise Level in dB			
				Day time		Night Time	
		Day time	Night Time	Min	Max	Min	Max
01	Location 1	<65dBA	<55dBA	42.5	74.3	31.7	61.6
02	Location 2	<65dBA	<55dBA	42.3	68.7	33.5	54.2
03	Location 3	<65dBA	<55dBA	40.1	68.4	36.2	53.7
04	Location 4	<65dBA	<55dBA	42.5	70.1	37.1	54.2
05	Location 5	<65dBA	<55dBA	40.7	71.2	35.8	55.8

### 3.2.5 Ground Water Quality Monitoring

Four locations were identified for groundwater sampling to establish baseline of water quality in the area. The sampling locations are as 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. The baseline results of ground water quality is given in Table-5.

### 3.2.6 Surface Water Quality Monitoring

For surface water baseline, sample from Dudhnoi River is collected. The river flows at a distance of 0.5 km in the eastern direction of the proposed DH location.

**Methodology:** Sample was collected as per IS- 2488 (Part I-V). Sample was taken from Dudhnoiriver on 28th March of 2024. Sample was analysed as per IS-10500:2012. 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 surface water in the project meets the IS: 10500-1991 standards for drinking water. The copy of analysis result of ground water quality. The table of surface water quality result mention in location 3 in Table-5.

### 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 7 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 3<sup>rd</sup> and 4<sup>th</sup> January, 2024 from the location as shown in Table 2. Samples were analysed as per IS-2720, IS-14767, IS-15106.



**Table-5: Baseline Ground Water Quality data**

Sl. No	Description	Method	Unit	Results					IS- 10500:2012	
				Location 1	Location 2	Location 3	Location 4	Location 5	Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
1	pH	IS 3025 Part 112022	-	6.50	6.53	6.96	6.51	6.59	6.5-8.5	No relaxation
2	Conductivity	IS 3025 Part 14 1984 (RA:2019)	ms/cm	0.08	0.129	0.178	0.222	0.260	-	-
3	Color	IS 3025 Part 4 2021	Hazen	Colorless	Colorless	Colorless	Colorless	Colorless	5	15
4	Total Dissolved Solids	IS 3025 Part 16 1984 (RA:2017)s	Mg/l	54	78	124	122	139	500	2000
5	Total Suspended Solids	IS 3025 Part 17 1984 (RA:2017)	Mg/l	<10	<10	<10	<10	<10	-	-
6	Turbidity	IS 3025 Part 10 1984 (RA:2017)	NTU	<1	<1	<1	<1	<1	1	5
7	Dissolved Oxygen	IS 3025 Part 38 1989 (RA:2019)	Mg/l	4.3	4.3	5.8	4.3	3.2	-	-
8	Chlorides	IS 3025 Part 32 1988 (RA:2019)	Mg/l	3	<1	4.96	35.74	<1	250	1000
9	Fluoride	IS 3025 Part 60 2008 (RA:2019)	Mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	1	1.5
10	Hardness	IS 3025 Part 21 2009 (RA:2019)	Mg/l	24	12.8	41.6	70.4	70.4	200	600
11	Iron	IS 3025 Part 53 2003 (RA:2019)	Mg/l	0.22	0.27	0.16	0.16	0.16	0.30	No relaxation
12	Odour	IS 3025 Part 5 1983 (RA:2017)	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
13	Oil & Grease	IS 3025 Part 39 2021	Mg/l	<2	<2	<2	<2	<2	-	-
14	Sulphates	IS 3025 Part 24 1986 (RA:2019)	Mg/l	3.6	3.6	3.8	3.8	3.8	200	400
15	Alkalinity	IS 3025 Part 23 1986 (RA:2019)	Mg/l	48	25	85	50	170	200	600

Sl. No	Description	Method	Unit	Results					IS- 10500:2012	
				Location 1	Location 2	Location 3	Location 4	Location 5	Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
16	Aluminum	IS 3025 Part 55 2003 (RA:2017)	Mg/l	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	0.2
17	Calcium	IS 3025 Part 40 1991 (RA:2019)	Mg/l	<2	4.8	12	14.4	23.2	75	200
18	Chromium (Hexavalent)	IS 3025 Part 52 2003 (RA:2019)	Mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	No relaxation
19	Copper	IS 3025 Part 42 1992 (RA:2019)	Mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	0.05	1.5
20	Lead	IS 3025 Part 47 1994 (RA:2019)	Mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	No relaxation
21	Taste	IS 3025 Part 7 & 8 1984	--	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
22	Zinc	IS 3025 Part 49 1994 (RA:2019)	Mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	5	15
23	Boron	APHA 23rd Edition 2017	Mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	1
24	Cadmium	IS 3025 Part 41 1992 (RA:2019)	Mg/l	<0.003	<0.003	<0.003	<0.003	<0.003	0.003	No relaxation
25	Magnesium	IS 3025 Part 46 1994 (RA:2019)	Mg/l	5	5	5	5	5	30	100
26	Manganese	IS 3025 Part 59 2006 (RA:2019)	Mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.3
27	Residue Chlorine	IS 3025 Part 26 2021	Mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	0.2	1
28	Nitrate	IS 3025 Part 34 1988 (RA:2019)	Mg/l	<5	<5	<5	<5	<5	45	No relaxation
29	Faucal coliform	APHA 23 <sup>rd</sup> Edition 2017	MPN/10 0ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent
30	E. Coli	HI Media Kit	Present/ Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
31	Total coliform	APHA 23 <sup>rd</sup> Edition 2017	Present/ Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

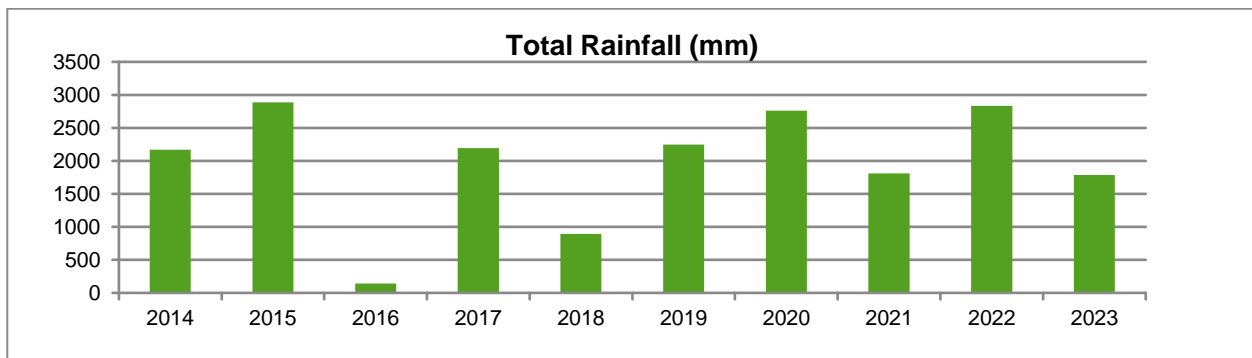


**Table-6: Baseline Soil Quality data**

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)	-	4.43	4.57	4.46	4.51	4.65
2	Sulphate as SO <sub>3</sub>	%	1.6	2.2	2.6	2.8	2.4
3	Chloride	mg/kg	4.6	4.3	4.7	4.6	4.4
4	ORP	mV	512	456	468	459	475
5	Water Soluble salts as EC	mS/m	0.8	0.9	0.7	0.9	0.7
6	Organic Matter	%	3.1	2.6	2.2	2.3	2.1
7	Moisture Content	%	21.8	22.3	21.8	21.5	22.2

**3.2.8 Weather Data:****Table-7 Weather (average temperatures) data of Goalpara district during 2020 to 2022**

Year	Average Temperature	
	Min (°C)	Max (°C)
2020	11.4(Jan)	39.0 (June-Aug)
2021	10.5 (Jan)	40.04 (April,July-Aug)
2022	11.5(Jan)	39.0 (June-Aug)

**3.2.9 Rainfall data of Goalpara district:**

Source:DM Plan, Goalpara, 2022

**3.2.10 Flood data of Dudhnoi:****Table-8: Water Level data of Dudhnoi**

Year	Water level of Dudhnoi River
2014	Dudhnoi River WL 36.89 Mtr (28/08/2014)
	HFL of Dudhnoi : 51.270 Mtr.

Source:DM Plan, Goalpara, 2022

Considering the HFL, the Finished Floor Level at Ground Floor which will be 51.870 of the proposed DH is considered as 0.6 mtr above HFL.

**3.2.11 Earthquake data of near Goalpara district:****Table-9: Earthquake data of Dudhnoi**

Year	Earthquakes	Magnitude				
		M0	M3	M4	M5	M6
2020	7			6	1	
2021	5		1	3	1	
2022	1			1		
2023	8			7	1	

### **3.3 Biological Environment:**

This area is neither coming under any type of Protected Forest nor Reserve Forest. There is no Protected Area (National Park, Wildlife Sanctuary and Biosphere Reserve) located within 5 km radius of the project site.

#### **3.3.1 Rare or Endangered Species**

The CHC campus has many trees and green cover. The local forest department has been consulted to know the presence of any endangered and protected species of flora and fauna within the formation width. It is confirmed by the forest department officials that there are no endangered species that are likely to be affected by the current project.

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 subproject activities.

#### **3.3.2 Flora and Fauna**

The Dudhnoi Revenue Circle was endowed with natural beauty, fauna and archaeological treasures. However the Flora and fauna of the area are not disturbed and Natural drainage pattern is not obstructed. The data of flora and fauna is collected from secondary sources is as given in **Annexure-3**.

### **3.4 Social Environment**

#### **3.4.1 Socio-Economic Characteristics of Goalpara District**

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

##### **3.4.1.1 Population and Households**

The Goalpara district is inhabited by a total of 10,08,183 people residing in 1,98,454 nos. of households. Of the total population, 4,94,891 are females which accounts for 49.09% and 5,13,292 are males which account for 50.91%.

Out of the total population of the district, 8,70,121 (86.31 %) falls under rural and 1,38,062 (13.69 %) are under urban areas of the district. In rural areas 4,43,244 (49.06%) and 4,26,877 (50.94%) are males and female respectively. Accordingly 70,048 (50.74%) and 68,014 (49.26%) are males and females respectively in urban area of the district. As urban population accounts for only 13.7 per cent, it can be observed that majority of the population dwell in the rural areas of the district.

The district consists of 5 Revenue Circles viz. Lakhipur, Balijana, Matia, Dudhnai and Rangjuli and 81 Gaon Panchayats. And the proposed project site falls under Dudhnoi Revenue Circle. The total number of villages in the district is 829, of which, 779 are inhabited. 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.

It has been observed from the table above that Dudhnoi revenue circle where proposed project will be implemented covers approx. 8% villages of the total villages inhabited by 8% of the total population of the district. Here, SC population is 3.7% while ST population accounts for 66.3% of the total Population of the Dudhnoi Revenue Circle.

**Table-10: Nos. of Villages and Population data of Goalpara District and across its Revenue Circles (As per Census of India, 2011)**

Revenue Circle/ Sub-District	No. of Villages	Population (in nos.)	Sex Ratio (in nos.)	% of Children (0-6 Yr)	% of SC Population	% of ST Population	Literacy Rate (in %)
<b>Goalpara</b>	<b>829</b>	<b>1008183</b>	<b>964</b>	<b>17.0</b>	<b>4.5</b>	<b>23.0</b>	<b>67.4</b>
Lakhipur	267	279581	953	19.8	1.9	9.2	57.0
Balijana	220	280438	964	16.4	4.3	25.2	72.2
Matia	153	258223	960	17.4	4.6	15.5	64.6
Dudhnoi	64	80847	1006	12.6	3.7	66.3	82.4
Rangjuli	125	109094	974	14.0	11.8	38.3	75.1

Fig-2 below shows the decadal growth of population in the district during 1901-2011 and the variation of population from 2001-2011 is 22.64% in Total Population.

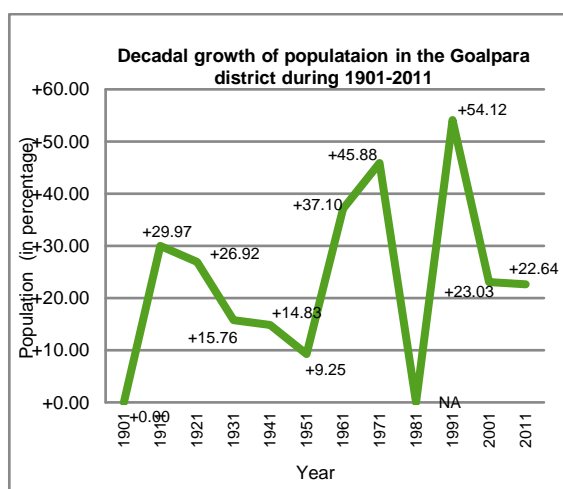


Fig-2. Decadal Growth of Population in the Goalpara District, 1901 - 2011

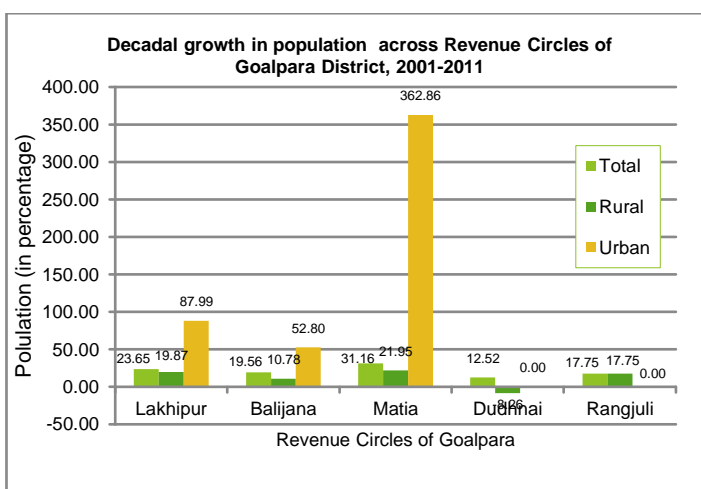


Fig-3. Decadal growth in population across Revenue Circles of Goalpara District, 2001-2011

Source <https://censusindia.gov.in/nada/index.php/catalog/43351>

Across the Revenue Circles, it has been observed from Fig-3 that the highest decadal growth rate in Total Population is in Matia with 31.16% whereas lowest is in Dudhnoi Revenue Circle with 12.52%. Likewise, in Rural also the highest growth rate is observed in Matia with 21.95% and lowest in Dudhnoi with 8.26%. For Urban, the percentage of Decadal Growth is highest in Matia again with 362.86% which is too high; whereas there is no urban population under Dudhnoi and Rangjuli Revenue Circles. In the district, there are 2 statutory towns, viz. Goalpara (MB), and Lakhipur (TC).

There are 9 Census Towns<sup>2</sup> in the district namely Nidanpur Pt-II (CT), (Gobindapur (CT), Bhalukdubi (CT), Salpara Molandubi Pt.-I (CT), Asudubi (CT), Damara Patpara (CT), Thekashu Pt I (CT), Thekashu Pt.-II (CT) and Kharijapikon (CT). Except Kharijapikon (CT), all the 8 CTs are newly emerged CTs in 2011. The proposed project site is located in **Thekashu Pt I (CT)**.

### 3.4.1.2 Community Groups

The district is inhabited by mainly Bodo-Kachari, Assamese, Rabha, Sarania-Kachari, Koch Rajbonshi, Adibashi (Tea Tribe), and Nepali, Bengali, Hajong, Garo and religious minorities. The main tribes (plains tribe) are Bodo, Rabha, Sarania Kachari & Hajong. Major language spoken is Assamese, Rabha, Boro, Bengali, Garo and Sylhetia.

<sup>2</sup>A census town is one which is not statutorily notified and administered as a town, but nevertheless whose population has attained urban characteristics. Census towns are governed by gram panchayats, unlike statutory towns.

“RabhaHasong Autonomous Council” has been constituted with its head quarter at Dudhnoi. The jurisdiction of this council extends up to Rani area of Kamrup district and except some parts of Matia, Balijana and Lakhipur revenue Circles, it embraces almost the entire district of Goalpara. The autonomous council has been created to fulfil the longstanding demands of the Rabha people of the area. However, as the council is constituted only for the Rabhas, the Tribal like the Bodos, the Garos, the Koches, the Rajbongsis and others who constitute more than half of the population of Hasong area have been left out from the benefit of the council. As a result of this, there is a growing demand for autonomous district council comprising of all tribal groups of these areas.

### 3.4.1.3 Population Density

Goalpara is a quite densely populated district. The density of the district is 553 persons per sq. kms.

### 3.4.1.4 Sex Ratio

An important indicator of gender equality is the number of females per thousand males. As per the census 2011, Goalpara district has sex-ratio of 964 females per 1000 males, as against 958 in the State. Revenue Circle wise Sex-ratio as given in Fig 4. Show that Dudhnoi has the highest sex ratio rate.

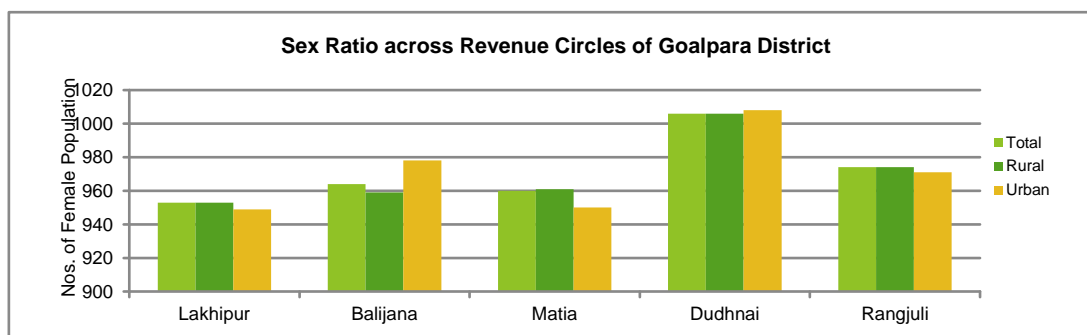


Fig- 4: Sex Ratio across Revenue Circles of Goalpara District

### 3.4.1.5 Literacy

Literacy is another important indicator of human development. And the size and proportion of literate population gender wise has significant bearing on the socio-economic development of district. The female literacy rate is more intrinsically linked to health and social development of the family. The total literacy rate of the district is 67.4% .Of total female population of the district, femaleliterate’s accounts for 63.13 %and male literacy is 71.46%. However, it has been observed that total literacy rate of the district is lower than that of the state which stands at 72.19 percent Literacy rate across the Revenue Circles in Table-10 shows that the literacy rate is highest in the Dudhnoi Circle with 82.4 percent.

### 3.4.2 Land use land cover pattern

The land characteristic of the district is mostly flat plain except a few forested hills with elevation between 100 to 500 meters. The district also includes a large number of riverine tracts and sandy river island in the river Brahmaputra. Agriculture is the main occupation of the people of the district. According to data submitted by Agriculture dept. Govt. of Assam, the total cultivable land in Goalpara district is 62,262 hectares at present.

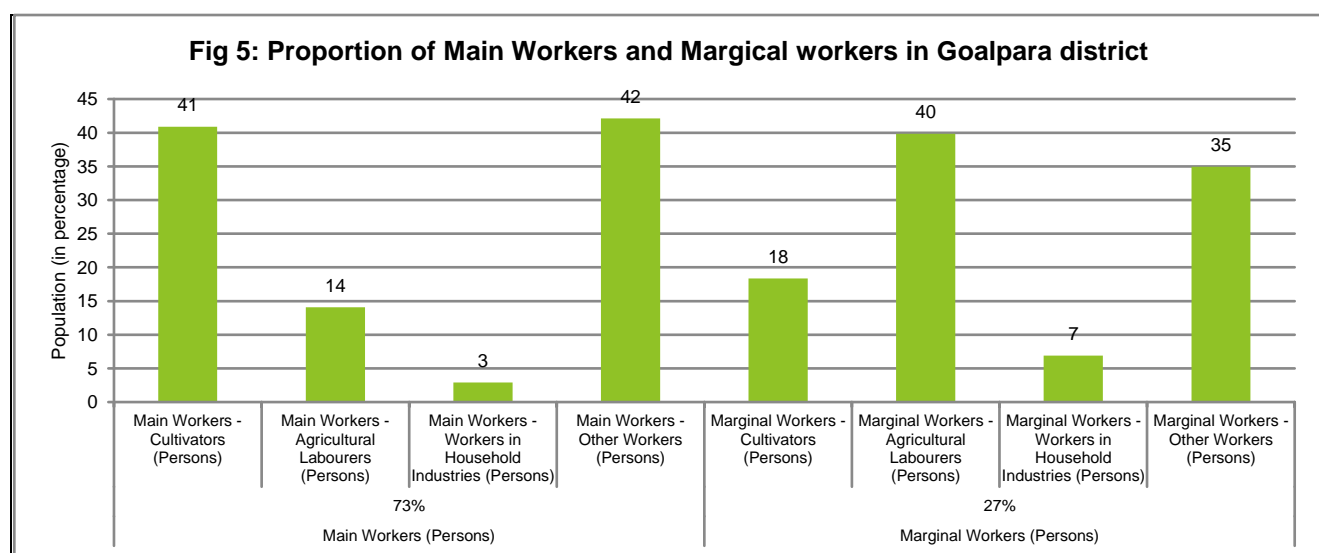
The large area of riverine tracts are called as the Char Areas which has been taken up for habitation. The Char Areas are those lands, which are generally formed during the flood by the mighty river Brahmaputra by depositing sand in the riverside areas and in the middle of the river itself. The land of these areas become high and makes suitable for habitation. People coming from different places start to reside in these areas and formed the villages in Char. But still these villages are not free from flood and its menace. During flood people of these areas are shifted to some other areas and after flood they come back to their occupied lands. The economic activities of the people are generally cultivation and fishing.

### 3.4.3 Occupational Pattern

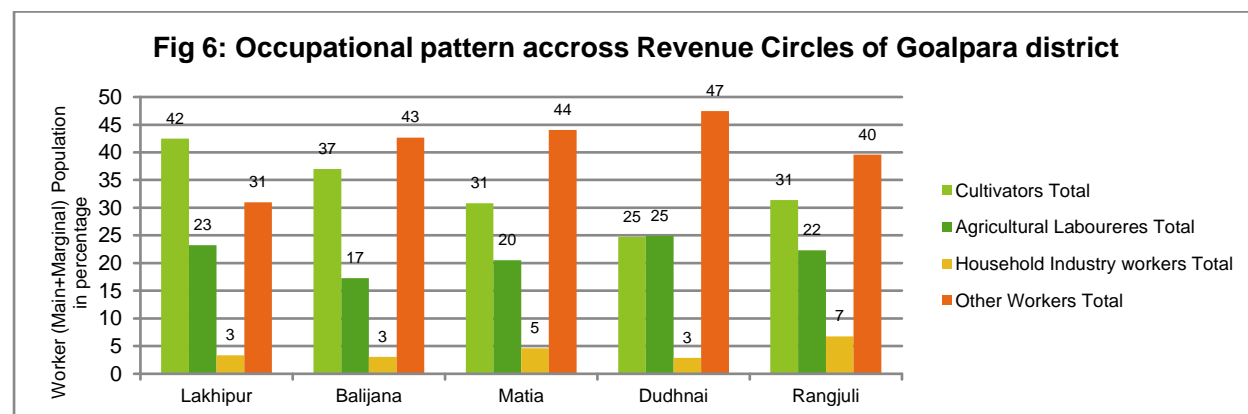
The occupational pattern of the district shows that, main worker force consists of about 73% of the workforce, where 41% are involved in agriculture as cultivators and 14% as agriculture labourers as shown in Fig. 5. A small portion of the main workforce are involved in household industrial works. The district is industrially backward and there are no existing industries. However a major portion of the main workforce of about 42% are involved in works other than agriculture and household industries.

Marginal workforce accounts for 27% in the district. Of this, majority of 42% marginal workforce is involved as Agricultural Labourers and 18% as cultivators. A good portion of marginal workers of about 35% are involved in works other than agriculture and household industries.

It has been observed from the occupational pattern that the district is primarily agrarian and majority of both main and marginal workforce consists of cultivators and agricultural labourers. Paddy is the major crop and other important crops include wheat, maize, oil seeds, pulses, cash crop like jute, vegetables etc. The district is also known for its production of areca nut and banana. A big market of banana has come up at Darangiri to which businessmen from all over India come. The agro climatic conditions of the district are conducive for various agricultural activities. Agriculture in the district is characterized by over dependence on rainfall, predominance of seasonal crops and traditional methods of cultivation.



Traditionally, dairy farming is a subsidiary occupation of the farmers of the district. Nevertheless, despite large population of livestock, the milk production in the district is low mainly due to predominance of local cows with a poor genetic make-up.



Occupational pattern across the Revenue Circles of the district shows that Dudhnai Revenue circle has 50 percent of the workforce involved either as cultivators or as agriculture labourers and only a



small portion of workers is involved in household industry works and about 47 percent of workers are involved in works other than agriculture and household industry works.

### 3.4.4 Education and Health Institutions

The Educational amenities available in the district are 1501 Lower Primary Schools, 270 Upper Primary Schools, 112 High Schools, 23 Higher Secondary Schools, 12 Degree Colleges, 6 Junior Colleges, 1 B.Ed College, 1 Law College, 1 DIET and 1 BTC.

The district has a high shortage of public healthcare services. Primary Health Centers (PHC), State Dispensaries, Sub centres, and Community Health Centre (CHC) are available in the district at a distance of 10–25 km, but the facilities provided by those are not sufficient. The services offer primary care, preventive services, and maternity care (including normal delivery). Services at the public health facilities are staffed by doctors, nurses, midwives (usually responsible for primary maternity care, including antenatal care (ANC) and normal delivery), medical assistants, and pharmacists. The proposed DH at Dudhnoi with advanced facilities and infrastructure is very much needed in the district so that the people in the region and those in the nearby areas could have an easy accessibility to the ever-growing demand for Healthcare facilities.

The district hospital performance report by NITI Aayog, 2021, indicates that the state has lower bed strength (18 beds) at the district level compared to the National average (24 beds) per 100,000 population<sup>3</sup>. With regard to healthcare facilities under Govt. of Assam, Table-11 gives the details as follows:

**Table-11: Healthcare facilities in the Goalpara District under Govt. of Assam**

District	No. of Sub-Centers	No. of PHC's	No. of CHCs	No. of District Hospitals
Goalpara	151	41	5	1

Dudhnoi FRU which is the proposed DH site of the district is situated in the heart of Dudhnoi and is under the jurisdiction of Rangjuli BPHC. It's the one and only premier Health Institution in Dudhnoi providing quality 24\*7 Health services to the rural people and those coming from the remote areas.

### 3.4.5 Connectivity

The district mostly relies upon road transport. The National Highway-37 passes through the district and runs through the heart of Dudhnoi. Water transport, mainly *Bhootbhooty* (mechanized boat) is also used to some extent. Air transport system has not been developed in Goalpara. The nearest airport is the Lokpriya Gopinath Bordoloi International Airport (GAU), Borjhar Guwahati located at a distance of around 90 kilometers from Dudhnoi.

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<sup>3</sup>ESMF of ASSIST Project

## 4. Legal and Institutional Frame Work

This Chapter outlines existing National and State level policies, legislations, and regulations that are relevant to the project (Table-12). 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 -12: 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	<ul style="list-style-type: none"> <li>Biomedical Waste (Management and Handling) Rules 2016, and subsequent amendments</li> </ul>	CPCB/MoEFCC/Assam State Pollution Control Board
4	E-Waste (Management and Handling) Rules 2011 as Amendment up to 2018	CPCB/MoEFCC /Assam State Pollution Control Board
5	<ul style="list-style-type: none"> <li>Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules 2008</li> <li>Hazardous and Other Wastes (Management and Tran's boundary Movement) Amendment Rules, 2016.</li> </ul>	CPCB/MoEFCC /Assam State Pollution Control Board
6	Plastic Waste Management Rules 2016	CPCB/MoEFCC /Assam State Pollution Control Board
7	<ul style="list-style-type: none"> <li>The Epidemic Diseases Act 1897</li> <li>The Epidemic Diseases (Amendment) Ordinance, 2020</li> </ul>	CPCB/MoEFCC /Assam State Pollution Control Board
8	<ul style="list-style-type: none"> <li>The Water (Prevention &amp; Control of Pollution) Act 1974.</li> <li>The Air (Prevention &amp; Control of Pollution) Act 1981.</li> <li>Environment Protection Act (and Rules), 1986 and 1996 Environment (Protection) Second Amendment Rules 2002</li> </ul>	CPCB/MoEFCC /Assam State Pollution Control Board
9	The Water (Prevention and Control of Pollution) Cess Act, 1977 Rules framed under the water (Prevention & Control of Pollution) Act, 1974 (Assam Rules 1977	CPCB/MoEFCC /Assam State Pollution Control Board
10	Environmental Impact Assessment (EIA) Notification 2006 & and subsequent amendments	CPCB/MoEFCC/Assam State Pollution Control Board
11	<ul style="list-style-type: none"> <li>Central Pollution Control Board Guidelines: CPCB Guidelines for CBWTFs (2003).</li> <li>CPCB Guidelines for BMW Incinerators (2003). Draft Guidelines for Biomedical Waste Incinerator, 2017</li> <li>Revised guidelines for Common Biomedical Waste Treatment Facilities (2016).</li> <li>Guidelines for Bar Code System for Effective Management of Biomedical Waste</li> <li>Standards for treatment and disposal of Bio medical waste by Incineration</li> </ul>	CPCB/MoEFCC/Assam State Pollution Control Board

Sl. No	National and State Legislations/Policies/Regulations	Regulatory Bodies
	<ul style="list-style-type: none"> <li>Environmentally Sound Management of Mercury Waste Generated from Health Care Facilities.</li> </ul>	
12	The Assam Air (Prevention and Control of Pollution) (Amendment) Rules, 2010	CPCB/MoEFCC /Assam State Pollution Control Board
13	Noise (Regulation and Control) Rules 2000 amended in 2010	CPCB/MoEFCC /Assam State Pollution Control Board
14	National Disaster Management Act 2005	National Disaster Management Authority/ State Disaster Management Agency
15	Solid waste management rules, 2016	CPCB/MoEFCC /Assam State Pollution Control Board
16	Construction and demolition wastes management rules, 2016	CPCB/MoEFCC /Assam State Pollution Control Board
17	Guidance note on Liquid Medical Oxygen (LMO) Storage Tanks, April 2021	National Disaster Management Authority/ State Disaster Management Agency
18	Maternity Benefit Act, 1961 and Assam Rules, 1965	Commissionerate of Labour
19	Child Labour (Prohibition and Regulation) Act 1986 and Assam (Amendment) Rules, 2017	Commissionerate of Labour
20	Contract Labour (Regulation and Abolition) Act, 1970 and Assam Rules 1971	Commissionerate of Labour
21	Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and Assam Rules, 2007	Commissionerate of Labour, GoA
22	Inter-State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1979 and Assam Rules 1981	Commissionerate of Labour, GoA
23	Equal Remuneration Act, 1976 Minimum Wages Act, 1948 and Assam Rules, 1952	Commissionerate of Labour
24	Payment of Wages Act, 1936 and Assam Rules, 1937	Commissionerate of Labour
25	Employees' Compensation Act, 1923	Commissionerate of Labour
27	National Policy on Tribal Development, 1999	Department for Welfare of Plain Tribes and Backward Classes, GoA
28	Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989 and Rules, 1995	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	DoHFW, GoA
31	Right to Information Act, 2005	DoHFW, GoA

**Table-13: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

Sl. No	Environment and Social Standards (ESS)	Applicability to the Project	References of relevance of ESS to the Project
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. Proposed DH site belongs to Health Department.
6	ESS 6: Biodiversity Conservation and Sustainable Management of Living Natura Resources	Not Relevant	Not Relevant.
7	ESS7: Indigenous peoples	Relevant	IPPF not Triggered as the site is not in Six Scheduled Area
8	ESS 8 Cultural Heritage	Relevant	No ASI identified heritage observed. The British era hospital building will be conserved.
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-14:Acomparison between existing Legislation and WB Policies relevance to Project**

Sl. No	Government Laws	World Bank Policy	Relevance to the proposed DH under project
1	<ul style="list-style-type: none"> <li>o Construction and demolition wastes management rules, 2016</li> <li>o Biomedical Waste (Management and Handling) Rules 2016, as amended up to 2019</li> <li>o Biomedical Waste Management (Amendment) Rules, 2018</li> <li>o E-Waste (Management and Handling) Rules 2011 as Amendment up to 2018</li> <li>o Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules 2008</li> <li>o Hazardous and Other Wastes (Management and Tran's boundary Movement) Amendment Rules, 2016.</li> <li>o Plastic Waste Management Rules 2016</li> </ul>	ESS 1 Assessment and Management of Environmental and Social Risks and Impacts	<ul style="list-style-type: none"> <li>o Few small Assam type structures which are in dilapidated condition will be demolished as site clearing measure. At present there is no use of asbestos in the existing structures.</li> <li>o Bio medical waste will not be generated as a part of construction activities. However, the BMW generated at the existing CHC will be taken care of by the HCF. If any BMW generated through first aid at site, it will be disposed off at the existing CHC BMW Disposal facility.</li> <li>o No major e-waste generation is anticipated during construction activities.</li> <li>o Hazardous waste may be generated through leakage or spills from the fuel, lubricants etc.</li> </ul>

Sl. No	Government Laws	World Bank Policy	Relevance to the proposed DH under project
			<ul style="list-style-type: none"> <li>○ Plastic waste may be majorly generated from the packaging material.</li> </ul> <p>However, ESMP will be designed considering the magnitude of impact and mitigation measures to avoid any damages to the society and the environment.</p>
2	<ul style="list-style-type: none"> <li>○ Contract Labour (Regulation and Abolition) Act, 1970 and Assam Rules 1971</li> <li>○ Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and Assam Rules, 2007</li> <li>○ Inter-State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1979 and Assam Rules 1981</li> <li>○ Equal Remuneration Act, 1976</li> <li>○ Minimum Wages Act, 1948 and Assam Rules, 1952</li> <li>○ Payment of Wages Act, 1936 and Assam Rules, 1937</li> <li>○ Employees' Compensation Act, 1923</li> </ul>	ESS 2: Labour and Working Conditions	<p>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.</p> <p>Labour Management Procedures will address and take care of the labour comfort and their rights.</p>
3	<ul style="list-style-type: none"> <li>○ The Water (Prevention &amp; Control of Pollution) Act 1974.</li> <li>○ The Air (Prevention &amp; Control of Pollution) Act 1981.</li> <li>○ Environment Protection Act (and Rules), 1986 and 1996</li> <li>○ Environment (Protection) Second Amendment Rules 2002</li> <li>○ Environmental Impact Assessment (EIA) Notification 2006 &amp; and subsequent amendments</li> <li>○ The Assam Air (Prevention and Control of Pollution) (Amendment) Rules, 2010</li> <li>○ Noise (Regulation and Control) Rules 2000 amended in 2010</li> <li>○ Solid waste management rules, 2016</li> </ul>	ESS 3: Resource Efficiency & Pollution Prevention and Management	<p>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.</p>
4	<ul style="list-style-type: none"> <li>○ Child Labour (Prohibition and Regulation) Act 1986 and Assam (Amendment) Rules, 2017</li> <li>○ Scheduled Castes and the Scheduled Tribes (Prevention of</li> </ul>	ESS 4 Community Health and Safety	<p>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</p>

Sl. No	Government Laws	World Bank Policy	Relevance to the proposed DH under project
	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		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	No ASI identified heritage observed. The British era hospital building will be conserved.
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.

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## 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 15. The risks, impacts and mitigation approach for construction phase are discussed in Table 16.

**Table-15: Anticipated Impacts and Mitigation Approach – Design & Preconstruction Phase**

Project Activity	Possible Impacts	Mitigation Approach
<b>DESIGN &amp; PRE-CONSTRUCTION PHASE</b>		
1. Design and layout of proposed DH  2. 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	<p>Anticipated no negative impacts on Physical, Ambient, Ecological and Social Environment during Design &amp; Pre-construction phase.</p> <ul style="list-style-type: none"> <li>The proposed DH is planned to be constructed in the land/premise of existing CHC &amp; FRU</li> <li>The preliminary screening of the site reveals that the project does not anticipate any land acquisition/ resettlement.</li> <li>The Hospital building will be constructed on the open area. So, no major demolition activities will be carried out.</li> </ul>	<ul style="list-style-type: none"> <li>The design of proposed DH will follow relevant National/State and design guidelines.</li> <li>The proposed DH will be GRIHA compliant, human centric &amp; based on IPHS guidelines.</li> <li>The hospital design will focus on measures for universal access such as ramps, handrails and other fixtures etc. For comfort of the patients</li> <li>Emergency exit such as second staircase/ ramp for evacuation etc. Will be included in the hospital design</li> </ul>
3. Tree cutting/shifting	<ul style="list-style-type: none"> <li>26 numbers of trees need to be removed for clearing the site for infrastructure development</li> <li>Disturbance to existing green cover</li> </ul>	<ul style="list-style-type: none"> <li>Identification if any endangered flora from Forest Department</li> <li>Permission for tree cutting/shifting from Forest Department is under process.</li> <li>Compensatory afforestation plan will be required. According to GRIHA mandate, compensatory plantation should be at least in the ratio of 1:3.</li> </ul>
4. Consultations	<ul style="list-style-type: none"> <li>Lack of awareness among community may restrict public participation in decision making</li> <li>Lack of knowledge on the facilities to be provided by the proposed DH at their own</li> </ul>	<ul style="list-style-type: none"> <li>Awareness on proposed DH and facilities to be provided among the community.</li> <li>Prior intimation to the local community about the</li> </ul>

Project Activity	Possible Impacts	Mitigation Approach
	<p>neighbourhood will prevent them from availing the facilities.</p> <ul style="list-style-type: none"> <li>Lack of prior intimation of the demolition and construction activities may lead to health hazards caused by probable air, water and noise pollution.</li> </ul>	<p>schedules of construction activities.</p> <ul style="list-style-type: none"> <li>Stakeholder consultations at specific intervals represented by all sections of the community including women.</li> </ul>

**Table-16: Anticipated Impacts and Mitigation Approach – Construction Phase**

Project Activity	Possible Impacts	Mitigation Approach
<b>CONSTRUCTION PHASE</b>		
<b>A. Physical Environment</b>		
Location and design	Disturbance to the adjacent lands and the people due to overall construction activities.	<ul style="list-style-type: none"> <li>Use of the approved construction design and drawing of building construction facility and other structures.</li> <li>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.</li> </ul>
Interference with drainage patterns	Temporary flooding at site and nearby areas and contamination of the nearby water bodies (River Dudhnoi flows in the east at 0.5 km from DH site) due to construction activities of proposed DH	<ul style="list-style-type: none"> <li>Use of contour plan and design drawing prepared considering Highest Flood level (HFL) data of that area.</li> <li>On site mitigation measures such as provision of septic tank/soak pit with the toilets so that the waste water will not be discharged into the drainage system,</li> <li>Proper drainage system for controlling runoff,</li> <li>spill control plan, etc will minimize the impacts.</li> </ul>
Site clearance	<ul style="list-style-type: none"> <li>Disturbance to top soil</li> <li>Disturbance to existing green cover</li> <li>Soil erosion and surface runoff</li> </ul>	<ul style="list-style-type: none"> <li>Conservation of the top soil</li> <li>Compensatory afforestation</li> <li>Construction to be avoided in heavy rain days</li> <li>Provision and maintenance of drains and retention ponds.</li> </ul>
<b>B. Ambient Environment</b>		
Surplus earth work/soil	Runoff to cause water pollution, solid waste disposal.	<ul style="list-style-type: none"> <li>Keeping record of soil quantity excavated from the site and reused in filling the foundation.</li> <li>Proper disposal of excessive soil from the project at approved designated areas.</li> <li>Proper bunding at the soil storage area will prevent the soil from loosening at getting carried away with runoff.</li> <li>Disposal of solid waste in scientific manner</li> </ul>
Topsoil removal	<ul style="list-style-type: none"> <li>Loss of topsoil</li> <li>Siltation of stacked soil</li> </ul>	<ul style="list-style-type: none"> <li>Preservation of top soil</li> <li>Keeping record of soil quantity excavated from the site and reused in filling the foundation.</li> <li>Construction of appropriate drainage system.</li> </ul>



Project Activity	Possible Impacts	Mitigation Approach
		<ul style="list-style-type: none"> <li>• Removal of silt and trash choking the drainage from the construction land.</li> </ul>
Construction works and machine operations	<ul style="list-style-type: none"> <li>• Air pollution due to airborne dust in the area causing dusty conditions.</li> <li>• Smoke from the DG Set, operation of machinery</li> <li>• Smoke from the transportation of construction vehicles</li> <li>• Release of finer particulate matter from sand, cement etc. during transportation of construction vehicles</li> </ul>	<ul style="list-style-type: none"> <li>• Sprinkling of water within the work area and stack the loose soil and contain it with covers to control air pollution.</li> <li>• Maintenance of construction equipment and machines.</li> <li>• Provide required PPE to workers.</li> <li>• Reporting and recording of incidents and accidents at project site.</li> <li>• Proper maintenance &amp; active PUC Certification vehicles and machinery to be used at project site.</li> <li>• Proper Covering of the material during transportation</li> <li>• Avoid transportation during busy traffic hours and scheduling of time for transportation of construction materials in consultation with the authorities concerned</li> </ul>
	<ul style="list-style-type: none"> <li>• Noise and vibrations from the construction activities.</li> <li>• Nuisance caused by noise to neighbouring areas.</li> <li>• Exposure to noise level from the civil work construction causing nuisance to properties</li> <li>• Noise, vibration, equipment wears and tear.</li> <li>• Injury and sickness of workers and locals.</li> <li>• Accidents including electrocution may occur due to lack of proper awareness among the workers.</li> </ul>	<ul style="list-style-type: none"> <li>• The existing HCF will be segregated through hard barricading</li> <li>• Construction activities undertaken during the daytime as per scheduled timings for construction.</li> <li>• Avoid transportation during busy traffic hours</li> <li>• Following noise control regulations</li> <li>• Implementation of approved health and safety plan.</li> <li>• Provide required PPE to workers. Proper training to the workers and to ensure the use of PPE and safety gears/ harness etc</li> <li>• Reporting and recording of incidents and accidents at project site.</li> <li>• Prepare the Traffic Management Plan.</li> <li>• Installation of adequate cautionary signage</li> </ul>
	<ul style="list-style-type: none"> <li>• Excessive Ground water extraction</li> <li>• Pollution/contamination to water resources</li> </ul>	<ul style="list-style-type: none"> <li>• Non potable water to be used for dust suppression, curing etc.</li> <li>• Water requirement during peak construction activities will be met through the local water supplier.</li> <li>• Measures to avoid excessive water usage to be adopted</li> <li>• Direct discharge of waste water into the water stream to be avoided</li> <li>• The hazardous material to be kept leak proof; spills to be collected and recycled</li> </ul>
Storage of Construction materials	Contamination of land, water, air	<ul style="list-style-type: none"> <li>• Storage of fuel and other materials on paved surface with spill control and limited access; spills to be collected and recycled</li> </ul>

Project Activity	Possible Impacts	Mitigation Approach
		<ul style="list-style-type: none"> <li>Record of spill control during the project with details of type and quantities of chemical spilled.</li> </ul>
Storage of Construction waste	Contamination of land, water, air	<ul style="list-style-type: none"> <li>Construction waste to be stored in a segregated manner at a designated area only</li> <li>Burning of Plastic and rubber to be prohibited</li> </ul>
<b>C. Ecological Environment</b>		
Felling of Trees for site clearance	Loss of native flora as well as fauna	<ul style="list-style-type: none"> <li>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.</li> <li>Site survey to be done with Forest Department for identification of any endangered flora or fauna; if found, conservation plan to be implemented</li> <li>Developing strategies for compensatory afforestation.</li> </ul>
Labour Camp	<ul style="list-style-type: none"> <li>Loss of vegetation and deforestation.</li> <li>Effect on fauna (including avifauna).</li> <li>Loss of native flora as well as fauna</li> <li>Contamination of land, water, air</li> </ul>	<ul style="list-style-type: none"> <li>Trees not to be cut/felled for construction of labour camp or any other related activities</li> <li>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.</li> </ul>
<b>D. Social Environment</b>		
Involuntary resettlement or land acquisition	Proposed DH at Dudhnoi will be constructed at existing health facility campus.	The proposed DH is planned to be constructed in the land/premise of existing CHC & FRU and Project does 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 landowners/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	<ul style="list-style-type: none"> <li>Community disturbance and health and safety.</li> <li>Community health and safety due to air pollution and increase in noise level.</li> </ul>	<ul style="list-style-type: none"> <li>Proper storage of construction material at specified places so that no disturbances can be caused to public and worker movement.</li> <li>And avoid contamination of soil and water with proper storage.</li> <li>Prior intimation to the community regarding the schedule, scope of construction</li> </ul>

Project Activity	Possible Impacts	Mitigation Approach
	<ul style="list-style-type: none"> <li>• Human and Animal interference in Construction area.</li> <li>• Potential conflict between migrant workforce and local may took place.</li> <li>• Chances of finding archaeological /cultural artefacts.</li> <li>• Loss of agricultural productivity.</li> <li>• Road safety</li> </ul>	<p>as well as the possible unavoidable discomfort at site</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Scheduling of fixed time for movement of vehicles carrying construction machineries and materials in consultation with the authorities concerned of existing CHC to ensure safe movement of the patients as well as passers by.</li> </ul>
Disturbance to public utility services- Water supply, sanitation	<ul style="list-style-type: none"> <li>• Public inconveniences to avail services/medical treatment from the existing health care facility</li> <li>• Disruption of supply of power, water or sanitation facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Prior intimation to the community regarding the schedule, scope of construction as well as the possible unavoidable discomfort at site</li> <li>• Ensuring restoration of utilities immediately after project activity</li> <li>• Alternative accessibility or provision of utilities during construction without any disruption and hindrances.</li> <li>• In case, any utility to be shifted (for example bore well etc.), Contractor to make arrangements hard barricading, safety signage and 24 x 7 security in the newly installed site to avoid any inconveniences to the facility, patients and staff.</li> <li>• Provision of Signage, boards at appropriate locations indicating direction to shifted utility or interim arrangements. Scheduling fixed time for movement of vehicles carrying construction machineries and materials to ensure safe movement of people.</li> </ul>
Engagement of Contractors staff and Labours in the proposed project	<ul style="list-style-type: none"> <li>• Risks of SEA/SH to community members, particularly women and children by contractors' workers during construction period</li> <li>• Risks of workplace sexual harassment at project site (consultants and contractors staff &amp; labourers)</li> </ul>	<ul style="list-style-type: none"> <li>• Sensitization of all staff and labourers of project site of Dudhnoi on prevention of Gender Based Violence (GBV) and SEA/SH incidents and POSH Act.</li> <li>• Registering of grievances of contractors staff, labourers, local community /SH incidents and redress the same following Grievance Redressal Mechanism under the Project.</li> <li>• Signing of Code of Conduct by Contractor, Contractor's Staff and labourers engaged in implementation of proposed DH at Dudhnoi.</li> <li>• 24x7 security in and around project area.</li> <li>• 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.</li> <li>• Provision of basic amenities at Labour camps</li> </ul>

Project Activity	Possible Impacts	Mitigation Approach
	<ul style="list-style-type: none"> <li>• Occupational Health and Safety</li> <li>• Potential conflict between migrant workforce and local may took place.</li> </ul>	<ul style="list-style-type: none"> <li>• Following labour management procedures and provision of basic amenities to labourers as guided by Labour Management Procedures under ASSIST Project.</li> <li>• Sensitization of workforce on good health and hygiene practices; use of PPE and safety gears/ harness etc,prevention of GBV &amp; SEA/SH and POSH, occupational health and safety</li> <li>• Clearance of migratory labour under Inter-state Migrant Workmen.</li> </ul>
Consultations	<ul style="list-style-type: none"> <li>• Lack of prior intimation of the construction activities may lead to health hazards caused by probable air, water and noise pollution, accidents at site.</li> <li>• Disruption of existing utilities of the CHC may hamper in proper functioning of the same. Consultation with the authorities of CHC to decide on the alternative facilities to be provided and plan and schedule of providing the same.</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness among the community on the proposed DH and the facilities to be provided there.</li> <li>• Prior intimation to the community regarding the schedule, scope of construction as well as the possible unavoidable discomfort at site</li> <li>• Stakeholder consultations at specific intervals represented by all sections of the community including women</li> <li>• Provision of proper barricading, signage etc. at the proposed site for ensuring safety of local community.</li> </ul>

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## 6. Stakeholder Engagement

Stakeholder engagement in the project aims to achieve inclusive and effective participation of all stakeholders especially the poor and vulnerable groups. Meaningful, relevant, and ongoing consultations with the important stakeholders coupled with proper and timely disclosure of information are critical success factors in maintaining public support and mitigating grievances. All relevant information, in a medium easily understood by the target groups, regarding the intent, design, schedule, impacts, and overall benefits of the project need to be disseminated to the stakeholders in time.

### 6.1. Key Stakeholders

Stakeholder mapping has been carried out as guided by Stakeholder Engagement Plan (SEP)<sup>4</sup> of the Project and thereby mapping has been done for the proposed DH site at Dudhnoi.

Table 17: Identified key stakeholders for the proposed project at Dudhnoi

Sl.No.	Categories	Key Stakeholders
A	Directly affected personnel/ community of proposed DH site where Dudhnoi CHC is located	<ul style="list-style-type: none"> <li>All staff of the existing Dudhnoi CHC including Doctors, Nurses, ANM, and Non- Medical staff etc.</li> <li>Patients availing services/treatment at Dudhnoi CHC</li> <li>Contractor and Contractors' workers</li> <li>Vendors of the market place in and around proposed DH site</li> <li>Community customers who come to the market place regularly</li> </ul>
B	Parties or communities of the locality of Dudhnoi and the District who can have potential impact on the project	<ul style="list-style-type: none"> <li>Community-based organizations (CBOs) and Non-Govt Organizations (NGOs) of the district</li> <li>Social &amp; cultural groups functioning at Dudhnoi viz. Rabha Hasong Autonomous Council</li> <li>Media including print and electronic media.</li> <li>Vendor associations and labour union federations</li> <li>Community leaders and local public representatives (PRI Members)</li> <li>Women groups working on gender-related activities and Self-Help Groups</li> </ul>
C	Vulnerable Groups to be included for their inclusion in the implementation of the project to ensure equal representation.	<ul style="list-style-type: none"> <li>Poor people living below poverty line</li> <li>Flood affected people</li> <li>Elderly, persons with disabilities, female and minor patients</li> <li>Scheduled tribes (ST), scheduled castes (SC), and communities living in remote and hilly locations</li> </ul>

### 6.2. Stakeholder engagement approach and methodology

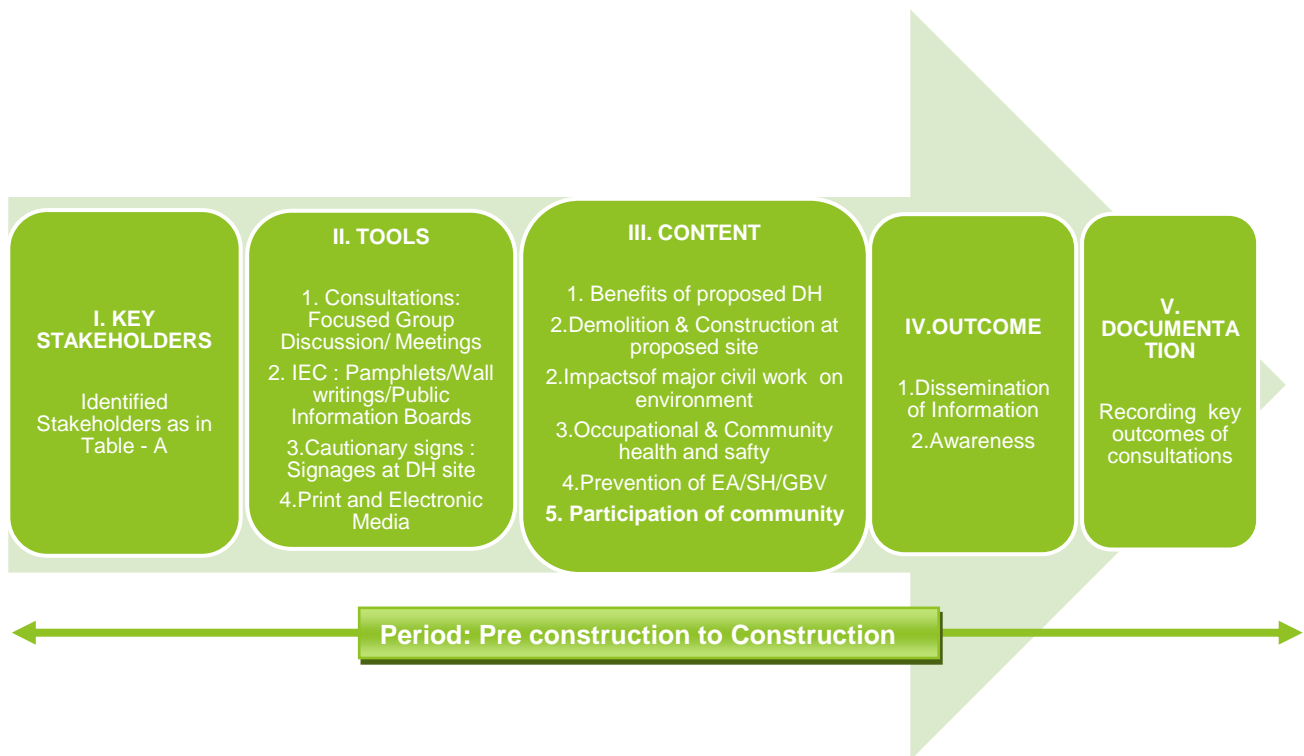
World Bank's ESS10 recognises that effective engagement with the stakeholders can significantly improve the project outcomes and their sustainability through better community acceptance and ownership, enhance the environmental and social sustainability of the project, and hence make a significant contribution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

The approach and methodology for stakeholder engagement is detailed with the Figure 7 below.

The stakeholder engagement process starts in the preconstruction phase with identification of the stakeholders. Table 17 gives a glimpse into the identified key stakeholders for the proposed project at Dudhnoi. To make the process more 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

<sup>4</sup> Link for SEP : [https://ahidms.assam.gov.in/sites/default/files/public\\_utility/Revised%20Stakeholder%20Engagement%20Plan.pdf](https://ahidms.assam.gov.in/sites/default/files/public_utility/Revised%20Stakeholder%20Engagement%20Plan.pdf)

planned to be adopted during the entire process of implementation of the proposed project at Dudhnoi. Recording of the key outcomes of the interaction forms an integral part which completes the process.



**Fig. 7 : Approach and Methodology for Stakeholder Engagement**

### 6.3. Stakeholder Engagement conducted for proposed DH at Dudhnoi and key outcomes:

Two (2) 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 1<sup>st</sup> Stakeholder Consultation:

The engagement of stakeholders in the project has been commenced with the conduct of 1<sup>st</sup> Stakeholder Consultation meeting held on 28-07-2023 at Dudhnoi CHC premise.

The consultation meeting was attended by officials and staff of the Dudhnoi CHC, Anganwadi Worker, Accredited Social Health Activist (ASHA), *Auxiliary Nursing Midwifery (ANM)*, Pradhan Mantri Arogya Mitra (PMAM), NHM official, RKS of CHC and community members of Dudhnoi CHC. A total of 40 participants attended the meeting organized by PMU, ASSIST with the support of Dhudnoi CHC and FRU.

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

- The stakeholders were made aware of the following:
  - a. project objectives, duration and institutional arrangement for the project,
  - b. modern facilities and infrastructure that will be provided in the proposed DH
  - c. 14 nos. of essential health care facilities to be provided in the proposed DH
  - d. Separate services in the proposed DH will be manned with required staffing for providing the respective services.
  - e. 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.





Photograph No 3- 1<sup>st</sup> Stakeholder Consultation meeting held on 28-07-2023 at Dudhnoi CHC premise.

### 6.3.2 2<sup>nd</sup> Stakeholder Consultation:

The 2<sup>nd</sup> stakeholder engagement programme was a Focus Group Discussion (FGD) held on 5<sup>th</sup> February, 2024 involving community stakeholders from nearby villages who visit Dudhnoi Hospital to access healthcare services. 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
- Parking area was not sufficient in the old hospital building
- 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 CHC
- 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



Photograph No 4- 1<sup>st</sup> Stakeholder Consultation meeting Conducted by the Contractor held on 5<sup>th</sup> February, 2024

## 7. Contractor's Environmental and Social Management Plan (C-ESMP)

The construction EMP is intended for use during the construction phase of the DH. Construction related activities including Surveying of the site; Setting up of labour camp; Storage of construction materials and equipment in laydown areas; Excavation; Sourcing and storage of materials; batching plant operations; Construction of buildings/sub-station, traffic management etc. Looking at the baseline data, it is evident that the environmental situation at Dudhnoi is very good. No major significant impacts are foreseen during the construction period and the minor impacts will be mitigated at source only. Positive Social impacts are foreseen once the facility is functional as the community in the nearby area can avail the healthcare facility in their own vicinity.

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 Dudhnoi

**Table 18: Contractor's Environment & Social Management Plan**

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
<b>Pre-Construction Phase</b>				
Regulatory Compliances	<ul style="list-style-type: none"> <li>Environmental pollution &amp; degradation</li> <li>Tree cutting/shifting</li> <li>Use of Ground Water</li> <li>Inconvenience to public</li> </ul>	<ul style="list-style-type: none"> <li>Consent to Establish will be obtained from Pollution Control Board Assam prior to initiating the construction and related activities under Air &amp; Water Act as well as BMW Rules 2016</li> <li>Permission for tree cutting/shifting from Forest Department will be obtained</li> <li>Permission will be sought from Central Ground Water Authority for use of ground water for construction purposes</li> <li>NOC from local Panchayat will be obtained prior to initiating the construction and related activities</li> </ul>	Contractor, Project Manager & EHS Officer	During Construction
Biodiversity related	<ul style="list-style-type: none"> <li>Loss of trees and loss to biodiversity.</li> <li>Disturbance to existing green cover Loss of vegetation and deforestation.</li> <li>Effect on fauna (including avifauna).</li> </ul>	<ul style="list-style-type: none"> <li>Identification of any endangered flora from Forest Department</li> <li>Permission for tree cutting/shifting from Forest Department will be obtained</li> <li>Marking of vegetation to be cleared and strict control on clearing activities to ensure minimal clearance.</li> <li>Construction workers will be prohibited from felling and burning wood in the project area during their employment.</li> <li>Construction workers should be provided gas cylinders for cooking.</li> </ul>	Contractor, Project Manager/EHS Staff	Pre-Construction phase to 1 year



Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
	<ul style="list-style-type: none"> <li>• 26 numbers of trees need to be removed for clearing the site for infrastructure development</li> </ul>	<ul style="list-style-type: none"> <li>• Penalty on workforce from disturbing the flora, fauna including hunting of animals and fishing in water bodies.</li> <li>• GRIHA V 2019 to be complied for preservation and plantation of native vegetation</li> <li>• Compensatory afforestation in the ratio of 1:3 will be done on site during the course of construction and its survival will be monitored.</li> </ul>		
Old Construction Demolition waste management	<ul style="list-style-type: none"> <li>• Accidents with the workers involved in the demolition activities</li> <li>• Air, Water, Soil, Noise pollution</li> <li>• Disturbance to public visiting the CHC</li> </ul>	<ul style="list-style-type: none"> <li>• Green Net will be provided around the structure to be demolished</li> <li>• During transporting of debris, the vehicle shall be covered for protection of spillage.</li> <li>• For Safety reasons, wearing PPE will be made mandatory such as Helmets, Glasses, Nose mask, Gloves, Safety shoes, ear plugs etc.</li> <li>• For worker safety awareness will be conducted with the tool box talk regularly</li> <li>• Underage/overage screening process will be followed.</li> <li>• Warning signage will be provided at appropriate locations</li> <li>• Detailed Demolition waste management plan is enclosed as Annexure-5</li> </ul>	Contractor, Project Manager & EHS Officer	During Demolition/as and when required
Ancient building constructed by British in 1889	<ul style="list-style-type: none"> <li>• Existence of British era building in the premise of DH site</li> <li>• Attachment of sentiments of local people</li> <li>• Damages to the ancient structure due to construction activities</li> </ul>	<ul style="list-style-type: none"> <li>• This structure was proposed to be demolished in the DPR design as parking space was earmarked at this location</li> <li>• Looking at the quality and historic value of the structure and PMU's E&amp;S Safeguard team's efforts, project decided to conserve the structure</li> <li>• In consultation with the CHC, FRU and public, it was decided to shift the administrative wing and pharmacy of the existing CHC-FRU in this building during construction phases that the FRU activities should run effectively after demolishing the dilapidated FRU structure.</li> <li>• Minor repairs needed, electrical works and partitions required for demarcating the departments will be undertaken to enhance the utility of the building</li> </ul>	PMU, Contractor, Project Manager & EHS Staff	Pre-Construction & Post Construction

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		<ul style="list-style-type: none"> <li>• During construction, activities will be planned in such a way that there will not be any kind of damage to the ancient structure</li> <li>• Consultation with the CHC authority as well as community will be held to decide on how the historical structure to be utilized once the DH starts functioning.</li> </ul>		
Exploitation of Resources in Establishment of Labour Camp	<ul style="list-style-type: none"> <li>• Extensive tree cutting for site clearance and for construction material</li> <li>• Encroachment on private land</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• LPG will be provided in the kitchen for cooking food.</li> <li>• Detailed Labour management plan is enclosed as Annexure-6</li> </ul>	Contractor, Project Manager & EHS Officer	Throughout pre as well as construction phase
<b>Construction Phase</b>				
Soil fertility and pollution	<ul style="list-style-type: none"> <li>• Loss of topsoil</li> <li>• Soil erosion due to surface runoff</li> </ul>	<ul style="list-style-type: none"> <li>• Preservation of top soil</li> <li>• Excess fill from foundation excavation will be reused on site where earth filling is required.</li> <li>• Keeping record of soil quantity excavated from the site and reused in filling the foundation.</li> <li>• Construction of appropriate drainage system.</li> <li>• Removal of silt and trash choking the drainage from the construction land.</li> <li>• Proper storage of excessive excavated soil at approved locations.</li> <li>• Permission, NOC through local authority (Gram panchayat/municipality) for collection and disposal at designated sites of solid waste generated from the project works and labour camp.</li> <li>• Compliance to GRIHA V. 2019 in soil management.</li> </ul>	Contractor, Project Manager & EHS Officer	Pre-Construction phase to 1 year
Water pollution/ discharge in natural resources	<ul style="list-style-type: none"> <li>• Temporary flooding at site and nearby areas</li> <li>• Wastewater disposal and construction water runoff</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate drainage will be provided and maintained for disposal of surface runoff</li> <li>• The spills or leakages of the fuel, lubricants etc. will be handled at source only and care will be taken that it should not reach the water stream/drainage.</li> </ul>	Contractor, Project Manager & EHS Officer	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
	<ul style="list-style-type: none"> <li>• Contamination of existing water bodies</li> <li>• Sewage water from the Labour Camp</li> </ul>	<ul style="list-style-type: none"> <li>• Septic tank with soak pit will be provided with the toilet blocks at labour camp.</li> <li>• Compliance to GRIHA V. 2019 in water management.</li> </ul>		
Ground water exploitation	<ul style="list-style-type: none"> <li>• Excessive extraction of ground water for construction activities</li> <li>• Depletion in the ground water table</li> </ul>	<ul style="list-style-type: none"> <li>• Optimum use of resources will be ensured</li> <li>• Non potable water will be utilized during construction for dust suppression, curing etc.</li> <li>• Water requirement during peak construction activities will be met through outsourcing to minimize the load on ground water resources.</li> <li>• Maintain proper record of resources utilization.</li> <li>• Ground water will be used for construction purpose and the required permission will be obtained from the competent authorities.</li> <li>• Regular monitoring of water consumption as well as ground water level.</li> <li>• Review the monitoring reports and take corrective measures as required.</li> <li>• Ensure the submission of monitoring reports to the concerned authority as per the norms.</li> </ul>	Contractor, Project Manager & EHS Officer	All throughout construction phase
Air Pollution	<ul style="list-style-type: none"> <li>• Airborne dust due to drilling, excavation, etc.</li> <li>• Airborne cement, sand particles at batching plant</li> <li>• Fugitive emissions during various construction activities</li> </ul>	<ul style="list-style-type: none"> <li>• Suppression of dust by sprinkling of non-potable water within the work area twice daily and stack the loose soil and contain it with covers, if required.</li> <li>• Hard Barricading around the site as well as the hotspots where dust generation can be maximum.</li> <li>• Provision of green net wherever required.</li> <li>• PUC certified construction machinery and vehicle will be availed.</li> <li>• All the material will be covered properly during transportation to avoid spillage.</li> <li>• Required air pollution control equipment will be provided at batching plant</li> <li>• Necessary PPE's will be provided to construction workers as well as at batching plant mandatorily as per requirement.</li> </ul>	Contractor, Project Manager & EHS Officer	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		<ul style="list-style-type: none"> <li>• It will be ensured that the Labours and staff is wearing the PPE</li> </ul>		
Noise Pollution	<ul style="list-style-type: none"> <li>• Noise and vibrations from the construction activities.</li> <li>• Noise and vibrations from the batching plant</li> </ul>	<ul style="list-style-type: none"> <li>• The existing HCF will be segregated through hard barricading</li> <li>• Acoustic enclosures will be provided to the machinery, wherever required.</li> <li>• Construction activities for the project work will not be performed during the night.</li> <li>• Construction as per scheduled timings only.</li> <li>• Selection of construction techniques and machinery to minimize ground disturbance.</li> <li>• Regular maintenance of all vehicles, machinery and equipment will be conducted, and fitness certificate will be submitted to PCCMC &amp; SPMU from time to time.</li> <li>• 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.</li> <li>• It will be ensured that the Labours and staff is wearing the PPE</li> </ul>	Contractor, Project Manager/EHS Staff	All throughout construction phase
Risk to community	<ul style="list-style-type: none"> <li>• Risks to community health and safety due to air pollution and increase in noise level</li> <li>• Nuisance in the neighbouring areas.</li> </ul>	<p>In addition to above said mitigation measures, following compliances will be ensured.</p> <ul style="list-style-type: none"> <li>• Periodic monitoring of ambient air quality, noise level has been conducted as guided by ESMF</li> <li>• Any accidents or incidents will be recorded and reported to PMU.</li> <li>• 24x7 security will be provided at high risk area such as bore holes, excavation sites etc.</li> <li>• Implementation of effective traffic management plan will be ensured on site as well as during transportation of construction material from its source to site. Scheduling of fixed time for movement of vehicles carrying construction machineries and materials in consultation with the authority of existing CHC to ensure safe movement of the patients as well as passers by.</li> <li>• Construction area to be properly hard baricaded and safety signages viz. "No entry for public" ; "Work is going on, be careful"; "Way to IPD", "Area for reinforcement", "Construction Zone", etc and also important signage indicating diversion,</li> </ul>	Contractor, Project Manager/EHS Staff	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		danger signs at appropriate locations are to be installed during construction. • Compliance to GRIHA V. 2019 in preventing or addressing air and noise pollution		
Hazardous material handling and disposal	<ul style="list-style-type: none"> <li>• Air , water and soil contamination</li> <li>• Injury and sickness of workers and locals.</li> <li>• Accidents including electrocution may occur due to lack of proper training and awareness among the workers.</li> </ul>	<ul style="list-style-type: none"> <li>• Leakage proof container will be used.</li> <li>• Storage of fuel and hazardous materials on paved surface with spill control and limited access.</li> <li>• Record of spill control during the project with details of type and quantities of chemical spilled.</li> <li>• Adequately storage and protected from animal or other live species.</li> <li>• Proper use personal protective handling and disposal of hazardous material.</li> <li>• Displayed safety data sheet so that workers working around the storage area with precaution.</li> <li>• Scheduled maintenance of construction equipment and machines.</li> <li>• Provide required PPE to workers.</li> <li>• It will be ensured that the Labours and staff is wearing the PPE</li> <li>• Reporting and recording of incidents and accidents at project site.</li> <li>• Instruction to drivers of construction vehicles to strictly follow road regulations.</li> <li>• Installation of adequate               <ul style="list-style-type: none"> <li>○ signage and barriers around charged components</li> <li>○ Clearly visible warning signs -danger signs, detour, cross here, works in progress, people at work, etc. at designated sites.</li> </ul> </li> </ul>	Contractor, Project Manager/EHS Staff	All throughout construction phase
Construction material storage	<ul style="list-style-type: none"> <li>• Contamination of land, water, air.</li> </ul>	<ul style="list-style-type: none"> <li>• Prohibition of storage of construction materials beside road, around water bodies, residential or CPR.</li> <li>• Construction materials will be covered with tarpaulin, if required.</li> <li>• Water sprinkling to minimize the dust.</li> <li>• Proper maintenance of construction machinery.</li> </ul>	Contractor, Project Manager/EHS Staff	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		<ul style="list-style-type: none"> <li>• Prepare the Traffic Management Plan for the project works.</li> <li>• Instruction to the workers not to remove such articles (if found any) and immediately inform to the Supervisor of the EPC and further to Environmental Specialist of PMU.</li> <li>• Regular monitoring of material in -out data.</li> <li>• All the material will be covered properly during transportation to avoid spillage.</li> <li>• Hard barricading of material storage area.</li> <li>• Installation of proper cautionary signages to avoid accidents and prevent damage to stored materials.</li> <li>• Hard barricading of construction area to avoid any such type of accident and injury.</li> <li>• Orientation and training to the workforce to properly handle and store construction materials and maintain safety of themselves in handling these.</li> </ul>		
Construction waste	<ul style="list-style-type: none"> <li>• Air, Water, Soil pollution to</li> <li>• Inconvenience to neighbouring people</li> </ul>	<ul style="list-style-type: none"> <li>• Construction waste will be stored in a segregated manner at a designated area only.</li> <li>• Onsite composting of organic waste will be undertaken</li> <li>• The inorganic waste will be disposed off to the recyclers</li> <li>• Detailed Construction waste management plan is enclosed as Annexure – 7.</li> </ul>		
Stakeholder Engagement	<ul style="list-style-type: none"> <li>• Project indirectly or directly, positively or negatively impacts community.</li> <li>• Public inconveniences to avail medical treatment from the existing CHC at the site due to project execution activities, disruption of supply of power, water or sanitation facilities for site clearance</li> </ul>	<ul style="list-style-type: none"> <li>• Prior intimation to the public about the time and the duration of the utility disruption through concerned agency.</li> <li>• Restoring the utilities immediately after project activity completion or end duration declared for disruption of supply of power, water or sanitation facilities at the existing CHC or provision of alternate facilities till the new DH comes up.</li> <li>• Alternative access (road) to the exiting health facility so that people can avail services/ medical treatment without any disruption and hindrances.</li> <li>• Store and workshops will be established within construction site premises</li> <li>• Installation of adequate and clearly visible warning signs such as danger, detour, cross here, works in progress, people at</li> </ul>	Contractor, Project Manager/EHS Staff	All throughout construction phase

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
	<ul style="list-style-type: none"> <li>• Hazards of flooding in the site and nearby areas due to construction activity</li> <li>• community health and safety</li> <li>• Loss of agricultural productivity.</li> </ul>	<p>work, etc will be posted at designated sites while scaffolding will be placed over road crossing points.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Following road regulations as per Traffic Management Plan.</li> <li>• 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 <b>Link<sup>5</sup></b> below.</li> <li>• 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.</li> <li>• Site specific mitigation measures as per Plan of Stakeholder engagement activities under the Project at Dudhnoi detailed at <b>Table 19.</b></li> </ul>		
Traffic Movement & Road safety	<ul style="list-style-type: none"> <li>• Inconveniences and disturbance to public due to movement of heavy vehicles for carting and mobilization of construction materials and manpower.</li> <li>• Road safety concern in and around proposed site.</li> </ul>	<ul style="list-style-type: none"> <li>• Scheduling fixed time for movement of vehicles carrying construction machineries and materials to ensure safe movement of people.</li> <li>• Safety signage's/messages for proper entry/exit/diversion etc. to be used all throughout construction phase.</li> <li>• Vehicles carrying construction materials must be covered properly</li> <li>• Regular Water sprinkling for in and around the construction site.</li> <li>• Detailed Traffic Management Plan in Annexure - 8</li> </ul>	Contractor's Project Manager/EHS Staff	All throughout construction phase
Labour Management	<ul style="list-style-type: none"> <li>• Risks of occupational health and safety</li> <li>• Lack of knowledge on operation of equipment's,</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of basic amenities to the labourers: <ul style="list-style-type: none"> <li>○ Proper sanitation: Separate toilets for male and female workers staying in labour camp connected to septic tank/adequate waste collection and disposal arrangement</li> </ul> </li> </ul>	Contractor's Project Manager/EHS Staff	All throughout construction phase

<sup>5</sup>[https://ahidms.assam.gov.in/sites/default/files/public\\_utility/Revised%20Stakeholder%20Engagement%20Plan.pdf](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
	<p>machines, work procedures and processes at sites including both DH site and Batching Plant site</p> <ul style="list-style-type: none"> <li>• Conflict between migrant workforce and locals</li> <li>• Maintenance of health and hygiene</li> <li>• Risks of GBV &amp; SEA/SH</li> </ul>	<ul style="list-style-type: none"> <li>○ Adequate solid &amp; 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.</li> <li>○ Sleeping space along with bedding provision.</li> <li>○ Separate Kitchen/Cooking space along with fuel requirement for cooking</li> <li>○ Supply of safe drinking water.</li> <li>○ The drinking water will be tested quarterly through a NABL accredited laboratory</li> <li>○ Bathing space with water provision for male and female workers separately</li> <li>○ Sufficient lighting facility along with required numbers of fans.</li> <li>• Orientation on good health and hygiene practices, use of PPE and safety gears/ harness etc., prevention of GBV &amp; SEA/SH and POSH, occupational health and safety</li> <li>• It will be ensured that the Labourers and staff is wearing the PPE</li> <li>• Registration and Redressal of grievances of all type including SEA/SH/GBV of Labourers as per GRM protocol set up under the project.</li> <li>• Clearance of migratory labour under Inter-state Migrant Workmen.</li> <li>• Following labour management procedures and provision of basic amenities to labourers as guided by Labour Management Procedures under ASSIST Project as in the <b>Link</b><sup>6</sup> below.</li> <li>• No tobacco smoking policy, signage, penalty</li> </ul>		

<sup>6</sup>[https://ahidms.assam.gov.in/sites/default/files/public\\_utility/Revised%20%20Labor%20Management%20Procedures%20%20%281%29.pdf](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
		<ul style="list-style-type: none"> <li>• Occupational Health &amp; Safety Policy of Tribeni Constructions Ltd. will be applicable to labour and staff of employed at the construction site which is enclosed as Annexure - 9</li> </ul>		
SEA/SH/GBV	<ul style="list-style-type: none"> <li>• Risks of SEA/SH to community members, particularly women and children by contractors' workers during construction period</li> <li>• Risks of workplace sexual harassment at project site (consultants and contractors staff &amp; labourers)</li> </ul>	<ul style="list-style-type: none"> <li>• Sensitizing of Contractor's Staff and labourers on Code of Conduct under ASSIST Project</li> <li>• Signing of Code of Conduct by Contractor, Contractor's Staff and labourers engaged in implementation of proposed DH at Dudhnoi.</li> <li>• Orientation of all staff and labourers of project site of Dudhnoi on prevention of Gender Based Violence (GBV) and SEA/SH incidents and POSH Act,</li> <li>• 24x7 security in and around project area.</li> <li>• 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.</li> <li>• Provision of basic amenities at Labour camps</li> <li>• Registration and Redressal of grievances of all type including SEA/SH/GBV of community as well as Labourers as per GRM protocol set up under the project.</li> <li>• Distribution of leaflets propagating gender-appropriate behaviour</li> <li>• Engage women stakeholders in project planning and implementation.</li> <li>• Incorporate women stakeholder's feedback in project design and construction schedule.</li> <li>• Company/ Contractor may take up any of the actions below for as recommended by available GRM which may include but not limited to: <ul style="list-style-type: none"> <li>○ Informal warning</li> <li>○ Formal warning</li> <li>○ Additional training</li> <li>○ Loss of up to one week's salary</li> </ul> </li> </ul>	Contractor, EHS Staff	Periodically (2 a year)

Aspect/ Issue	Risks and Impacts	Mitigation Actions/Measures	Responsibility	Timeline
		<ul style="list-style-type: none"> <li>○ Suspension of employment (without payment of salary), for a minimum period of one month up to a maximum of six months</li> <li>○ Termination of employment</li> </ul>		
Grievance Redressal Mechanism	<ul style="list-style-type: none"> <li>• Major civil work of construction of DH at Dudhnoi may have direct or indirect, positive or negative impacts on Labourers as well as Public.</li> <li>• People may have grievances or enquiry for any information on the project.</li> <li>• So provision of information or Redressal of grievances will ensure transparency and accountability under the project.</li> </ul>	<ul style="list-style-type: none"> <li>• GRM contact number and Email as provided by PMU has been displayed at site</li> <li>• Drop Box is installed in the proposed DH site for receiving complaints at site</li> <li>• Contractor's Grievance Redress Committee in Annexure - 10</li> <li>• Sensitization of Contractor's Staff and Labourers on GRM Protocol (Process flow) under ASSIST and Formats to register grievances.</li> </ul>	Contractor, EHS Staff	Periodically (2 a year)

## 7.2 Plan of Stakeholder engagement activities under the Project at Dudhnoi:

Contractor has to undertake stakeholder engagement activities as detailed in the Table 19 below

**Table 19: Plan of Stakeholder engagement activities under the Project at Dudhnoi**

Category	Key Stakeholders	Stakeholder Engagement Tools	Content	Periodicity	Responsibility
Group A	<ul style="list-style-type: none"> <li>• All staff of the existing Dudhnoi CHC including Doctors, Nurses, AMN, and Non- Medical staff etc.</li> <li>• Patients availing services /treatment at Dudhnoi CHC</li> <li>• Contractor and Contractors' workers</li> </ul>	<ul style="list-style-type: none"> <li>• Consultations: Focused Group Discussion/ Meetings</li> <li>• IEC : Pamphlets/Wall writings/Public Information Boards</li> <li>• Installation of adequate and clearly visible</li> </ul>	<ul style="list-style-type: none"> <li>• Benefits of the Project</li> <li>• Demolition &amp; Construction at proposed site</li> <li>• Impacts of major civil work on environment</li> <li>• Occupational Health and Safety</li> </ul>	2(Twice) a year	Contractor with support from Dudhnoi CHC, Jt,DHS, PWD, PMU

	<ul style="list-style-type: none"> <li>• Vendors of the market place in and around proposed DH site</li> <li>• Community customers who come to the market place regularly</li> </ul>	<p>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.</p>	<ul style="list-style-type: none"> <li>• Community Health and Safety</li> <li>• Prevention and Redressal of Sexual Exploitation &amp; Abuse(SEA)/Sexual Harassment (SH)/Gender based violence (GBV)</li> <li>• Participation of Community in implementation of project</li> </ul>		
Group B	<ul style="list-style-type: none"> <li>• Community-based organizations (CBOs) and Non-Govt Organizations (NGOs) of the district</li> <li>• Social &amp; cultural groups functioning at Dudhnoiviz.RabhaHasong Autonomous Council</li> <li>• Media including print and electronic media.</li> <li>• Vendor associations and labour union federations</li> <li>• Community leaders and local public representatives (PRI Members)</li> <li>• Women groups working on gender-related activities and Self-Help Groups</li> </ul>	<ul style="list-style-type: none"> <li>• Consultations: Focused Group Discussion/ Meetings</li> <li>• IEC : Pamphlets/Wall writings/Public Information Boards</li> <li>• Print and Electronic Media</li> </ul>	<ul style="list-style-type: none"> <li>• Benefits of the Project</li> <li>• Community Health and Safety</li> <li>• Participation of Community in implementation of project</li> </ul>	Once a year	Contractor with support from Dudhnoi CHC, Jt,DHS, PMU
Group C	<ul style="list-style-type: none"> <li>• Poor people living below poverty line</li> <li>• Flood affected people</li> <li>• Elderly, persons with disabilities, female and minor patients</li> <li>• ST, SC, and communities living in remote and hilly locations</li> </ul>	<ul style="list-style-type: none"> <li>• Consultations: Focused Group Discussion/ Meetings</li> <li>• IEC : Pamphlets/Wall writings/Public Information Boards</li> <li>• Print and Electronic Media</li> </ul>	<ul style="list-style-type: none"> <li>• Benefits of the Project</li> <li>• Community Health and Safety</li> <li>• Participation of Community in implementation of project</li> </ul>	2(Twice) a year	Contractor with support from Dudhnoi CHC

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## **8. Analysis of Alternatives**

### **8.1 Overview**

The project design is enhanced as it addresses environment and social risks on one hand, and enhancement opportunities on the other. The purpose of the analysis of alternatives (AoA) is to assess the effectiveness, cost, and risks of alternatives that have potential to close or mitigate the capability gaps and subsequent process analyses.

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:**

When a project consists of a development project on identifiable property, the “no project” alternative is the circumstance under which the project does not proceed. If disapproval of the project under consideration would result in predictable actions by others, such as the proposal of some other project, the “no project” consequence should be discussed. The No Project Alternative assumes no development on the Project site. The site would remain an undeveloped open space area and the local community will be deprived of the secondary healthcare facilities including 14 departments in their own 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 environmental friendly option. In this project, instead of Bentonite, polymer will be used at the time of pilling 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.

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# ANNEXURES

# ANNEXURE-1 SITE PLAN OF PROPOSED DH AT DUDHNOI







## ANNEXURE-2

### PLANNED BUILDING DESIGN AND SUMMARY OF SPECIFICATION FOR CONSTRUCTION

The design of the proposed 100 bedded DH 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 DH. Planned building design and summary of specification for construction is given below.

<b>A. GROUND FLOOR:</b>	
<ul style="list-style-type: none"> <li>• Emergency care Unit</li> <li>• Emergency Entrance Lobby, Emergency Help Desk/ Reception</li> <li>• Police Post</li> <li>• Triage Room with 3 No. Yellow zone beds, 2 no. Pediatrics beds, 1 Isolation bed, Toilet, Nurse's station, Cu &amp; DU.</li> <li>• Plaster and Plaster Cutting room.</li> <li>• Trolley wash area/ Decontamination area.</li> <li>• 3 No. Red zone beds with Nurse's Station</li> <li>• Examination /Treatment Room.</li> <li>• Doctor's Room</li> <li>• CCMO Room with attached toilet and Medico-Legal Case</li> <li>• Duty Doctor Room</li> <li>• 3 No. Pre &amp; Post-Operative beds.</li> <li>• Change rooms.</li> <li>• Emergency OT Lobby, Patient Holding Area, Emergency TSSU, OT Pharmacy, Sterile store, Dirty Utility</li> <li>• 1 No. Emergency Operation theatre</li> <li>• AHU Room</li> <li>• Effluent Treatment Plant</li> <li>• Sewage Treatment Plant</li> <li>• Drinking water treatment plant</li> <li>• Bio-medical waste temporary storage room</li> </ul>	<p><b>Outpatient Department</b></p> <ul style="list-style-type: none"> <li>• OPD &amp; MCH Entrance Lobby (Double Height)</li> <li>• OPD &amp; MCH Registration (3 Counters)</li> <li>• Pharmacy with 3 counters and Pharmacy store</li> <li>• General Public toilet, Lift Lobby and Staircase</li> <li>• Radiology with 1 X-ray, ECG, Mobile X-ray, Dark room Printing, Dental Room, USG with color Doppler, Reporting Room and Radiology Waiting Area</li> <li>• Laboratory with Sample collection Area, Clinical pathology Lab, Pathology lab, BSC Room, lab In-charge room with toilet.</li> <li>• OPD consultation rooms: Ortho, Psychiatry, Wellness clinic, Family Medicine, Immunization/Cold chain room and patient waiting hall.</li> <li>• Support Services (Dietary): Cold storage, dry store, washing area, toilet and cooking area.</li> </ul>
<b>B. FIRST FLOOR</b>	
<p><b>Outpatient Department:</b></p> <ul style="list-style-type: none"> <li>• Waiting Area with Lift Lobby, public toilets, staircase</li> <li>• OPD consultation rooms: Counselling room, NCD, Adolescent clinic, Dermatology, ENT, PAC Room, Surgery, Specialty clinics, Physiotherapy, Tele-consultation room, Wellness clinic, PFT/ECG Room.</li> <li>• 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 occupational</li> </ul>	<p><b>Administrative unit:</b></p> <ul style="list-style-type: none"> <li>• Waiting area, Medical Superintendent Room with attached toilet, Nursing-in-charge room, Hospital manager room, Office Area with supervisors' cabins, meeting hall. Ward Complex</li> <li>• 6 beds Day care ward, Nutrition Rehabilitation Centre, Treatment room, Nurse's station, CU &amp; DU.</li> <li>• Dialysis Complex: change rooms with toilets, Dialysis ward with 4 beds and nurses station, Isolation room, Wash Area, RO Room, toilets.</li> </ul>



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: Pediatrics 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, pediatrics 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 (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.

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## ANNEXURE – 3

### Flora and Fauna

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**Kusumfula Beel** is a notable natural wetland covering an area of 550 hector is situated in less than 2 km from the project site. The Beel resembles the shape of Assam and filled with fish and numerous awesome water lilies. In winter lots of migratory birds mesmerizes for the passers-by of the adjacent National Highway.

**Animal's species** are Jackal - *Canis aureus*, Jungle cat - *Faliscus*, squirrels - *Funambulus pennant*, bats – *Vespertilionidae* (Mammalia: Chiroptera), Hare - *Lepus nigricollis nigricollis*, Common mongoose - *Herpestes edwardsi*, Common rat, *Ptyas mucosus* and Green whip snake - *Ahaatullanasutus*.

Free-Floating hydrophytes: Soru Puni (*Lemna minor* L), Barpuni (*Pistia stratiotes* L), Meteka (*Eichhornia crassipes*) and Azollasp. Rooted plants with floating leaves: Padum (*Nelumbo nucifera*) and Bhetful (*Nymphaea stellata*, *Marshilea* sp.)

**Aquatic plants** are found to have more ecological and economic importance.

Barpuni (*Pistia stratiotes* L), Sital Pati Doi (*Clinogyne/Dichotomasalisb*), Kalmou (*Ipomoea aquatica*), Singra/Singari (*Trapa Bispinosa*), Ullubon (*Blechnum Cyndrica*), Dal (*Hymenachna assanica*), Dhekia (*Blechnum orientale*).

#### Aquatic Birds

Birds and fishes play an important role in the wetland ecosystem. Most common birds in Dudhnoi are swans, ducks, cranes, storks, geese, cormorants, grebes, plovers, sand pipers, gulls, terns, egrets, herons, garzeta, water beetle, water scorpions, whirling bee etc.

#### Fish (Local Name and their Scientific Name)

Rou (Labeorohita), Bhokua (*Catlacatla*), Mirika (*Cirrhia sumrigala*), Kurhi (*Labeogonius*), Magur (*Clarius batrachus*), Singi (*Heteropkeustes fossilizes*), Chital (*Notopterus chitala*), Barali (*Wallago attu*), Aari (*Aorichthys seenghala*), Tingara (*Mystus tengra*), Lachie Bhangon (*Cirrhinus reba*), Kanduli (*Notopterus notopterus*), Boroliya (*Aspidoparia worav*), Moa (*Amblypharyngodon mola*), Puthi (*Puntius* spp.), Goroi (*Channa punctata*), Sal (*Channa marulius*), Sol (*Channa straitus*), Kaoi (*Anabas testudineus*), Kholihana (*Colisafasciata*), Turi (*Mastacembelus pancalus*), Kuchia (*Macrognathus armatus*), Tortoise (*Trionyx gangeticum*), Khamukh (*Pila globosa*), Kekora (*Cancer cancer*), Shrip (*Caridea*)

#### Other birds

Barn Swallow (*Hirundo rustica*), Rock Pigeon (*Columba livia*), Indian Pond Heron (*Ardeola grayii*), Asian Openbill (*Anastomus oscitans*), Citrine Wagtail (*Motacilla citreola*), Black Drongo (*Dicurus macrocercus*), Eastern Cattle Egret (*Bubulcus coromandus*), Little Ringed Plover (*Charadrius dubius*), White Wagtail (*Motacilla alba*), Little Egret (*Egretta garzetta*), Temminck's Stint (*Calidris temminckii*), Mallard (*Anas platyrhynchos*), Indian Pied Starling (*Gracupica contra*), Russet Percher (*Neurothemis fulvia*), Swampwatcher (*Potamarcha congener*), Chalky Percher (*Diplacodes trivialis*), Scarlet Skimmer (*Crocothemis servilia*), Milky Midget (*Agriocnemis lacteola*), Pool Barb (*Puntius sophore*), Bengal Loach (*Botia dario*), Domestic Cat (*Felis catus*), Common Kingfisher (*Alcedo atthis*), Eurasian Tree Sparrow (*Passer montanus*), Indian Cabbage White (*Pieris canidia*), Rhesus Macaque (*Macaca mulatta*), House Crow (*Corvus splendens*), White-throated Kingfisher (*Halcyon smyrnensis*), Spotted Dove (*Spilopelia chinensis*), Tufted Duck (*Aythya fuligula*), Black Kite (*Milvus migrans*), Lesser Adjutant (*Leptoptilos javanicus*), Medium Egret (*Ardea intermedia*), Copperhead Rat Snake (*Coelognathus radiatus*), Assam Macaque (*Macaca assamensis*), Himalayan Griffon (*Gyps himalayensis*), Grass Demon (*Udaspes folus*), Spotted Owlet (*Athene brama*), Collared Scops-Owl (*Otus lettia*), Lime Swallowtail (*Papilio demoleus*), Red-spot Jezebel (*Delias descombesi*), Grey Pansy (*Junonia atlites*), Plain Tiger Butterfly (*Danaus chrysippus*), Peacock Pansy (*Junonia almana*), Common Leopard (*Phalanta phalantha*), Common Five-Ring (*Ypthima baldus*), Common Palmfly (*Elymnias hypermnestra*), Common Mormon Swallowtail (*Papilio polytes*), Lime Blue (*Chilades lajus*), Common Evening Brown (*Melanitis leda*), Litchi Lantern Bug (*Pyrops candelaria*)

#### Other common Plants (Local Name and their Scientific Name)

Tulsi (*Ocimum sanctum* L.), Amlokhi (*Emblica officinalis* L.), Arjun (*Terminalia arjuna* (Robx.)), Posotiya (*Vitex negundo* L.), Miskiri (*Morus alba* L.), Ashwagandha (*Withania somnifera* L.), Holfoli (*Phyllanthus acidus* (L.) G. Don.), Halodhi (*Curcuma longa* L.), Sarpagandha (*Rauwolfia serpentina* (L.) Benth.), Nayantara (*Catharanthus roseus* (L.) G. Don.), Jetuka (*Lawsonia inermis* L.), Joba Ful (*Hibiscus* sp. L.), Vringoraj (*Wedelia chinensis* L.), Kehraj (*Eclipta prostrata* L.)<sup>15</sup>. Haar Jora (*Cissus quadrangularis* L.), Gopakhi (*Drynaria quercifolia* L.), Jaluk (*Piper nigrum* L.), Tita Bhekuri (*Solanum indicum* L.), Bhetai Tita (*Clerodendrum* sp.), Aada (*Zingiber officinale* L.).

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Ref: Nature Trails, Volume: 1, Issue: 3, July 2023, Dudhnoi college

## ANNEXURE - 4

## PARTICIPATION LIST OF PUBLIC CONSULTATION WITH STAKEHOLDERS

05/02/24

অসম স্বাস্থ্য আন্তঃগাঁথনি উন্নয়ন আৰু ব্যৱস্থাপনা সমিতি (AHIDMS), অসম চৰকাৰ।

১০০ বিচনামুক্ত নতুন জিলা চিকিৎসালয় in Dudhnoi, অসম।

M/S Tribeni Construction limited.

Attendance sheet of 1<sup>st</sup> Community consultation for stakeholder engagement  
(List of Participants)

অংশীদাৰ এংগেজমেণ্টৰ বাবে ১ম সম্প্ৰদায়ৰ পৰামৰ্শৰ উপস্থিতি পত্ৰিকা (অংশগ্ৰহণকাৰীৰ তালিকা)

Sl. No	Name নাম	Village গাওঁ	Sex লিংগ (M/F)	Age বয়স	Occupation বৃত্তি	Signature চহী
01	Subman O. Shree	Nidampur	(M)	43	Contractor	T. Shree
02	Sengorah G. Monia	Nidampur	(M)	40	Secretary	S. Monia
03	Brijesh Marak	Nidampur	(M)	50	Business	Brijesh Marak
04	Nestling Sangma	Nidampur	(M)	30	Farmer	N. Sangma
05	Sujit Sangma	Nidampur	(M)	45	Business	S. Sangma
06	Moclem	Nidampur	(M)	42	Farmer	Moclem
07	W. Monia	Nidampur	(F)	45	House wife	W. Monia
8	O. Monia	Nidampur	(F)	32	House wife	O. Monia
9	Rita Sg	Nidampur	(F)	36	House wife	Rita Sg
10	L. Monia	Nidampur	(M)	49	Farmer	L. Monia
11	Roger Marak	Nidampur	(M)	47	Farmer	R. Marak
12	Prady Marak	Nidampur	(M)	43	Farmer	P. Marak
(100 Bedded new District Hospital Dudhnoi Representative)						
13	Blaskar Banuak	Dudhnoi Hospital contractor staff	M	28	Sr. Executive EHS	B. Banuak
14	Prakash Goswami	"	M	40	Executive Accounts	P. Goswami
15	Nityananda Dome	"	M	45	Supervisor	N. Dome
16	Dhruvayoti Kalita	Dudhnoi	M	30	Civil Engineer	D. Kalita

## ANNEXURE – 5 DEMOLITION WASTE MANAGEMENT PLAN

As per C & D Waste Rules there should be no littering or deposition of construction and demolition waste so as to prevent obstruction to the traffic or the public or drains. There are several instances of environmental degradation caused in cities due to indiscriminate disposal of C & D waste. To avoid any such incidents, the demolition waste generated due to demolition of seven old structures which are in dilapidated condition will need to be demolished as a site clearance mechanism.

### Composition of the C&D waste at proposed DH:

The C&D activity can vary depending on age of building being demolished depends largely on the type and nature of construction / demolition project activities. Majorly, composition of C&D waste from these structures will be cement concrete, Bricks, Mortar, wood, bamboo, GI sheet etc.

### Demolition waste management

Tribeni Construction Limited will be responsible for collection, segregation of concrete, soil and others and storage of construction and demolition waste generated, as directed and approved by the project authority. Tribeni will be responsible to:

1. Ensure that other waste (such as solid waste) does not get mixed with this waste and is stored and disposed separately.
2. Keep the concerned authorities informed regarding the relevant activities from the planning stage to the implementation stage.
3. Keep the construction and demolition waste within the premise or get the waste deposited at collection centre so made with the approval of Project Engineer or handover it to the authorized processing facilities/vendors of construction and demolition waste; and ensure that there is no littering or deposition of construction and demolition waste so as to prevent obstruction to the traffic or the public or drains.
4. Pay relevant charges for collection, transportation, processing and disposal as approved by the project authorities;

### Demolition waste management plan

The demolition waste will be reused or recycled to minimise the load on the disposal facility. At present, there is no use of asbestos in the existing infrastructure which need to be demolished. Inventory of the demolition waste and its disposal plan will be as detailed below:

Sr. No.	Material Details	Quantity(N o/KG)	Reused/ Recycled/ Disposed off	Reused/Recycled/Disposed off (to whom/where/how)
1	Bricks	3600 Nos	Reused	Worker hutment
2	Timber And Timber Based Boards	4450kg	Reused & recycled	
3	Door And Window Frames and Shutters	1755 kg	Re Reused & Recycled	Worker hutment
4	Tin Sheets	1439.42 kg	Re Reused & Recycled	Worker Hutment
5	Damaged PVC wire	65.5kg		
6	Debris	66 cum	To be used in	Temporary approach

### Pollution Control Mitigation Measures:

Following mitigation measures will be adopted for control of the pollution and other related aspects that may be created during the demolition activities as well as its handling & disposal:

Aspect	Mitigation Measures
Air Pollution	<ol style="list-style-type: none"> <li>1) Water will be sprinkled to avoid dust during activities such as drilling etc.</li> <li>2) Green Net will be provided around the infrastructure to be demolished.</li> <li>3) Hard barricade will be provided surrounding the building wherever necessary.</li> <li>4) PPE will be provided to the worker.</li> <li>5) It will be ensured that the Labours and staff is wearing the PPE</li> </ol>
Noise Pollution	<ol style="list-style-type: none"> <li>1) Vehicles and machineryinvolved will be regularly checked for maintenance.</li> <li>2) Work schedule shall will in day time.</li> <li>3) If required silencers will be provided to the machinery/vehicle.</li> <li>4) Vehicle horn to be minimized.</li> <li>5) PPE will be provided to the worker.</li> <li>6) It will be ensured that the Labours and staff is wearing the PPE</li> </ol>
Traffic Management	<ol style="list-style-type: none"> <li>1) During work flag men will be deployed.</li> <li>2) Peak hours of traffic will be avoided for transporting the debris.</li> <li>3) If required the approach road will be used for the collection of debris.</li> <li>4) Signage will be provided for public awareness.</li> <li>5) Vehicle speed will be controlled in the premises. Speed limit signage will be provided.</li> </ol>
Safety Measures during Demolition of Building Structures	<ol style="list-style-type: none"> <li>1) Safety PPE will be providedto the workers.</li> <li>2) It will be ensured that the Labours and staff is wearing the PPE</li> <li>3) During transporting of debris, the vehicle will be covered for protection of spillage.</li> <li>4) One vehicle will be engaged for emergency.</li> <li>5) Documentation for vehicle &amp; machinery will be recorded and checked thoroughly.</li> <li>6) Regular conduct of awareness with the tool box talkfor worker safety.</li> <li>7) Underage/overage screening process to be followed.</li> <li>8) Adequate equipment's will be provided to workers for height,such as harness,aluminium ladder.</li> </ol>

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**ANNEXURE- 6**  
**WORKER SITE MANAGEMENT PLAN/ GUIDANCE**

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 labor without obtaining the valid license. The following registers and records are maintained:

- (a) Muster roll (Gender wise)
- (b) Register of wages (EqualwagesasperAct1976)
- (c) Register of deductions
- (d) Register of over time
- (e) Register of fines
- (f) Register of advances

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

**Table: Labour management and Provisions for Contract labor**

Component	Details
Labor License	LL No.: <b>CLL/2024/KZ1704467955950UB</b> Valid: <b>02/01/2025</b>
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: 225 Policy Number: <b>32197214</b> Date of issuance: <b>19/12/2023</b> Policy effective from <b>28/11/2023</b> Expiry Date: <b>12/10/2025</b>
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 labor
Labour Grievances	GRM Registers/ Dropbox/Phone; Grievance Redressal committee
Labour safety	Fire Safety, Adequate PPE, etc. and timely replenishment
Display Emergency contact numbers	Emergency contact details of doctor, police station, fire station and 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 behavior (whether directly or by implication) as a) Physical contact and advances, b) A demand or request for sexual favors, c) Sexually colored 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. <ul style="list-style-type: none"> <li>Sensitization on Gender based Violence, SEA/SH for all personnel at site.</li> <li>Signing of Code of Conduct by all personal at site (Contractors personal and laborers')</li> </ul>
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 Tribeni Constructions Limited, Tribeni commercial complex 2 <sup>nd</sup> floor, G.S. Road, Ulubari, Guwahati- 7
2	Contract date and duration	
3	Status and completion of the project	Civil works yet to start.

#### B. SITE DETAILS

Sr. No.	Category of workforce	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				125
2	Skilled Laborers				100



	<b>SubTotal</b>				<b>225</b>
	<b>GrandTotal</b>				<b>225</b>

### C. Categorization of workforce

S. No.	Category of workforce	Male		Female		Employment Status		Residential Status Migrant <sup>7</sup>	Accommodation Status		
		<18 yrs.	>18 yrs.	<18 yrs.	>18 yrs.	Regular	Temporary		Local	Staying in Labour camp/Quarters	others
1	Unskilled Laborers		125				125	105	20		125
2	Skilled Laborers		100				100	95	5		100
	Total		225				225	200	25		225

### D. Details of non- working migrated people, living in the labor camp/ Staff Quarters as part of workforce

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	
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

### E. Submission Details

Signature & Date		
Name	Mr. Bhaskar Boruah	Mr. Anitesh Dutta
Designation	Sr. Executive EHS	Assistant General Manager
Remarks by engineer in Charge/ Project manager		

**ANNEXURE - 7**  
**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 Dudhnoi 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 results 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.
Hazardous waste	Used lubricants or oils will be collected in spill proof containers and stored at designated area only It will 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

## **ANNEXURE- 8**

### **TRAFFIC MANAGEMENT PLAN**

Traffic Management Plan for proposed DH at Dudhnoi 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.

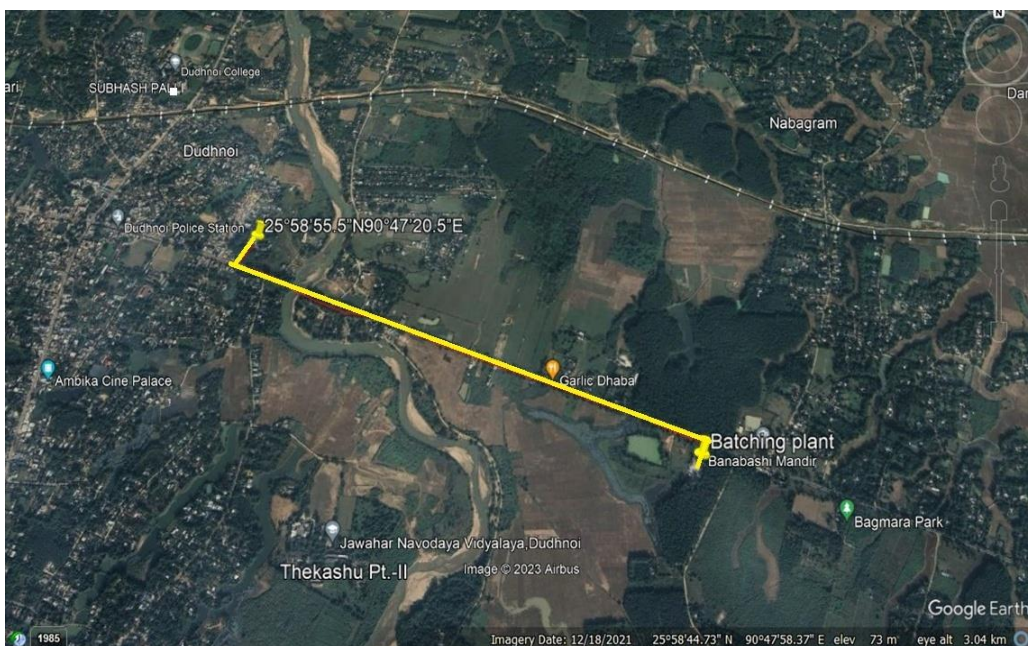
Following measures will be taken by Contractor during transportation of Mobilization of construction heavy vehicle.

- Obey the existing traffic management rules and signs of local Transport Authority (district Goalpara 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 behavior 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 Dudhnoi**

Route		Road Condition	Proposed mitigation approach	Responsibility	Monitoring
From	To				
Dudhnoi Hospital Construction	Entry gate of Dudhnoi CHC, FRC	Road, conditions are good.	Follow traffic guidelines as given in the Traffic Management Plan in Annexure	Contractor	PCCMC and PMU
Batching plant	Hospital construction	NH -37 (Under Construction) conditions are good			



**Map 2: Transportation route from Batching plant to Proposed DH Site, Dudhnoi**

## 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 behavior 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			
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  
DUDHNOI  
ASSAM**

**PREPARED BY**

**TRIBENI  
CONSTRUCTIONS  
LIMITED**

**May 2023**



## 1.0 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's 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 efforts 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 Jothi, 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 work place, 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).

Hospitals 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 risks and hazards have gathered pace. As healthcare extends into community and home environments, hazards and risks 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 infectious 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 arrests and dealing with the victims 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 morbidity anxious and suicidal patients (that may be intensified by hectic work patterns that do not allow for breaks), put them at high risk.

All of this requires a good amount of physical and psychological resilience as they are the frontline workers who continuously deal with such circumstances. Their health and safety needs are to be monitored with extreme caution and proper teamwork between an occupational health professional and health care management is key to establish and create an environment with controls in place to protect health care workers. The current situation has made us realize that while it's comparatively easy for us to sit and home and fight with the pandemic, this journey is tough and life-threatening for our healthcare professionals. Besides the above precautionary measures, they require our continuous support, motivation and a little care that enlivens their spirit to overcome their existing challenges.

In India, "health and safety policy" is defined in construction project management by Bureau of Indian Standard (BIS). Therefore, the same health and safety policy for construction projects may also be adopted for O&M for the construction and operation of this hospital.

Hospital Construction projects with embedded components like STP,ETP,OT, Lab etc. are subject to safety audits, which confirm the status of safety and health organizational setup, education / training, provision / inspection of personal protection, and records of safety, to ensure occupational safety and health at the work sites. The plant engineer should rectify failures immediately, if any. The audit will be implemented as per IS: 14489 "Code of Practice on Occupational Safety and Health Audit." Standard safety audit procedures of the inspectorate of factories shall be at a frequency of a month and compliance reported to that agency.

## 2.0 OCCUPATIONAL HAZARDS

During the construction of the project features, different manpower from different occupation will be involved. The hospital is in operation and construction activities are getting on same buildings which have probability of transmission of the diseases and other issues from dusty environment. Some workers may get exposed to hazardous materials which may have temporary or permanent effect.

If appropriate precautions are not taken then serious mishap may occur. The high exposure to hazardous materials like lead-based paints, grease, dust etc. may add risk to employees. Respiratory problems like ARTIs, COPDs, heart diseases, hearing disorders, different epidemics may be common to those workers exposing highly to hazardous waste. The envisaged direct impact will be long-term, site specific, medium and hence will be significant.

The health and safety of hospital staffs and patients in the hospital will be a prime concern of the top management. If necessary, awareness and skills are not imparted, handling of equipment and chemicals may result in occupational diseases and accidents. Breakage of mercury containing appliances will expose the health professionals, patients and visitors to

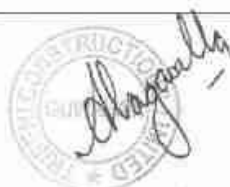


mercury hazard. X-ray lab may also expose to the radiation hazard. Although, the primary victims will be the staffs, patients and care takers, sometimes the local people may also be affected.

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 these sources who either handle such waste or are exposed to it as a consequence of careless management. The main groups 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.

**TABLE 1: TYPES OF DISEASES AND THEIR CAUSES**

INFECTION TYPES	EXAMPLES OF CAUSATIVE ORGANISMS	TRANSMISSION ROUTES
Gastroenteric infections	Enterobacteria, e.g. Salmonella, Shigella spp.; Vibrio cholerae; 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 products and secretions
Septicemia	Staphylococcus spp	Blood
Viral hepatitis B and C	Hepatitis B and C viruses	Blood and body fluids



### 3.0 PREVENTION OF OCCUPATIONAL DISEASES IN HOSPITAL

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

- Waste Management & Occupational Health and Safety (OHS) Committee will be formed.
- Necessary safety materials like Safety gears like Lead jackets, Gloves, Boots, Caps and Masks for staff involved in different departments will be provided.
- Instruction on health and safety related activities/issues including Emergency Preparedness Plan will be provided to workers. Instructions and posters 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 (terms used interchangeably) are chemicals 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 preparations, wound dressing etc, which are:

- 60 - 90% alcohol (Ethyl, isopropyl or "methylated spirit")
  - 4% chlorhexidine gluconate (Hibitane®, Hibiscrub®, Hibiclens®)
  - Chlorhexidine gluconate and cetrimide, in various concentrations (Savlon®)
  - 3% iodine aqueous iodine and alcohol containing (tincture of iodine) products, 7.5 – 10%
  - Iodophors, various concentrations (Betadine® or Wescodyne®)
  - 0.5 – 4% chloroxylenol (Para-chloro-metaxyleneol or "PCMX) various concentrations (Dettol®)
- 
- Antiseptics and disinfectants for the hospital should be safe, instructions 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 instruments).

- 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 containers will be labeled 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, Aprons & Gumboots.
- In addition to the PPE, the rooms will be well lit and ventilated so as to allow good air circulation. Chlorine solutions should never be mixed with cleaning products containing ammonia, ammonium chloride, or phosphoric acid. Combining these chemicals will result in the release of a chlorine 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 towel, 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 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:

- Remove rings, watches and bracelets.
- Thoroughly wash hands and forearms to the elbow with soap and water.
- Clean nails with nail cleaner.
- Rinse hands and forearms with water.
- Apply an antiseptic agent.
- Vigorously wash all surfaces 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, paper 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 5cm 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 personnel and company asset from unforeseen injury, loss and damages. The committee will provide the site 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 roles and responsibilities of the health and safety management committee will be prepared in detail and accordingly dealt. Safe management of chemicals will be everyone's responsibility, including supervisors, health managers and staff to ensure that chemicals are used in a safe manner. The foremost thing is labeling. The label contains all the important 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 the chemical, Identity of the chemical, Hazard symbols, Nature or special risks associated with the use of the chemical & Safety precautions.

Unlabeled chemicals 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 labeled.
- Firefighting and personal protective measures will be readily available in storage areas.
- Smoking, eating and drinking in chemical storage areas will be strictly prohibited.
- Incompatible materials will not be near each other; they may react and cause health risks.

#### **5.2 INFECTION PREVENTION AND CONTROL BARRIERS**

The infection prevention barriers are as follows:

- Physical: by boiling or steaming and sterilization by autoclaving or dry heat ovens.
- Mechanical: PPE (gloves, masks, goggles, gowns, aprons and drapes).
- Chemical: Antiseptics (iodophors, alcohol based antiseptic agents) and disinfectant in HLD (chlorine, glutaraldehyde).



There are two level approaches of standard precautions. Standard precautions are the primary strategy for control of the spread of infection in health care settings.

### 5.2.1 FIRST LEVEL

Standard Precautions are applicable when interacting with patients or workers in healthcare facilities, regardless of their diagnosis or presumed infection status when Blood, all body fluids, Non-intact skin, Mucous membranes are present. Standard precautions are as follows:

- Consider every person (patient/clients or staff) as potentially infectious and susceptible to infection. Use appropriate hand hygiene techniques including; routine hand washing, hand antiseptics,
- Antiseptic hand rub and surgical hand scrub.
- Wear personal protective equipment consisting of boots, aprons, gowns, gloves, masks.
- Protective eyewear and caps.
- Appropriately handle sharps, patient care and resuscitation equipment, and appropriately.
- Manage patient placement and environmental cleaning.
- Safely dispose of infectious waste materials to protect those who handle them and prevent injury or spread to the community.
- Process instruments by decontamination, cleaning, and either sterilization or high-level disinfection following recommended procedures.

Breaking the disease transmission cycle by applying standard precautions consists of:

- Reducing the number of infection-causing microorganisms present (e.g., through practicing hand hygiene, decontamination and cleaning of instruments, use of antiseptics on skin prior to I.V. injection or surgical procedure).
- Killing or inactivating infection-causing microorganisms (e.g., hand hygiene with an antiseptic or waterless alcohol hand rub, proper processing of instruments following procedures).
- Creating barriers to prevent infectious agents from spreading (e.g., wearing PPE, covering mouth when sneezing).
- Reducing or eliminating risk practices (e.g., by passing sharps using hands-free technique, using disposable gloves instead of none, no recapping of needles, disposing of syringes in a safety box at point of use).



### 5.2.2 SECOND LEVEL

Transmission-based precautions: These supplement Standard Precautions and disease-specific isolation categories and are used with patients known or suspected to be infected by pathogens spread by airborne or droplet transmission or through contact with dry skin or contaminated surfaces. This is the second level of precautions intended for use in patients known or highly suspected of being infected or colonized with pathogens transmitted by:

- Air (tuberculosis, chicken pox, measles, etc.).
- Droplet (flu, mumps, rubella).
- Contact (hepatitis A or E and other enteric pathogens [includes fecal/oral transmission], herpes simplex, and skin or eye infections).

These precautions are designed to reduce the nosocomial transmission of particles 5 µm or less in size that can remain in the air for several hours and be widely dispersed. Microorganisms spread wholly or partly by the airborne route include chicken pox (varicella virus) and measles (rubella virus). Airborne precautions are recommended for patients with either known or suspected infections with these agents.

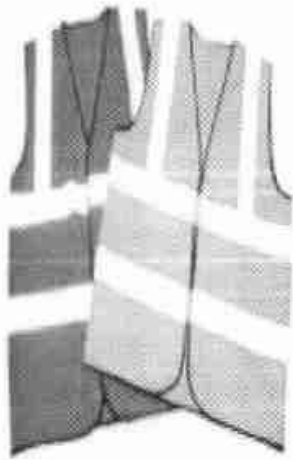
### 6.0 SAFETY SIGNAGES IN HOSPITAL CAMPUS

To warn of danger to workers, visitors, and other construction workers in the Hospital Premises, safety signs such as shown in Figure 1 will be displayed in the Hospital Premises.



Source: <http://www.safety-signs.com>

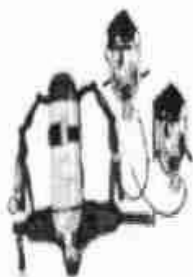
**FIGURE 1 : SAFETY SIGNS**



**FIGURE 2: FLUORESCENT JACKET**



**FIGURE 3 : GAS MASKS**



**FIGURE 4: SELF BREATHING APPARATUS**





FIGURE 5: PORTABLE BLOWER



FIGURE 6: CONFINED SPACE ENTRY

### Personal Protective Equipment (PPE)



FIGURE 7: PPE KITS



## Skin and Body Protection



Skin and body protective equipment should be worn by workers to avoid injuries and accidents caused by:

- Falling objects
- Falling from heights
- Extreme temperatures
- Radiation
- Flames and sparks
- Toxic chemicals
- Sharp materials

FIGURE 8 : PPE KITS SKIN AND BODY PROTECTION

## Respiratory Protection



Respiratory Protective Equipment protects workers against contaminants present in the workplace such as:

- Harmful gases
- Chemicals
- Particles or droplets containing viruses and bacteria

FIGURE 9 : PPE KIT FOR RESPIRATORY PROTECTION





## Hearing Protection



Workers exposed to excessive noise should wear proper hearing protection to prevent hearing damage and loss of hearing. Some hearing protection they can use are:

- Single-use earplugs
- Preformed or molded earplugs
- Earmuffs

FIGURE 10: PPE KIT FOR HEARING PROTECTION



**ANNEXURE 10****Contractor Grievance Redress Committee**

<b>Sr. No</b>	<b>Name and details</b>	<b>Designation</b>	<b>Status in the GRC(Convener/ Member)</b>	<b>Contact Details</b>
1	Mr. Anitesh Dutta	Assistant General manger	Chairperson (Contractor Representative)	7602102294
2	Mr. Biswadeep Das	Senior Project Manager	Member (AHIDMS Client Representative– Senior project manager for the package)	03613501033
3	DebjitDatta	EHS Officer	Member (PMC Engineer)	7010639076
4	Rajesh Jha	Project Manager	Member (PMC Engineer)	9999032545
5	Mr. Jugananda Dutta	Community Member	Member(Community Member)	8822837071
6	Tubman D Shira	Community Member	Member(Community Member)	7002537993
7	Bhaskar Boruah	Contractors EHS Officer	Convener (Contractors EHSOfficer)	7896069869

## ANNEXURE- 11

### PHOTOGRAPHS OF BASELINE DATA COLLECTION

#### SOIL SAMPLING



Date of Sampling: 28/03/2024  
N:25°58'28", E:90°48'21"

Fafal, Dudhnoi, Assam

Sampling & Analysis Done By:  
M/s GREEN TECH ENVIRONMENTAL ENGINEER &  
CONSULTANTS  
GUWAHATI, ASSAM-781028

#### WATER SAMPLING



Date of Sampling: 03/01/2024  
N:25°58'57", E:90°47'21"

Construction site of 100 Bedded New District Hospital,  
Situated in Dudhnoi, Assam

Sampling & Analysis Done By:  
M/s GREEN TECH ENVIRONMENTAL ENGINEER &  
CONSULTANTS  
GUWAHATI, ASSAM-781028

#### WATER SAMPLING



Date of Sampling: 28/03/2024  
N:25°59'58", E:90°47'27"

Khara Pt-I, Dudhnoi, Assam

Sampling & Analysis Done By:  
M/s GREEN TECH ENVIRONMENTAL ENGINEER &  
CONSULTANTS  
GUWAHATI, ASSAM-781028

#### AMBIENT AIR QUALITY MONITORING



Date of Sampling: 28/03/2024-29/03/2024  
N:25°58'28", E:90°48'21"

Fafal, Dudhnoi, Assam

Sampling & Analysis Done By:  
M/s GREEN TECH ENVIRONMENTAL ENGINEER &  
CONSULTANTS  
GUWAHATI, ASSAM-781028

## NOISE LEVEL MONITORING



Latitude: 25°58.465'N  
Longitude: 90°48.335'E  
Elevation: 43.32±4 m  
Accuracy: 3.8 m  
Time: 28-03-2024 13:56  
Address: 783124 India  
Assam Lower Assam Division,Dudhnoi  
XRF4+XSV  
Note: TRIBENI EQM

Powered by NoteCam

Date of Sampling: 28/03/2024-29/03/2024  
N:25°58'28", E:90°48'20"

Fafal, Dudhnoi, Assam

Sampling & Analysis Done By:  
M/s GREEN TECH ENVIRONMENTAL ENGINEER &  
CONSULTANTS  
GUWAHATI, ASSAM-781028