

**Environmental and Social Impact Assessment
(ESIA)
&
Environmental and Social Management Plan
(ESMP)
for**



**Construction of New 100 Bedded District Hospital at
Lakhipur, District-Cachar, Assam**

**Assam State Secondary Health Care Initiative for Service Delivery
Transformation Project (ASSIST)**

**Assam Health Infrastructure Development & Management Society (AHIDMS),
Medical Education & Research Development,
Govt. of Assam**

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LIST OF ABBREVIATIONS

AAAS-	Atal Amrit Abhiyan Society
AHIDMS-	Assam Health Infrastructure Development and Management Society
AHU-	Air Handling Unit
AMSCL-	Assam Medical Supply Corporation Limited
ANC-	Antenatal Care
ANM-	Auxiliary Nursing Midwifery
ASHA-	Accredited social health activist
ASSIST-	Assam State Secondary Healthcare Initiative for Service Delivery Transformation
AQM-	Automated Quality Management
BEE-	Bureau of Energy Efficiency
BMWM-	Biomedical Waste Management
BIS-	Bureau of Indian Standards
BPL-	Below Poverty Line
BSC-	Bio-safety Cabinet
CBWTF-	Common Bio-medical Waste Treatment Facility
C&D-	Construction and Demolition
CDC-	Centers for Disease Control and Prevention
CHC-	Community Health Centre
CMNND-	Communicable, Maternal, Neonatal and Nutritional Diseases
CPCB-	Central Pollution Control Board
CFL-	Compact Fluorescent Lamp
CTF-	Common Treatment Facility
DG-	Diesel Generator
DH-	District Hospital
DHS-	District Health Society
DHFW-	Departments of Health and Family Welfare
DoHFW-	Department of Health & Family Welfare
DME-	Durable medical equipment
DPR-	Detailed Project Report
EAP-	Employee Assistance Program
ECBC-	Energy Conservation Building Code
ECG-	Electrocardiogram
ECoP-	Environmental Code of Practices

EHS- Environment Health and Safety
EMP- Environment Management Plan
ESIA- Environment and Social Impact Assessment
ESMP- Environment and Social Management Plan
ESMF- Environmental and Social Management Framework
ESS- Environmental and Social Standards
EPA- Environmental Protection Agency
ETP- Effluent Treatment Plan
FAAMCH- Fakhruddin Ali Ahmed Medical College and Hospital, Assam
FRU- First Referral Unit
FPIC- Free, Prior & Informed Consent
GBV- Gender Based Violence
GLS- General Lighting Service
GoA- Government of Assam
GOI- Government of India
GRM- Grievance Redressal Management
HAI- Health care-associated infections
HCF- Health Care Facility
HIV- Human Immunodeficiency Viruses
HRH- Human Resources for Health
HQ- Head Quarters
H&S- Health and Safety
IGBC- Indian Green Building Council
IHD- Ischemic Heart Disease
IRC- Indian Road Congress
IP- Indigenous Peoples
IPA- Internal Performance Agreement
IPC- Infection Prevention and Control
IPHS- Indian Public Health Standards
IPP- Indigenous Peoples Plan
IPPF- Indigenous Peoples Policy Framework
IS- Indian Standard
JCB- Joseph Cyril Bramford
LED- Light Emitting Diode

LMO- Liquid Medical Oxygen
MCH- Maternal and Child Health
MHA- Ministry of Home Affairs
MMR- Maternal Mortality Rate
MoEF& CC- Ministry of Environment, Forest & Climate Change
MoHFW- Ministry of Health and Family Welfare
MoU- Memorandum of understanding
NAAQS- National Ambient Air Quality Standards
NBC- National Building Codes
NBCC- National Buildings Construction Corporation Ltd
NBSU- Newborn Stabilization Unit
NCD- Non-Communicable Diseases
NDMA- National Disaster Management Authority
NFHS- National Family Health Survey
NGO- Non Government Organization
NH- National Highway
NHM- National Health Mission
NICU- Neonatal intensive care unit
NOC- No Objection Certificate
NQAS- National Quality Assurance Standards
OHS- Occupation and Health Safety
O &M- Operation and Maintenance
OPD- Out Patient Department
ORT- Oral Rehydration Therapy
OT- Operation Theatre
PDO- Project Development Objective
PCU- Passenger Car Unit
PHC- Primary Health Centre
PM- Particulate Matter
PMU- Project Management Unit
PPE- Personal Protective Equipment
PUC- Pollution under control certificate
PwD- Person with a Disability
PWD- Public Works Department

RCC- Reinforced Cement Concrete
RMC- Ready Mix Concrete
RNTCP- Revised National Tuberculosis Control Programme
RTO- Regional Transport Office
RWH- Rain Water Harvesting
SC- Sub Centre
SDH- Sub-District Hospital
SEA/SH- Sexual exploitation and abuse/Sexual harassment
SEMP- Site Specific EHS Plan
SEP- Stakeholder Engagement Plan
SH- State Highway
SMACNA- Sheet Metal and Air Conditioning Contractors' National Association
SMP- Social Management Plan
STD- Sexually Transmitted Diseases
STP- Sewage Treatment Plant
SNCU- Special Newborn Care Unit
SPCB- State Pollution Control Board
SPMU- State Project Management Unit
SOP- Standard Operating Procedures
SC-ST- Scheduled Caste Scheduled Tribe
SS- Social Security
ToR- Terms of Reference
TSSU- Theatre Sterile Supply Unit
UNESCO- United Nations Educational, Scientific and Cultural Organization
USG- Ultrasound or Sonogram or Ultrasonogram
UT- Union Territory
WHO- World Health Organization

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

1.0 Introduction

Government of Assam (GoA) is implementing World Bank assisted “Assam State Secondary Health Care Initiative for Service Delivery Transformation Project (ASSIST)” Project under Assam Health Infrastructure Development & Management Society (AHIDMS), Medical Education and Research Department, GoA with an objective to initiate improvement in the quality and delivery of health care system in the state and under this project, 100 to 200 Bedded District Hospitals (DHs) are going to be constructed in 10 Districts of the state.

One of the proposed sites is Lakhipur (Cachar) where new 100 Bedded New District Hospital is proposed to be constructed at the premises of Lakhipur Block PHC. It has been envisioned that the proposed DH at Lakhipur will come a long way in fulfilling the gap in providing secondary health care services to the people of the area.

2.0 Project Description

The proposed project involves construction of 100 bedded District Hospital at the premise of Lakhipur Block PHC situated at 24°47'35.0"N, 92°59'54"E. the proposed DH covers an area of 17,066.86 square meters which will house all the necessary contemporary facilities as per IPHS, 2022 norms which will further be human centric and GRIHA compliant.

3.0 Environment and Social Impact Assessment (ESIA)

The baseline environment and social attributes of the proposed 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, site issues may occur which 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 Lakhipur Block PHC 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 labors at site.

4.0 Environmental and Social Management Plan (ESMP)

The ESMP has been prepared considering the identified risks and impacts of construction of proposed DH at Lakhipur along with the name of agency/department that is responsible for the mitigation action in a specified time period starting from the pre-construction period to construction and operation 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, Labor Camp, Storage for construction materials, tree felling, use of vehicles and equipment, connections of water supply, electricity etc. by the Contractor who is assigned with the task of construction DH at Lakhipur.

The mitigation measures are planned against the identified environmental and social risks of the pre-construction and construction period of proposed project at Lakhipur. Proposed mitigation

measures aim to protect, prevent and minimize environmental issues of disturbance of land, water, soil and air arising out of construction activity at site and surrounding areas. Further, the mitigation measures addressing the social issues will minimize and prevent risks to community health and safety, occupational health and safety of labors, 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 & laborers)

5.0 Stakeholder Engagement

World Bank's ESS10 recognizes 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 through talks, interviews, and public meetings with the stakeholders were conducted for assessing their views and opinions on the project at Lakhipur. Suggestions of important stakeholders have been considered as inputs for preparation of the ESIA-ESMP. Site inspections that were required to confirm the information gathered have been carried out.

6.0 Alternatives

To implement the project at Lakhipur, State Government of Assam has provided the land i.e. land of Lakhipur Block-PHC, so no alternate locations were explored for the project. The best building materials and technologies that are appropriate for the project site and surrounding environment will be used.

7.0 Conclusion and Recommendations

Based on the ESIA findings, it has been determined that there are no major negative effects of the planned project. However the proposed project shall have temporary negative impacts during the project construction period, which shall be reversed during the project operation. The report's objectives are in line with World Bank Safeguard Policies and Governmental (India and Assam) regulatory requirements.

It is recommended that the project implementing agency to Obtain all statutory clearances before start of activities and ensures that conditions/provisions are incorporated in the detailed design. ESIA-ESMP should be included in contract documents, Commitment from contractors to protect the environment and the people from any impact during project implementation.

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CHAPTER-1

INTRODUCTION AND BACKGROUND

1-INTRODUCTION AND BACKGROUND

1.1 Background

State of Assam interwoven by mountains, valleys and two major river systems (Brahmaputra and Barak) is in the eastern most part of India between 24°.07' N to 28°00' N Latitude and 89°.42' E to 96°.02' E Longitude. At present, Assam has 35 administrative districts. As per the Census 2011, the total population of Assam is 31,205,576 of which 15,939,443 are males while female are 15,266,133. Thus, the population of Assam forms 2.58 percent of the population of India in 2011.

Assam is one of the highest maternal mortality rate (MMR) states, with around 205 deaths per 100000 live births in 2017-19 (*Office of the Registrar General, India*). Low ANC Coverage in Cachar, Bongaigaon, South Salmara Mancachar, Kokrajhar, and Increased Prevalence of anemia in women aged 15-49 years. Neonatal mortality rate and Still Birth (per 1,000 live births) rates have significantly decreased with the life expectancy at birth also improved (66.9) though it is below the national average of 69.4 years. The proportion of communicable, maternal, neonatal, and nutritional diseases (CMNND) contribute to 34.06% of total disease burden. Further, the burden of non-communicable diseases (NCDs) is growing in Assam.

The Assam State Government is planning to construct 100 to 200 Bedded District Hospitals (DHs) in 10 Districts of the state under “Assam State Secondary Health Care Initiative for Service Delivery Transformation Project (ASSIST)” Project. One of the proposed sites is Lakhimpur (Cachar) where a new 100 Bedded District Hospital is proposed to be constructed at the premise of Lakhimpur Block-PHC.

1.2 Requirement of New District Hospital

The Area is one of the major districts of Assam however it is worth noting that there is a high shortage of public healthcare services. The Public health facilities are predominant health service providers. Presently public healthcare services are provided by Banaskandi PHC, Sonarigram, Tilka Grant Healthcare Sub Centre, Salampur PHC, Uttar Lalpani PHC and Jhargul PHC are available at a distance of 15 km, but the facilities provided by those are not sufficient.

The proposed new District Hospital will be providing advanced health care services to the people of the locality as well as areas like Banaskandi-Sonarigram, Tilka Grant, Salampur, Uttar Lalpani and Jhargul.

At present, Lakhimpur Block-PHC exists at the site which is catering the medical needs of the local people. Most of the patients who visit the PHC are related to Obstetric cases coming from the nearby areas. The PHC is providing health care services to a good number of patients. But the services are not adequate in terms of facilities, manpower, space, infrastructure and equipment. The Existing Block-PHC will be upgraded to new 100 Bedded District Hospital with modern facilities and infrastructure.

1.3 Objective to undertake the Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) and its necessity

The Objective of the consulting assignment is to develop site specific architectural and engineering designs for construction of district hospital of Lakhimpur as per the IPHS standards

and patient movement, interior design complying with human-centric design philosophy in the proposed hospital, develop specifications for the works and estimate the costs for development of the Hospital.

GoA is committed to carry out the project in accordance with World Bank's Environmental and Social Standards (ESSs) and Environmental and Social Commitment Plan (ESCP), is a part of the Legal Agreements. Under ESS 1 i.e. Environmental and Social Assessment, ASSIST commits adoption of the site-specific ESIA and ESMP for the respective subproject. Once adopted, ESIA and ESMP will be implemented throughout Project implementation period i.e. pre-construction, construction and operation phase.

1.4 Objectives of Environmental and Social Impact Assessment (ESIA)

- Assessment of legislative, institutional and policy frameworks and guidelines relevant to the project
- Environment and social baseline
- Anticipated environmental and social impacts & mitigation measures
- Institutional capacity building
- Monitoring program and project benefits
- Identify potential environmental and social risks arising out of the proposed schemes
- Recommend ways in which such risks could be mitigated or managed by the project, including recommendations to carry out projects specific environment and social management plans (ESMP)
- Provide inputs into the detailed design of the project
- To study the socio-economic status of the people living in the study area and impact of the project on socio-economic environment in the study area.
- To evaluate and recommend the community development measures proposed to be taken up by the project authorities if any.

1.5 Objectives of Environmental and Social Management Plan (ESMP)

- Identifying potential adverse and beneficial environmental and social impacts of the Project along with the extent of short- and long-term effects
- Developing a set of mitigation and enhancement measures for the adverse and beneficial impacts and define the roles of personnel in charge
- Specifying actions which would help in mitigation of the environmental impact of the project along with ensuring what safety measures should be followed during the occurrence of an emergency.

1.6 Methodology for ESIA-ESMP

An Environmental and Social Impact Assessment (ESIA) & Environmental and Social Management Plan (ESMP) is a decision-making tool to ensure that the project design and implementation are environmentally and socially sound and sustainable. During the implementation phase, environmental and social management plans will provide guidance for executing the mitigation, enhancement and monitoring measures. The key steps/methods taken for preparing for this ESIA-ESMP are:

- Desk Review

- Scoping
- Baseline data collection and its analysis
- Collection of primary and secondary socio-economic data for the assessment of Socio-economic environment
- Screening and identification of Environmental and Social risk and impacts;
- Analysis of Alternatives
- Stakeholder engagement
- Assessment of impacts and identification of mitigation measures
- Reporting and disclosure

CHAPTER-2

PROJECT DESCRIPTION

2-PROJECT DESCRIPTION

2.1 Location of District Hospital

The site is located in Lakhipur (Cachar), Assam. Presently the proposed site is occupied by Lakhipur Block PHC. The site is surrounded by Department of Fishery (361 m) in north direction, Mahadev Temple, Lakhipur (508 m) in west direction, Girls High School (165 m) in east direction and Barak River (100 m) in south direction.

The Geographical Location is **24°47'35.0"N 92°59'54"E**. The Google image of the project site is given in **Figure 2.1**

Table 2.1: Site Surroundings Related To Study Area within 15 Kms

S. No.	Particulars	Details
1.	Nearest National /State Highway	NH-37: 2.020 Km
2.	Nearest Railway Station	Sribar Railway Station: 2.648 Km
3.	Nearest Airport	Silchar Airport: 13.550 Km
4.	Nearest Town/ City/Village	Within Lakhipur
5.	Nearest Water Body	Barak River: 0.100 km
6.	Nearest School	Girls High School: 0.165 km
7.	Nearest Hospital	Chhotomamda MPSC: 2.943 km
8.	Nearest Fire Station	Fire Station, Lakhipur: 0.406 km
9.	Site Topography	Almost Flat topography
10.	Archaeologically Important Site	Cachari Ruins Khaspur: 16.990 km
11.	National Parks/ Wildlife Sanctuaries	None
12.	State Boundary	Manipur State Boundary: 10.710 km
13.	Seismicity	Zone –V, as per BIS,2016



Figure 2.1: Google image of the project site

2.2 Existing Site Situation

Presently Lakhipur Block PHC exists at the site which is catering the medical needs of the local people. Allotted land for Lakhipur DH measuring 7 bigha 6 katha (10,970 sq. m.) was in possession of Lakhipur BPHC. Additional land measuring 4 bigha 13 katha 12 chatak (8880 sq. m.) has been handed over to the Joint Director of Health Services, Silchar from Assistant Settlement Officer, Lakhipur Circle for the project.

The existing site photographs of the project site are given in **Figure 2.2**

Lakhipur Block Primary Health Centre Departments assessed are –

1. OPD registration Counter
2. OPD-Male & Female
3. Emergency ward
4. Male & Female Ward
5. RNTCP Laboratory
6. D.O.T Centre
7. Birth-Death Registration Section
8. IEC Corner
9. NCD Clinic
10. Diagnostic Lab Section
11. Immunization Room
12. ASHA Room
13. Sisters' Duty rooms
14. ASHA conference Hall
15. SDM & HO's room
16. Delivery Room

17. Dispensing Counter
18. Drug Store Room
19. Office
20. Accounts Section
21. Waiting Shed
22. Stretcher & Wheeler Corner
23. Nursing changing room.
24. Color coded dustbins to segregate different type solid waste
25. Biomedical waste disposal through sharp pits and deep burial
26. Waste water disposal including liquid waste through pipeline within the campus.

The existing mode of BMW disposal at Lakhipur Block Primary Health Centre is through Sharp pits and Deep Burial at the site. The Biomedical waste generated at the proposed DH will be disposed of through facilities at SMCH Campus by making an agreement for the same. A 10 KLD ETP is proposed to be provided as a part of construction of the DH for treatment of infectious effluent. The treated effluent will be further sent to the STP for treatment and final disposal.





Figure 2.2: Existing site photographs of the project site

2.3 Proposed Project Details/Components

The components of proposed district Hospital are: Emergency Help Desk/ Reception, Police Post, Triage Room, Pediatrics beds, 1 Isolation bed, Utility, Toilet, Nurse's station, CU & DU, Plaster and Plaster Cutting room, Trolley wash area/ Decontamination area, Nurse's Station, Examination /Treatment Room, Duty Doctor's Room, Nurse's lounge, CCMO Room, Change rooms (Male and Female), Emergency OT Lobby, Patient Holding Area, Emergency TSSU, BMW room, 1 No. Emergency Operation theatre, AHU Room, OPD & MCH Entrance Lobby (Double Height), OPD & MCH Registration (3 Counters), Pharmacy with 3 counters and Pharmacy store, Radiology, Outpatient Department, *OPD consultation rooms*, *Administrative unit*, Laboratory with Sample collection Area, Clinical pathology Lab, Pathology lab, BSC Room, lab In-charge room with toilet, *Support Services (Dietary)*, *Obstetrics Critical Care unit*, *Mother & Child Hospital*, MCH Triage 2 beds, Minor OT, AHU Room, *District Early Intervention Centre*, *Ward Complex*, *SNCU & NICU*, *Mother's & new-born Ward*, *Paying cain complex*, *General ward complex*, *Paying cain complex*, *Burn unit*, *Dialysis Complex*, *HDU Ward*, *Blood bank*, *OT Complex*, *Hospital Stores*, 3 categories of room for BMW, (Mortuary & Gas manifold Room) and Laundry room. The details of Facilities-proposed in 100 bedded District Hospital are given separately in **Annexure-II**.

2.4 Area Statement with water requirement & power demand

The built-up area of proposed project is 17,066.86 Sq.m. The details area statement is given in **Annexure III**.

2.5 Other Project requirements

2.5.1 Water Requirement: The total water requirement as per NBC-2016 of the proposed project is 80 KLD. Out of this 58 KLD is fresh water demand and 22 KLD is for flushing water demand. The available source of drinking water at project location is PHED supply. Further made available through R.O. system in the premises. Within few months AMRIT-2 Scheme for drinking water will be introduced in the area which will be used in the operation phase of proposed DH. The total sewage generated will be 65 KLD. The waste water will be treated in the STP of 80 KLD capacity and ETP of 10 KLD (for treatment of used water from Laboratory, O.T). Total treated water available for reuse will be 52 KLD, which will be used in Flushing, DG

set cooling, Filter Backwash and Horticulture. The detailed water requirement along with water balance is attached as **Annexure XIII**.

2.5.2 Power requirement: The power requirement for the proposed project is 1250 KVA. The two DG sets of 625 KVA capacity is proposed to install as 100% power backup. Power factor for Transformer considered is 0.95 and loading factor is 0.80. Minimum capacity of Transformer shall be 2 x 630 KVA. However for future load, additional transformer space as well as HT/LT Panel space shall be provided as per Engineer-in-charge.

2.6 Volume of Civil Works

At present no civil works has been done for proposed DH only geotechnical investigation has been done till date. Civil work will be done according to the DPR and sanction drawings.

CHAPTER-3

LEGAL AND INSTITUTIONAL FRAMEWORK

3-LEGAL AND INSTITUTIONAL FRAMEWORK

3.1 Introduction

This Chapter outlines and provides a review of existing policies, legislations, and regulations. It identifies the requirements that guide the implementation of the ESIA. There are several Indian Acts and Regulations that are relevant to this project. Also, as this Project is being financed by the World Bank, its guidelines are paramount and are discussed. 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.

3.2 Environmental and Social Standards of World Bank and Indian National and State Regulations

3.2.1 The World Bank's Environmental and Social Standards (ESS)

The World Bank's Environmental and Social Standards (ESSs) is cornerstone to its support to sustainable development. The Environmental and Social Standards set out the requirements for ASSIST project relating to the identification and assessment of environmental and social risks and impacts associated with project through Investment Project Financing. The objective of these policies is to prevent and mitigate undue harm to people and their environment in the development process. Any project that is likely to pose any form of adverse environmental impact will trigger the relevant ESSs. The ESSs relevant to this project are given in **Table 3.1** as follows:

Table 3.1 Environment & Social Standard relevant to the project

S.No.	Environment & Social Standard	Relevance
1.	ESS1: Assessment and Management of Environmental and Social Risks and Impacts	Yes
2.	ESS2: Labor and Working Conditions	Yes
3.	ESS3: Resource Efficiency and Pollution Prevention and Management	Yes
4.	ESS4: Community Health and Safety	Yes
5.	ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	No
6.	ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	No
7.	ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Yes
8.	ESS8: Cultural Heritage	Yes
9.	ESS9: Financial Intermediaries	No
10.	ESS10: Stakeholder Engagement and Information Disclosure	Yes

3.2.2 Environmental, Health, Safety and Social Regulations (Acts/Law) applicable to the Project are:

Indian National Regulations and State Specific Laws and Regulations:

- ✓ The Constitution of India (especially, Articles 15, 16 and 46)
- ✓ Biomedical Waste (Management and Handling) Rules 2016, as amended up to 2019
- ✓ E-Waste (Management and Handling) Rules 2011 as Amendment up to 2018
- ✓ Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules 2008
- ✓ Hazardous and Other Wastes (Management and Trans boundary Movement) Amendment Rules, 2016
- ✓ Plastic Waste Management Rules 2016
- ✓ The Epidemic Diseases Act 1897
- ✓ The Water (Prevention & Control of Pollution) Act 1974
- ✓ The Air (Prevention & Control of Pollution) Act 1981
- ✓ Environment Protection Act (and Rules), 1986 and 1996 Environment (Protection) Second Amendment Rules 2002
- ✓ 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 Guidelines for BMW Incinerators (2003)
- ✓ Draft Guidelines for Biomedical Waste Incinerator, 2017
- ✓ Revised guidelines for Common Biomedical Waste Treatment Facilities (2016)
- ✓ The Assam Air (Prevention and Control of Pollution) (Amendment) Rules 2010
- ✓ Noise (Regulation and Control) Rules, 2000 amended in 2010
- ✓ National Disaster Management Act, 2005
- ✓ Solid waste management rules, 2016
- ✓ The Epidemic Diseases (Amendment) Ordinance, 2020
- ✓ Construction and demolition waste management rules, 2016
- ✓ Guidance notes on Liquid Medical Oxygen (LMO) Storage Tanks, April 2021
- ✓ Maternity Benefit Act, 1961 and Assam Rules, 1965
- ✓ Child Labor (Prohibition and Regulation) Act, 1986 and Assam (Amendment) Rules, 2017
- ✓ Contract Labor (Regulation and Abolition) Act, 1970 and Assam Rules 1971
- ✓ Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 and Assam Rules, 2007
- ✓ Inter State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act, 1979 and Assam Rules 1981
- ✓ Equal Remuneration Act, 1976
- ✓ Minimum Wages Act, 1948 and Assam Rules, 1952
- ✓ Payment of Wages Act, 1936 and Assam Rules, 1937
- ✓ Employees' Compensation Act, 1923
- ✓ Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (RFCTLARR) Act, 2013 and Assam Rules, 2015
- ✓ Scheduled Caste and the Scheduled Tribes (Prevention of Atrocities) Act, 1989 and Rules, 1995
- ✓ Rights of Persons with Disabilities (PwD) Act, 2016

- ✓ Sexual Harassment of Women at Workplace Prevention, Prohibition, and Redressal Act, 2013
- ✓ Right to Information Act, 2005
- ✓ Assam Scheduled Castes and Scheduled Tribes (Reservation of Posts in Services) Act, 1978
- ✓ Settlement Rules under Assam Land and Revenue Regulation, 1886.

The details about provisions, Agency responsibility, Key provisions and relevance to project is summarized in *Chapter 3 of ESMF*, The link is attached here: https://ahidms.assam.gov.in/sites/default/files/public_utility/Environmental%20and%20Social%20Management%20Framework%20ASSIST_PMU.pdf

CHAPTER-4

BASELINE ENVIRONMENTAL AND SOCIAL DATA

4-BASELINE ENVIRONMENTAL AND SOCIAL DATA

4.1 Physical Environment

Project Site- Lakhipur: Lakhipur is a Town in Cachar District of Assam State, India. It is located 25 km towards East from District headquarters Silchar.

The Proposed Location of the District Hospital is in the plot of Lakhipur Block PHC. The Total Plot Area is 16,252.59 Sq.m (4.01 Acre, 12 Bigha 15 Lessa). The Geographical Location is 24°47'35.0"N 92°59'54"E. The site location, description and topography can be seen with the help of the 500 m and 5 km buffer map of the project site as given in **Figure 4.1 & 4.2** below

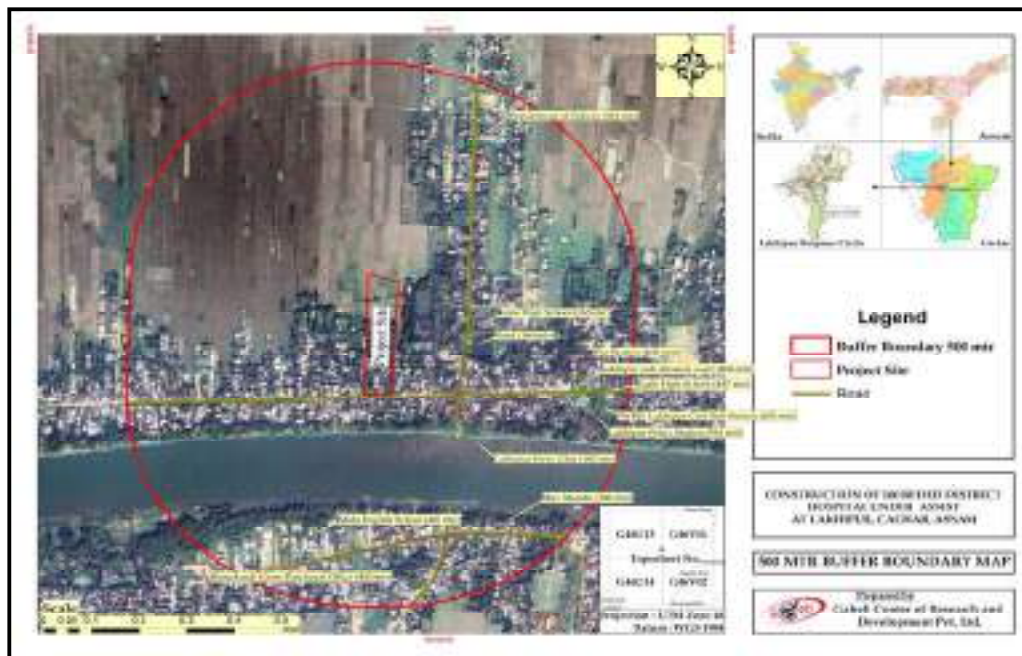


Figure 4.1: 500 m buffer map of the project site

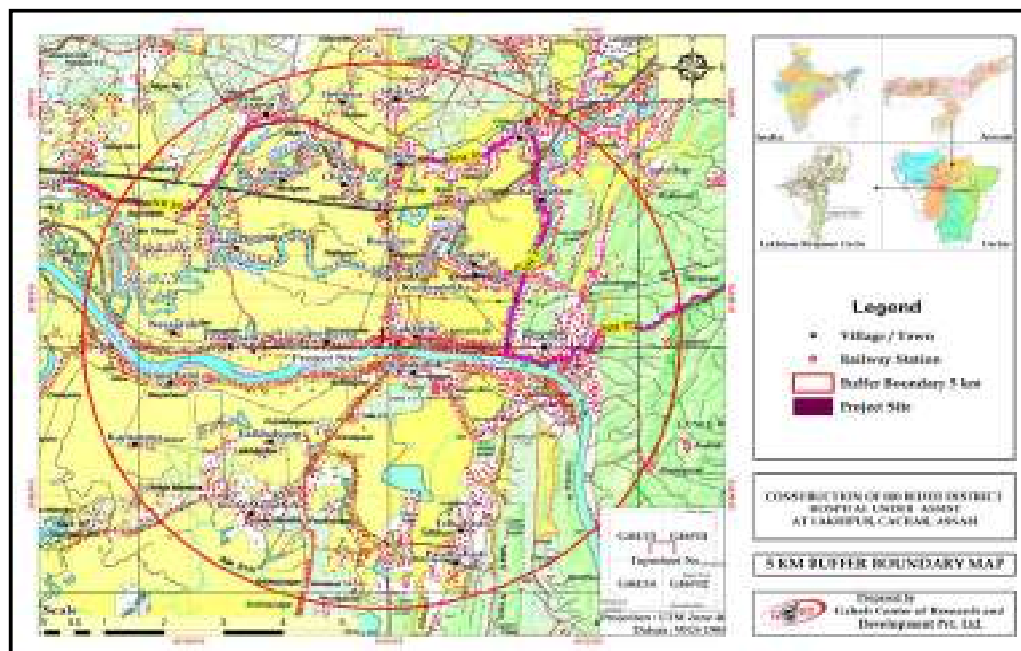


Figure 4.2: 5 Km buffer map of the project site

Out of the total plot area, proposed built up area is 17,066.86 sq. m. Here the plinth or the physical footprint area is 2,857.14 sq. m. The proposed land is a government land.

4.2 Climate: The district falls under sub Himalayan region zone II & subsequently sub-regionalized under Barak Valley zone. Main features of weather during four seasons in a year have been described by IMD as follows;

- i) Winter (Dec – Feb) occasional rain associated with western disturbances is an important phenomenon with morning fog.
- ii) Hot weather season (March to May) temperature during the season is not so high due to cloudiness & pre-monsoon rain. Weather is very humid & uncomfortable.
- iii) Monsoon season (June – Sept) southwest monsoons relatively cool & humid.
- iv) Post Monsoon season (Oct – Nov) though rainfall occurs during the early part of the season fog also occurs. Night temperature gradually falls with reduced rate of humidity. (Source: <https://cachar.gov.in/information-services/land-climate>)

4.2.1 Rainfall

The rainfall data for the district was sourced from Customized Rainfall Information System (CRIS) Hydromet division, India Meteorological Department (IMD). The data was collected for 5 years i.e. 2018-2022. The data is presented in **Table 4.1**.

Table 4.1: Rainfall Data (in mm)

	2018	2019	2020	2021	2022
January	3.4	0	27.2	7.6	27.1
February	14.5	30.6	0.1	0	34.1
March	133.3	54.6	21.9	79	84.7
April	212.8	171.7	179.3	110.4	244.1
May	387.8	287.2	304.5	428.7	672.2
June	546.3	459	601.5	505.6	885.7
July	342	628.4	556.3	489.7	552.6
August	363.1	337.6	380.4	526.2	205
September	400.5	363.7	355.1	189.7	253.8
October	122.5	369.5	319.9	161.2	129.2
November	14.6	23.7	38.4	0.2	0.6
December	30.8	5.3	0	69.7	8.6
Average	214.3	227.608	232.05	214	258.142
Min	3.4	0	0	0	0.6
Max	546.3	628.4	601.5	526.2	885.7

4.2.2 Earthquake

As per the plate tectonics, Assam is in the eastern-most projection of the Indian Plate, where the plate is thrusting underneath the Eurasian Plate creating a subduction zone and the Himalayas. This led the state of Assam fall under the seismic zone V making the entire State prone to earthquake of moderate to very high intensity. The State has experienced two major earthquakes in the year 1897 and 1950. The intensities of these two earthquakes were 8.7 and 8.5 on the Richter scales respectively.

(<https://asdma.gov.in/hazardous.html#:~:text=This%20led%20the%20state%20of,the%20year%201897%20and%201950.>)

History of Earthquake in District Cachar, Assam: Much of Assam lies in the Brahmaputra River Valley, except for a few southern districts. The northern and eastern parts of this valley area bounded by the Himalayan Frontal Thrust (HFF). In the eastern parts along with the HFF, there is the arc of the Lohit and Naga Thrusts. Among the large earthquakes in this region were the events in 1897 and 1950. The 1897 earthquake is well known for the dramatic accounts of violent up throw during the shock. Other major earthquake occurred in 1869 (magnitude 7.5) and 1984 (magnitude 6.0). (Source: *District Disaster Management Plan Cachar 2024-25 prepared by DDMA, Cachar*).

Moreover, recent earthquake event of magnitude 4.4 occurred in the district on 09.09.2023 as per newspaper reports. According to the Cachar District Disaster Management Authority, the earthquake epicenter was 13 km from Sonai.

4.2.3 Flood Scenario

As per last 5-year Flood data of Assam State, Flood event had occurred in Lakhipur, Cachar, Assam in June, 2022 as per data reported in the Floods Report published by Assam State Disaster Management Authority. The supporting flood data is given in **Annexure XIX**.

4.3 Baseline Environment

Base line attributes like ambient air, water, meteorology, noise, and soil were collected on 16.05.2024. Secondary data was also collected from various government department as well as local people. Methodology adopted in this study is as follows:

4.3.1 Soil Environment

The composite soil samples were collected from the study area analyzed for characterization. The locations of the monitoring sites are depicted in the **table 4.2** within the study area of the proposed project. The sample was collected by driving an auger into the soil. The present study on the soil quality establishes the baseline characteristics and identifies the incremental concentrations if any, due to the proposed project. The objective of the sampling are:

- To determine the baseline soil characteristics of the study area;
- To determine the impact of proposed activity on soil characteristics and;
- To determine the impact on soil more importantly agriculture production point of view.

The test results for soil sampling locations are provided below and map showing the monitoring location is given in **Figure 4.3** and monitoring photographs are given in **Annexure XVII**.

Table 4.2: Soil Sampling Locations

S. No	Location of monitoring	Distance from site (km)	Latitude	Longitude
1	Project site	--	24°47' 36.16" N	92°59'55.60" E
2	Niz-Lakhipur Pt III (Residential)	2.282	24°47' 34.63" N	92°58'33.23" E

Soil Analysis

Result obtained is compared with the standard soil classification as given in Agriculture Handbook. Two numbers of soil samples have been collected within study area and analyzed for physical and chemical properties. Samples collected from identified locations indicate that the pH value is ranging between 6.71 to 6.74 which shows that the soils in the study area slightly acidic in nature. Specific Conductivity were found within 510 to 515 $\mu\text{mhos/cm}$ and moisture of the soil samples collected were found to be ranging from 22.1 % to 23.2 %. Organic matter in

these soil samples was found between 0.62% to 0.65%. Available Nitrogen value ranging from 75 to 78 mg/kg & available phosphorus varies from 11.9 to 12.6 mg/kg. The Environment Monitoring Report for soil quality analysis has been attached as **Annexure XII**.

Table 4.3: Soil Analysis Results

S. No.	Parameters	Units	Test Method	SQ1	SQ2
				Project Site	Lakhipur Pt III Residential
1	Texture	-	GEL/LAB/SOP/SOIL/22	Silty Clay Loam	Silty Clay Loam
	Sand	%		22.5	21.7
	Silt	%		40.3	41.2
	Clay	%		37.2	37.1
2	*Color	-	GEL/LAB/SOP/SOIL/07	Greyish to Brownish	Greyish to Brownish
3	pH (1:2 Suspension)	-	IS 2720 (P-26): 1987, RA 2011	6.71	6.74
4	Specific Conductivity	µmhos/cm	IS 14767: 2000, RA 2016	515	510
5	Moisture	%	IS 2720(Part-2): 1973, RA 2015	23.2	22.1
6	Exchangeable Potassium	mg/kg	GEL/LAB/SOP/SOIL/07	8.6	8.1
7	Exchangeable Sodium	mg/kg	GEL/LAB/SOP/SOIL/06	18.7	20.2
8	Exchangeable Calcium	mg/kg	GEL/LAB/SOP/SOIL/08	310	291
9	Exchangeable Magnesium	mg/kg	GEL/LAB/SOP/SOIL/08	80.2	80.0
10	Porosity	%	GEL/LAB/SOP/SOIL/20	32.5	32.9
11	Organic Matter	%	IS 2720 (P-22) : 1972, RA 2010	0.65	0.62
12	Phosphorous	mg/kg	GEL/LAB/SOP/SOIL/10	11.9	12.6
13	*Nitrogen	mg/kg	GEL/LAB/SOP/SOIL/09	75	78
14	Chloride	mg/kg	GEL/LAB/SOP/SOIL/14	60	63
15	Bulk Density	gm/cc	IS 2720 (P-28) : 1974, RA 2010	1.9	1.8

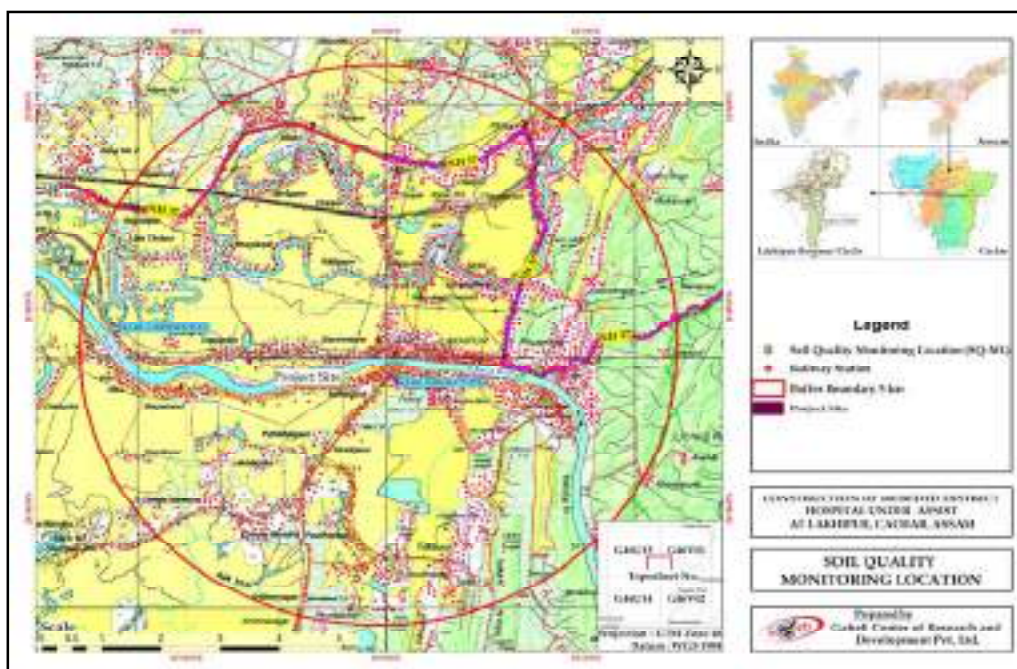


Figure 4.3: Map Showing the Soil Quality Locations

4.3.2 Ambient Air Quality

The ambient air quality at selected 05 locations was carried out as per Indian standards guidelines and monitoring stations was selected as per CPCB manual. The location of the monitoring stations with reference to the proposed project is given in the **table 4.4** and map showing the monitoring locations are given in **Figure 4.4**. Monitoring photographs are given in **XVII**.

Table 4.4: Ambient Air Monitoring Stations

S.No	Location of monitoring	Distance from site (km)	Coordinates	Criteria
1	Project site	--	24°47' 33.40" N 92°59'55.70" E	Core zone
2	Niz-Lakhimpur Pt III (Residential)	2.289	24°47' 34.33" N 92°58'32.89" E	Commercial
3	Earle Higher Secondary School	0.454	24°47' 33.16" N 93°0'12.52" E	Sensitive receptor
4	Satsang Kendra	1.028	24°47' 32.68" N 93°0'32.98" E	Sensitive receptor
5	Fullertal Chowk (Commercial)	2.032	24°47' 25.11" N 93°1'8.20" E	Residential

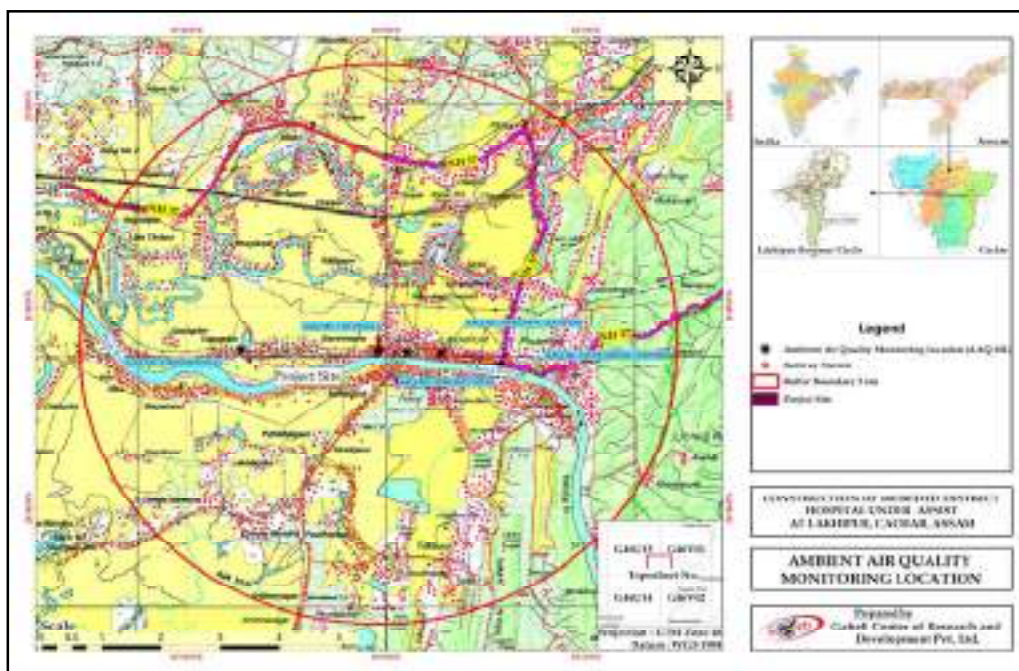


Figure 4.4: Map Showing the Ambient Air Quality Locations

4.3.2.1 Ambient Air Quality Monitoring Inference

All the measured parameters were found below the standards prescribed by CPCB, New Delhi. The Environment Monitoring Report for Ambient Air Quality has been given in **Annexure XII**.

Table 4.5: Ambient Air Quality Monitoring Results

S. No	Location of monitoring	Parameters						
		PM10 µg/m ³	PM 2.5 µg/m ³	PM1 µg/m ³	So ₂ µg/m ³	No ₂ µg/m ³	Temperature °C	Humidity %
1.	Project site	41	35	26	5.9	6.1	35	54
2.	Lakhipur Pt II Residential	40	36	27	6.1	5.3	35	53
3.	Earle Higher Secondary School	39	34	25	5.5	6.8	35	56
4.	Satsang Kendra	44	38	29	5.3	5.8	35	59
5.	Fullertal Chowk	46	40	31	6.2	6.3	34	56
NAAQS		100	60	--	80	80	--	--

4.3.3 Noise Level in the Study Area

A preliminary reconnaissance survey was undertaken to identify the major noise generating sources in the area. The noise survey was conducted on 16.05.2024, to assess the background noise levels in different zones viz. industrial, commercial, and residential and silence zones.

The sampling locations for noise are confined to residential, commercial, and sensitive areas; however, no industrial area is present within the study area.

The baseline noise levels have been monitored at 05 locations within the study zone. Locations were identified for assessment of existing noise level status, keeping in view the land use pattern, industrial area, Silence Zone, residential areas in villages etc., if available within the study area.

The day levels have been monitored during 6.00 AM to 10.00 PM and night noise levels, during 10.00 PM to 6.00 AM. The noise monitoring stations are shown in the **table 4.6** and map showing the monitoring locations are given in **Figure 4.5**. Monitoring photographs are given in **XVII**.

Table 4.6: Noise Quality Monitoring Locations

S.No	Location of monitoring	Zone	Latitude	Longitude
1	Project site	Silence zone	24°47' 33.35" N	92°59'55.74" E
2	Niz-Lakhipur Pt III (Residential)	Commercial area	24°47' 34.48" N	92°58'33.04" E
3	Earle Higher Secondary School	Silence zone	24°47' 33.18" N	93°0'12.48" E
4	Satsang Kendra	Silence zone	24°47' 32.19" N	93°0'32.88" E
5	Fullertal Chowk (Commercial)	Residential area	24°47' 25.15" N	93°1'8.07" E

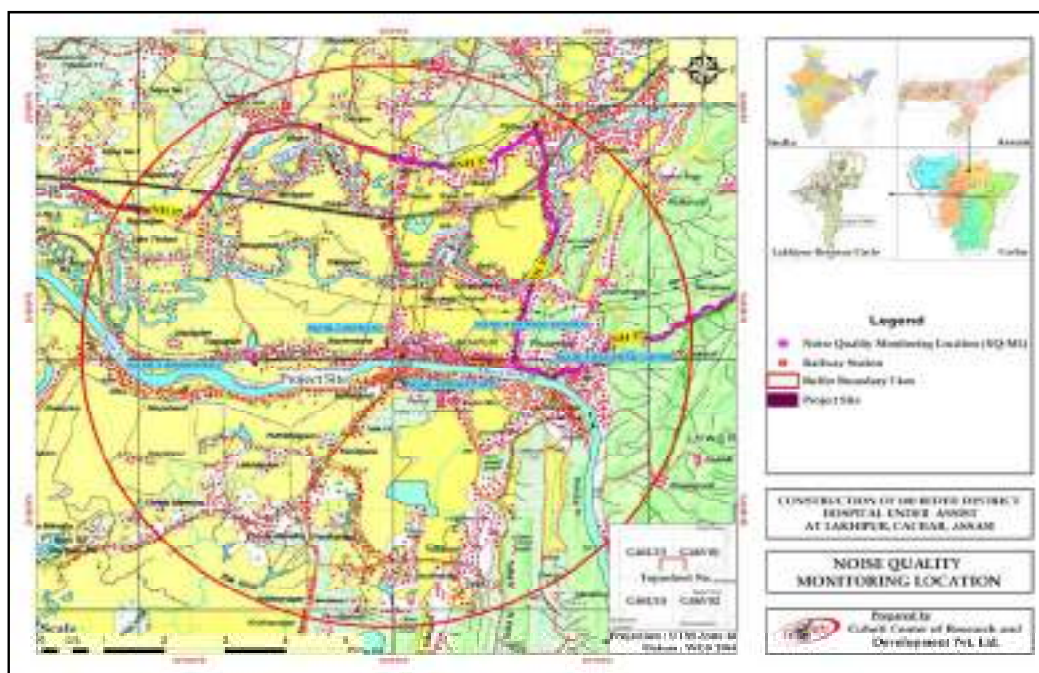


Figure 4.5: Map Showing the Noise Quality Locations

4.3.3.1 Interpretation and conclusion

Generally, noise levels in public places like temples and community hall have higher values in day time.

Table 4.7: Noise Level Results

S. No.	Date	Location	Zone	Limit for As Per EPA, 1986 ; Leq, dB (A)		Observed Value Leq, dB (A)	
				Day Time*	Night Time**	Day Time*	Night Time**
1.	16.05.2024	Project site	Silence zone	50	40	46.2	38.1

2.	16.05.2024	Lakhipur Pt III Residential	Residential area	55	45	51.6	42.6
3.	16.05.2024	Earle Higher Secondary School	Silence zone	50	40	47.5	37.2
4.	16.05.2024	Satsang Kendra	Silence zone	50	40	46.5	36.6
5.	16.05.2024	Fullertal Chowk (Commercial)	Commercial Zone	65	55	61.6	52.1
* Day Time			6.00 a.m. to 10.00 p.m.				
**Night Time			10.00 p.m. to 6.00 a.m.				

The Environment Monitoring Report for noise quality has been given in **Annexure XII**.

It was observed from the noise monitoring results that the noise levels near Fullertal Chowk and the surrounding were on the higher side due to close proximity of the site to shops, showrooms and NH-37. However, results are within the noise standards prescribed by CPCB for residential, sensitive, and industrial areas.

4.3.4 Water

To analyze the surface and ground water quality of study area, sampling was carried out on 29.11.2023 for primary data. Sampling of surface and ground water was collected as per IS 3025 Part I. Water quality assessment is one of the essential components of Baseline study. Such assessment helps in evaluating the existing health of water body and suggesting appropriate mitigation measures to minimize the potential impact from proposed project.

4.3.4.1 Water Monitoring Sampling Locations

Ground water and Surface have been collected from the study area. The water sampling locations are provided in the **table 4.8** and monitoring photographs are given in **Annexure XVII**. Map showing the monitoring locations are given in **Figure 4.6**.

Table 4.8: Water Monitoring Sampling Locations

S. No.	Sampling Locations	Latitude	Longitude
1.	Project Site (Ground Water)	24°47' 37.16" N	92°59'55.36" E
2.	Barak River (Surface Water)	24°47' 29.70" N	93°0'2.02" E

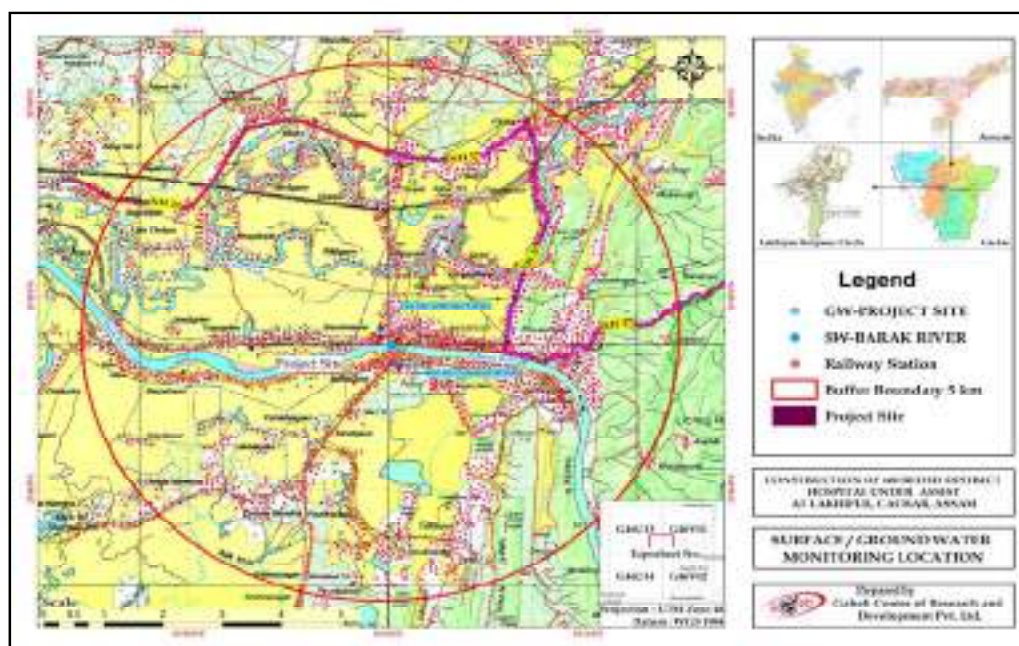


Figure 4.6: Map Showing the Surface/Ground Water Monitoring Locations

4.3.5 Ground Water Level

Average Ground water level data of the district is sourced from India Water Resources Information System (India-WRIS). The data is presented in **table 4.9** and **figure 4.7** below:

Table 4.9: Year wise Average Ground water level in the district

S. No.	Year	Average Ground water level (m)
1.	2018	1.08
2.	2019	1.58
3.	2020	1.39
4.	2021	1.65
5.	2022	1.93
6.	2023	2.19



Figure 4.7: Year wise Average Ground water level in the district

4.3.6 Surface and Ground Water Quality

The available source of drinking water at project location is PHED supply. Further it is made available through the R.O. system in the premise. Within few months AMRIT-2 Scheme for drinking water will be introduced in the area which will be used in the operation phase of proposed DH.



Figure 4.8: Source of Water at Project site

4.3.7 Inference- Surface Water

Surface water samples were collected and analyzed and compared with Indian standard. TDS was found to be 172 mg/l, pH value was found to be 7.1 which imply that water is non-acidic in nature in this area. Total hardness was found to be 45.0 mg/l. It is seen that the physicochemical analysis of other parameters like Iron and fluoride were found within the desirable limit. The overall surface water quality of the available sources within the study area was found to be good physico-chemically with respect to all the parameters. There is no organic load observed in the sources monitored indicating no pollution load in the source.

Table 4.10: Surface Water Monitoring Results

S. No.	Parameter	Protocol Used	Results	IS: 10500:2012 (Second Revision)		Unit
				Desirable Limit	Max. Permissible Limit	
1.	pH	IS: 3025: Part 11	7.1	6.5 – 8.5	No Relaxation	pH unit
2.	TDS	IS: 3025: Part 16	172	500	2000	mg/L
3.	Turbidity	IS: 3025: Part 10	3	1	5	NTU
4.	Chloride	IS: 3025: Part 32	80	250	1000	mg/L
5.	Total Hardness	IS: 3025: Part 21	45	200	600	mg/L
6.	Alkalinity	IS: 3025: Part 23	--	200	600	ppm
7.	Residual Chlorine	FTK	0.1	0.2	1	ppm

8.	Calcium	IS: 3025: Part 40	--	75	200	ppm
9.	Magnesium	APHA 3500- Mg B	--	30	100	ppm
10.	Iron	APHA 3500- Fe B	0.0	1	No Relaxation	ppm
11.	Nitrate	APHA 3500- Fe B	--	45	No Relaxation	ppm
12.	Fluoride	APHA 4500- NO ₃ B	0.0	1	1.5	ppm
13.	Arsenic	IS: 3025: Part 37	--	No Relaxation	0.01	ppb
14.	Total Coliform	-	Absent	No organism/100 ml		CFU/100 ml

4.3.7.1 Inference- Ground Water

The analysis results indicate that the pH for the ground water of the study area is 6.9. The TDS (Total Dissolved Solids) were found to be 201 mg/L which is lesser than the desired limit of 500mg/L as well as within permissible limit of 2000 mg/l. Total Hardness was also found to be 90 mg/L. No Fluoride content was not found in ground water samples. It is seen that the physicochemical analysis of other parameters like iron and fluoride were found within the permissible limit of IS (10500:2012).

Table 4.11: Ground Water Monitoring Results

S. No.	Parameter	Protocol Used	Results Project Site	IS: 10500:2012 (Second Revision)		Unit
				Desirable Limit	Max. Permissible Limit	
1.	pH	IS: 3025: Part 11	6.9	6.5 – 8.5	No Relaxation	pH unit
2.	TDS	IS: 3025: Part 16	201	500	2000	mg/L
3.	Turbidity	IS: 3025: Part 10	4	1	5	NTU
4.	Chloride	IS: 3025: Part 32	120	250	1000	mg/L
5.	Total Hardness	IS: 3025: Part 21	90	200	600	mg/L
6.	Alkalinity	IS: 3025: Part 23	--	200	600	ppm
7.	Residual Chlorine	FTK	0.0	0.2	1	ppm
8.	Calcium	IS: 3025: Part 40	--	75	200	mg/L
9.	Magnesium	APHA 3500- Mg B	--	30	100	mg/L
10.	Iron	APHA 3500-	0.2	1	No Relaxation	ppm

		Fe B				
11.	Nitrate	APHA 3500-Fe B	--	45	No Relaxation	mg/L
12.	Fluoride	APHA 4500-NO ₃ B	0.0	1	1.5	mg/L
13.	Arsenic	IS: 3025: Part 37	0.0	No Relaxation	0.01	ppb
14.	Total coliform	-	Absent	No organism/100 ml		CFU/100 ml

4.3.8 Data of inflow of patients in the existing facilities

Based on records and data provided by the Hospital Authorities for the month of May, 2024, it was found that:

- About 100 patients were visiting the OPD per day, IPD was 15-20 patients per day and about 30-35 deliveries per month were taking place.
- The Labor room records also included information such as age, address of patient, type of delivery, delivery outcome, Gestation (full term or premature), weight and gender of baby, complications, Hbgs %, blood group, Gravida/Parity/abortion/living children etc. On the basis of this record, it was analyzed that average age of patient during sample period was found to be 27 years and all the babies delivered were normal and alive. No high risk pregnancies are generally observed. G3P2 and G2P1 Gravida/Parity/abortion/living children was prevalent.
- Child Immunization Services are provided by the hospital which includes vaccinations of BCG, OPV-1&2, PCV-1, Pentavalent 1, 2 & 3, IPV-1, RVV-1,2& 3, vitamin A (A1-A9) etc. Every month about 30 infants and children get vaccinated for immunity against potentially life-threatening diseases.

The Extracts of Patient inflow data received from the hospital is given in **Annexure IV**.

4.3.9 Biological Environment

The Biological Study was undertaken which comprises of primary and secondary data collection gathered during field survey and from records of Forest Dept. and published literatures.

4.3.9.1 Flora

Vegetation observed during site visit- The common trees observed are Gulmohar (*Delonix regia*), Banyan tree (*Ficus benghalensis*), Siris (*Albizia sp.*), Bakain (*Melia azedarach*), Kadamba (*Bauhinia malabarica*), Bakain (*Melia azedarach*), Sissoo (*Dalbergia sissoo*), Imli (*Tamarindus indica*), Rubber tree (*Ficus elastica*), Amaltas (*Crassia fistula*), Semal (*Bombax ceiba*), Jamun (*Eugenia jambolana*), Coconut (*Cocos nucifera*) and Bamboo etc. The herbs and shrubs observed in the area are Lantana (*Lantana camara*), Pragmites (*Pragmites karkar*), Congress grass (*Parthenium hysterophorus*), Dub grass (*Cynodon dactylon*), jimson weed (*Datura stramonium*), Barnyard grass (*Echinochloa crus galli*), Johnson grass (*Sorghum halepense*), Echinochloa, Chick weeds (*Ageratum conyzoides*) and Green giant (*Alocasia sp.*).

4.3.9.2 Fauna

The common fauna species observed are: Gilahri (*Funambulus pennant*), Chuha (*Bandicota abangalensis*), Nevala (*Herpestes sedwardsi*), Langur (*Presbytis entellus*), Bandar (*Macaca mulatta*), Chamgadang (*Cynopterus sphinx*), Bamboo Rat (*Rhizomys pruinosus*), dog (*Canis lupus familiaris*), Sheep (*Ovis Aries*), Cow (*Bos taurus*) etc.

The detailed list of flora and fauna is given in **Annexure V**.

4.4 Socio-Economic Characteristics

4.4.1 Description of the study area

In conducting ESIA, the area within 5 km radius from the “Project Site” is considered as the “Study Area”. The proposed project covers 47 Villages and 1 towns of Cachar District in Assam State.

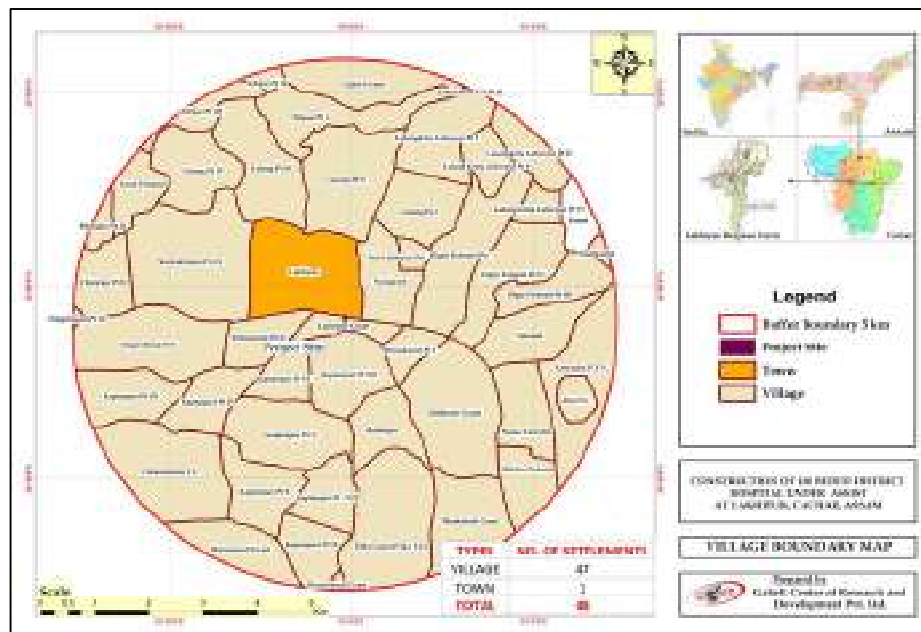


Figure 4.9: Village Boundary Map

4.4.2 The salient features of the study area includes –

1. Total population of study area is **93,841**. The percentages of male & female population are 50.70% & 49.30% respectively with sex ratio (number of Females per thousand Male) of the study area is 973.
2. Total household in the study area are **19,821** with a family size of 5.
3. Total number of literates in the study area is **61,644** (65.89%).
4. Sex ratio (number of Females per thousand Male) of the study area is **973** which shows that male population is same in the study area as compared with the female population.
5. Out of the total population, Scheduled Caste population in the study area is **3,883** (4.14%) and Scheduled Tribe population is **791** (0.84%).
6. Child population (0-6 years) in the study area is **13,331** which is 14.21% of the total Population out of which **6,828** (14.35%) is boys population and **6,503** (14.06%) is girls population.

4.4.3 Social Structure

a) The Schedule Caste:

The total number of Schedule caste within the study area is approximately **3883** which is 4.14% of total population with 3515(3.75%) Male and 3368 (3.59%) are female. The graphical representation is given below.

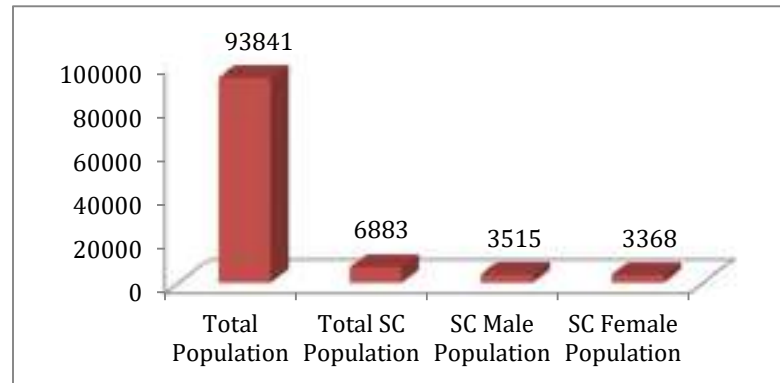


Figure 4.10: Graph Showing Schedule Caste Structure of the Study Area

b) The Schedule Tribe:

The Schedule Tribe (ST) population within the study Area is **791** (0.84%) of the total population with 399 (0.43%) Males and 392 (0.42%) Females. Detailed status of social structure and their graphical representation for the same is given below –

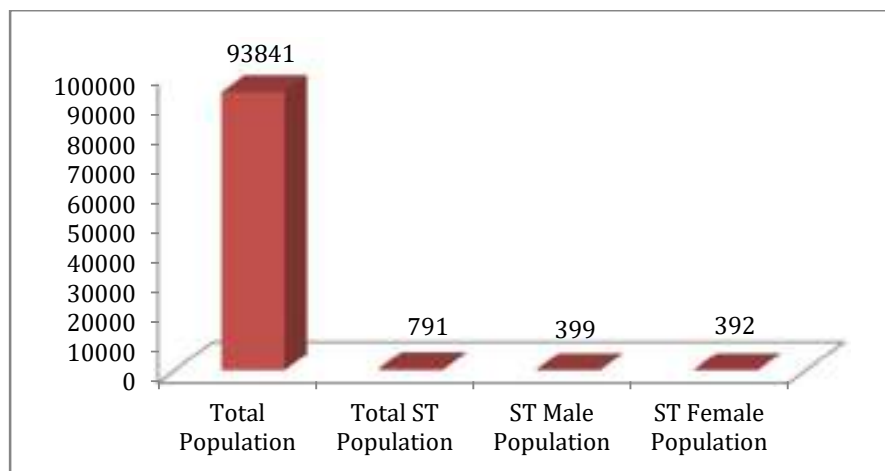


Figure 4.11: Graph Showing Schedule Tribe Structure of the Study Area

c) Literacy

The total number of literates within the study area is approximately **61644** which are 65.69% of total population. Male literacy rate of the study area is 33643 (54.58%) and female literacy rate is 28001 (45.42%). Detailed status of literacy is given below. Graphical structure of the literacy & illiteracy structure of the area is as follows:

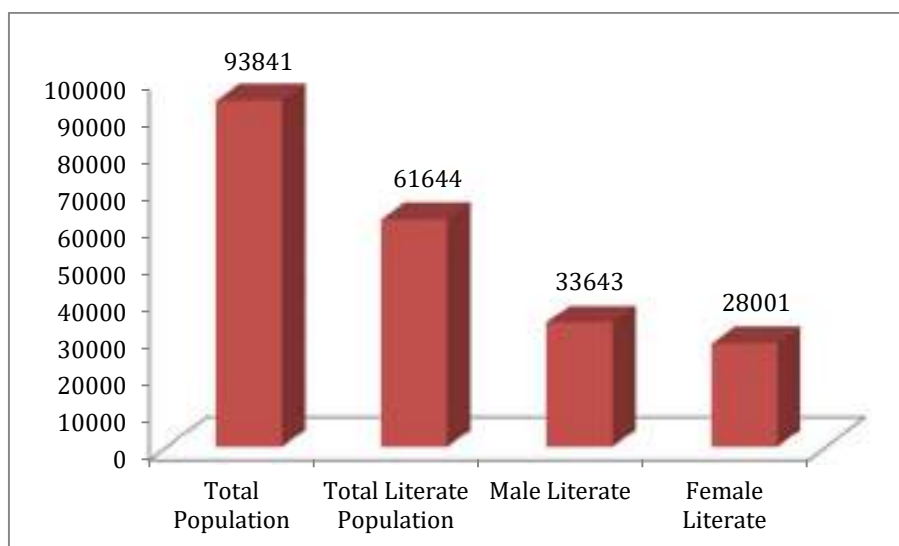


Figure 4.12: Graph showing Literacy Structure of the Study Area

d) Illiteracy

The total number of illiterates within the study area is approximately **32197** which are 34.31 % of total population. Male Illiteracy in the study area is 13930 (43.26%) and female Illiteracy is 18267 (56.74%). Graphical representation for the same is given below:

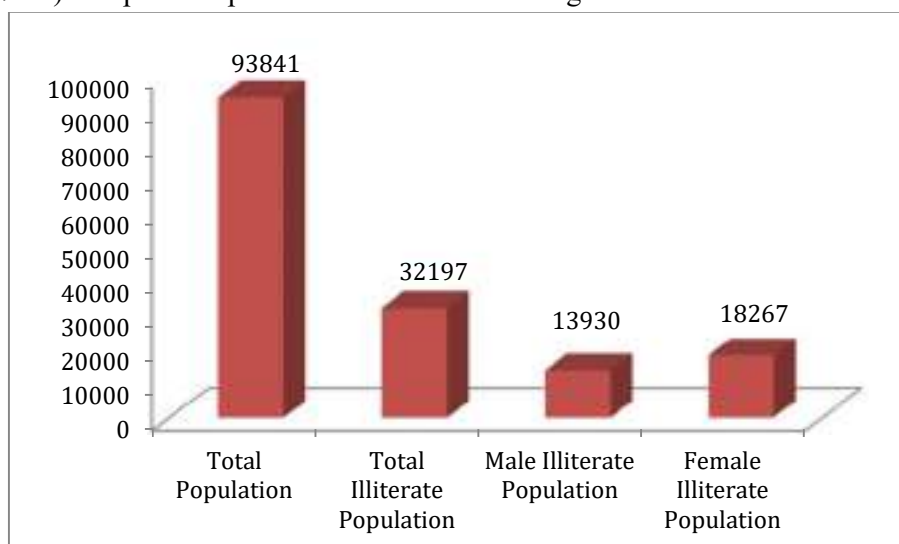


Figure 4.13: Graph showing Illiteracy structure of the Study area

The details of Demographic Structure of the Study Area is given in **Annexure VI**.

4.4.4 Occupational Structure

“Occupational Structure” of the population in the ‘Study Area’ has been studied with reference to the total workers and non-workers. Further total workers grouped into two categories “main workers” and “marginal workers”.

4.4.4.1 Total workers

“Work” is defined as participation in any economically productive activity with or without compensation, wages or profit; such participation may be physical and/or mental in nature.

The number of total workers in the study area is approximately **35,543** (38.81%) out of which 24573 (71.14%) are male and 9970 (28.86%) are female workers.

Total workers further divided into main workers and marginal workers –

(i) Main Workers

The workers who had worked for the major part of the reference period (i.e. 6 months or more) are termed as “Main Workers”. Total number of main workers in the Study Area is approximately 25,144 persons, which is 72.79% of total workers and 27.21% of total population.

(ii) Marginal Workers

Marginal Workers are those workers, who are engaged in some work for a period of less than six months, during the reference year prior to the census survey. Total number of marginal workers in the Study Area is approximately 9399 persons which, is 27.21% of the total workers and 10.02% of total population.

4.4.4.2 Non Workers

The non-workers include those engaged in unpaid household duties, students, retired persons, dependents, beggars etc. More than half 59,298 (63.19%) of population is not working. 38.79% of male population and 61.21% is female population are non-workers.

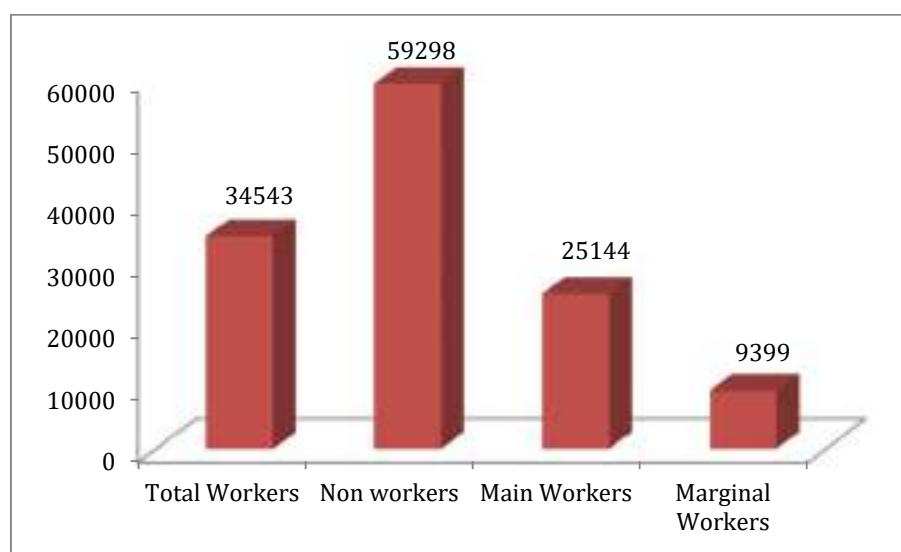


Figure 4.14: Occupational Pattern in the Study Area

The details of Occupational Pattern of the Study Area is given in **Annexure VII**.

CHAPTER-5

ENVIRONMENT AND SOCIAL RISKS AND IMPACTS

5. ENVIRONMENT AND SOCIAL RISKS AND IMPACTS

5.1. Introduction

This Chapter identifies and discusses both positive and negative impacts associated with the proposed project. Screenings of potential environmental and social impacts are categorized into three categories considering project phases: pre-construction impacts, construction impacts and operations and maintenance impacts.

Screening of environmental and social impacts has been assessed on the basis of screening format for Environment & Social Risks/Impacts as given in ASSIST-ESMF (Jan-Feb 2023), baseline data collected through primary as well as secondary sources and stakeholder consultations

5.1.1. Pre-Construction Impacts

i. Consents, permits, clearances, no objection certificate (NOC), etc.

All the consents, permits, clearances and NOCs should be obtained before start of construction activities. Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works. Suggestive list of consents, permits, NOCs etc. required before construction works are given in table below:

Table 5.1: Suggestive lists of consents, permits, NOCs

S. No	Construction Activity	Statute under which Clearance is Required	Responsibility
1	Establishment of new 100 bedded DH /Temporary Labor camps / storage of construction materials batching plant etc.	Pre establishment permission (consents, authorization) from Assam Pollution Control Board.	Contractor
2	Tree Cutting (if required)	Assam State Forest department	Contractor
3	RMC/Batching plants (if required)	Consent to establish and consent to operate under Water and Air Act, 1981 from ASPCB	Contractor
4	Use of vehicles and equipment	Pollution under control certificate (PUC) form RTO	Contractor
5	Temporary water supply and Electrical Connections for work site and camps during construction phase	Concerned local state department	Contractor
6	Labor License	Concerned local / state department	Contractor

ii. Risks/ Impacts during Pre-Construction Activities

Table 5.2: Pre-Construction Activities and its risk/Impacts

S. No	Pre-Construction Activity	Anticipated Risk/Impacts
1.	Site clearance	Few Old structure and office rooms are existing in the site of proposed DH. These structures may require to be demolished for construction of new DH at the site.

		• Presently, 4-5 electric poles, 1 ring well, artificial pond old staff quarters, office room. Some of them may be shifted or closed. • At present, 50-55 trees are present at the proposed DH site. 40-45 trees will be retained and rest will be cut.
2.	Site Selection	Selection of proper sites for Construction worker camps, stockpile areas, storage areas and sources of materials safeguarding environmental and social concerns governing the same.
3.	Debris disposal	Prior to the commencement of works, contractor shall identify a debris disposal site (possibly near to project site) in consultation with local body and implementing agency. It will prevent impending soil and water pollution to be caused by construction activities. Further, there is no use of asbestos at the existing facility hence there will not be generation of asbestos at the site.
4.	Consultations	• Lack of awareness on the project among community may restrict public participation in decision making • Lack of knowledge on the facilities to be provided by the proposed DH at their own neighborhood will prevent them from availing the facilities. • Lack of prior intimation of the demolition and construction activities may lead to health hazards caused by probable air, water and noise pollution.
5	Grievances of community	• Public resistance anticipating negative impacts of the project like tree felling for site clearance, air and land and water pollution due to heavy construction activities • Accessibility issues of public • Land demarcation issues.

5.1.2. Construction Phase Impacts

Table 5.3: Construction Activities and its Anticipated Risk

S. No	Concerns	Anticipated Risk
1.	Demolition of existing structures	Generation of noise and dust emissions. Demolition materials may be scattered and thrown away in a manner that may cause hindrance to neighborhood and in the access routes
2.	Ground Water	Ground water contamination and Ground water depletion due to construction works and machine operations

3.	Surface Water	Temporary flooding at site and nearby areas and contamination of the surface water bodies in and around site
4.	Ambient Air Quality	Dust Emissions (PM), SO ₂ , NO ₂ and CO from construction activities, Vehicular movement, DG sets
5.	Noise and visual impacts	Environmental noise can cause Hearing impairment, hypertension, and ischemic heart disease (IHD), annoyance and sleep disturbances. Noise exposure may also cause birth defects
6.	Land Environment	Loss of topsoil, soil erosion, and soil contamination due to construction activities. Loss of agricultural productivity due to contamination of drained off water & sludge from construction site or drained off cement from batching plant.
7.	Waste Management	Water pollution, emissions and soil degradation
8.	Storm Water Management	Poor sanitation, drainage problem which results in water running over roads and water logging.
9.	Hazardous material storage and waste handling & disposal	Storage and handling of hazardous substances: substances that may harm people or the environment shall be handled and stored in a way that prevents accidental release.
10.	Energy Efficiency	Loss of natural resources
11.	Fire Fighting	Loss of Life and Property
12.	Occupational Health & Safety (OHS) and Community Health & Safety	Contractor's staff and Labors will be engaged in the proposed construction. So there will be Health and Safety risks to construction workers; as well as to the community living near the proposed construction sites.
13.	Gender based violence, SEA/SH	During construction phase, probable incidents of gender-based discrimination in employment and Sexual Exploitation and Abuse/ Sexual Harassment (SEA/SH) of women workers at site (consultants and contractors' staff & laborers) as well as in the community in and around may take place.
14.	Road safety	Issues and concerns of Road safety to pedestrians and community staying nearby site due to movement of construction vehicles
15.	Grievances of workers as well as community	The workers at the construction site may have grievances due to non-receipt of basic facilities, PPE related, non- Receipt of dues, work place discrimination, excessive work load etc.

		• Potential conflict between migrant workforce and local may take place • Moreover, local residents and passers-by may raise concerns regarding the lack of transparency about the project, construction-related issues such as pollution, waterlogging, and tree felling for site clearance, as well as problems related to demolition and restricted accessibility.
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5.1.3 Operation Phase Impacts

The project has positive impact on the society as provider of health care services to the local people. This will alleviate the overall health status of the local people in terms of affordable health care services.

During the operational phase, various impacts relating to the functioning of the healthcare facilities supported under the project are summarized below:

Table 5.4: Anticipated Risk during operation phase

S. No	Concerns	Anticipated Risk
1.	Consent to Operate under Air & Water Act	Violations to applicable environment norms, which overall affects the start of operations of proposed project.
2.	Authorization for Handling, Storage, Treatment of BMW under BMW Rules	Violations to applicable environment norms, which overall affects the start of operations of proposed project.
3.	Air Pollution	Emissions from vehicular movement and functioning of DG sets are envisaged.
4.	Water	Risk of Ground water contamination is envisaged.
5.	Solid waste	Risk of Improper solid waste generation is envisaged.
6.	Infection control	Improper handling and disposal
7.	Occupational Health and Safety	Health, Hygiene and Safety of employees
8.	Life and fire safety	Loss of Life and Property
9.	Gender based violences, SEA/SH	There may be issues of GBV, SEA/SH of women patients and attendants as well as the women employees & staff at the new Hospital.
10	Grievance redressal of community/ patients and employees	The community people/ patients may have grievances of not receiving or delay in treatment, lack of doctors/nurses, insurance, facilities at hospital, lack of medicines etc. And employees may have grievances of not having basic and proper facilities at hospital, hectic schedules

		etc.
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The Environment Health and Safety (EHS) committee assisted by other members of healthcare facility will be formed which will do the best to minimize the environment and social risk.

CHAPTER-6

STAKEHOLDER ENGAGEMENT

CHAPTER 6- STAKEHOLDER ENGAGEMENT

6.1 Introduction on Stakeholder Engagement

Stakeholder Engagement is a process made to involve the public as stakeholders in project preparation through consultations and focus group discussion meetings. Stakeholder Engagement seeks to provide a transparent engagement and open communication between and among the project stakeholders to maximize participation and inclusion for project design, implementation, monitoring and evaluation; enhance project acceptance and improve the environmental and social sustainability.

The main objectives of undertaking these consultations are dissemination of information to build awareness among stakeholders and inform them about the objective, the adverse and positive impacts, design aspects of the project and discuss about the training requirements to enhance their skills and livelihood options

6.1.1 Objective of Stakeholder Engagement

Keeping in mind the objective of minimizing adverse impact and the need of the stakeholders' participation for the smooth implementation of the project, consultation with the members of different sections of society and local communities of the project area were carried out. The consultation with people was done with the aim of building awareness among them.

The types of consultations which were undertaken are individual interviews, field level observations, community consultations, and meetings. The main objectives of undertaking these consultations are as stated below:

- Dissemination of information to build awareness among stakeholders and inform them about the objective of the project;
- To inform stakeholders about the adverse and positive impacts of the project;
- To inform stakeholders about the design aspects;
- Discuss about the training requirements to enhance their skills and livelihood options.

The primary and secondary **key stakeholders** included (i) community having their shops and residence around the project area, (ii) Self Help Groups, (iii) visitors, (iv) NGO and (v) government officials. These consultations provided inputs on environmental and social issues and in identification of the needs of the communities.

6.2 Key Stakeholders

(i) **Affected Parties** are impacted or likely to be impacted directly or indirectly, positively or adversely, by the Project.

The Stakeholder engagement with affected parties such as patients, healthcare workforce and social activist (influencer) was undertaken.

(ii) **Interested Parties** may have an interest in the Project. They include individuals or groups whose interests may be affected by the Project and who have the potential to influence the Project outcomes in any way.

The Stakeholder engagement with interested parties such as social activist (influencer), ASHA

workers was undertaken.

(iii) **Vulnerable Groups** include:

- Patients: Elderly, persons with disabilities, persons below poverty line, female and minor patients at heightened risk of gender-based violence, ethnic minorities, LGBTQI.
- Communities affected by the construction activities: Scheduled tribes (ST), scheduled castes (SC), and communities living in remote and hilly locations, female headed households, illiterate and poor population.

6.3. Methods of Stakeholder Engagement

Different tools were employed in interviews conducted and discussions ranged from informal and undirected to formal and directed.

6.3.1. Stakeholder Consultation

As part of the ESIA process, the project team has undertaken consultation with the stakeholders of the project to understand their expectations from the proposed project. The main objective of the stakeholder consultation is to develop an understanding and awareness on the project among the different stakeholders, assess the level of stakeholder interest and support for the project, and to ensure that appropriate measures for mitigating environmental and social risks and impacts are disclosed to stakeholders in a timely, understandable, accessible and appropriate manner.

6.3.2 Stakeholder engagement Meeting

Stakeholder engagement meeting for the proposed DH has been conducted on 17.05.2024 at Lakhipur Block PHC, Lakhipur, Cachar, Assam. The meeting was attended by 27 people including (i) Chairman and Vice Chairman of Lakhipur Municipal Board, (ii) Block Coordinator, Medical In-charge of Lakhipur Block PHC, (iii) Chief Health Officer, AYUSH, (iv) Counselor, (iv) health workers, (v) locals, (vi) patients, (vii) local chemist person, (viii) Accredited Social Health Activist (ASHA) Workers. The attendance sheet is given in **Annexure VIII**. The photographs of stakeholder engagement are given in **figure 6.1**.





Figure 6.1: Photographs of stakeholder engagement

6.3.3 Information, Education and Communication (IEC)

The Information, Education & Communication (IEC) aims to create awareness and disseminate information regarding the benefits available under various schemes/programmes through banner, leaflets, posters, announcements, newspaper, notices, signages, social media etc. The aim of such advertisements is to encourage people to adopt positive behavior, raise awareness and disseminate information regarding availability and access to quality healthcare provided by the Government. Snippets of incorporation of IEC in the Lakhipur Block-PHC are shown in the figure below:



Figure 6.2: Banners and posters displayed at Lakhipur Block PHC, Lakhipur, Cachar, Assam

6.3.4. Outcome of the stakeholder Consultation

During stakeholder consultation, dissemination of information for building awareness about the project was discussed. The outcome of the meeting was that there is inadequate facility present for Cesarean section cases, as presently they have to go to Silchar Medical College & Hospital which is far away from the existing Model-PHC and the diagnostic services are less, so the locals want to have additional diagnostic facilities at the site and there should be provision of the restrooms (beds) with drinking water and sanitation facility for ASHA workers.

All the stakeholders supported for the development of proposed New District Hospital and were in support of the upgradation of existing facility to proposed DC. The proposed project will cater to

all the concerns of stakeholder once it gets start functioning. The key suggestion given by stakeholder are presented in table below:

Table 6.1: Key issues and suggestions of different Stakeholders

S. No.	Stakeholders	Commitment made during the Stakeholder Engagement meeting
1.	Medical Officer	- Dr. Y. Kishor Singh, In-charge, is the representative of the Lakhipur Block PHC. - He supports the proposed project. - Present mode of BMW disposal is through Sharp pits and Deep Burial at the site. He ensured safe disposal of biomedical waste will be done and in operation phase, for safe disposal of biomedical waste CBWTF generated at the proposed DH will be disposed of through facilities at SMCH Campus by making an agreement for the same and the disposal at this facility will be streamlined. - They will ensure all the activities related to healthcare facilities are followed. - There will no discrimination on the basis of gender, age, and color.
2.	Residents from the Locality within 100 m from the hospital building	- Mr. Daujamang Giute (Lakhipur) and Khamba Miga (Lakhipur) attended the consultation meeting. - They supported the proposed project and believed that the project would greatly help in development of the area and significantly change health standard of the locals.
3.	Pharmacist, Pharmacy Shop, Lakhipur	Pharmacist of Pharmacy Shop, Lakhipur supports the project.
4.	Krishna Kr Roy & Rajan Kairi (Diagnostics Lab)	They have supported the project and suggested to include more diagnostic services in the proposed hospital which will be beneficial for the needy people.
5.	Others/NGO/ASHA Workers/ social worker	- Mrs. Kunjabati D, Ms. O. Ngaubitan Devi, ASHA workers, Mrs Linda Lungtau (ANM) and Anita Rani Devi (ANM) discussed on the provisions and benefits of project to them and they supported it. - They suggested for inclusion of restrooms (beds) with drinking water and sanitation facility for ASHA workers.

6.	Patients (Vulnerable Group)	- Mr. Ratrim and Mr. Daujamang Giute attended the Stakeholder Engagement meeting under vulnerable group (patient). - He was happy with the services available at the hospital and was in support of the up gradation of existing facility to proposed DH. - Various Pregnant women, Elderly patients and Patients with Disabilities were interacted and informed about various ongoing Govt. Insurance Schemes such as Pradhan Mantri Jan Arogya Yojana (PM-JAY), Janani Suraksha Yojana (JSY) and Ayurveda, Yoga & Naturopathy, Unani, Siddha, Sowa Rigpa, and homeopathy (AYUSH).
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6.4. Cost for implementation of IEC, Community meetings and Awareness & Training

The budget for the same has been allocated and mentioned under **table 6.2** given below:

Table 6.2: Cost for implementation of IEC, Community meetings and Awareness & Training

S. No.	Particular	Stage	Total Cost INR
1.	IEC Development (Banner, Leaflets, posters, announcement costs, new paper Notices, signage, etc.)	Pre-Construction, Construction and facility operation phase	1,00,000/-
2.	Community meetings in nearby locations	Construction	50,000/-
3.	Awareness & training programs with Stakeholders	Construction	2,00,000/-
Total			3,50,000/-

CHAPTER-7

ENVIRONMENT AND SOCIAL MANAGEMENT PLAN (ESMP)

7- ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

7.1 Environmental and Social Management Plan Introduction

The objective of ESMP is to manage and monitor environmental and social impacts during the **pre-construction, construction and operation phase** of the proposed project. To attain this, the ESMP identifies possible adverse impacts from the proposed project activities and outlines mitigation measures required to reduce the likely negative effects on the built, natural and social environment.

ESMP is covering the following parameters-

1. Legal Consents, permits, clearances, NOCs, etc. required before the commencement of the project.
2. Existing condition of Air Environment, Noise Environment, Water Environment (Ground water/ Surface Water) and Biological Environment and impact induced on these during the Pre-construction, Construction and Operational Phases.
3. Community Health and Safety, Labor welfare, Occupational Health & Safety, Transportation and Vehicle Movement, Socio-economic condition during and after commencement of the project.
4. Key areas/activities/concerns resulting in adverse environmental and social impacts and its mitigation measures including impacts, operating procedure and agencies that would be responsible.
5. Estimation of potential environmental and social impacts and their mitigation measures given in **Table 7.1.** below:

Table 7.1(i): Environmental and Social Risks/Impacts assessment and Mitigation Measures during Pre-Construction Phase

Key Area/Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
Consent to Establish from Assam State Pollution Control Board, Land ownership documents from Government of Assam, tree cutting permission from Assam State Forest Department.	Non availability of the necessary consents or permits can result in stoppage of further processing of works.	➤ Ensure availability of necessary consents, clearances and permits, land compensation, design, engineering, equipment, material, construction, erection, testing & commissioning.	Contractor, Joint Director, DH & Project In charge
Site Clearance	Presently, 4-5 electric poles, 1 ring well, artificial pond, old staff quarters, office room and 50-55 trees are present and they may possess the risk during the development of new building structures.	➤ Electric poles will be shifted within the site. ➤ Ring well will be demolished as it is an old structure. ➤ Staff quarters will be temporarily shifted to nearby town area within 1.0 to 2.0 Km. ➤ 40-45 trees will be retained and rest will be cut. ➤ Use barriers to protect tree trunks from mechanical injuries caused by construction equipment. ➤ Maintain a regular watering schedule to support tree health throughout the construction process, especially during dry periods. ➤ Regularly monitor the condition of protected trees and adjust protection	Contractor, Joint Director, DH & Project In-charge

		measures as needed to respond to potential stress or damage. ➤ Mark and provide sign boards in order to prevent any mishap.	
Archeology and Cultural Heritage	Not within 5 km Radius of the study area; A historical type Cachari Ruins Khaspur is located at a distance of 16.990 km.	No Archeology and Cultural Heritage site is present within 5 km Radius of the study area, therefore, no impact expected from this component.	NA
Site Selection	Selection of site for Construction worker camps, stockpile areas, storage areas, sources of materials	➤ For establishing temporarily workers camp, the priority should be to locate these near the subproject sites. ➤ The temporary workers camp, storage of fuel and lubricants should be avoided near any water body, at land being used for production of crops, near to any sensitive area. ➤ Prior permission is required from concerned agency for establishing workers camps, stockpile areas, storage areas. ➤ Verify the suitability of all material sources and to obtain the approval of applicable department and local revenue administration.	Contractor, Joint Director, DH & Project In-charge
Debris disposal	Prior to the commencement of works, contractor shall identify a debris disposal site (possibly near to project site) in consultation with local body and implementing agency.	➤ The site shall be selected preferably from barren, infertile lands. ➤ Prepare a construction and demolition waste management plan in preconstruction phase for safe disposal. Asbestos is not a	Contractor, Joint Director, DH & Project In-charge

		part of debris disposal at site as there is no use of asbestos in the existing structures on this site. ➤ As the proposed DH is surrounded by residential area, at the time of selecting the disposal site minimum distance criteria will be followed and minimum 100 m (Barak River) away from sensitive locations like hospitals, religious places, ponds/lakes or other water bodies.	
Stakeholder Engagement	Lack of awareness on the project among community may restrict them from participating in decision making and knowing about the facilities to be provided by the proposed DH at their own neighborhood thereby preventing them from availing the facilities. Further lack of prior intimation of the demolition and construction activities may lead to health hazards caused by probable air, water and noise pollution.	• Prior intimation to the public about the time and the duration of the particular construction works which causes inconveniences to the community residing nearby. • Stakeholder consultation for ○ allowing them to participate in decision making for the proposed DH ○ Making people aware of the proposed DH and the facilities to be provided by the DH at specific intervals with representation from all the sections of the community in and around the proposed site including women members of the community. ○ responding to their queries regarding, proposed DH, construction activity etc.	Contractor, Joint Director, DH & Project In-charge
Grievances of community	• Public resistance for the project anticipating negative impacts of the project like tree felling for site	• Public consultation to gather data on the proposed site while also raising awareness about the potential impacts	Contractor, Joint Director, DH & Project In-charge

	clearance, air and land and water pollution due to heavy construction activities • Accessibility issues of public • Land demarcation issues.	and benefits of the project. • Installation of Drop Boxes with proper signages at entry gate so that it is visible to community to drop grievances. • Display of contact number and e-mail dedicated for GRM at entry gate • Developing of Grievance Redressal Protocol to address the grievances received at site. • Designation of manpower to register the grievances at site. • Developing of proper formats to capture all the relevant details of complainant for registering grievances of Community.	
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Table 7.1(ii): Environmental and Social Risks/Impacts assessment and Mitigation Measures during Construction Phase

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
Disruption of Health services at PHC	Temporary disruption/delay of health services due to change in location of existing medical facilities (to nearby areas) during up gradation of PHC and construction of District Hospital.	There will be no delay in health services at the site, as OPD services (emergency services) and Labor room will be continued from a part of existing Lakhipur Block PHC during construction phase. Then these services will be moved to proposed DH. So no major problem in this regard.	Project In-charge

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
Demolition of brick wall/ existing structures	Noise, dust, disruption of the neighborhood, underground or overhead services (if any) etc.	➤ Structures to be demolished should be wetted through water sprinkling to reduce dust emission. ➤ C&D rules and mitigation measures should be displayed at the project site. ➤ Green net fencing (3 m high) all around the site. ➤ The location of any underground or overhead services (water, electricity, gas, etc.) ➤ Appropriate site for storage and disposal of demolished materials (properly covered) ➤ All the safety measures such as providing appropriate Personal Protective Equipment (PPE) should be adopted during demolition activities. ➤ Development of greenbelt	Contractor

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		in and around project site. ➤ A Management Plan for Construction and Demolition waste is prepared and attached as Annexure- I.	
Ground Water	➤ Ground Water Contamination ➤ Ground Water Depletion	➤ Waste water generating at the project site will be disposed of in the septic tanks/soak pits conforming to CPCB/ASPCB norms. ➤ Waste water to be treated in STP and reused for flushing toilets and irrigation purposes. ➤ Disposal of liquid waste from Labs, blood bank, O.Ts etc. during operations phase shall be disposed through proposed ETP in operational phase ➤ Will use the available water more efficiently. ➤ Will use Re-cycled water ➤ Use of Water Efficient fixtures like flow regulators & dual flushing	Contractor and Project In-charge

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		cisterns ➤ Provision of RWH pits to collect rain water for ground water recharge.	
Surface Water	Surface water contamination	➤ Curing will be done by spraying water to reduce run-off. ➤ It will be ensured that surface water runoff will be disposed through proper drainage channel to minimize the contamination risk. ➤ Rain water Harvesting	Contractor
Ambient Air Quality	Dust Emissions (PM), SO ₂ , NO ₂ and CO from Construction activities, Vehicular movement, DG sets	➤ Water sprinkling will be carried out. ➤ Regular sweeping of construction site Construction material & debris carrying vehicles will be covered. ➤ Regular monitoring of emissions and control measures will be taken to reduce the emission levels. ➤ Use of low sulfur diesel. ➤ Regular maintenance and	Contractor in consultation with hired consultant (environment monitoring)

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		servicing of vehicles. ➤ Stack height of DG set as per CPCB standards ➤ Developing of Green belt ➤ All vehicles must carry Pollution under Control Certificate. ➤ All transportation/vehicle movements for material transport shall be carried out during 10.00 pm to 6.00 am ➤ All the material shall be properly covered at site as well as during transportation so that the dust cannot get airborne ➤ Hard barricading shall be provided around the construction site ➤ Regular ambient air monitoring (twice a year).	
Noise and visual impacts	➤ Environmental noise can cause Hearing impairment, hypertension, and ischemic heart disease (IHD), annoyance and sleep disturbances. Noise exposure may also cause birth defects	➤ Construction activities involving high level noise generation will be restricted to day time only. ➤ Provision of ear muffs to	Contractor

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		workers. ➤ Use of machinery of modern make meeting the noise standards ➤ Development of green belt. ➤ DG sets will be provided with acoustic enclosures and will be placed in a room to reduce noise level. ➤ Proper traffic management & circulation. ➤ Honking will be prohibited in the premises. ➤ All vehicles will carry PUC. ➤ Regular ambient noise monitoring and work site noise monitoring	
Land Environment	Soil Contamination	➤ Construction debris will be used for leveling or sent to authorized site for disposal ➤ Proper work management to avoid spillage ➤ Excavated topsoil will be re-used for landscaping in the project area.	Contractor

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
Waste Management	Water pollution, emissions and soil degradation	➤ Estimation of waste generated, on site handling, storage and processing, collection, transfer and transport, processing and recovery & disposal through following methods. ➤ Installation of STP for domestic effluent and ETP for Lab, OT and Blood bank waste separately. ➤ Garbage chute system and color-coded bins for segregation of domestic and biomedical waste respectively. ➤ Organic Waste Compost Machine for 100 Kg/Day Waste per Day will be installed.	Contractor in consultation with Architect
Storm Water Management	Poor sanitation, drainage problem which results in water running over roads and water logging.	➤ Re-establish the drainage pattern to the extent practicable. ➤ Provision of dual plumbing system/ two pipe (stack) system and use of zero	Contractor in consultation with Architect

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		liquid discharge technology. Water balance chart is attached in Annexure XIII. ➤ The rain water to be diverted using rain water pipes to the drainage network. ➤ The entire site storm water to be diverted into the rainwater harvesting well for recharging the aquifer and the surplus will be connect to the municipal drain.	
Transportation and Vehicle Movement	Increase in volume of traffic. Issues and concerns of Road safety to pedestrians and community staying nearby site due to movement of construction vehicles.	➤ As proposed works of construction of DH at Lakhipur is limited to proposed site only, which is a closed premise bounded by distinct wall and gate. Separate routes for transportation of vehicles for construction are planned in the site. ➤ The road will be metaled and regularly water	Contractor and Project In-charge

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		sprinkled during construction activities. ➤ During construction, transportation during busy traffic hours will be avoided and time schedules will be prepared for transportation of construction materials in consultation with the authorities concerned. ➤ 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	

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		vehicles. ➤ Traffic Survey was conducted near the vicinity of the project and details of survey forms and its analysis are given in Annexure-X.	
Hazardous material storage and waste handling & disposal	Storage and handling of hazardous substances: substances that may harm people or the environment shall be handled and stored in a way that prevents accidental release.	➤ Drip trays shall be placed under leaking under vehicles and other equipment to prevent spills of hydrocarbons reaching the soil or watercourses. ➤ Storage of hazardous substances shall have secondary containment, so that leaking liquids can be contained in the event of a failure. Secondary containment should ideally have a capacity of at least 110% of the holding capacity of the primary storage. ➤ To avoid leaks, proper funnels should be used when decanting to other	Contractor and Project In-charge

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		containers. It is recommended to use a hand pump rather than a funnel and smaller containers for frequent/routine transfers from one container to another (or to a vehicle tank). ➤ Disposal of waste from site must only be carried out as per the applicable rules and regulations in an authorized and licensed areas / facilities. ➤ Asbestos is not a part of debris disposal at site as there is no use of asbestos in the existing structures on this site.	
Occupational Health and Safety	➤ Workers Injuries ➤ Health, Hygiene and Safety of Workers	➤ In the construction phase, approx. 75 workers (preferably local) including both skilled and unskilled workers will be engaged at site. The workers for civil construction (on contract	Contractor and Project In-charge

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		basis- on payroll of construction agency will be employed for the period of one year initially; later on, contract will be extended further. Several workers including casual laborers, plumbers, and engineers are expected to work on the site. Occupational Health and Safety of the workers is utmost essential as it could prevent risks of injuries and accidents, health, hygiene and safety of workers. ➤ Comply with the labor laws. ➤ Provide training on occupational health and safety to all the workers. ➤ Ensuring all workers are provided with personal protective equipment's like helmet, gumboot, safety belt, gloves, nose mask and ear plugs.	

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		➤ Provision of harness, lifts etc for workers working on heights ➤ Ensuring that qualified first-aid is provided along with Standard first aid box with all standard contents at site. ➤ Provide medical insurance coverage for workers. ➤ Provide worker's accommodation which may include Provision of fuel for cooking, proper & hygienic lodging/living facility, proper toilets & bathroom, liquid and solid waste management facilities for workers and safety measures in labor camps ➤ No child labor will be employed. ➤ Emergency Readiness Plan to be displayed at a prominent site ➤ Training to workers on	

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		emergency readiness ➤ Occupational Health and Safety Plan is attached as Annexure XIV.	
Community Health and Safety	➤ Injury, accidents and sickness of workers and local people ➤ Restricted movement of visitors within the facility premises	➤ Organizing regular health check-ups and creating awareness about diseases like on communicable diseases like COVID, Tuberculosis, HIV and STDs. ➤ Alternative and safe routes for patient's flow. ➤ Mandatory deployment of security personnel at site specifically at high-risk zones ➤ 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 passersby. ➤ Construction area to be properly hard barricaded	Contractor and Medical In-charge

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		and safety signage's viz. "No entry for public"; "Work is going on, be careful"; "Area for reinforcement", "Construction Zone", etc and also important signage's indicating diversion, danger signs at appropriate locations are to be installed during construction. ➤ 24×7 security in and around project	
Employment	Employment generation during construction phase and operation phase.	➤ Demand for skilled, semi-skilled and unskilled workers during construction period. ➤ Employment opportunities will be generated. ➤ Equal and minimum wages as per govt. norms will be provided.	Contractor
Energy Efficiency	Loss of natural resources	➤ Use energy efficient measures as per DPR such as Water Efficient fixtures, STP treated water after	Architect and Contractor

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		regular testing shall be used for, flushing & landscape irrigation, Rain water harvesting system, Pressure reducing device, Sprinkler Irrigation etc.	
Fire Fighting	Loss of Life and Property	➤ Provision of Fire extinguisher system at site. ➤ Staff should be trained to handle emergency situations like firefighting and should be responsible to contact the emergency personnel in case of any emergency. ➤ Provision of Fire Alarm System fire buckets, fire extinguishers, fire pumps, fire proof enclosures etc. ➤ Storage of raw water in underground fire water tanks has been provided for hospital building.	Architect and Contractor
Stakeholder Engagement	Lack of prior intimation of the demolition and construction activities may lead to health hazards caused by probable air, water and noise pollution. Community health and safety concerns	Prior intimation to the public about the time and the duration of particular construction works which causes inconveniences to the	Contractor, Joint Director, DH & Project In-charge

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		community residing nearby • Stakeholder consultation for ➤ Responding to the queries of community regarding, proposed DH, construction activity etc. ➤ Making community aware that all safety measures in terms of air pollution, noise pollution, water pollution, community health and safety will be undertaken in the construction phase.	
Gender based violences, SEA/SH	• Risks of SEA/SH to community members, particularly women and children by contractors' workers during construction period • About 75 percent of the contract workers are anticipated to be men, and women's participation is around 25 percent. The women labor force may face GBV/SEA/SH because of their numerical inferiority at the workplace • Risks of workplace sexual harassment at project site (consultants and contractors' staff & laborers).	➤ Codes of conduct will be prepared in languages easy to understand, preferably in local language and adopted by Contractor as well as all the workers under Contractor of the project. Annexure XVI. ➤ Any GBV/SEA/SH complaints to be taken care by <u>Local Committee</u> notified under POSH Act by District Commissioner	Contractor, Joint Director, DH & Project In-charge

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		to receive complains on SEA/SH from establishments where Internal Committee has not been constituted. ➤ Duties of Contractor who employs the labours are to : ○ Provide a safe secure working environment for workers like provision of lighting around project sites, including around latrines and access routes, separate and lockable toilets for female construction workers etc. ○ display (a) warnings which say “Respect the dignity of women” alike at conspicuous positions in site premises , (b) project site is an area where GBV/SEA/SH is prohibited (c) order	

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		constituting the Local Committee (LC) - o organize regular trainings on (a) CoC and (b) prevention of GBV/SEA/SH to all workers, including contractors, subcontractors, core suppliers, and relevant consultants and clients (c) sensitization on Local Committee (LC) - o ensuring all employees should attend regular training programs on the prevention of SEA/SH in the workplace, including training for new workers/employees - o Treat Sexual harassment as misconduct and initiate action for such misconduct. - o Facilitating	

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		complainants by providing linkages with One Stop Centres of the district, orienting on Women Helpline Number 181. etc.	
Grievances of workers as well as community	<u>Grievances of workers</u> - The workers at the construction site may have grievances due to non-receipt of basic facilities, PPE related, non- Receipt of dues, workplace discrimination, excessive workload etc - Potential conflict between migrant workforce and local may take place <u>Grievances of Community</u> - Tree felling for site clearance. - Inconveniences caused to community by construction activities like dust, water source contamination, noise, water logging, etc. - Community health and safety concerns - Community residing nearby site or passers-by may have grievances related to non-disclosure of project information, tree felling	❖ GRM at proposed DH Site (Manual): - Submission of grievances by workers and community - Installation of Drop Boxes with proper signages at workers camp and entry gate so that it is visible to workers and community to drop grievances in person at site. - Display of contact number and e-mail dedicated for GRM at workers camp and entry gate for submission of grievances by workers	Contractor, Joint Director, DH & Project In-charge

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		and community. • Designation of manpower to register grievances at site • Developing of proper formats to capture all the relevant details of complainant for registering grievances of Labours and Community received at the site physically. • Developing a Grievance Redressal Protocol to address the grievances physically received at site (till the time the online platform is operationalized) • Sensitization of workers on the existing physical GRM mechanism at site. ❖ <u>GRM Portal (Online)</u> • An online GRM Portal to be developed for grievance online	

Key Area/ Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
		submission and redressal of the grievances of the workers and community. The grievances received through drop boxes, email, online entry, mobile phone will be registered on the online portal and the redressal will be done following a protocol developed for the purpose. The stakeholder departments will have the credentials to redress and escalate the grievances. The complainant will be communicated receipt and final redressal of the grievances with SMSs. Grievance Redressal Mechanism is detailed at Annexure XVI.	

Table 7.1(iii): Environmental and Social Risks/Impacts assessment and Mitigation Measures during Operation Phase

Key Area/Activities	Potential E&S Risks and Impacts	Proposed Mitigation Measures	Responsibilities
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Consent to Operate, Authorization under BMW Rules 2016, Land ownership documents, Fire NOC	Non availability of the necessary consents, authorization or permits can result in closure of the facility by concerned authority.	➤ Ensure availability of consent to operate under Water Act 1974 and Air Act 1981, Authorization under BMW Rules 2016/2018 from PCBA, other necessary clearances, Licenses and permits	Contractor, Hospital Authority, Lakhipur DH & Project In-charge
Flora and Fauna	Deforestation and loss of vegetation cover (if happened post construction phase).	➤ Development of thick green belt with local and indigenous species in consultation of forest department ➤ To maintain the aesthetic beauty of the site.	Contractor, Hospital Authority, Lakhipur DH & Project In-charge
Ground Water	➤ Ground Water Contamination ➤ Ground Water Depletion	➤ Dual plumping system is proposed in the project. ➤ Waste water to be treated in STP and reused for flushing toilets and irrigation purposes. ➤ Use of Water Efficient fixtures like flow regulators & dual flushing cisterns	Hospital Authority, Lakhipur DH & Project In-charge
Surface Water	Surface water contamination	➤ It will be ensured that surface water runoff will be disposed through proper drainage channel to minimize the contamination risk. ➤ Regular maintenance of rain water harvesting system	Hospital Authority, Lakhipur DH & Project In-charge
Ambient Air Quality	Emissions from vehicular movement and operation of DG sets	➤ Water sprinkling will be carried out to reduce emission ➤ Regular monitoring of emissions and control measures will be taken to reduce the emission levels. ➤ Use of low sulfur diesel. ➤ Acoustic enclosures ➤ Greenbelt development	Hospital Authority, Lakhipur DH & Project In-charge

Noise and visual impacts	➤ Environmental noise can cause Hearing impairment, hypertension, and ischemic heart disease (IHD), annoyance and sleep disturbances. Noise exposure may also cause birth defects	➤ DG sets will be provided with acoustic enclosures and will be placed in a room to reduce noise level. ➤ Proper traffic management & circulation. ➤ Honking will be prohibited in the premises. ➤ All vehicles will carry PUC. ➤ Regular ambient noise monitoring and work site noise monitoring	Hospital Authority, Lakhipur DH & Project In-charge
Waste Management	Solid Waste generation	➤ Garbage chute system for domestic waste and color coded bins for at source segregation of biomedical waste respectively. ➤ Organic Waste Compost Machine for 100 Kg/Day Waste per Day will be installed.	Hospital Authority, Lakhipur DH & Project In-charge
BMW Management	Infections and Toxicity due to improper handling of bio-medical wastes	➤ The authorization for handling of BMW will be obtained from Assam State Pollution Control Board. ➤ Separate temporary storage area shall be provided inside the premises of DH for temporary storage of color coded biomedical waste bags/containers and disposal to take place within 48 hrs. ➤ The existing mode of BMW disposal at Lakhipur Block Primary Health Centre is through Sharp pits and Deep Burial at the site. The CBWTF generated at the proposed DH will be disposed of through facilities at SMCH Campus by making an agreement for the same.	Hospital Authority, Lakhipur DH & Project In-charge

		➤ Formation of BMW Management Committee as per BMW Rules. Details about biomedical medical waste are given in Waste management plan which is attached as Annexure IX.	
Water Management	Poor sanitation, drainage problem which results in water running over roads and water logging.	➤ Re-establish the drainage pattern to the extent practicable. ➤ Provision of dual plumbing system/ two pipe (stack) system and use of zero liquid discharge technology. ➤ The rain water to be diverted using rainwater pipes to the drainage network.	Hospital Authority, Lakhipur DH & Project In-charge
Transportation and Vehicle Movement	Increase in volume of traffic	➤ 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/visitor's route. ➤ Regular checks and inspections for the ambulances and other vehicles.	Hospital Authority, Lakhipur DH & Project In-charge
Occupational Health and Safety	➤ Health, Hygiene and Safety of employees	➤ Provision of PPE to healthcare workers ➤ Provision of PPE to BMW handling staff ➤ Regular immunization of the staff and waste handlers ➤ Regular Health checkup ➤ Provide training on health and safety to all the employees.	Hospital Authority, Lakhipur DH & Project In-charge

		➤ Provide medical insurance coverage for employees. ➤ Emergency Readiness Plan to be displayed at a prominent site ➤ Training to employees on emergency readiness. ➤ Occupational Health and Safety Plan is attached as Annexure XIV.	
Gender based violences, SEA/SH	➤ There may be issues of GBV, SEA/SH of women patients and attendants as well as the women employees & staff at the new Hospital.	➤ GBV/SEA/SH complaints of staff as well as community to be taken care by <u>Internal Committee</u> notified under POSH Act by the Hospital ➤ Duties of Head of the Hospital are to : - o Provide (a) a safe secure working environment like provision of 24x7 security service manned by both male and female security guards, (b) lighting around the hospital, including around latrines and access routes, (c) separate and lockable toilets for female staff and patients (d) proper signages of male and female toilets and wards - o display (a) warnings which say “Respect the dignity of women” alike at conspicuous positions in hospital premises , (b) Hospital is an area where GBV/SEA/SH is prohibited (c) order constituting the Internal Committee (IC) - o organize regular trainings on (a)	Hospital Authority, Lakhipur DH & Project In-charge

		prevention of GBV/SEA/SH to all staff including all male and females (c) sensitization on Internal Committee (IC) - o ensuring all employees should attend regular training programs on the prevention of SEA/SH in the workplace, including training for new staff/employees - o Treat Sexual harassment as misconduct and initiate action for such misconduct. - o Facilitating complainants by providing linkages with One Stop Centres of the district, orienting on Women Helpline Number 181. etc.	
Grievance redressal of community/ patients and employees	➤ The community people/ patients may have grievances of not receiving or delay in treatment, lack of doctors /nurses, insurance, facilities at hospital, lack of medicines etc. ➤ And employees may have grievances of not having basic and proper facilities at hospital, hectic schedules etc.	• Installation of Drop Boxes with proper signages at multiple sites of the Hospital so that it is visible to community to drop grievances. • Display of contact number and e-mail dedicated for GRM at specific sites. • Developing a Grievance Redressal Protocol to address the grievances received at Hospital • Designation of manpower to register the grievances at Hospital ➤ The online GRM Portal will facilitate submission of grievance of Patients and Hospital Staff and redressal of the same. The grievances received through drop boxes,	Hospital Authority, Lakhipur DH & Project In-charge

		email, online entry, mobile phone will be registered in the online portal and the redressal to be done will follow a protocol where stakeholder departments will have the credentials to redress and escalate the grievances. The complainant will be communicated receipt and final redressal of the grievances with SMSs.	
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CHAPTER-8

ANALYSIS OF ALTERNATIVES

CHAPTER 8- ANALYSIS OF ALTERNATIVES

8.1 Introduction

This chapter includes the assessment of various options may be available for different components of the project in terms of environmental sustainability. Consideration of alternative technologies to be used in building material, energy conservation, and transportation methods are addressed in this chapter. The various applicable options are thus evaluated for their suitability or availability to project site and local environment.

8.2 Building Material

Only IS approved building materials will be used for the construction. Construction material will be selected based on their thermal characteristics and the U and R values. The additional considerations are as under.

- The major materials required for construction of the project are steel, cement, bricks, metal, stones, electrical fittings, water, etc.
- All the items used in the project are as per the national building code specification.
- The basic materials used for the construction of the proposed project are cement, steel, bricks, stones, ready mix concrete, sand, plywood, hard wood, aluminum, glass etc.

The following measures is proposed to for conserving the energy

- Low energy embodied materials will be preferred.
- Energy efficient construction materials such as Autoclaved Aerated Concrete Blocks (AAC Blocks) will be used. Apart from energy efficiency, AAC Blocks are durable and a high-strength building material that has excellent insulation properties and is resistant to fire and moisture.
- Ready Mix Concrete will be used for construction of RCC structures.
- Minimizing overall waste and the transport of waste from site.
- Provision for Solar powered street lighting for common areas is planned.
- LED's, CFL bulbs, lights, and fixtures for most of the common area,
- Use of energy efficient lighting.
- All the items used in the project will be as per the National Building Code-2016 and ECBC.

8.2.1 Use of Recycled Material

Recycled materials will be used in filling of roads as well as for pavers. Also, materials with low embodied energy used in construction which will significantly result in energy savings. The total savings in terms of roads and paving may be up-to 20%. Whole Bricks received from segregation of C&D Waste will be kept separately for use. Recyclable waste construction materials will be sold to authorized recyclers and recycled into aggregates which are converted to Ready Mix Concrete (RMC), pavement blocks, kerb stones and concrete bricks. Recycled coarse aggregate will be used in construction of roads within the site.

8.2.2 Walls

8.2.2.1 Conventional Material

Redbrick for peripheral walls and AAC blocks for internal walls are used for construction. Bricks are laid in courses and numerous patterns known as bonds, collectively known as brickwork, and

laid in various kinds of cement mortar to hold the bricks together to make a durable structure. Cement mortar becomes hard when it cures, resulting in a rigid aggregate structure.

8.2.2.2 Alternatives

- **Structural Insulated Panels-** Structural Insulated Panels are modular wall sections made from foam sandwiched between two pieces of Oriented Strand Board. They're incredibly strong and energy efficient, as the foam inside the Oriented Strand Board acts not only as the web to provide strength but also as insulation.
- **Brick and block** products with waste and recycled contents (waste from coal burning plants), blast furnace slag, sewage sludge, waste wood fiber, rice husk ash, etc.
- **Concrete blocks using lime or waste wood fiber** provide reduction of waste and saves energy.

8.2.3 Roofs Conventional Material

Roofing is RCC, as it is suitable for longer spans. The constituents of RCC, i.e., cement, sand, aggregate and steel all are energy intensive materials and high-embodied energy content.

Alternatives

- **Pre-cast/aerated cellular concrete walling blocks and roofing slabs-** These are manufactured by the aerated cellular concrete manufacturing process. When used in multistoried structures, they reduce the weight, resulting in a more economical design.
- **Roofing sheets-** Corrugated roofing sheets for their reliable utility and enhanced strength, Polycarbonate roofing sheets for their insulation properties and high strength quotient and Metal roofing sheets for their high insulating capabilities can be used.

8.2.4 Roads & Open Spaces

Use of grass pavers along the roadside, parking and pedestrian areas is a solution to reduce the heat island effect. Recycled materials are being used for construction of road purpose as well as for pavers and will be followed for expansion purpose if locally available.

- **Permeable paving-**Permeable (porous) paving will be provided to control surface water runoff by allowing storm water to infiltrate the soil and return to the ground water. The traffic areas will however continue to be impermeable

Gravel/crusher fines: Loose aggregate materials from masonry wastes will be used to cover pedestrian surfaces.

- **Drainage System:** Drainage system is placed under gravels for collection of rainwater and will be collected to the sump.

8.3 Natural Hazards Prone Areas

The project falls under zone V (as per IS 1893 (Part-I):2002), as per the Seismic Zone Map of India and Assam. Zone 5 covers the areas with the highest risk of suffering earthquakes of intensity MSK IX or more significantly. Adequate measures will be adopted during operation phase of the project by project proponent. All applicable guidelines will also be followed in this regard to ensure safety of the building.

8.4 Alternatives of Location

The State Government of Assam has allotted the required land to the project proponent for development of 100 Bedded Hospital; hence no other alternative of the location was explored.

8.5 Energy Efficiency & Renewable Energy

To promote energy conservation, it is proposed to provide the buildings with low energy consuming fixtures maximize availability of natural light and make plans in conformance to the sun's path. In the operational phase, appropriate energy conservation measures and management plan will be adopted to minimize the consumptions of non-renewable fuel. The following measures are suggested to be adopted.

- All Buildings are spaced in such a way that sunlight, natural ventilation is not disturbed due to each other.
- Buildings will be designed to have least exposed surface of glass.
- Energy efficient compact fluorescent lamps to be used as these CFL gives same illumination with less wattage compared to GLS Lamps.
- Power factor of the complete electrical system will be maintained close to unity. This will reduce electrical power distribution losses in the installation.
- Occupancy Sensor based light system to be used for rooms which detect movement within a room and automatically turn lights on or off as needed.

CHAPTER-9

RECOMMENDATIONS AND CONCLUSIONS

CHAPTER 9- RECOMMENDATIONS AND CONCLUSIONS

9.1 Recommendations

The following are recommendations applicable to the project to ensure no significant impacts:

- Obtain all statutory clearances at the earliest time possible (CTE and Tree cutting permission at first) and ensure conditions/provisions are incorporated in the detailed design.
- Asbestos is not a part of debris disposal site as there is no generation of asbestos at the site.
- Include this ESIA in contract documents
- Commitment from contractors to protect the environment and the people from any impact during project implementation
- Update/revise this ESIA based on detailed design and/or if there are unanticipated impacts, change in scope, alignment, or location
- Conduct safeguards induction to the contractor before start of construction works
- Contractor to submit site specific Contractors Environment and Social Management Plan (C-ESMP) with final designs.
- Ensure contractor appoints qualified environment, health and safety (EHS) officer prior to start of works
- Timely disclosure of information and establishment of Grievance Redressal Management (GRM)
- Effective implementation of GRM
- Strictly supervise EMP implementation
- Continuous consultations with stakeholders and grievance redress; if any
- Documentation and reporting on a regular basis as indicated in the ESMF.

9.2 Conclusions

The ESIA-ESMP described in this document has details about the environmental and social impacts of the proposed construction of new 100 bedded District Hospital under ASSIST at Lakhipur, Cachar, Assam. All potential impacts have been identified in relation to pre-construction, construction, and operation phases. Planning principles and design considerations have been reviewed and incorporated into the site planning and design process wherever possible as per DPR.

During the construction phase, environmental and social impacts mainly arise from the construction dust; handling and storage of building materials; movement and noise of construction machineries and vehicles in an area surrounded by local residents, chemist shops, diagnostic centers, market areas and passersby of the adjacent roads.

The public participation (stakeholder engagement) was undertaken during project design ensured stakeholders are engaged during the preparation of the ESMP. The views and suggestions were taken into account in preparing the ESIA-ESMP. This will make the proposed project a success in providing essential and affordable health care services.

The Environmental and Social Management Plan (ESMP) proposed in the project includes mitigation measures for identified impacts, training and capacity building activities, an environment monitoring plan to ensure that the environmental standards are maintained throughout the project construction period and a reporting plan to ensure that the project is implemented as per environmentally sound engineering and construction practices. Social

Impact Assessment also considered Gender Based Violence, Gender equality, equal wages, minimum wages (as per Government Norms), workers facilities etc. The budgetary provisions for mitigating the anticipated impacts were proposed for effective implementation of the ESMP. The ESMP will assist the implementing agency, Architect and Contractor in mitigating the environmental and social impacts, and guide them in the environmentally sound execution of the proposed project. The ESMP will also ensure efficient lines of communication between AHIDMS, Implementing agency, architect and contractor. A copy of the ESIA-ESMP will be kept on-site during the construction period at all times. The ESIA-ESMP will make binding on all sub-contractors operating on the site accountable, and will be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in this document shall constitute a failure in compliance.

The project will benefit the general public including local community, patients and health care workers with the initiation of the new district hospital at Lakhipur, Cachar. The potential adverse environmental and social impacts are mainly related to the construction period and operational period, which can be minimized by the mitigation measures and environmentally sound engineering and safe construction practices.

This report presents a comprehensive environmental and social impact assessment for the proposed project. The study proposed measures for mitigating the adverse impacts while enhancing the positive ones during the phases of construction, operation & maintenance. The proposed construction works of District Hospital will bring a series of benefits to the local people such as:

- Improved Health status;
- Employment Generation during construction and operational period;
- Increased Economic Opportunity after operation of facility starts (in terms of Diagnostics, chemist and other supporting services);
- Women Empowerment;
- Providing basic infrastructure, road connectivity and clean air through thick landscaping around site.
- Overall Quality of life increases

Based on the ESIA findings, it has been found that there are no significant adverse impacts of proposed project. The report's objectives are in line with World Bank Safeguard Policies and Governmental (India and Assam) regulatory requirements.

LIST OF ANNEXURES

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ANNEXURE-I
Construction and Demolition
Waste Management Plan

ANNEXURE-I

Construction and Demolition Waste

1.0 Introduction

As per the Construction and Demolition (C&D) Waste Rules 2016, “any waste comprising of building materials, debris and rubble resulting from construction, remodeling, repair and demolition of any civil structure” is classified as C&D waste.

Improper management of C&D waste impacts environment in the following ways:

- C&D waste is routinely dumped in open drains and water channels, clogging them and leading to urban flooding during rains.
- Dumping of C&D waste in wetlands, water channels and riverbeds disrupts the hydrology and destroys the aquatic ecosystem.
- Leachate and fine chemical particles from C&D waste degrade the soil, leading to land and groundwater pollution. Especially hazardous components include paints, oil and asbestos sheets.
- C&D waste is filling up existing landfills and dump-yards, resulting in the need for more landfills or alternative dumpsites.
- C&D waste usually gets mixed up with other municipal solid waste during the process of transfer or at the collection site. Once mixed, it makes composting and/or recycling of MSW highly difficult.
- C&D waste includes hazardous substances such as sharps, broken glass, boulders, broken wooden logs, rusted metal, broken ceramics, etc., which create a hazardous environment when dumped on unfenced open places.
- C&D waste dumped on streets and footpaths blocks traffic and pedestrians, frequently contributing to traffic congestion and even accidents.
- C&D waste is one of the primary sources of fugitive dust pollution.

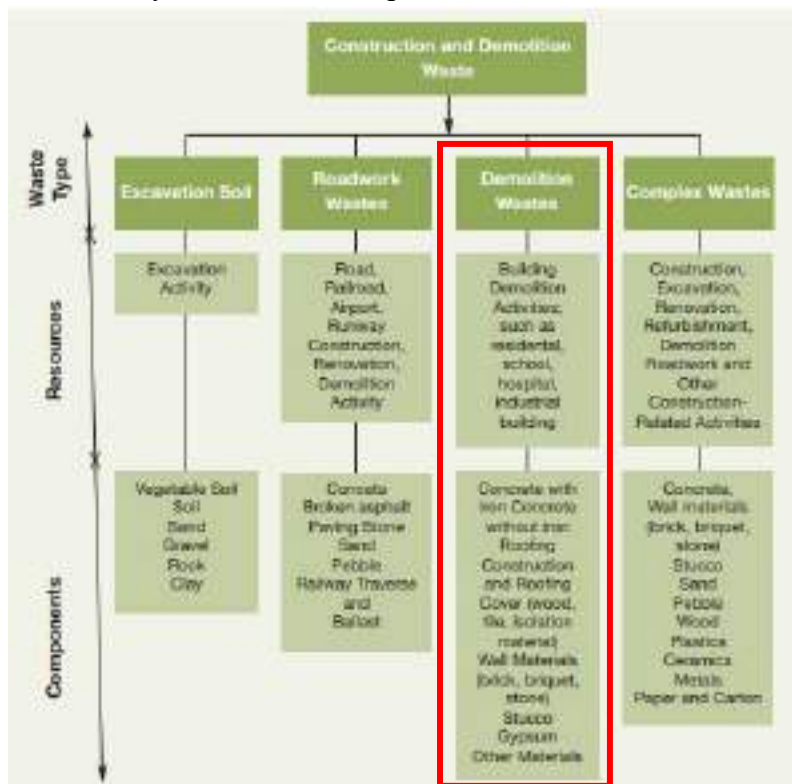
2.0 C&D Waste Management Rules, 2016

The Ministry of Environment, Forest and Climate Change (MoEFCC) notified the Construction and Demolition Management Rules in 2016.

Key highlights of the C&D Waste Management Rules, 2016:

- The Rules mandate use of recycled products in construction. Local bodies will have to utilize 10–20 per cent of material from C&D waste in municipal and government contracts for construction.
- The tipping fee for delivery of C&D waste to the recycling plant, and terms and conditions of civic body with the concessionaire may be designed to keep the price of C&D waste recycled products about 20 per cent lower than the corresponding conventional products.
- All large developers are accountable for collection and disposal of C&D waste
- Local authorities to give appropriate incentives to waste generators for salvaging, processing, and recycling, preferably in situ.

- Recycling facilities will have to be created at a safe distance from habitation with adequate buffer zone.
- Local authorities to establish a database and update it once in a year.
- All renovation projects involving demolition, even in the private sector, may be mandated to use at least 20 per cent of recycled C&D waste products.



3.0 Details regarding the Proposed Project

Presently there is a Primary Health Centre working at Lakhipur (project site). Primary Health Centre caters to health needs of the surrounding villages. A new 100 bedded District Hospital is proposed to be constructed at Lakhipur, Cachar.

4.0 Details regarding the Existing Structures in Proposed Project

The proposed project involves demolition of brick wall i.e. demolition of old existing buildings present at the site area. The staff residing in the existing buildings will be temporarily relocated within 1.0-2.0 km radius. Site photographs of the existing structures is given below-



Figure 1- Site photographs of the existing structures

Lifting of Construction & Demolition Waste from Storage bins would be manual or mechanical through JCB, Loader and dumper. Following proposals regarding Construction and Demolition waste generated at the project site would be made-

- Whole Bricks received from segregation of C&D Waste will be kept separately for internal use.
- Recyclable waste construction materials will be sold to authorized recyclers and recycled into aggregates which are converted to Ready Mix Concrete (RMC), pavement blocks, kerb stones and concrete bricks.
- Recycled coarse aggregate will be used in construction of roads within the site.
- Wood will be chipped to make particle boards, pallets or to create mulch for the protection and improvement of soil.
- Unusable and excess Construction and Demolition debris will be disposed at designated places in tune with the local and national norms. No asbestos generation at site
- C&D Waste mitigation measures shall be displayed prominently at the construction site for easy public viewing.

ANNEXURE-II
**List of Facilities -Proposed (100
Beds District Hospital)**

Annexure-II

List of Facilities –Proposed (100 beds District Hospital)

1. Ground Floor

Emergency care Unit

- Emergency Entrance Lobby, Emergency Help Desk/ Reception
- Police Post
- Triage Room with 5 No. Yellow zone beds, 2 no. Pediatrics beds, 1 Isolation bed, Utility, Toilet, Nurse's station, CU & DU.
- Plaster and Plaster Cutting room.
- Trolley wash area/ Decontamination area.
- 3 No. Red zone beds with Nurse's Station
- Examination /Treatment Room.
- Duty Doctor's Room
- Nurse's lounge
- CCMO Room with attached toilet and Medico-Legal Case
- 2 No. Pre & Post Operative beds with attached toilet
- Change rooms (Male and Female)
- Emergency OT Lobby, Patient Holding Area, Emergency TSSU, BMW room.
- 1 No. Emergency Operation theatre
- AHU Room

****STP and ETP (Liquid waste treatment of O.T/Blood Bank)** in basement and Solid Waste disposal, BMW storage room and Hazardous waste disposal with collection system planned on the ground floor.

Outpatient and MCH Department

- OPD & MCH Entrance Lobby (Double Height)
- OPD & MCH Registration (3 Counters)
- Pharmacy with 3 counters and Pharmacy store
- General Public toilet, and Staff Toilet, Ph Toilet, Lift Lobby and Staircase
- **Radiology** with 1 X-ray with change room, ECG, Mobile X-ray, Dark room Printing, Dental Room, USG with colour doppler, Reporting Room and Radiology Waiting Area

2. FIRST FLOOR

Outpatient Department

- Waiting Area with Lift Lobby, public and staff toilets, staircase
 - **OPD consultation rooms:** Counseling room, NCD, Adolescent clinic, Dermatology, ENT, PAC Room, Surgery, Tele-consultation room, Wellness clinic, PFT/ECG Room, Family Medicine, Immunization/Cold storage and patient waiting hall
- Administrative unit**

- Waiting area, PA Room, Medical Superintendent room with attached toilet, Nursing-in-charge room, Hospital manager room, Office Area with supervisors' cabins (2no), meeting hall, Pantry
- **Laboratory** with Sample collection Area, Clinical pathology Lab, Pathology lab, BSC Room, lab In-charge room with toilet.
- **Support Services (Dietary):** Storage, washing area, toilet, and cooking area.

3. SECOND FLOOR

- **OPD consultation rooms:** Gynae Room (2no), Ultrasound Room
- Waiting Area with Lift Lobby, public and staff toilets, staircase
- **Obstetrics Critical Care unit:** Air lock, patient changing area, Change room with attached toilets, Obstetrics HDU-6 Nos., Obstetrics ICU, Isolation Room, CU room, Linen room, Toilet, Critical Equipment room, Nurse-in-charge, Therapeutic diet prep.
- **Mother & Child Hospital**
- MCH Triage 2 beds, change rooms with toilet, 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.
- **District Early Intervention Centre:** Examination room, Nourishing nutrition, Psych, lang, Laboratory, Hearing assessment room, Dental examination room, Vision Assessment room, Early Interventional occupational therapy, Sensory Integration, Anthropometry.

4. THIRD FLOOR

Ward Complex

- 8 beds Day care ward, 8 bedded NRC Ward, Duty Doctor's Room with attached toilet, Nurse's station with Nurse's Lounge, with separate male and female toilets.
- **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, NICU Store, change room, Isolation-3 Nos., Nurses station, feeding room with prep area, Point of care, AHU Room.
- **Mother's & new-born Ward:** 13 bedded mothers & new-born ward, Nurse's Lounge, Nurse's Station, CU and DU
- **Paying cain complex:** 6 rooms with attached toilet, almirah and attendant's sleeping couch.
- Waiting area with public toilet, lift lobby, and staircase.

5. FOURTH FLOOR

- **General ward complex:** 27 beds ward complex, Nurse's station, CU & DU, toilets separate for male and female, Ph. Toilet, Lockers
- **Paying cain complex:** 6 rooms with attached toilet, almirah and attendant's sleeping couch.
- **Burn unit:** 06 beds ward, 2 beds Isolation, Nurse's Station with dressing room and Toilet, Change rooms, Duty doctor with toilet, CU & DU, Toilet complex.
- Waiting area with public toilet, lift lobby, and staircase.

6. FIFTH FLOOR

- **Dialysis Complex:** change rooms with toilets, Nurse Station, Dialysis ward with 4 beds and nurses' station, Isolation room, Wash Area, Utility, RO Room, toilets, Dialysis Waiting Area, Store
- **HDU Ward:** Counseling room, patient change, change room with toilet, Patient Change, pediatrics HDU beds-2 Nos., general HDU beds-4 Nos., 1 No. isolation bed, duty doctor with attached toilet, Nurse's Room with attached toilet.
- **Paying cain complex:** 6 rooms with attached toilet, almirah and attendant's sleeping couch.
- Waiting area with public toilet, lift lobby and staircase.

6. SIXTH FLOOR

- **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.
- **OT Complex:** Change rooms (Doctor's, nurse's and staff change), Trolley exchange area, 2 No. Preoperative and 4 Nos. 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(Sterile and Non Sterile), Autoclave, AHU rooms, UPS Room, Dirty Corridor, Staff Lounge, Anesthetist, Counseling Room,
- **Hospital Stores**

List of Facilities (BMW Room)

- 4 categories of room for BMW

List of Facilities (Mortuary & Gas manifold Room)

- Waiting and reception.
- Body viewing area.
- Store
- Body cold storage area
- Change rooms, Post-mortem room, Embalming room, Instrument room.
- X-ray room, Supervisor room, Toilets.

List of Facilities (Laundry)

- Laundry room

List of Additional Facilities

- Provision of ramps, separate Washroom facilities for people with special needs, Common public spaces and reserved parking spaces for Handicapped.
- Selection of local & indigenous plant species for greenbelt development.
- Use of energy saving appliances and fixtures.
- Provision of Dual plumbing, Rain Water Harvesting and use of solar energy.
- Adequate parking provision for smooth traffic movement.
- Solid waste management through on site Organic Waste Converter.

- Waste water treatment through on-site STP and ETP.

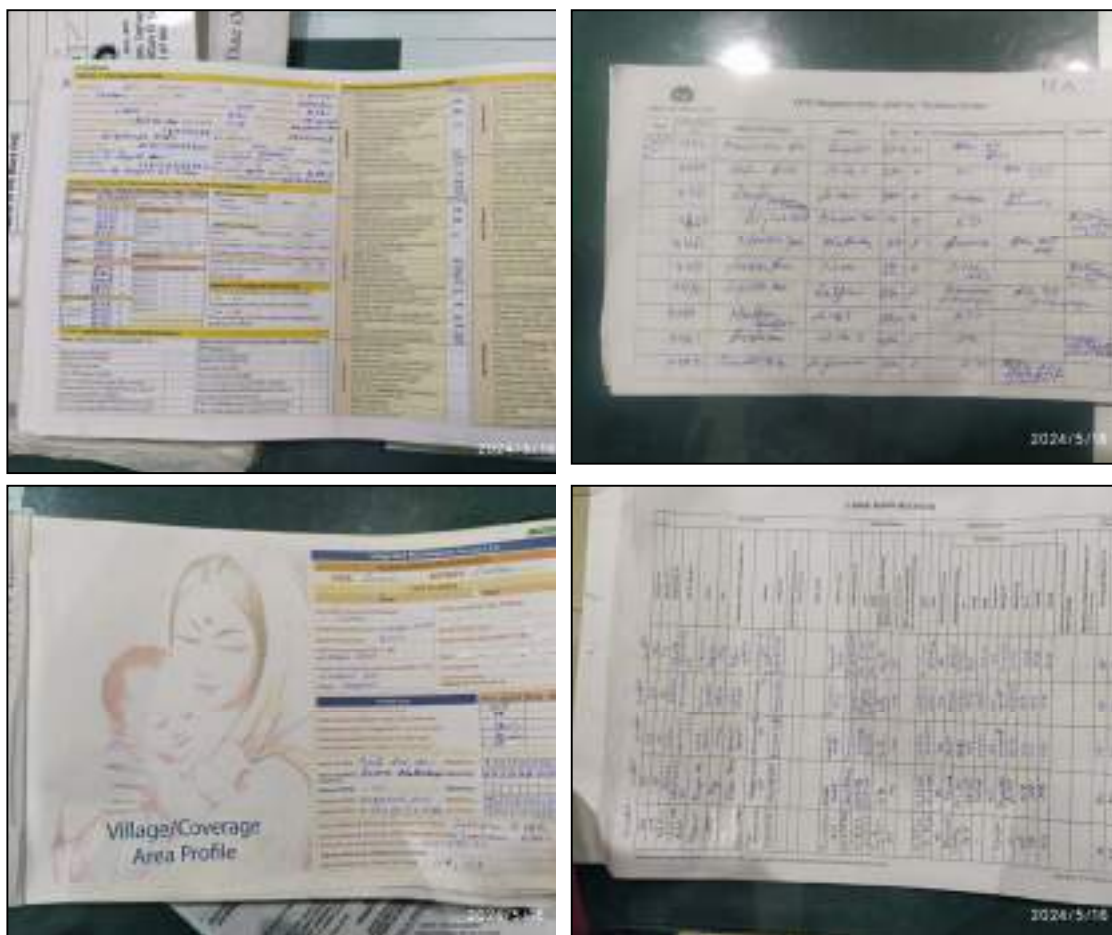
ANNEXURE-III
**Area Statement of The Proposed
Project**

Annexure III
Area Statement of proposed project

	Main District Hospital (B+G+6)	Mortuary & Gas manifold (G)	BMW & Laundry (G)	ESS (G)
Floor height (m)	4.05	3.9	3.6	4.5
Ground floor	2155.14	328	124	250
First floor	1946			
Second floor	2065.70			
Third floor	1975.20			
Fourth floor	1796.48			
Fifth floor	1829.67			
Sixth floor	1829.67			
Basement	2767			
Total	16364.86	328	124	250
Grand Total		17,066.86		
Total Beds	100	Beds		

ANNEXURE-IV

Extracts of Patient Inflow Data Received From The Hospital



ANNEXURE-V
**List of Flora And Fauna During
Site Visit**

Annexure-V
List of Flora and Fauna found in the region

1. List of Flora found in the region

S. No.	Scientific Name	Local Name
TREES		
1	<i>Acacia auriculiformis</i>	Akashmoni
2	<i>Acacia catechu</i>	Khair
3	<i>Acacia nilotica</i>	Babul
4	<i>Adina cordifolia</i>	Karam
5	<i>Aegle marmelos</i>	Bel
6	<i>Albizzia lebbek</i>	Siris
7	<i>Albizzia odoratissima</i>	Jung siris
8	<i>Albizzia procera</i>	Safed Siris
9	<i>Anogeissus latifolia</i>	-
10	<i>Areca catechu</i>	Supari
11	<i>Artocarpus Hitrophyllum</i>	Kathal
12	<i>Azadirachta indica</i>	Neem
13	<i>Bauhinia variegata</i>	Kachnar
14	<i>Bischofia javanica</i>	Uraim
15	<i>Bombax ceiba</i>	Semal
16	<i>Boswellia serrata</i>	Salia
17	<i>Buchnani alanzan</i>	Piar
18	<i>Butea monosperma</i>	Palas
19	<i>Cassia fistula</i>	Dharanj/Amaltash
20	<i>Cocus nucifera</i>	Nariyal
21	<i>Cordia dichotma</i>	Bahuar
22	<i>Dalbergia sissoo</i>	Sheesham
23	<i>Delonix regia</i>	Gulmohar
24	<i>Eugenia jambolana</i>	Jamun
25	<i>Ficus bengalensis</i>	Bar
26	<i>Ficus elastica</i>	Ruber
27	<i>Ficus religiosa</i>	Pipal
28	<i>Gmelina arborea</i>	Gamhar
29	<i>Holoptelea integrifolia</i>	Chilbil
30	<i>Kydiacalycina Roxb.</i>	Puda
31	<i>Lagerstoemia parviflora</i>	Sida/Dauli
32	<i>Mangifera indica.</i>	Aam
33	<i>Phoenix sylvestric</i>	Khajur
34	<i>Pongamia pinnata</i>	Kranj
35	<i>Pterocarpus marsupium</i>	Piasal
36	<i>Schima allichii</i>	Ghugra
37	<i>Shorea robusta</i>	Sal/ SaKhua

38	<i>Stereospermum prsonatum</i>	Paruli
39	<i>Tectona grandis</i>	Saguan
40	<i>Terminalia arjuna</i>	Arjun
41	<i>Terminalia bellirica</i>	Bahera
42	<i>Terminalia tomentosa</i>	Asan
43	<i>Toona ciliate</i>	Pooma
44	<i>Zizyphus mauritiana</i>	Ber
SHRUBS		
1	<i>Asparagus racemosus</i>	Satawar
2	<i>Agave americana</i>	Rambas
3	<i>Calotropis gigantea</i>	Akaon
4	<i>Carissa carandas</i>	Kanwar
5	<i>Cannabis sativa</i>	Bhang
6	<i>Casiaalata</i>	-
7	<i>Catharanthus roseus</i>	-
8	<i>Datura metal</i>	Dhatura
9	<i>Dichrostachyscinerea</i>	-
10	<i>Cyperusrotundus</i>	-
11	<i>Flacourtia Ramontchi</i>	Salpani
12	<i>Indigoferapulchela</i>	Jirhul
13	<i>Ipomoea carnea</i>	-
14	<i>Lantana camara</i>	Putus
15	<i>Phoenix acaulis</i>	Khejur
16	<i>Randiadumetorum</i>	Mowar
17	<i>Thespesia lampas</i>	Ban kapasi
18	<i>Vitex negundo</i>	Sindwar
19	<i>Bougainvillea spectabilis</i>	Voganvila
20	<i>Zizyphusoenoplia</i>	-
21	<i>Ricinus communis</i>	Arandi
22	<i>Rosa rubiginosa</i>	Rosa
HERBS		
1	<i>Achyranthes aspera</i>	Chirchiri
2	<i>Aervalanata</i>	-
3	<i>Ageratum conyzoides</i>	-
4	<i>Alternanthera sessilis</i>	-
5	<i>Boerhaviadiffusa</i>	-
6	<i>Cassia tora</i>	Chakor
7	<i>Elephantopusscaber</i>	-
8	<i>Euphorbia hirta</i>	-
9	<i>Hygrophila spinosa</i>	-
10	<i>Justicia procumbens.</i>	-
11	<i>Leonotisnepataiefolia</i>	-
12	<i>Mimosa pudica</i>	-

13	<i>Parthenium hysterophorus.</i>	-
14	<i>Sida acuta</i> Burm.	-
15	<i>Sida rhombifolia</i>	-
16	<i>Solanum nigrum</i>	Makoi
17	<i>Solanum surattense</i>	-
18	<i>Sphaeranthus indicus</i>	-
19	<i>Tridax procumbens</i>	-
20	<i>Xanthium strumarium</i>	-
GRASSES AND CLIMBERS		
1	<i>Vetiveria zizanioides</i>	Khus-Khus
2	<i>Apludavaria</i>	Dudhiasauri
3	<i>Arundinella setosa</i>	Jharu/Motaminjhar
4	<i>Bambusa arundinaceae</i>	Bara bans
5	<i>Cymbopogon martini</i>	-
6	<i>Cynodon dactylon</i>	Dhoob
7	<i>Dendrocalamus strictus</i>	Bans/Bamboo
8	<i>Eulaliopsis binata</i>	-
9	<i>Heteropogon contortus</i>	Kher/Sauri
10	<i>Imperata cylindrical</i>	-
11	<i>Saccharum munja</i>	Munj
12	<i>Mukiamaderas patana</i>	Bilari
13	<i>Abrus precatorius</i>	Karjani
14	<i>Acacia pinnata</i>	Arar
15	<i>Butea parviflora</i>	Cihut

2. List of Fauna found in the region

S. No.	Scientific Name	Local Name/Common Name
MAMMALS		
1	<i>Funambulus pennant</i>	Gilahri
2	<i>Bandicota bengalensis</i>	Chuha
3	<i>Herpestes edwardsi</i>	Nevala
4	<i>Presbytis entellus</i>	Langur
5	<i>Macaca mulatta</i>	Bandar
6	<i>Cynopterus sphinx</i>	Chamgadam
7	<i>Rhizomys pruinosus</i>	Bamboo Rat
8	<i>Canis lupus familiaris</i>	Dog
9	<i>Ovis Aries</i>	Sheep
10	<i>Bos taurus</i>	Cow
AMPHIBIANS AND REPTILES		
1	<i>Rana tigrina</i>	Frog
2	<i>Naja naja</i>	Binocellate cobra
3	<i>Bungarus coeruleus</i>	Common Krait
4	<i>Ptyas mucosus</i>	Rat snake

5	<i>Calotes versicolor</i>	Forest Lizard
6	<i>Hoplobatrachustigerinus</i>	Indian bull frog
7	<i>Viperarussellis</i>	Russell's Viper
8	<i>Chameleon zegylanicus</i>	Indian chameleon
AVIFAUNA		
1	<i>Corvussplendens</i>	House Crow
2	<i>Dicrurusmacrocerus</i>	Black Drongo
3	<i>Passer domesticus</i>	Sparrow
4	<i>Streptopeliachinensis</i>	Spotted Dove
5	<i>Centropussinensis</i>	Greater Coucal
6	<i>Acridotherestrictis</i>	Common Myna
7	<i>Saxicoloidesfulicata</i>	Indian Robin
8	<i>Bubulcus ibis</i>	Cattle Egret
9	<i>Venetlus indicus</i>	Lapwing
10	<i>Anas platyrhyncos</i>	Duck

ANNEXURE-VI
**Demographic Structure of The
Study Area**

Annexure- VI
Demographic Structure of the Study Area

(a) Demographic Structure of the Study Area

S. No.	Name	No_HH	TOT_P	TOT_M	TOT_F	Sex Ratio	P_06	M_06	F_06	Sex Ratio
1	Monipur Pt II	409	2046	1046	1000	956	295	157	138	879
2	Uzan Tarapur	515	2539	1298	1241	956	424	236	188	797
3	Singerbond Pt IV	857	4198	2005	2193	1094	585	317	268	845
4	Sibpur Pt I	280	1241	626	615	982	165	86	79	919
5	Sibpur Pt II	346	1438	682	756	1109	249	123	126	1024
6	Singer Bond Pt V	481	2289	1141	1148	1006	258	134	124	925
7	Kaptanpur Pt III	164	707	348	359	1032	64	29	35	1207
8	Kaptanpur Pt IV	188	856	436	420	963	117	70	47	671
9	Binnakandi Pt II	410	1897	910	987	1085	202	99	103	1040
10	Binnakandi Pt I	557	2586	1325	1261	952	257	140	117	836
11	Lakhipur Grant	528	2222	1116	1106	991	352	175	177	1011
12	Kaptanpur Pt VII	139	533	275	258	938	79	35	44	1257
13	Kaptanpur Pt VI	79	308	144	164	1139	46	24	22	917
14	Kaptanpur Pt V	301	1186	609	577	947	162	89	73	820
15	Chotomanda T.E.	972	4150	2107	2043	970	668	322	346	1075
16	Kaptanpur Pt X	292	1281	653	628	962	205	108	97	898
17	Kaptanpur Pt IX	282	1159	636	523	822	177	98	79	806
18	Kaptanpur Pt VIII	83	393	201	192	955	71	40	31	775
19	Roberpur	70	319	172	147	855	51	21	30	1429
20	Dilkhosh Grant	754	3330	1765	1565	887	522	287	235	819
21	Monkhosh Grant	118	542	289	253	875	87	45	42	933
22	Tilka Grant (Tika T.E.)	402	1674	873	801	918	300	150	150	1000
23	Binnakandi Grant	1740	7692	3955	3737	945	1240	600	640	1067
24	Laboc Grant	1341	6432	3471	2961	853	823	434	389	896

25	U.S. Lakhichera Pt VI	58	315	163	152	933	82	43	39	907
26	Lalangkitta Labocpar Pt I	630	3085	1529	1556	1018	399	218	181	830
27	Sibpur Pt III	129	496	224	272	1214	53	30	23	767
28	Lalang Pt III	383	1815	910	905	995	223	109	114	1046
29	Lalang Pt IV	225	1154	571	583	1021	190	90	100	1111
30	Lalang Pt II	550	2673	1313	1360	1036	347	176	171	972
31	Lalang Pt I	571	2761	1396	1365	978	351	178	173	972
32	Chirirpar Pt II	491	2428	1178	1250	1061	368	189	179	947
33	Niz-Lakhipur Pt III	330	1674	775	899	1160	220	104	116	1115
34	Niz-Lakhipur Pt I	106	450	214	236	1103	43	19	24	1263
35	Nayagram	476	2145	1020	1125	1103	211	110	101	918
36	Digor Fulertol Pt I	243	1223	610	613	1005	138	67	71	1060
37	Digor Fulertol Pt II	120	654	338	316	935	108	54	54	1000
38	Digor Fulertol Pt III	159	912	437	475	1087	139	66	73	1106
39	Lalang Kitta Labocpar Pt V	156	755	375	380	1013	108	65	43	662
40	Lalang Kitta Labocpar Pt IV	302	1360	693	667	962	183	105	78	743
41	Chalitartol	66	343	179	164	916	100	54	46	852
42	Fulertol	36	222	104	118	1135	13	3	10	3333
43	Natun Fulertol	115	700	373	327	877	98	56	42	750
44	Lowarjiri P.T.V.	12	62	30	32	1067	9	4	5	1250
45	Dakhin Fulertol	131	650	321	329	1025	116	53	63	1189
46	Lalangkitta Labocpar Pt II	271	1177	618	559	905	113	63	50	794
47	Alni F.V.	26	136	73	63	863	41	21	20	952
48	Lakhipur (CT)	2927	15633	8046	7587	943	2279	1132	1147	1013
	Total	19821	93841	47573	46268	973	13331	6828	6503	952

(b) Demographic Structure of the Study Area

S. No.	Name	P_SC	M_SC	F_SC	P_ST	M_ST	F_ST	P_LIT	M_LIT	F_LIT	P_ILL	M_ILL	F_ILL
1	Monipur Pt II	0	0	0	0	0	0	1333	738	595	713	308	405
2	Uzan Tarapur	0	0	0	1	1	0	1614	894	720	925	404	521
3	Singerbond Pt IV	0	0	0	0	0	0	3045	1551	1494	1153	454	699
4	Sibpur Pt I	605	305	300	0	0	0	975	519	456	266	107	159
5	Sibpur Pt II	163	83	80	0	0	0	968	491	477	470	191	279
6	Singer Bond Pt V	0	0	0	0	0	0	1876	981	895	413	160	253
7	Kaptanpur Pt III	0	0	0	0	0	0	556	286	270	151	62	89
8	Kaptanpur Pt IV	0	0	0	0	0	0	585	324	261	271	112	159
9	Binnakandi Pt II	51	23	28	0	0	0	1502	774	728	395	136	259
10	Binnakandi Pt I	410	201	209	0	0	0	2062	1103	959	524	222	302
11	Lakhipur Grant	481	220	261	0	0	0	1033	623	410	1189	493	696
12	Kaptanpur Pt VII	0	0	0	0	0	0	334	186	148	199	89	110
13	Kaptanpur Pt VI	0	0	0	0	0	0	196	91	105	112	53	59
14	Kaptanpur Pt V	0	0	0	0	0	0	872	460	412	314	149	165
15	Chotomanda T.E.	151	84	67	0	0	0	2293	1297	996	1857	810	1047
16	Kaptanpur Pt X	68	35	33	0	0	0	629	372	257	652	281	371
17	Kaptanpur Pt IX	32	19	13	0	0	0	435	288	147	724	348	376
18	Kaptanpur Pt VIII	381	196	185	0	0	0	204	109	95	189	92	97
19	Roberpur	14	9	5	0	0	0	157	106	51	162	66	96
20	Dilkhosh Grant	150	83	67	1	1	0	1411	865	546	1919	900	1019
21	Monkhosh Grant	142	79	63	0	0	0	174	100	74	368	189	179
22	Tilka Grant (Tika T.E.)	6	3	3	1	1	0	587	365	222	1087	508	579
23	Binnakandi Grant	1161	613	548	3	2	1	4270	2405	1865	3422	1550	1872
24	Laboc Grant	334	185	149	45	27	18	4190	2524	1666	2242	947	1295
25	U.S. Lakhichera Pt VI	0	0	0	38	21	17	160	93	67	155	70	85

26	Lalangkitta Labocpar Pt I	62	31	31	1	1	0	2353	1193	1160	732	336	396
27	Sibpur Pt III	0	0	0	0	0	0	388	186	202	108	38	70
28	Lalang Pt III	0	0	0	0	0	0	1387	762	625	428	148	280
29	Lalang Pt IV	0	0	0	0	0	0	687	375	312	467	196	271
30	Lalang Pt II	5	3	2	0	0	0	1965	1024	941	708	289	419
31	Lalang Pt I	1	1	0	0	0	0	2015	1118	897	746	278	468
32	Chirirpar Pt II	0	0	0	0	0	0	1684	878	806	744	300	444
33	Niz-Lakhimpur Pt III	0	0	0	0	0	0	1259	635	624	415	140	275
34	Niz-Lakhimpur Pt I	14	3	11	0	0	0	329	178	151	121	36	85
35	Nayagram	0	0	0	0	0	0	1780	890	890	365	130	235
36	Digor Fulertol Pt I	52	26	26	8	2	6	956	504	452	267	106	161
37	Digor Fulertol Pt II	50	23	27	0	0	0	421	230	191	233	108	125
38	Digor Fulertol Pt III	0	0	0	2	1	1	721	346	375	191	91	100
39	Lalang Kitta Labocpar Pt V	97	51	46	0	0	0	517	249	268	238	126	112
40	Lalang Kitta Labocpar Pt IV	0	0	0	0	0	0	984	532	452	376	161	215
41	Chalitartol	0	0	0	0	0	0	163	97	66	180	82	98
42	Fulertol	0	0	0	0	0	0	208	101	107	14	3	11
43	Natun Fulertol	0	0	0	1	1	0	560	301	259	140	72	68
44	Lowarjiri P.T.V.	0	0	0	0	0	0	32	20	12	30	10	20
45	Dakhin Fulertol	473	235	238	0	0	0	473	252	221	177	69	108
46	Lalangkitta Labocpar Pt II	49	22	27	15	6	9	1015	540	475	162	78	84
47	Alni F.V.	0	0	0	0	0	0	80	44	36	56	29	27
48	Lakhimpur (CT)	1931	982	949	675	335	340	10206	5643	4563	5427	2403	3024
	Total	6883	3515	3368	791	399	392	61644	33643	28001	32197	13930	18267

(Source: As per Census Data, 2011)

ANNEXURE-VII
**Occupational Pattern of the
Study Area**

Annexure-VII Occupational Pattern of the Study Area

(a) Occupational Pattern of the Study Area

S. No.	Particulars	Number of workers in the study area				
		Total	Male	Male %	Female	Female %
1	Total Workers	34543	24573	71.14	9970	28.86
2	Non-Workers	59298	23000	38.79	36298	61.21
3	Main Workers	25144	20454	81.35	4690	18.65
4	Marginal Workers	9399	4119	43.82	5280	56.18

(Source: As Per Census Data, 2011)

(b) Occupation Structure of Each Village in the Study Area

S. No.	Name	Total Workers			Main workers			Marginal Workers			Non-Workers		
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
1	Monipur Pt II	558	497	61	495	471	24	63	26	37	1488	549	939
2	Uzan Tarapur	946	612	334	448	398	50	498	214	284	1593	686	907
3	Singerbond Pt IV	1477	923	554	943	793	150	534	130	404	2721	1082	1639
4	Sibpur Pt I	299	285	14	289	275	14	10	10	0	942	341	601
5	Sibpur Pt II	308	301	7	248	241	7	60	60	0	1130	381	749
6	Singer Bond Pt V	996	615	381	581	456	125	415	159	256	1293	526	767
7	Kaptanpur Pt III	309	182	127	177	157	20	132	25	107	398	166	232
8	Kaptanpur Pt IV	315	214	101	244	195	49	71	19	52	541	222	319
9	Binnakandi Pt II	849	506	343	528	428	100	321	78	243	1048	404	644
10	Binnakandi Pt I	1032	707	325	580	505	75	452	202	250	1554	618	936
11	Lakhipur Grant	1038	649	389	924	621	303	114	28	86	1184	467	717
12	Kaptanpur Pt VII	158	136	22	134	122	12	24	14	10	375	139	236

13	Kaptanpur Pt VI	69	65	4	65	62	3	4	3	1	239	79	160
14	Kaptanpur Pt V	473	341	132	373	300	73	100	41	59	713	268	445
15	Chotomanda T.E.	1550	1102	448	1093	881	212	457	221	236	2600	1005	1595
16	Kaptanpur Pt X	487	358	129	355	287	68	132	71	61	794	295	499
17	Kaptanpur Pt IX	572	368	204	116	103	13	456	265	191	587	268	319
18	Kaptanpur Pt VIII	94	82	12	90	80	10	4	2	2	299	119	180
19	Roberpur	173	98	75	108	89	19	65	9	56	146	74	72
20	Dilkhosh Grant	1337	936	401	1099	832	267	238	104	134	1993	829	1164
21	Monkhosh Grant	129	123	6	129	123	6	0	0	0	413	166	247
22	Tilka Grant (Tika T.E.)	594	439	155	506	388	118	88	51	37	1080	434	646
23	Binnakandi Grant	2764	2091	673	2246	1780	466	518	311	207	4928	1864	3064
24	Laboc Grant	2040	1569	471	1563	1206	357	477	363	114	4392	1902	2490
25	U.S. Lakhichera Pt VI	81	78	3	79	76	3	2	2	0	234	85	149
26	Lalangkitta Labocpar Pt I	938	801	137	829	727	102	109	74	35	2147	728	1419
27	Sibpur Pt III	146	98	48	141	94	47	5	4	1	350	126	224
28	Lalang Pt III	805	513	292	522	389	133	283	124	159	1010	397	613
29	Lalang Pt IV	701	374	327	345	227	118	356	147	209	453	197	256
30	Lalang Pt II	1024	713	311	743	577	166	281	136	145	1649	600	1049
31	Lalang Pt I	1199	763	436	712	604	108	487	159	328	1562	633	929
32	Chirirpar Pt II	920	552	368	599	448	151	321	104	217	1508	626	882
33	Niz-Lakhipur Pt III	513	366	147	329	294	35	184	72	112	1161	409	752
34	Niz-Lakhipur Pt I	251	133	118	102	95	7	149	38	111	199	81	118
35	Nayagram	829	555	274	594	471	123	235	84	151	1316	465	851
36	Digor Fulertol Pt I	442	334	108	304	264	40	138	70	68	781	276	505
37	Digor Fulertol Pt II	206	189	17	185	169	16	21	20	1	448	149	299
38	Digor Fulertol Pt III	332	185	147	298	178	120	34	7	27	580	252	328

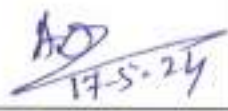
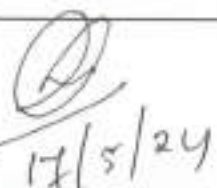
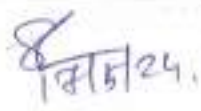
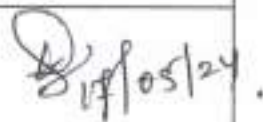
39	Lalang Kitta Labocpar Pt V	299	192	107	166	153	13	133	39	94	456	183	273
40	Lalang Kitta Labocpar Pt IV	534	405	129	314	281	33	220	124	96	826	288	538
41	Chalitartol	74	68	6	68	64	4	6	4	2	269	111	158
42	Fulertol	99	45	54	82	39	43	17	6	11	123	59	64
43	Natun Fulertol	365	186	179	141	121	20	224	65	159	335	187	148
44	Lowarjiri P.T.V.	34	18	16	24	16	8	10	2	8	28	12	16
45	Dakhin Fulertol	226	167	59	173	145	28	53	22	31	424	154	270
46	Lalangkitta Labocpar Pt II	580	319	261	463	259	204	117	60	57	597	299	298
47	Alni F.V.	65	37	28	40	36	4	25	1	24	71	36	35
48	Lakhipur (CT)	5313	4283	1030	4,557	3934	623	756	349	407	10,320	3,763	6,557
	Total	34543	24573	9970	25144	20454	4690	9399	4119	5280	59298	23000	36298

(Source: Census Data, 2011)

ANNEXURE-VIII
**Stakeholder Consultation-
Attendance Sheet & NOCs**

S.No	Name of Person	Designation	Signature
1	Mrital xanti Don.	Chairman L.M.B	
2	Dr Yashu Lu	Dr anur (Incharge).	
3	L. Rabindra Borah	Vice Chairman LMB	
4	L. Goukisher Siroha	Pharmacy shop	
5	Anilam Bhuyan	Block coordinator	
6	Krishna K. Ray	STLS	
7	Rajam Kairi	STB	
8	Kankam Paul.	Counsellor	
9	Boujamang Ginte	local (Lakhimpur)	
10	Karamba niga	local (Lakhimpur)	

S.No	Name of Person	Designation	Signature
11.	হাসিম	local (Jamtara pur)	হাসিম
12.	Kanjabati Devi	(ASHA)	re
13.	জব্বি হাতি	(ASHA)	Fate
14.	O. Ngabitan Devi	(ASHA)	Ngabitan
15.	Sampa Devi	w/c LAB	Sampa
16.	Gaurav Jais	GET, DELHI	Gaurav
17.	Anrit K. Sharma	GET, Delhi	
18.	Dr. H.M. Sohel Alam	CHO (AYUSH)	Sohel
19.	Dr. Bengit Shuvo Laskar	C.H.O. (RHA)	B
20.	Dr. A.K. Alam	CHO (AYUSH)	Alam

S.No	Name of Person	Designation	Signature
21.	Anita Rani Devi	ANM	 17-5-24
22.	Archana Bhattacharjee	ANM	 17-5-24
23.	Lalokin Amar	GNM	 17/5/24
24.	Linda Lunkau	ANM	 17/5/24
25.	Soumar Sarit.	Lab-Techn.	 17/5/24.
26.	Jasper Gengmei	Pharmacist	 17/5/24
27.	M. Ruby Devi	Vaccinator	 17/05/24.
28.			
29.			
30.			

STOCKHOLDER CONSULTANT FORM

Name of the project: Proposed District Hospital, Lakhimpur (Cachar), Assam

Location of the project: Lakhimpur (Cachar), Assam

Date of Meeting: 17/05/2024

S. No	Stakeholders	Represented by	Roles/responsibility	Social Impact and tasks	Commitment checklist	Commitments/remarks	Environmental impact and Tasks	Commitment checklist	Commitments/remarks
5	Common biomedical waste treatment facilities (CBWTF)	Dr. Hameed Saha	During post construction phase	Reduction of waste	Waste Reduction Use of disposal	-	Safe disposal of BMW	100 % BMW disposal through CBMWDF	Dr. Hameed Saha. These BMWs will be disposed off through CBWTF -

[Signature]

STOCKHOLDER CONSULTANT FORM

Name of the project: Proposed District Hospital, Lakhimpur (Cachar), Assam

Location of the project: Lakhimpur (Cachar), Assam

Date of Meeting: 17/05/2024

S. No	Stakeholders	Represented by	Roles/ responsibility	Social Impact and tasks	Commitment checklist	Commitments/ remarks	Environmental impact and Tasks	Commitment checklist	Commitments/ remarks
1	Contractor	No contractor assigned yet.	During construction phase	Gender equality	1. Wage equality 2. Temporary labor camps 3. Fuel for cooking food for labors 4. Creche for children	-	Dust mitigation measures (green nets, fencing, water sprinkling) C & D waste Regular environmental monitoring (Air, noise, water, soil)	1. Fencing of the project site 2. Green net covering for loose building materials 3. Mobile Toilets 4. Safe drinking water 5. Mobile STP	-

STOCKHOLDER CONSULTANT FORM

Name of the project: Proposed District Hospital, Lakhimpur (Cachar), Assam

Location of the project: Lakhimpur (Cachar), Assam

Date of Meeting: 17/05/2024

S. No	Stakeholders	Represented by	Roles/ responsibility	Social Impact and tasks	Commitment checklist	Commitments/remarks	Environmental impact and Tasks	Commitment checklist	Commitments/remarks
4	Local body	Miniraj Kanti Zou L.M.B	During Pre and post construction phase	Supervision	Tax collection Solid waste collection Disposal of C & D waste	Agreed			Agreed


17/05/24

STOCKHOLDER CONSULTANT FORM

Name of the project: Proposed District Hospital, Lakhimpur (Cachar), Assam

Location of the project: Lakhimpur (Cachar), Assam

Date of Meeting: 17/05/2024

S. No	Stakeholders	Represented by	Roles/responsibility	Social Impact and tasks	Commitment checklist	Commitments/remarks	Environmental impact and Tasks	Commitment checklist	Commitments/remarks
3	Locality within 100 m from the hospital building	Kheijam Bh Kharnt a nista শমিন =	During Pre and post construction phase	1. Easy accessibility and affordability of the medical facility 2. Employment generation	1. Hospital at doorstep 2. Opening of hospital supportive activities 3. Preference will be given to locals for employment 3. Sourcing of local, organic and sustainable grown food	No objection	1. Greenbelt development 2. Clean environment 3. Disposal of waste	1. local & indigenous plant species 2. Energy Conservation 3. Waste reduction 4. Deploy electricity vehicle for hospital use	O.K

ANNEXURE-IX

Waste Management Plan

ANNEXURE IX

Waste Management Plan

(During construction and post construction phase)

1.0 SOLID WASTE GENERATION

Solid waste will be generated both during construction and post construction phase.

2.0 WASTE GENERATION DURING CONSTRUCTION PHASE

The expected to be generated during the construction phase will comprise of excavated materials, used bags, bricks, concrete, MS rods, tiles, wood etc. The following steps are proposed to be taken for proper management of solid waste:

- Construction yards are proposed for storage of construction materials.
- The excavated materials such as topsoil and stones will be stacked in a safe place for reuse during later stages of construction.
- Excavated top soil will be stored in temporary constructed soil bank and will be reused for landscaping.
- Remaining soil will be utilized for refilling, road construction and rising of site level at various locations or selling to outside agency for their use.

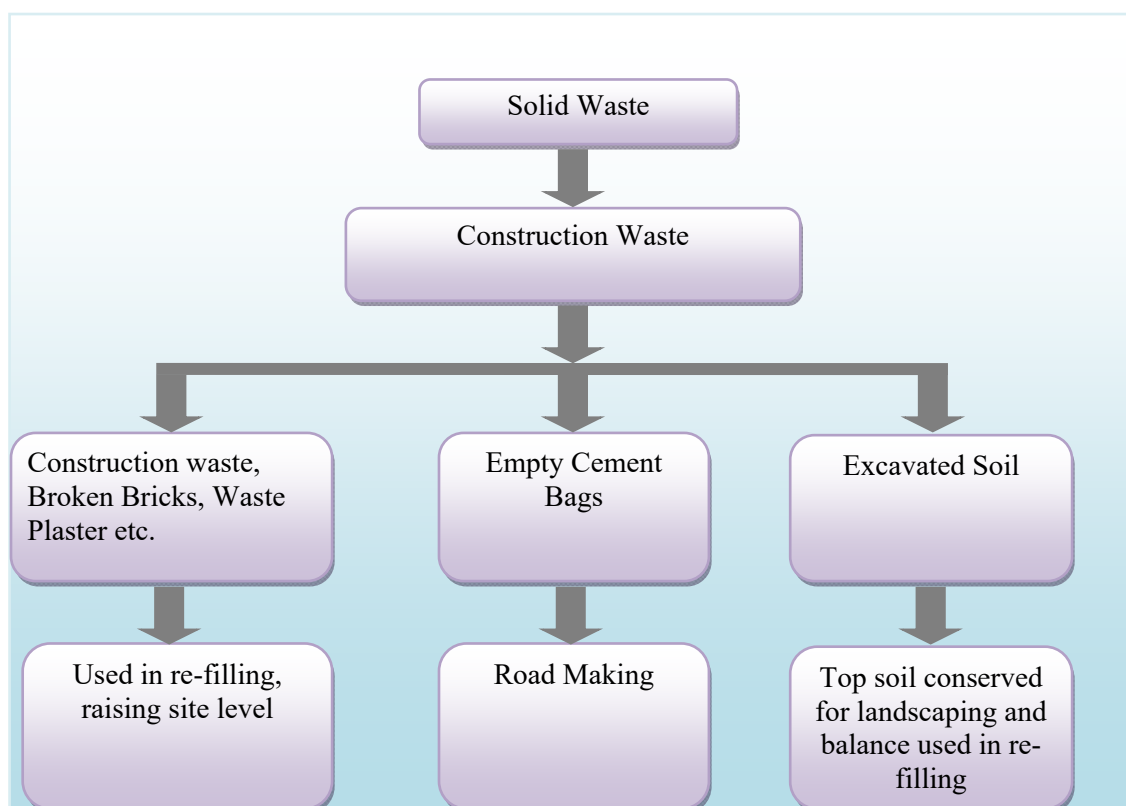


Figure 1: Solid Waste Management Scheme (Construction Phase)

2.1 TYPES OF CONSTRUCTION WASTE

Based on the type of material, construction waste can be classified into the following types:

Concrete, Bricks, Tiles and Ceramics

Concrete, Bricks Tiles & Ceramics and Concrete, bricks, tiles and ceramics in mixtures, containing no hazardous substances (Non-Hazardous Waste)

Concrete, Bricks, Tiles & Ceramics (alone or in mixtures containing hazardous substances) – Hazardous Waste

Wood, Glass & Plastic

Untreated Wood, Waste, Uncontaminated Glass, Plastic (Excluding Packaging Plastic):

Non-Hazardous Waste

Treated Wood (Alone or in Mixtures Containing Hazardous Substances), Treated Glass (Alone or in Mixtures Containing Hazardous Substances) and Treated Plastic (Alone or in Mixtures Containing Hazardous Substances) – Hazardous Waste

Metallic Waste (Includes Electrical Wires and Cable)

Copper, Brass, Bronze, Lead, Iron, Steel, Tin, Mixed Metals- Non Hazardous

Metals Containing Hazardous Substances, Cables containing Oil & Cables containing Coal Tar – Hazardous Waste

Soil, Contaminated Soil, Stones & Dredging Spoil

Soil containing hazardous substances, Stones containing hazardous substances and Dredging Spoil containing hazardous substances – Hazardous Waste

Other Soil and Other Stones and Other Dredging Spoil – Non-Hazardous Waste

Gypsum

Gypsum Materials – Non-Hazardous Waste

Other Gypsum Materials containing hazardous substances- Hazardous Waste

Insulation, Fiber Glass & Asbestos

Insulation Containing Asbestos, Fiberglass, FRP and Other Construction Materials – Hazardous Waste

Other Insulation Containing Hazardous Substances and Other Insulation Materials – Non Hazardous Waste

** Disposal is planned through handing over such waste to HW-recycler registered with State Pollution Control Board, Assam.

Cement

Unused Cement and Unset Cement – Hazardous Waste

Paints & Varnishes

Paint Cans Paint Remover Varnish Remover Organic Solvents and Other Hazardous Substances – Hazardous Waste

** Disposal is planned through handing over such waste to HW-recycler registered with State Pollution Control Board, Assam.

Adhesives & Sealants

Adhesive Containers and Sealant Containers – Hazardous Waste

** Disposal is planned through handing over such waste to HW-recycler registered with State Pollution Control Board, Assam.

3.0 WASTE GENERATION IN OPERATION PHASE**3.1 Type of Waste**

- Bio-Degradable waste
- Non-Bio-Degradable waste

3.2 Collection and Segregation

1. The local vendors will be hired to provide separate-colored bins for dry recyclables and Bio-Degradable waste.
2. For waste collection, adequate number of colored bins (Green, Blue, and dark grey bins separately for Bio-degradable and non-Bio-degradable) are proposed to be provided at strategic locations of the area.
3. Litter bins will also be provided in open areas like parks etc.

3.3 Treatment of waste

- Bio-Degradable wastes
 1. Bio-degradable waste will be subjected to Organic Waste Converter and 20% of the subjected waste will be used as manure.
 2. STP sludge is proposed to be used for horticultural purposes as manure.
 3. Horticultural Waste is proposed to be composted and will be used for gardening purposes.
- Recyclable wastes
 - i. The cropped grasses will be spread on the green area. It will act as manure after decomposition. Recyclable wastes like paper, plastic, metals etc. will be sold to recyclers.

3.4 DISPOSAL OF RECYCLABLE AND NON-RECYCLABLE WASTES

Recyclable and non-recyclable wastes will be disposed through Govt. approved agency. Hence, the Municipal Solid Waste Management will be conducted as per the guidelines of Municipal Solid Wastes (Management and Handling) Rules, 2000. A Solid waste management Scheme

is depicted in the following figure for the proposed Project.

- The Hazardous waste Management

The Hazardous waste will be managed/ disposed according to ***Hazardous and Other Wastes (Management and Tran boundary Movement) Rules, 2016.***

For the management of hazardous and other wastes, an occupier shall follow the following steps, namely:-

- (a) Prevention;
- (b) Minimization;
- (c) Reuse,
- (d) Recycling;
- (e) Recovery, utilization including co-processing;
- (f) Safe disposal according to waste generation (category wise) as per rules in accordance with norms of State Pollution Control Board, Assam.

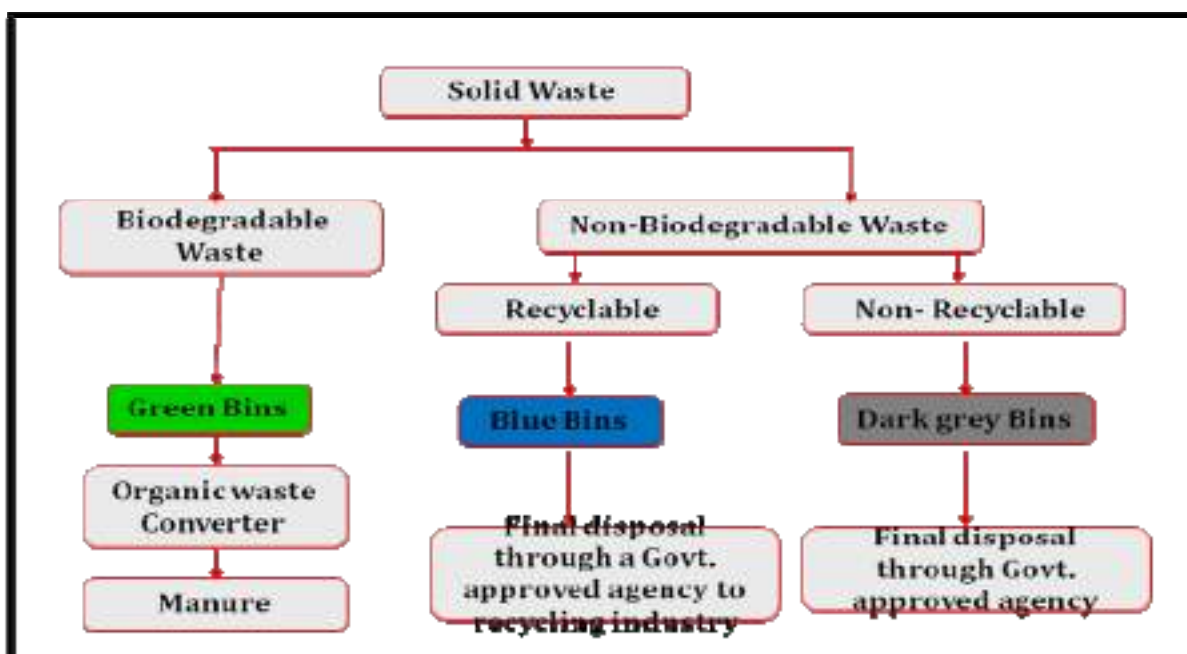


Figure 2: Solid Waste Management Scheme (Operational Phase)

4.0 Biomedical Waste Management

4.1 Introduction

Biomedical waste management (BMWM) Plan is a management tool for effective management of BMW and associated risks on health functionaries and communities. Biomedical waste management is an essential requirement for compliance to the Biomedical Waste Management Rules, 2016 and for managing environmental, occupational health and safety, community safety aspects and their impacts. This plan is being prepared for Lakhipur District Hospital (proposed) which is being upgraded from Primary Health Centre

under Cachar district. Proposed District Hospital located in Lakhimpur in Cachar district of Assam. The Geographical Location of health care facility is 24°47'35.0"N and 92°59'54"E.

4.2 Project specific waste generation details

For calculating biomedical waste generated from the proposed district hospital first we have to calculate solid waste, which is summarized as follows in below table:

Table 1: Calculation of Solid Waste Generation

S. No.	Category	Kg per capita per day	Waste generated (kg/day)
1	Patients	100 @ 1.5 kg/day	150.0
2	Staff	50 @ 0.25 kg / day	12.5
3	Visitor +OPD	1500 @ 0.025 kg /day	37.5
4.	Landscape waste (3250.51 m ²)	0.8032 @ 0.2 kg/acres	0.16
Total Solid Waste Generated			200.16 KG/Day or say 200 kg/day

Total Waste generated per day: 200.0 kg/day

S. No	Waste	Quantity Kg/day	Percentage
1	Biomedical waste	37.5	**Estimated generation of total waste @1.5 kg/bed : 100* 1.5 = 150 kg/day Estimated generation of bio-medical waste @ 25% of the total waste generated : 37.5 kg/day
Rest remaining MSW 162.5 kg/day			
2	Bio degradable waste	81.25	50
3	Non-bio degradable	65.0	40
4	Recyclable waste	16.25	10

****Source:** CPHEEO Manual Ministry of Urban Development (MoUD), Government of India (May 2000) on municipal solid waste management 2000 under **Chapter VII- Biomedical waste (Page -34),**

1. Following arrangements will be made at the site in accordance to Municipal Solid Wastes (Management and Handling) Rules, 2000
2. Total Bio medical waste is 25% of total solid waste generated from hospital block i.e. **37.5 kg/day.**

Category	Type of Waste	Estimated Generated Quantity	
		%	kg/day
Yellow	(a) Human Anatomical Waste	75.0	28.12
	(b) Animal Anatomical Waste		
	(c) Soiled Waste		
	(d) Expired or Discarded Medicines		
	(e) Chemical Solid Waste		
	(f) Chemical Liquid Waste		
	(g) Discarded linen, mattresses, beddings contaminated with blood or body fluid.		
	(h) Microbiology, Biotechnology and other clinical laboratory waste		
Red	Contaminated Waste (Recyclable)	10.0	3.75
White (Translucent)	Waste sharps including Metals	8.0	3.0
Blue	Glassware	7.0	2.63
	Metallic Body Implants		
Total			37.5

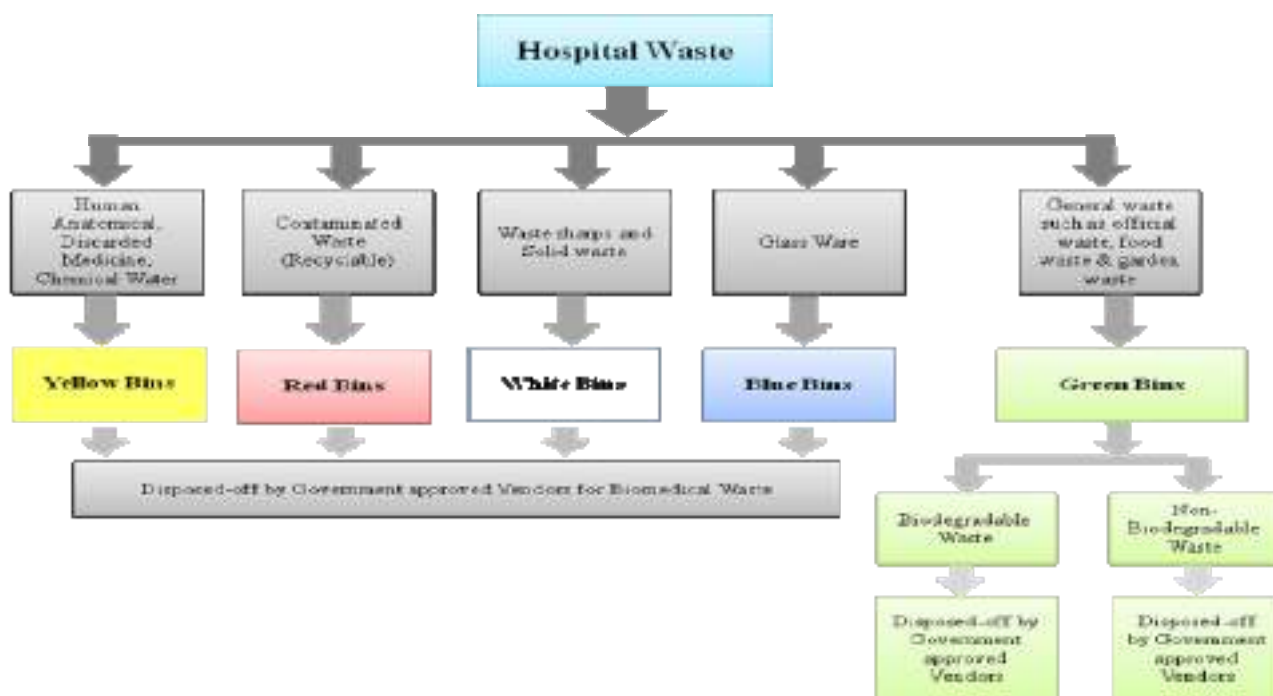


Figure 3: BMW Waste Management Scheme (Operation Phase)

4.3 Organization arrangement at Facility level for Biomedical waste Management and disposal

A Bio Medical Waste Management Committee will be formed in the proposed facility. The indicative composition of such committee is given below:

- ❖ SMO/ CMO/ Medical Superintendent (Chairperson)
 - ❖ District Quality Consultant/ District BMW Officer (Invitee Members)
 - ❖ Quality Manager
 - ❖ Hospital Infection Control Nurse/ Officer
 - ❖ Nursing in-charge
 - ❖ Medical Officer (Surgery)
 - ❖ Medical Officer (Emergency)
 - ❖ Medical Officer (Gynae & Obs) Microbiologist/ Pathologist
 - ❖ OT Nurse / Technician/ Assistant
 - ❖ Lab Technician
 - ❖ Blood Bank/Storage Unit Technician
 - ❖ Housekeeping in-charge
 - ❖ Pharmacist
- ✓ The Committee shall meet once in every six months and the record of the minutes of the meetings of this committee shall be submitted along with the annual report to the Pollution Control Board
 - ✓ The function of such committee is to ensure that bio-medical wastes shall be segregated at source, and disposed of safely, legally, and in compliance with all applicable regulations by the Assam Pollution Control Board.
 - ✓ HCFs should submit the annual report
 - ✓ To maintain all record for operation of incineration, hydro or autoclaving etc., for a period of five years;
 - ✓ HCFs may have a dedicated budget for BMW as a part of annual budget of the health care facilities. Such budget must include recurring and non- recurring costs expected to be incurred by HCFs, related to Bio Medical Waste Management.

4.4 Training and capacity building

Based on the identified needs, training plan for awareness and training on BMW management covering district health facilities will take place. The training sessions will be designed for specific groups of workers.

4.5 Implementation of waste management in health facilities

Waste management is the implementation plan covers details of options and mitigative measures to be implemented covering entire cycle of different types of BMW at facility level including special provisions for meeting requirements during outbreaks, including

following according to BMW rules:

- Generation of waste
- Segregation
- Handling and storage within the facilities
- On-site treatment of wastes e.g., disinfection, microwaving, incineration, deep burials etc.
- Transportation to external facilities
- End treatment
- Final disposal
- Compliance status

Presently at existing there is deep burial pit, sharp pit facility for biomedical wastes namely. This is being treated as per norms.. In operational phase Tie-up for disposal of Biomedical Waste will be done with **Silchar Medical College and Hospital (SMCH)**. An authorization for storage of BMW will be taken from ASPCB before the start of activity.

4.6 Treatment and Disposal of BMW as per rules as follows:

Type of Waste	Type of Bag or Container to be used	Treatment and Disposal options
Human or Animal anatomical waste	Yellow colored non-chlorinated plastic bags	Incineration or Plasma Pyrolysis or deep burial
Soiled Waste		Incineration or Plasma Pyrolysis or deep burial* In absence of above facilities, autoclaving or micro-waving/hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy Recovery.
Expired or Discarded Medicines (Pharmaceutical waste like antibiotics, cytotoxic drugs including all items contaminated with cytotoxic drugs along with glass or plastic ampoules, vials etc.)	Yellow colored non-chlorinated plastic bags	Expired cytotoxic drugs and items contaminated with cytotoxic drugs to be returned back to the manufacturer or supplier for incineration at temperature >1200 °C or to common bio-medical waste treatment facility or hazardous waste treatment, storage and disposal facility for incineration at >12000C Or Encapsulation or Plasma Pyrolysis at >12000C.

		All other discarded medicines shall be either sent back to manufacturer or disposed by incineration.
Chemical Waste (Chemicals used in production of biological and used or discarded disinfectants)	Yellow colored non-chlorinated plastic bags	Disposed of by incineration or Plasma Pyrolysis or Encapsulation in hazardous waste treatment, storage and disposal facility.
Chemical Liquid Waste : Liquid waste generated due to use of chemicals in production of biological and used or discarded disinfectants, Silver X-ray film developing liquid, discarded Formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, house-keeping and disinfecting activities etc.	Separate collection system leading to effluent treatment system	After resource recovery, the chemical liquid waste shall be pre-treated before mixing with other wastewater. The combined discharge shall conform to the discharge norms given in Schedule III.
Discarded linen, mattresses, beddings contaminated with blood or body fluid, routine mask and gown	Non-chlorinated yellow plastic bags or suitable packing material	Non- chlorinated chemical disinfection followed by incineration or Plasma Pyrolysis or for energy recovery. In absence of above facilities, shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent for energy recovery or incineration or Plasma Pyrolysis.

Microbiology, Biotechnology and other clinical laboratory waste (Blood bags, Laboratory cultures, stocks or specimens of micro-organisms, live or attenuated vaccines, human and animal cell cultures used in research, industrial laboratories, production of biological, residual toxins, dishes and devices used for cultures)	Autoclave or Microwave Hydroclave plastic bags or containers	or Pre-treat to sterilize with non-chlorinated chemicals on-site as per World Health Organization (WHO) guidelines on Safe management of wastes from health care activities and WHO Blue Book, 2014 and then sent for Incineration.
Contaminated Waste (Recyclable) (a) Wastes generated from disposable items such as tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles and fixed needle syringes and vaccutainers with their needles cut) and gloves.	Red coloured non-chlorinated plastic bags or containers	Autoclaving or micro-waving/ hydroclaving followed by shredding or mutilation or combination of sterilization and shredding. Treated waste to be sent to registered or authorized recyclers or for energy recovery or plastics to diesel or fuel oil or for road making, whichever is possible. Plastic waste should not be sent to landfill sites.
Waste sharps including Metals (Needles, syringes with fixed needles, needles from needle tip cutter or burner, scalpels, blades, or any other contaminated sharp object that may cause puncture and cuts. This includes both used, discarded and contaminated metal sharps)	Puncture proof, Leak proof, tamper proof containers	Autoclaving or Dry Heat Sterilization followed by shredding or mutilation or encapsulation in metal container or cement concrete; combination of shredding cum autoclaving; and sent for final disposal to iron foundries (having consent to operate from the State Pollution Control Boards or Pollution Control Committees) or sanitary landfill or designated concrete waste sharp pit.

Glassware: Broken or discarded and contaminated glass including medicine vials and ampoules except those contaminated with cytotoxic wastes.	Puncture proof and leak proof boxes or containers with blue colored marking	Disinfection (by soaking the washed glass waste after cleaning with detergent and Sodium Hypochlorite treatment) or through autoclaving or microwaving or hydroclaving and then sent for recycling.
Metallic Body Implants	Puncture proof and leak proof boxes or containers with blue colored marking	

4.7 Resources and tools for BMW management

Effective management of wastes such as sharps and infectious wastes cannot be achieved without provision of safety to waste handlers and proper equipment for storage and transportation of wastes. Therefore, necessary occupational safeguards will be taken into account for waste collection bags, trolleys, needle cutters, personal protective equipment, disinfectants etc.

4.8 Occupational health and safety provisions to be implemented at health facilities covering:

- Infection, prevention and Control (IPC) protocols for biological hazards, with special emphasis for high-risk infectious diseases agents for health sector workers e.g., MERS, SARS-CoV2, Ebola etc.
- Safe work practices for hazardous works e.g., handling sharps, cytotoxic drugs, radiation work, environmental sanitation, etc.
- Preventive immunization of health workers against Hepatitis B
- Availability of Post Exposure Prophylaxis against HIV infections.

4.9 Supervision of BMW implementation by Nodal officer (qualified medical practitioner) / members of Waste Management Committee are required, covering following minimum aspects:

- Segregation of waste into appropriate bags and bins.
- Availability and use of needle cutters, waste collection and transportation materials etc.
- Availability and use of personal protective gears by waste handlers.
- Regular environmental cleaning e.g., cleaning of walls, surfaces and equipment etc by housekeeping staff.
- Regular transport of biomedical wastes from wards / clinics to central wastes storage area (if present) or to deep burial site / common treatment facility and quantities of wastes disposed.

4.10 Monitoring and evaluation mechanism

Monitoring and evaluation mechanisms with role and responsibilities and resources available for carrying out activities will be developed for the proposed project. The monitoring activities and organization will be aligned to the Quality Assurance activities for patient safety.

ANNEXURE-X

Traffic survey

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhipur, Cachar, Assam.
Classified Traffic Volume Count Survey

Road: *old sitchew road*
 Location: *New Project Site*
 Direction From: *Junighat*
 Weather: *File*

To: *Chinipara*

Name of Enumerator: *Gaurav Jataw*
 Staff No: *1*
 Date & Day: *16.05.2014 Thursday*
 Sheet No: *1*

Time Period	Motorised Vehicles																		Non-Motorised Vehicles			
	Car/Jepi/ Van (other than taxi)	Taxi	Auto Rickshaw (PW)	Two Wheeler	Tata Magna/ Shared Auto	Bus					Goods Vehicle					Agri. Tractor		Animal Herd Drawn	Cycle		Others	
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus	Mini LCV	LCV	2-Axis (Truck)	3-Axis (Truck)	MAV (Truck/Trai- ler)	Tractor	Tractor & Trolley					
																						
8:30 am to 9:00 am	 -	-	 	 	 																	
9:30 am to 10:00 am	 =	=	 =	 =	 =					-												
10:00 am to 11:00 am	 		 =	 	 					-												
11:00 am to 12:00 pm	 =		 	 	 =																	
Total	61	11	73	117	41	0	0	1	1	2	0	1	0	0	0	0	0	0	10	0	0	

Checked by:

Time

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhipur, Cachar, Assam.
Classified Traffic Volume Count Survey

Road: *old sicheur road*
 Location: *Newer Project Site*
 Direction From: *straight*
 Weather: *Fine*

To: *chirimen*

Name of Enumerator: *Gaurav Jataw*
 Shift No: *1*
 Date & Day: *16.05.2024 Thursday*
 Sheet No: *1*

Time Period	Motorised Vehicles																	Non-Motorised Vehicles			
	Car/Jeep/Van (other than Taxi)	Taxi	Auto Rickshaw (2W)	Two Wheeler	Tata Magic/Shared Auto	Bus					Goods Vehicle					Agri. Tractor		Animal/Hand Drawn	Cycle	Others	
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus	Mini LCV	LCV	3-Axe(Truck)	3-Axe(Truck)	MAV(Truck/Trailer)	Tractor	Tractor &Trolley				
																					
12:00 pm to 1:00 pm						1															
1:00 pm to 2:00 pm																					
2:00 pm to 3:00 pm						1															
3:00 pm to 4:00 pm																					
Total	55	16	64	128	36	2	0	0	0	0	0	0	0	0	0	0	0	0	36	0	

Checked by:

Time:

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhipur, Cachar, Assam.
Classified Traffic Volume Count Survey

Road: Old Sitchew road
 Location: New Project Site
 Direction From: Tinighat
 Weather: Fine

To: Chinirai

Name of Enumerator: Gaurav Jataw
 Shift No: 1
 Date & Day: 16.05.2024 Thursday
 Sheet No: 1

Time Period	Motorised Vehicles																	Non-Motorised Vehicles			
	Car/Kept Van (other than Taxi)	Taxi	Auto Rickshaw (SW)	Two Wheeler	Tata Nano/Shared Auto	Bus					Goods Vehicle					Agri. Tractor		Animal/ Hand Drawn	Cycle	Others	
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus	Mini LCV	LCV	2-Axe (Truck)	3-Axe (Truck)	MAV (Truck/Trailer)	Tractor	Tractor & Trolley				
																					
4:30 pm to 5:30 pm											1										
5:30 pm to 6:30 pm																					
6:30 pm to 7:30 pm																					
7:30 pm to 8:30 pm																					
Total	57	19	51	113	24	1	1	0	0	0	1	0	0	0	0	0	0	0	24	0	0

Checked by:

Time:

OCRD Pw. List

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhipur, Cachar, Assam.
Classified Traffic Volume Count Survey

Road: old silchar Road
 Location: Near Project Site
 Direction From: Chirapunji
 Weather: Fine

To: Twilight

Name of Enumerator: Gurman Jaiswal
 SSST No: 1
 Date & Day: 16.05.2024 Thursday
 Sheet No: 1

Time Period	Motorised Vehicles																	Non-Motorised Vehicles			
	Car/Jeep/ Van (other than taxi)	Taxi	Auto Rickshaw (2W)	Two Wheeler	Tata Magna/ Shared Auto	Bus					Goods Vehicle					Agri. Tractor		Animal Hand Drawn	Cycle		Others
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus	Mini LCV	LCV	2-Axe(Truck)	3-Axe(Truck)	MAV(Truck/Trolley)	Tractor	Tractor &Trolley				
																					
8:30 AM to 9:30 AM	 		 	 	 													 			
9:30 AM to 10:00 AM	 		 	 	 																
10:00 AM to 11:00 AM	 	 	 	 	 																
11:00 AM to 12:00 PM	 		 	 	 																
Total	50	15	82	127	42	0	0	1	1	1	0	1	0	0	0	0	0	0	19	0	0

Checked by:

Time:

GORD Pvt. Ltd.

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhimpur, Cachar, Assam.
Classified Traffic Volume Count Survey

Road: *old sitcham road*
 Location: *Near Brocket site*
 Direction From: *Chiripara to*
 Weather: *Time*

To: *Dimghat*

Name of Enumerator: *Gaurav Jitaw*
 Shift No: *1*
 Date & Day: *16.05.2024 Thursday*
 Sheet No: *1*

Time Period	Motorised Vehicles																	Non-Motorised Vehicles			
	Car/Jeep/Van (other than taxi)	Taxi	Auto Rickshaw (SW)	Two Wheeler	Tata Magic/Shared Auto	Bus					Goods Vehicle					Agri. Tractor		Animal/Hand Drawn	Cycle		Others
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus	Mini LCV	LCV	2-Axle (Truck)	3-Axle (Truck)	MAV (Tractor/Trailer)	Tractor	Tractor & Trailer				
																					
12:00 pm to 1:00 pm	 		 	 	 	1													 -		
1:00 pm to 2:00 pm	 -		 	 	 					1											
2:00 pm to 3:00 pm	 		 	 	 	1													 =		
3:00 pm to 4:00 pm	 		 	 	 																
Total	53	15	78	133	43	2	0	0	0	1	0	0	0	0	0	0	0	0	23	0	0

Checked by:

Time:

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhipur, Cachar, Assam.
Classified Traffic Volume Count Survey

Road: *old sitcham road*
 Location: *New Project site*
 Direction From: *Chirapahar to*
 Weather: *fine*

To: *Dimrihuet*

Name of Enumerator: *Gaurav Jataw*
 Shift No: *1*
 Date & Day: *16.05.2024 Thursday*
 Sheet No: *1*

Time Period	Motorised Vehicles																Non-Motorised Vehicles				
	Car/Jeep/ Van (other than taxi)	Taxi	Auto Rickshaw (3W)	Two Wheeler	Tata Magic/ Shared Auto	Bus					Goods Vehicle					Agri. Tractor		Animal Wagon Drawn	Cycle		Others
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus	Mini LCV	LCV	2-Axle(Truck)	3-Axle(Truck)	MAV(Truck/Tril ly)	Tractor	Tractor &Trailer				
																					
4.00 PM to 5.00 PM	 111	 111	 111	 111	 111						1								 1		
5.00 PM to 6.00 PM	 111	 111	 111	 111	 111														1		
6.00 PM to 7.00 PM	 111	 111	 111	 111	 111		1												111		
7.00 PM to 8.00 PM	 111	 111	 111	 111	 111	1													1		
Total	65	21	46	117	29	2	1	0	0	0	1	0	0	0	0	0	0	0	10	0	0

Checkers:

Time:

CCRD PM, LM

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhipur, Cachar, Assam.
Classified Traffic Volume Count Survey

Route: NH-37
 Location: Near Pailapoor Chawk
 Direction From: Pailapoor
 Method: Free

To: Jirighat

Name of Enumerator: Anant Kumar Sharma
 Shift No: 1
 Date & Day: 16.05.2024 Thursday
 Sheet No: 1

Time Period	Motorised Vehicles																		Non-Motorised Vehicles			
	Car/Jeep Van/Other than Taxi	Taxi	Auto Rickshaw (3W)	Two Wheeler	Tata Magic/Shared Auto	Bus						Goods Vehicle					Agri. Tractor		Animal Head Drawn	Cycle	Others	
						Mini Bus	ASDC Bus	Govt. Inter City Bus	Private Bus	School Bus	Mini LCV	LCV	3-Axe(Truck)	3-Axe(Truck)	MAV(Truck/Trolley)	Tractor	Tractor & Trolley					
8:30 9:00 9:30 10:00	EEEEEE	=	EEEEEEEE	EEEEEEEE	EEEE	-			-													
10:00 10:30 11:00 11:30	EEEEEE	-	EEEEEEEE	EEEEEEEE	EEEE	-		=		-									7			
11:30 12:00 12:30 1:00	EEEEEE	=	EEEEEEEE	EEEEEEEE	EEEE	=						-							2			
1:00 1:30 2:00 2:30	EEEEEE	=	EEEEEEEE	EEEEEEEE	EEEE			-	-			-							=			
Total	118	8	130	165	41	4	0	3	2	1	0	2	0	0	0	0	0	0	13	0	0	

Checked by:

Time

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhipur, Cachar, Assam.
Classified Traffic Volume Count Survey

Road: **NH-37**
 Location: **Near Railapool chowk**
 Direction From: **Railapool**
 Weather: **fine**

To: **Singhat**

Name of Enumerator: **Amrit Kumar sharma**
 Shift No: **1**
 Date & Day: **16-05-2024 Thursday**
 Sheet No: **1**

Time Period	Motorised Vehicles																Non-Motorised Vehicles			
	Car/Jeep/ Van/other than taxi	Taxi	Auto Rickshaw (3W)	Two Wheeler	Total Major Shared Auto	Bus					Goods Vehicle					Agri. Tractor		Animal/ Hand Drawn	Cycle	Others
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus	Mini LCV	LCV	2-Axis(Truck)	3-Axis(Truck)	MAN/Truck/Trailer (4)	Tractor	Trailer &Trolley			
																				
12:00 PM						1				1										
1:00 PM													1						1	
2:00 PM		1								1										
3:00 PM						1														
4:00 PM		1											1							
Total	88	12	104	135	88	6	0	0	0	2	5	1	1	1	0	0	0	0	26	0

Checked by:

Time

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhipur, Cachar, Assam.
Classified Traffic Volume Count Survey

Road: NH-37

Location: Near Pailapud chorok

Direction from: Pailapud

Weather: Fair

To: Jirighat

Name of Enumerator: Anvit Kumar Sharma

Shift No: 1

Date & Day: 16.05.2024 Thursday

Sheet No: 1

Time Period	Motorised Vehicles																	Non-Motorised Vehicles				
	Car/Jeeep/ Van/other than taxi	Taxi	Auto Rickshaw (TW)	Two Wheeler	Tata Magic/ Shared Auto	Bus						Goods Vehicle					Agri. Tractor		Animal Hand Drawn	Cycle		Others
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus	Mini LCV	LCV	2-Axe(Truck)	3-Axe(Truck)	MAV(Truck/Trailer)	Tractor	Tractor & Trailer					
																						
4:00 PM to 5:00 PM	EEZ	—	EEEEEE	EEEEEE	EEEE	—					—		—		—				121			
5:00 PM to 6:00 PM	E=		==	EEEEEE	E=	—	==					—							—			
6:00 PM to 7:00 PM	E		E	EEEEEE	E—														111			
7:00 PM to 8:00 PM	E—		==	EEEEEE	E														—			
Total	34	1	40	115	41	2	2	0	0	0	1	1	1	0	1	0	0	0	10	0	0	

Checked by:

Time:

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhipur, Cachar, Assam.
Classified Traffic Volume Count Survey

Route: NH-37
Location: Near Pailapool Chowk
Direction From: Jirighat
Weather: Fine

To: Pailapool

Name of Enumerator: Anvrit Kumar Sharma
Staff No: 1
Date & Day: 16.05.2024 Thursday
Sheet No: 1

Time Period	Motorised Vehicles																	Non-Motorised Vehicles			
	Car/Jeep/ Van (other than taxi)	Taxi	Auto Rickshaw (3W)	Two Wheeler	Tata Nano/ Shared Auto	Bus					Goods Vehicle					Agricult. Tractor		Animal/ Hand Drawn	Cycle	Others	
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus	Retro LCV	LCV	2-Axle (Truck)	3-Axle (Truck)	MAV (Truck/Trailer)	Tractor	Tractor & Trailer				
																					
8:00 to 9:00	EEEEEE	E	EEEEEE	EEEEEE	EEEEEE	-		-	-	-									17		
9:00 to 10:00	EEEEEE		EEEEEE	EEEEEE	EEEEEE	-		-		-									7		
10:00 to 11:00	EEEEEE	=	EEEEEE	EEEEEE	EEEEEE	=						-							-		
11:00 to 12:00	EEEEEE	E	EEEEEE	EEEEEE	EEEEEE			-	-			-							7		
Total	144	16	117	166	92	4	0	4	2	2	0	2	0	0	0	0	0	0	29	0	0

Checklist

Time

ICRD PM 118

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhimpur, Cachar, Assam.
Classified Traffic Volume Count Survey

Road: NH-37
Location: Near Pailapool Chowk
Direction From: Jirigaat
Weather: fine

To: Pailapool

Name of Engineer: Anvit Kumar Sharma
Shift No: 1
Date & Day: 16.05.2024 Thursday
Sheet No: 1

Time Period	Motorised Vehicles																	Non-Motorised Vehicles			
	Car/Jeep Van (other than taxi)	Taxi	Auto Rickshaw (3W)	Two Wheeler	Tata Magic Shared Auto	Bus					Goods Vehicle					Agri. Tractor		Animal Hand Drawn	Cycle	Others	
						Mini Bus	ASSTC Bus	Govt. Inter City Bus	Private Bus	School Bus	Mini LCV	LCV	2-Axle (Truck)	3-Axle (Truck)	MV (Truck/Trailer)	Tractor	Tractor & Trolley				
																					
08:00 - 09:00						1				1	1		1								
09:00 - 10:00						1				1	1	1									
10:00 - 11:00						1															
11:00 - 12:00						1								1							
Total	133	21	89	135	71	6	0	0	0	2	5	1	1	1	0	0	0	0	35	0	

Checked by

Time

Traffic Survey for Proposed Project
Construction of 100 Bedded District Hospital Under Assist
at, Lakhipur, Cachar, Assam.
Classified Traffic Volume Count Survey

Road: NH-32
 Location: near Pailapool Chowk
 Direction From: Jirighat
 Weather: fine

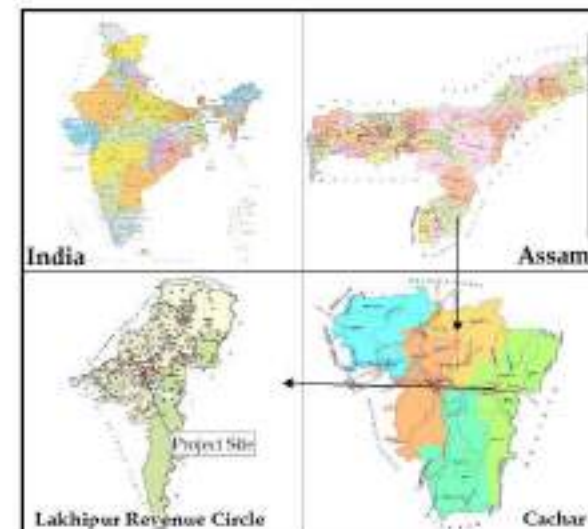
To: Pailapool

Name of Enumerator: Amit Kumar Sharma
 Shift No: 1
 Date & Day: 16.05.2024 Thursday
 Sheet No: 1

Time Period	Motorised Vehicles																Non-Motorised Vehicles			
	Car/Jeep/ Van (other than taxi)	Taxi	Auto Rickshaw (3W)	Two Wheeler	Tata Magic Shared Auto	Motorised Vehicles Bus					Goods Vehicle					Agri. Tractor		Animal/ Head Drawn	Cycle	Others
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus	Mini LCV	LCV	3-Axle (Truck)	3-Axle (Truck)	MAV (Truck/Trailer)	Tractor	Tractor & Trolley			
6:00 to 6:30 AM																				
6:30 to 7:00 AM																				
7:00 to 7:30 AM																				
7:30 to 8:00 AM																				
Total	61	12	39	154	32	5	4	1	3	0	1	1	2	2	1	0	1	0	17	0

Checked by:

Time:



Legend

- Road
- Project Site

CONSTRUCTION OF 100 BEDED DISTRICT
HOSPITAL UNDER ASSIST
AT LAKHIPUR, CACHAR, ASSAM

TRAFFIC STUDY MAP

Prepared by
Gaheli Center of Research and
Development Pvt. Ltd.

Road: NH-37		Location: Near Palapool Chowk				Name of Enumerator: Anur Kumar Sharma					Shift No: 1											Construction of 100 Bedded District Hospital Under Assam at Lohajura, Cachar, Assam				
Direction from: Palapool To Janghat		Date & Day: 16/05/2024 Thursday				Sheet No: 1																				
Weather: Fine																										
Time Period:	Motorised Vehicles																	Non-Motorised Vehicles								
	Car/Jeep/ Van(other than taxi)	Taxi	Auto Rickshaw (2W)	Two Wheeler	Total Motorised Vehicles	Bus					Mini LCV	Goods Vehicle				Agri Tractor		Animal/ Herd Driven	Cycle		Others					
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus		LCV	2- Axle(Truck)	3- Axle(Truck)	MAV (Truck/Trailer)	Tractor A/Trolley	Tractor B/Trolley									
Time Period:																										
Total 8:00:00 AM to 08:30:04 PM	140	21	274	415	220	12	2	3	2	3	6	4	2	1	1	0	0	0	49	0	0	1255				
PCU Conversion	1	1	1	0.5	1.5	3	3	3	3	1	1.5	1.5	1	4.5	4.5	1	4.5	3	0.5	2	0					
Sectoral PCU	140	21	274	207.5	330	36	6	9	6	9	9	6	6	4.5	4.5	0	0	0	24.5	0	0	1193				
Total PCU	1193	Based on IRC 64 - 1990 (Rural Roads)																								
08:00:00 AM to 09:00:00 AM	35	2	40	41	20	1	0	0	1	0	0	0	0	0	0	0	0		0							
09:00:00 AM to 10:00:00 AM	28	1	35	41	20	1	0	2	0	1	0	0	0	0	0	0	0		5							
10:00:00 AM to 11:00:00 AM	25	3	30	40	25	2	0	0	0	0	0	1	0	0	0	0	0		6							
11:00:00 AM to 12:00:00 PM	30	2	25	43	26	0	0	1	1	0	0	1	0	0	0	0	0		2							
12:00:00 PM to 1:00:00 PM	30	4	22	38	25	1	0	0	0	1	2	0	1	0	0	0	0		9							
1:00:00 PM to 2:00:00 PM	20	5	22	35	18	2	0	0	0	1	3	1	0	0	0	0	0		1							
2:00:00 PM to 3:00:00 PM	20	2	35	32	25	1	0	0	0	0	0	0	0	0	0	0	0		8							
3:00:00 PM to 4:00:00 PM	18	1	28	30	20	2	0	0	0	0	0	0	0	1	0	0	0		8							
4:00:00 PM to 5:00:00 PM	15	1	30	38	19	1	0	0	0	0	1	0	1	0	1	0	0		5							
5:00:00 PM to 6:00:00 PM	8	0	3	25	11	1	2	0	0	0	0	1	0	0	0	0	0		1							
6:00:00 PM to 7:00:00 PM	5	0	5	30	6	0	0	0	0	0	0	0	0	0	0	0	0		3							
7:00:00 PM to 8:00:00 PM	6	0	2	21	5	0	0	0	0	0	0	0	0	0	0	0	0		1							
Total:	140	21	274	415	220	12	2	3	2	3	6	4	2	1	1	0	0	0	49	0	0	128				

Road: NH-37		Location: Near Palapool Chowk				Name of Enumerator: Anur Kumar Sharma					Shift No: 1		Construction of 100 Bedded District Hospital Under Asses at Lakhiga, Cachar, Assam											
Direction from: Ingar To Palapool		Weather: Fine				Date & Day: 16.05.2024 Thursday					Sheet No: 1													
Time Period:	Motorised Vehicles																				Non-Motorised Vehicles			
	Car/Jeep/ Van(other than taxi)	Taxi	Auto Rickshaw (3W)	Two Wheeler	Tata Magic/ Shared Auto	Bus					Mini LCV	Goods Vehicle				Agri. Tractor		Animal/ Hood Drawn	Cycle		Others			
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus		LCV	2- Axle(Tru ck)	3- Axle(Truck) (Truck/Trol ler)	MAN (Truck/Trol ler)	Tractor	Tractor &Trolly							
Total 8:00:00 AM to 08:00:00 PM	133	49	245	455	195	15	4	5	3	4	6	4	3	3	1	0	1	0	81	0	0	1417		
PCU Conversion	1	1	1	0.5	1.5	3	3	3	3	3	1.5	1.5	3	4.5	4.5	3	4.5	4	0.5	2	0			
Sectoral PCU	133	49	245	227.5	292.5	45	12	15	9	12	9	6	9	13.5	4.5	0	4.5	0	40.5	0	0	1332		
Total PCU	1332	Based on IRC 54 - 1990 (Rural Roads)																						
08:00:00 AM to 09:00:00 AM	39	5	35	42	25	1	0	1	1	1	0	0	0	0	0	0	0		8					
09:00:00 AM to 10:00:00 AM	32	2	30	41	20	1	0	2	0	1	0	0	0	0	0	0	0		5					
10:00:00 AM to 11:00:00 AM	38	3	22	40	22	2	0	0	0	0	0	1	0	0	0	0	0		6					
11:00:00 AM to 12:00:00 PM	35	6	30	43	25	0	0	1	1	0	0	1	0	0	0	0	0		10					
12:00:00 PM to 1:00:00 PM	40	5	25	38	23	1	0	0	0	1	2	0	1	0	0	0	0		9					
1:00:00 PM to 2:00:00 PM	32	6	22	35	18	2	0	0	0	1	3	1	0	0	0	0	0		10					
2:00:00 PM to 3:00:00 PM	36	8	22	32	15	1	0	0	0	0	0	0	0	0	0	0	0		8					
3:00:00 PM to 4:00:00 PM	24	2	20	30	15	2	0	0	0	0	0	0	0	1	0	0	0		0					
4:00:00 PM to 5:00:00 PM	22	3	19	31	10	1	0	0	0	0	1	0	1	0	1	0	0		5					
5:00:00 PM to 6:00:00 PM	15	4	10	40	9	1	2	0	0	0	0	1	0	0	0	0	1		4					
6:00:00 PM to 7:00:00 PM	13	2	8	35	8	2	1	1	0	0	0	0	1	1	0	0	0		6					
7:00:00 PM to 8:00:00 PM	11	3	2	41	5	1	1	0	1	0	0	0	0	1	0	0	0		2					
Total:	133	49	245	455	195	15	4	5	3	4	6	4	3	3	1	0	1	0	81	0	0	129		

Road: Old Sikkar Road		Name of Enumerator: Gaurav Jyoti		Gaurav Jyoti		Construction of 100 Bedded District Hospital Under Assist at Lokhipur, Coochar, Assam																	
Location: Near Project Site		Shift No: 1		1																			
Direction from: Chingpar ga D To Jaitan		Date & Day: 16.05.2024 Thursday																					
Weather: Fine		Sheet No: 1																					
Time Period:	Motorised Vehicles																		Non-Motorised Vehicles				
	Car/Temp Van (other than taxi)	Taxi	Auto Rickshaw (3W)	Two Wheeler	Tara Magic Shared Auto	Bus					Mini LCV	Goods Vehicle				Agt. Tractor		Animal/ Head Drawn	Cycle		Others		
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus		LCV	2-Axis (Truck)	3-Axis (Truck)	MAV (Truck/Trailer)	Tractor	Tractor w/Trailer						
Time Period:																							
Total 8:00:00 AM to 08:40:00 PM	168	51	206	377	114	4	1	1	1	2	1	1	0	0	0	0	0	0	52	0	0	979	
PCU Conversion	1	1	1	0.5	1.5	3	3	3	3	3	1.5	1.5	3	4.5	4.5	3	4.5	4	0.5	2	0		
Sectoral PCU	168	51	206	188.5	171	12	3	3	3	6	1.5	1.5	0	0	0	0	0	0	26	0	0	840.5	
Total PCU	140.5	Based on IRC 64 - 1990 (Rural Roads)																					
08:00:00 AM to 09:00:00 AM	15	2	32	35	8	0	0	0	0	0	0	0	0	0	0	0	0		6				
09:00:00 AM to 10:00:00 AM	10	3	15	32	12	0	0	0	0	1	0	0	0	0	0	0	0		5				
10:00:00 AM to 11:00:00 AM	12	6	19	30	10	0	0	0	0	0	0	0	0	0	0	0	0		3				
11:00:00 AM to 12:00:00 PM	13	4	16	30	12	0	0	1	1	0	0	1	0	0	0	0	0		5				
12:00:00 PM to 1:00:00 PM	15	2	28	32	14	1	0	0	0	0	0	0	0	0	0	0	0		6				
1:00:00 PM to 2:00:00 PM	16	5	20	34	12	0	0	0	0	1	0	0	0	0	0	0	0		4				
2:00:00 PM to 3:00:00 PM	12	3	22	31	8	1	0	0	0	0	0	0	0	0	0	0	0		8				
3:00:00 PM to 4:00:00 PM	10	5	11	36	9	0	0	0	0	0	0	0	0	0	0	0	0		5				
4:00:00 PM to 5:00:00 PM	8	8	10	32	5	0	0	0	0	0	1	0	0	0	0	0	0		6				
5:00:00 PM to 6:00:00 PM	10	6	15	28	6	1	0	0	0	0	0	0	0	0	0	0	0		1				
6:00:00 PM to 7:00:00 PM	12	5	10	25	8	0	1	0	0	0	0	0	0	0	0	0	0		2				
7:00:00 PM to 8:00:00 PM	35	2	11	22	10	1	0	0	0	0	0	0	0	0	0	0	0		1				
Total:	168	51	206	377	114	4	1	1	1	2	1	1	0	0	0	0	0	0	52	0	0	130	

Road: Old Siche Road		Name of Enumerator: Gaurav Jais		Gazetted Area: Construction of 100 Bedded District Hospital Under Assam																							
Location: Near Project Site		Shift No: 1		Lakhimpur, Cachar, Assam.																							
Direction from: Right To Chirapuri II		Date & Day: 16.05.2024 Thursday																									
Weather: Fine		Sheet No: 1																									
Time Period:	Motorised Vehicles																	Non-Motorised Vehicles									
	Car/Jeep/ Van (other than taxi)	Taxi	Auto Rickshaw (3W)	Two- Wheeler	Tata Magic/ Shared Auto	Bus					Mini LCV	Goods Vehicle				Agri. Tractor		Animal/ Hand Drawn	Cycle		Others						
						Mini Bus	ASTC Bus	Govt. Inter City Bus	Private Bus	School Bus		LCV	2- Axle (Truck)	3- Axle (Truck)	MAV (Truck/Trolley)	Tractor	Tractor & Trolley										
Time Period:																											
Total 8:00:00 AM to 08:00:00 PM	173	46	188	358	101	3	1	1	1	2	1	1	0	0	0	0	0	0	64	0	0	940					
PCU Conversion	1	1	1	0.5	1.5	3	3	3	3	3	1.5	1.5	1	4.5	4.5	3	4.5	4	0.5	2	0						
Sectional PCU	173	46	188	179	151.5	9	3	3	3	6	1.5	1.5	0	0	0	0	0	0	12	0	0	746.5					
Total PCU	796.5	Based on IRC 64 - 1990 (Rural Roads)																									
08:00:00 AM to 09:00:00 AM	16	1	24	30	10	0	0	0	0	0	0	0	0	0	0	0	0		0								
09:00:00 AM to 10:00:00 AM	17	2	14	32	9	0	0	0	0	1	0	0	0	0	0	0	0		0								
10:00:00 AM to 11:00:00 AM	15	3	19	25	10	0	0	0	0	1	0	0	0	0	0	0	0		5								
11:00:00 AM to 12:00:00 PM	13	5	15	30	12	0	0	1	1	0	0	1	0	0	0	0	0		5								
12:00:00 PM to 1:00:00 PM	15	1	20	32	14	1	0	0	0	0	0	0	0	0	0	0	0		7								
1:00:00 PM to 2:00:00 PM	16	5	12	30	5	0	0	0	0	0	0	0	0	0	0	0	0		9								
2:00:00 PM to 3:00:00 PM	13	3	15	31	8	1	0	0	0	0	0	0	0	0	0	0	0		8								
3:00:00 PM to 4:00:00 PM	11	5	17	35	9	0	0	0	0	0	0	0	0	0	0	0	0		6								
4:00:00 PM to 5:00:00 PM	10	5	12	32	5	0	0	0	0	0	1	0	0	0	0	0	0		5								
5:00:00 PM to 6:00:00 PM	10	6	15	32	6	0	0	0	0	0	0	0	0	0	0	0	0		8								
6:00:00 PM to 7:00:00 PM	12	5	14	26	5	0	1	0	0	0	0	0	0	0	0	0	0		6								
7:00:00 PM to 8:00:00 PM	25	3	10	23	8	1	0	0	0	0	0	0	0	0	0	0	0		5								
Total:	173	46	188	358	101	3	1	1	1	2	1	1	0	0	0	0	0	0	64	0	0	131					

ANNEXURE-X

Traffic Survey

Vehicular Traffic Density

Traffic study was carried out as primary data to know the existing traffic density. Traffic survey forms are attached as **Annexure**.

Incremental pollution load as per IRC 64 has been calculated to estimate the level of services (LOS). Traffic study was conducted at the following survey point:

1. NH-37
2. Old Silchar Road

Then depending on the capacity of the road, the number of vehicles that will be added to the present scenario will be compared to the carrying capacity as recommended by Indian Road Congress (IRC). The existing volume of traffic and, the Level of Service are given below:



Traffic Survey Photographs

Traffic data was collected from the following points.

1. NH37 near site (Pailapool To Jirighat) (1255- Vehicle Count)
2. NH37 near site (Jirighat To Pailapool) (1412- Vehicle Count)
3. Old Silchar Road (Chiripar pt II To Jirighat) (940- Vehicle Count)
4. Old Silchar Road (Jirighat To Chiripar pt II) (940- Vehicle Count)

The NH-37 road is undivided 1 lane with RoW = 6.5 Meters.

The Old Silchar Road is undivided 1 lane with RoW = 5.5 Meters.

Survey hours: 8.00 am to 8.00 pm

Vehicle Count in PCU

- 1: NH-37 (2525–PCU)

2. Old Silchar Road (1637-PCU)

Total accommodative capacity of the NH37, IRC: 64 – 1990 is 15,000 PCU.

Carrying capacity, NH37 = Volume /Capacity = 2525/ 15,000 = 0.17 (LOS – A – Excellent)

Total accommodative capacity of the Old Silchar Road, IRC: 64 – 1990 is 6,000 PCU.

Carrying capacity, Old Silchar Road = Volume /Capacity = 1637/ 6,000 = 0.27 (LOS – B – Very Good)

Additional Traffic load added due to proposed project:

Number of Cars: 288 PCU

Modified V/C Ratio on NH37

= Existing PCU + Additional PCU load of project /15,000

= 2525+288/15,000 = 2813/15,000 = 0.19

Inference: New V/C ratio near NH37 is 0.19 (LOS – A – Excellent)

Modified V/C Ratio on Old Silchar Road

= Existing PCU + Additional PCU load of project /15,000

= 1637+288/6,000 = 1716/6,000 = 0.32

Inference: New V/C ratio on Old Silchar Road is 0.32 (LOS – B – Very Good)

Even if the entire load of project of 288 PCU (worst case scenario) is added upon, the level of service will have minimal impact and correspond to LOS – A – Excellent on NH-37 and LOS – B – Very Good on old Silchar Road.

ANNEXURE-XI

Dust Mitigation measures

ANNEXURE-XI**DUST MITIGATION PLAN**

Introduction: In the building Construction projects, dust mitigation is one of the primary concern and which needs to be addressed properly to minimize its impacts. In the proposed project, dust mitigation measures have been proposed for different stages of the project. The proposed project is 100 bedded district hospital located at Lakhipur, Cachar. The site is within the existing Lakhipur Block PHC site plot. The Total Plot Area is 16252.59 Sqm (4.01 Acre, 12 Bigha 15 Lessa).

Dust Mitigation measures proposed for the project is given below:

S. No	Project Stage	Dust generation Source	Mitigation Measures
1.	Pre-construction Stage	1. Demolition waste 2. Site Preparation 3. Vehicle Movement	1. Tarpaulin or green net should be there around the boundary of the construction site. 2. The vehicle carrying the demolition waste should be fully covered with tarpaulin sheet. 3. All vehicles including carrying construction debris of any kind should be cleaned and wheels washed. 4. All construction debris and construction material of any kind should be stored on the site and not dumped on public roads or pavements. 5. No loose soil or sand or Construction & Demolition Waste or any other construction material that causes dust shall be left uncovered. 6. Every worker working on construction site and involved in loading, unloading and carriage of construction material and construction debris should be provided with

			dust-mask to prevent inhalation of dust particle. 7. Vehicle with PUC certificate will be allowed in construction site. 8. Construction and demolition waste should be recycled on-site or transported to authorized recycling facility and due record of the same should be maintained.
2.	Construction phase	1. Construction activities 2. Vehicle Movement	1. Tarpaulin or green net should be there around the boundary of the construction site. 2. The vehicle carrying the construction and demolition waste, construction materials should be fully covered with tarpaulin sheet. 3. All vehicles including carrying construction debris of any kind and construction material should be cleaned and wheels washed. 4. All construction debris and construction material of any kind should be stored on the site and not dumped on public roads or pavements. 5. No loose soil or sand or Construction & Demolition Waste or any other construction material that causes dust shall be left uncovered. 6. Every worker working on construction site and involved in loading, unloading and carriage of construction material and construction debris should be provided with dust-mask to prevent inhalation of dust particle. 7. Vehicle with PUC certificate will be allowed

			in construction site. 8. No grinding and cutting of building materials in open area. Wet jet should be used in grinding and stone cutting. 9. Unpaved surfaces, if any and areas with loose soil should be adequately sprinkled with water to suppress dust. 10. Dust mitigation measures shall be displayed prominently at the construction site for easy public viewing.
3.	Operational phase	Vehicular movement	Water sprinkling will be done twice a week.

ANNEXURE-XII
Environment Monitoring Reports



Gaheli Environmental Laboratory

(A unit of Gaheli Center of Research and Development Pvt. Ltd.)

(ISO 9001:2015, 14001:2015, OHSAS 18001:2007 Certified Company & NABL Accredited Laboratory)
Circuit House Road, Near Parwani Orthopadic Hospital, New Paradise Fountain Circle,
Porbandar - 360575, Gujarat, E-mail - contact@gcrdindia.com, website - www.gcrdindia.com
Tel.: 0286-2253630, Mobile: +91-9990416608, GSTIN : 24AHCPA6690B1ZV



TEST REPORT

Report Code: GEL/A/2024/05/20-001
Issued to: Project in charge- Construction of proposed 100 Beds District Hospital under ASSIST at Lakhipur, District Cachar, Assam.

Issue Date : 20.05.2024
Date of Sampling : 16.05.2024
Sample Collected on : 17.05.2024 to 18.05.2024
Sample Collected b : GEL STAFF

RESULTS (Ambient Air Quality Analysis)

SAMPLING DETAILS

Sampling Protocol : Portable air detector (AQM-02)
Weather Condition : Clear Sky

S.No	Location of monitoring	Parameters						
		PM10 µg/m ³	PM 2.5 µg/m ³	PM1 µg/m ³	SO ₂ µg/m ³	NO ₂ µg/m ³	Temperature °C	Humidity %
1.	Project site	41	35	26	5.9	6.1	35	54
2.	Lakhipur Pt III Residential	40	36	27	6.1	5.3	35	53
3.	Earle Higher Secondary School	39	34	25	5.5	6.8	35	56
4.	Satsang Kendra	44	38	29	5.3	5.8	35	59
5.	Fullertal Chowk	46	40	31	6.2	6.3	34	56
NAAQS		100	60	—	80	80	—	—

****End of Report****



Authorized Signatory

Varsha Pandey
(Managing Director)

Serial No.: 5479



Dispatch Date: 20.05.2024

Dispatch No.: 137179



Gaheli Environmental Laboratory

(A unit of Gaheli Center of Research and Development Pvt. Ltd.)

(ISO 9001:2015, 14001:2015, OHSAS 18001:2007 Certified Company & NABL Accredited Laboratory)

Circuit House Road, Near Parwani Orthopaedic Hospital, New Paradise Fountain Circle,
Porbandar - 360575, Gujarat, E-mail - contact@gerdindia.com, website - www.gerdindia.com

Tel.: 0286-2253630, Mobile: +91-9990416608, GSTIN : 24AHCPA6690B1ZV



TEST REPORT

Report Code: GEL/N/2024/05/20-001
Issued to: Project in charge- Construction of
proposed 100 Beds District Hospital under
ASSIST at Lakhipur, District Cachar, Assam.

Issue Date : 20.05.2024
Date of Sampling : 16.05.2024
Sample Collected on : 17.05.2024 to 18.05.2024
Sample Collected by : GEL STAFF
Sample Description : Ambient Noise

RESULTS

(Ambient Noise Quality Analysis)

S. No.	Location	Zone	Limit for As Per EPA, 1986 : Leq, dB (A)		Observed Value Leq, dB (A)	
			Day Time*	Night Time**	Day Time*	Night Time**
1.	Project site	Silence zone	50	40	46.2	38.1
2.	Lakhipur Pt III Residential	Residential area	55	45	51.6	42.6
3.	Earle Higher Secondary School	Silence zone	50	40	47.5	37.2
4.	Satsang Kendra	Silence zone	50	40	46.5	36.6
5.	Fullertal Chowk	Commercial Zone	65	55	61.6	52.1
* Day Time			6.00 a.m. to 10.00 p.m.			
**Night Time			10.00 p.m. to 6.00 a.m.			

****End of Report****



Authorized Signatory

Varsha Pandey
(Managing Director)

Serial No.: 5480



Dispatch Date: 20.05.2024

Dispatch No.: 1385480



Gaheli Environmental Laboratory

(A unit of Gaheli Center of Research and Development Pvt. Ltd.)

(ISO 9001:2015, 14001:2015, OHSAS 18001:2007 Certified Company & NABL Accredited Laboratory)

Circuit House Road, Near Parwani Orthopadic Hospital, New Paradise Fountain Circle,
Porbandar - 360575, Gujarat, E-mail - contact@gerdindia.com, website - www.gerdindia.com
Tel.: 0286-2253630, Mobile: +91-9990416608, GSTIN : 24AHCPA6690B1ZV



TEST REPORT

Report Code: GEL/S/2024/05/20-001
Issued to: Project in charge- Construction of
proposed 100 Beds District Hospital under
ASSIST at Lakhipur, District Cachar, Assam.

Issue Date : 20.05.2024
Sample Collected by : Amrit Kr
Sample Collected on : 16.05.2024
Sampling Protocol : GEL/LAB/SOP/SOIL/01
Sample Quantity : 1 kg
Sample Packing : Zip Polybag

Sample Description: Soil

RESULTS

(Soil Quality Analysis- Project Site, near village- Lakhipur Pt III Residential)

S. No.	Parameters	Units	Test Method	SQ1	SQ2
				Project Site	Lakhipur Pt III Residential
1	Texture	-	GEL/LAB/SOP/SOIL/22	Silty Clay Loam	Silty Clay Loam
	Sand	%		22.5	21.7
	Silt	%		40.3	41.2
	Clay	%		37.2	37.1
2	*Color	-	GEL/LAB/SOP/SOIL/07	Grayish to Brownish	Grayish to Brownish
3	pH (1:2 Suspension)	-	IS 2720 (P-26): 1987, RA 2011	6.71	6.74
4	Specific Conductivity	µmhos/cm	IS 14767: 2000, RA 2016	515	510
5	Moisture	%	IS 2720(Part-2): 1973, RA 2015	23.2	22.1
6	Exchangeable Potassium	mg/kg	GEL/LAB/SOP/SOIL/07	8.6	8.1
7	Exchangeable Sodium	mg/kg	GEL/LAB/SOP/SOIL/06	18.7	20.2
8	Exchangeable Calcium	mg/kg	GEL/LAB/SOP/SOIL/08	310	291
9	Exchangeable Magnesium	mg/kg	GEL/LAB/SOP/SOIL/08	80.2	80.0
10	Porosity	%	GEL/LAB/SOP/SOIL/20	32.5	32.9
11	Organic Matter	%	IS 2720 (P-22): 1972, RA 2010	0.65	0.62
12	Phosphorous	mg/kg	GEL/LAB/SOP/SOIL/10	11.9	12.6
13	*Nitrogen	mg/kg	GEL/LAB/SOP/SOIL/09	75	78
14	Chloride	mg/kg	GEL/LAB/SOP/SOIL/14	60	63
15	Bulk Density	gm/cc	IS 2720 (P-28): 1974, RA 2010	1.9	1.8

****End of Report****



Authorized Signatory

Varsha Pandey
(Managing Director)

Serial No.: 5481



Dispatch Date: 20.05.2024

Dispatch No.: 139481



2.	1.	Sl.No
Lakhipur	Lakhipur	Block
Lakhipur Nayagram	Lakhipur Nayagram	G.P.
Lakhipur town	Lakhipur town	Village
		Habitation
		Latitude(N)
		Longitude(E)
		Elevation(m)
		Observed GPS accuracy(Should be less than +
Govt.	Govt.	Name of the source
Lakhipur P.H.C	Lakhipur P.H.C	pin point location of the water source
Surface water	H/P	Type of source DTW or surface source/Type of spot source (TP/SHP or HP/Mil or IL/RW)
✓	✓	Premons onn (March to June)
		Postmons onn (Oct to Dec)
		Discharge of source in LPH (In case of DTW/surface source)
22-05-24	21-05-24	Date of water sample collection TEST
		Time of water sample Collection
7.1 mg/l	6.9 mg/l	Electrical conductivity(EC)
—	—	Total dissolved solid(TDS)PPM
132 mg/l	201 mg/l	Turbidity NTU
3 NTU	4 NTU	Alkalinity ppm
—	—	Arsenic ppb
—	0.000 mg/l	Bacteriological
Absent	Absent	Calcium ppm
—	—	Fluoride ppm
0.0	0.0	Hardness ppm
45 mg/l	90 mg/l	Iron ppm
0.0 mg/l	0.2 mg/l	Magnesium ppm
—	—	Nitrate ppm
—	—	Chloride ppm
80 mg/l	120 mg/l	Residual Chloride ppm
0.1 mg/l	0.0 mg/l	

DATA FOR WATER QUALITY MAPPING (LAKHIPUR SDU)

Re-ading



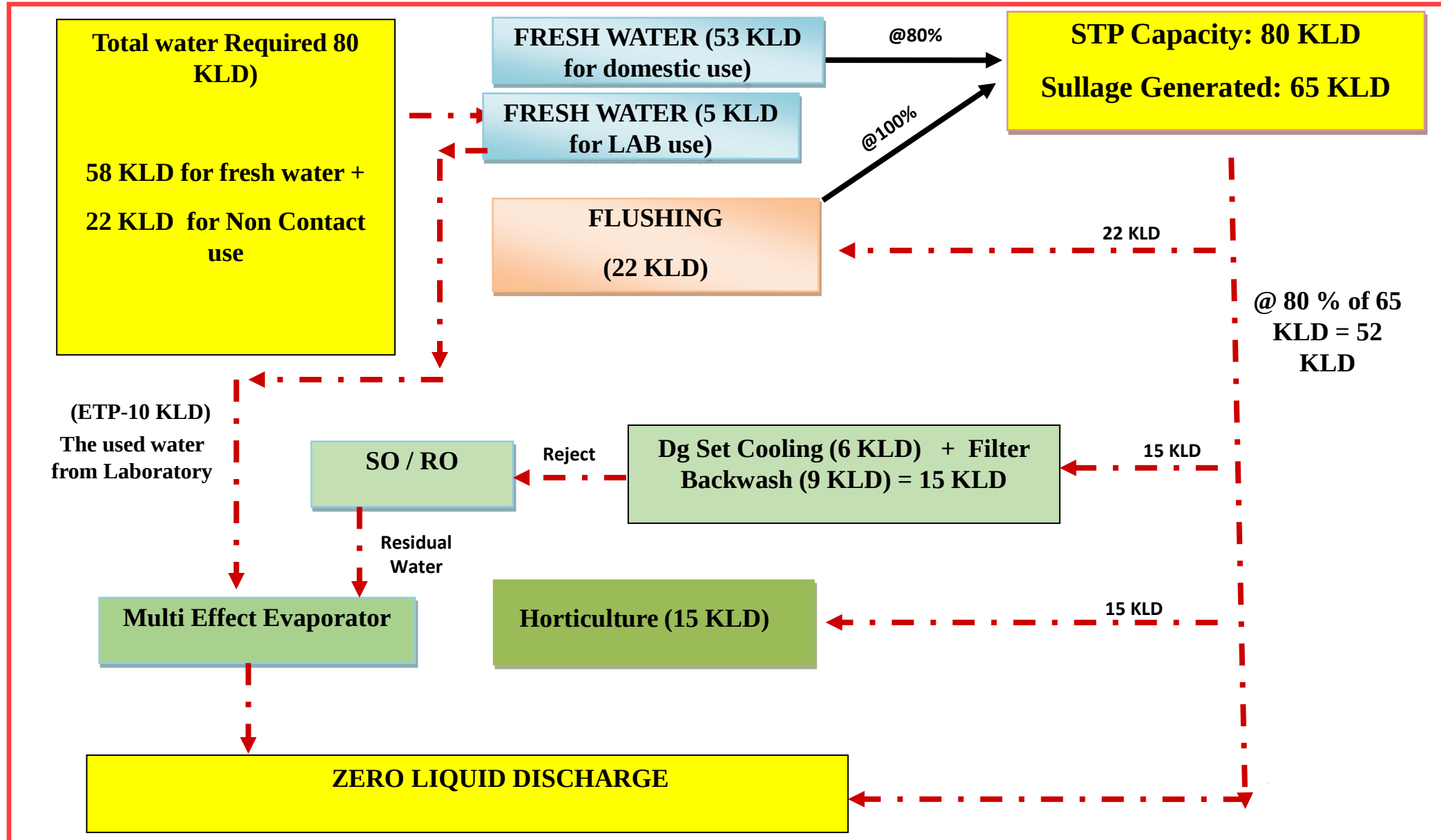
ANNEXURE-XIII

Water requirement

WATER REQUIREMENT CALCULATION

S. No	Description	No of Occupancy	Consumption Litres per Head/ day NBC, 2016 -BIS	Total /Litres per Head/ day /KLD	Fresh water (KLD)	Non contact use (KLD)
1.	Number of beds	100	450 LPH/D (300 fresh + 150 Non contact water)	45000 LPH/D or 45.0 KLD	30.0	15.0
2.	OPD	1200	15 LPH/D (10 fresh + 5 Non contact water)	18000 LPH/D or 18.0 KLD	12.0	6.0
3.	Labs, Operation Theaters & Labour Rooms Etc.	--	5,000 LPH/D or 5 KLD	5 KLD	5.0	--
4.	Mortuary and Gas Manifold	32	45 (25 fresh + 20 Non contact water)	1440 LPH/D or 1.44 KLD	0.80	0.64
5.	Laundry	100	100 ltrs/bed/day	10000 LPH/D or 10.0 KLD	10.0	--
6.	DG Set	1250 KVA	0.9 *KVA * 8 HOURS	90000 LPH/D or 9.0 KLD	--	--
7.	Horticulture	3072 Sqm	5 sqm/litre	15.0 KLD	--	--
8.	Filter Backwash	--	--	6000 LPH/D or 6.0 KLD	--	--
Total Water (in KLD)					57.8 Say 58 KLD	21.64 Say 22 KLD

WATER BALANCE DIAGRAM



ANNEXURE-XIV
**Occupational Health and Safety
Plan**

ANNEXURE-XIV

Occupational Health and Safety Plan

1.0 Introduction: An Occupational Health and Safety (OHS) Plan is a comprehensive approach aimed at ensuring the safety and health of workers working at the site. The plan sets out processes and practices to help prevent injuries, illnesses, and fatalities on the job.

Its emphasis is on proactive measures to identify and manage workplace hazards, thereby reducing risks.

2.0 Purpose of an Occupational Health and Safety Plan: The purpose of an Occupational Health and Safety Plan is the prevention of workplace injuries, illnesses, and fatalities. Here are the main objectives and purposes of an OHS Plan:

Protection of Workers: At its core, the primary purpose of an OHS Plan is to protect employees and other individuals at the workplace from potential hazards that could harm them physically, mentally, or emotionally.

Compliance with Legislation: An OHS Plan helps ensure that the project is compliant with these regulatory requirements.

Identification of Hazards: The plan provides a systematic approach to identifying potential dangers in the workplace, from machinery operations during construction phase to health hazards exposure during operational phase.

Risk Management: Beyond identifying hazards, the plan outlines measures to assess, prioritise, and mitigate risks associated with these hazards.

Emergency Preparedness: The plan ensures that there are protocols in place to handle unexpected events, such as fires, chemical spills, or natural disasters, thereby reducing potential harm.

Promotion of a Safety Culture: A well-documented and communicated OHS Plan fosters a culture where safety is valued and prioritised, encouraging workers at all levels to participate actively in safety initiatives.

Reduction in Economic Costs: Injuries, illnesses, and accidents can be expensive in terms of medical costs, compensation, lost workdays, and reduced productivity. An OHS Plan helps reduce these economic impacts.

Continuous Improvement: The plan provides mechanisms for regular reviews, audits, and feedback, facilitating a process of ongoing improvement in safety standards and practices.

Training and Awareness: The OHS Plan ensures that employees are adequately trained and aware of potential workplace hazards and know how to protect themselves.

Clear Communication: It sets clear lines of communication regarding safety concerns, reporting mechanisms, and responsibilities, ensuring that everyone knows what's expected of them.

3. OHS Provisions for the proposed project: As the proposed project plans major infrastructure construction in the form of developing new district hospital and refurbishment

of the existing ones. So, comprehensive OHS provisions to protect health and safety of the labour workforce will be provided on construction site. These provisions shall incorporate in Construction Contracts by the construction agency and monitored by health facilities officials in a systematic manner.

3.1 Construction phase: ASSIST Project, AHIMDS will appoint the contractor and he will abide by the applicable norms during construction phase of the project. The contractor will manage construction related workplace occupational health and safety, community health and safety risks. Occupational health and safety measures as given below will be implemented:

- PPE will be provided to all workers along with provision of onsite toilet and washing facilities, potable drinking, waste and rest areas, Standard First -Aid box at site.
- Cordoning off areas under construction and provide hazards communication signage to warn of ongoing construction works and prevent nuisance of dust etc. to the health workers and community.
- Providing Safety signs that will allow management to warn and raise health and safety awareness for employees and visitors. Appropriately place them around the site where necessary.
- Workers will be made familiar with the construction site safety tips and different signs: prohibition signs, mandatory signs, warning signs, safe condition signs, and fire fighting equipment signs.
- Often, accidents occur due to the misuse of a tool or equipment. Using makeshift tools will be avoided. Instead, the correct tool to get the job done quicker and safer will be used.
- Pre-checks on tools and equipment will be done before commencing work and it will be ensured that tools and equipment to be used are free of defect or damage.
- Training will be given to workers to report defects and near misses on site as soon as they notice them. The sooner issues get reported, the fewer chances of them worsening and causing accidents or further damage.
- Planning and implementing the awareness sessions for workers and community on health and safety hazards and risks and their role in their management including their responsibilities.

3.2 Operational Phase: Occupational Health and safety provisions like regular Immunizations, health screening, post exposure prophylaxis and use of personal protective devices etc. for health care providers will be provided to reduce occupational

hazard during operational phase. Further details related to hospital infection and its prevention measures are provided under *Annexure-XVIII Hospital Infection Prevention and Control Plan*.

4.0 Monitoring and evaluation:

Safety & Occupational Health issues will be periodically monitored during construction and operation phase and reviewed at all relevant levels, including the highest levels will be done. This will ensure continual improvement for District hospital which helps in minimize occupational health and safety issues.

ANNEXURE-XV
Worker Site Management Plan

ANNEXURE-XV

Worker site Management Plan

1. Introduction

The Worker site Management Plan sets out the Program's approach to meeting national requirements as well as objectives of the World Bank's Environmental and Social Framework, specific objectives of Environmental and Social Standard 2: Labor and Working Conditions (ESS2) and Standard 4: Community Health and Safety (ESS4).

2. Assessment of Key Potential Labor Risks

The safety and health risks to which the workers and staff may be exposed from any project-related activities will be assessed. The ability to prevent or eliminate such risks or, if the risk cannot be controlled or eliminated, measures to protect workers and staff from exposure will be explored. Though, given the small-scale construction works, no major risks are envisaged.

Potential risks that may arise from the nature of activities to be undertaken include:

- a) Employment practice that are not compliant with either labor law or ESS 2. For example, not providing written documents of assignments, wages not proportionate with tasks performed, or industry standards, excess workload without provision of adequate rests and leisure, lack of hygiene facilities, discrimination towards women and labor with disability, unlawful termination, and withholding of benefit, etc.
- b) Lack of Occupational Health and Safety (OHS) practice and procedures during construction and operation resulting in unsafe work environment.
- c) Short and long-term effects on health due to over exposure to dust, noise levels, and exposure to chemicals /hazardous wastes.
- d) Absence or inadequate or non-responsive emergency response mechanism for rescue of workforce, during natural calamities like cloud bursts, landslides, disasters due to earthquake/floods/fire outbreak, etc.
- e) Lack of adequate sanitation and health facilities at the work sites.
- f) Community health and safety issues, especially, rise of communicable diseases, including Malaria and Cholera to the workforce and staff.
- g) The conduct of hazardous work, such as working at heights or in confined spaces, use of heavy machinery, or use of hazardous materials.
- h) Generation of solid, liquid and fecal wastes, especially around labor camps and toilet area.
- i) Increased competition over resources due to influx of labor; labor conflicts and work conditions.
- j) Other project related risk may include of child and forced labor and use of unscrupulous labor practice, and denial for workers' rights to form workers organizations, etc. (particularly for unskilled construction workers/labor), etc.

3. Mitigation and its Measures

1. There is a need to demarcate the risk zones. Proper signage for notifying the zones will be placed, and awareness regarding the same will be created among the most impacted workers and staff.

2. Procedure and guidelines will be defined as per best industry practices and legislative requirements applicable for task-specific hazard prevention and safety,
3. Provision of first aid room with necessary first aid items and on-call first aid providers/attendees.
4. Avoiding and minimizing the use and release of hazardous materials; for example, non-hazardous materials can substitute asbestos in building materials. Preventing uncontrolled releases of hazardous materials to the environment, e.g., paint, oils, etc.
5. Hazard communication and training programs to prepare workers to recognize and respond to workplace chemical hazards.
6. Provide appropriate Personal Protective Equipment (PPE) to workers.
7. Use of dust control methods such as covers, water suppression on loose materials and surfaces, or increased moisture content for open materials storage piles to reduce particulate matter and dust exposure.
8. Provisions will be made to provide a clean and hygiene eating place and safe drinking water at the workplace along with quarterly testing of drinking water. Similarly, an adequate provision will be made for clean and separate toilets for men and women with sewage treatment (Mobile STP).
9. Salary and other emoluments will conform to the Rules and Regulations issued by the Department of Personnel and Training (DoPT), GoI.
10. The Direct workers at the DHE will work as per State Government Rules, which will follow the relevant notification by the Department of Personnel and Training, GoI. The work hours for contracted workers will not be more than 48 hours per week and 9 hours per day. Any contract or community workers made to work over the same will be entitled to overtime pay per building and other construction workers act, 1996.

4. Worker's Code of Conduct

The Contractors are expected to prevent Gender-based Violence (GBV) and Sexual Abuse & Exploitation (SEA) emanating from the labors by developing Codes of Conduct for their workers. This needs to be continuously reinforced through positive action and trainings. The Code of Conduct will highlight the positive behavior to be demonstrated by their workers, including maintaining harmonious relations with the local communities. The CoCs will include all persons employed by the contractor, including sub-contractors and suppliers, to acceptable standards of behavior in its applicability. The CoCs will have sanctions for non-compliance, including non-compliance with specific policies related to gender-based violence, sexual exploitation, and sexual harassment (e.g., termination). The CoC will be written in plain language and signed by each worker. The Worker's Code of Conduct is detailed below:

Worker's Code of Conduct

*The **Codes of Conduct** are to prevent Gender-based Violence (GBV) and Sexual Abuse & Exploitation (SEA) of Children & Women.*

The Contractor needs to implement measures to address environmental and social risks related to the workers. The Contractor should provide an environment in which gender-based violence (GBV) has no place, and are responsible in preventing potential risks of sexual exploitation and abuse and gender-based violence

Therefore, in order to ensure that all staff, labourers and other employees at the Works Site are aware of this commitment, and in order to prevent, identify, and respond to any allegations of GBV, the following Code of Conduct will apply to all the staff, labourers and other employees without exception.

This Code of Conduct identifies the behavior that is required for all personnel of Contractor.

REQUIRED CONDUCT

1. carry out his/her duties competently and diligently;
2. comply with this Code of Conduct and all applicable laws, regulations and other requirements, including requirements to protect the health, safety and well-being of other Contractor's Personnel and any other person;
3. maintain a safe working environment including by:
 - a. ensuring that workplaces, machinery, equipment and processes under each person's control are safe and without risk to health;
 - b. wearing required personal protective equipment;
 - c. using appropriate measures relating to chemical, physical and biological substances and agents; and
 - d. Following applicable emergency operating procedures.
4. report work situations that he/she believes are not safe or healthy and remove himself/herself from a work situation which he/she reasonably believes presents an imminent and serious danger to his/her life or health;
5. treat other people with respect, and not discriminate against specific groups such as women, people with disabilities, migrant workers or children;
6. no women shall be subjected to sexual harassment at any workplace
7. not engage in any form of sexual harassment including unwelcome sexual advances, requests for sexual favors, and other unwanted verbal or physical conduct of a sexual nature with other Contractor's or Employer's Personnel;
8. Not engage in Sexual Exploitation, which means any actual or attempted abuse of position of vulnerability, differential power or trust for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another. In Bank financed projects, sexual exploitation occurs when access to or benefit from Bank financed Goods, Works, Consulting or Non-consulting services is used to extract sexual gain;
9. not engage in circumstances of any act of behavior of sexual harassment which amounts to sexual harassment viz. (i) implied or explicit promise of preferential treatment in her employment, (ii) implied or explicit threat of detrimental treatment in her employment, (iii) implied or explicit threat about her present or future employment status, (iv) interference with her work or creating an intimidating or offensive or hostile work environment for her, (v) humiliating treatment likely to affect her health or safety

10. Not engage in Sexual Abuse, which means sexual activity with another person who does not consent. It is a violation of bodily integrity and sexual autonomy and is broader than narrower conceptions of “rape”, especially because (a) it may be committed by other means than force or violence, and (b) it does not necessarily entail penetration.
11. not engage in any form of sexual activity with individuals under the age of 18, except in case of pre-existing marriage;
12. complete relevant training courses that will be provided related to the environmental and social aspects of the Contract, including on health and safety matters, and Sexual Exploitation, and Abuse (SEA);
13. report violations of this Code of Conduct; and
14. Not retaliate against any person who reports violations of this Code of Conduct, whether to us or the Employer, or who makes use of the [Project Grievance [Redress] Mechanism].

ANNEXURE-XVI

Grievance Redressal Mechanism

ANNEXURE-XV

Grievance Redressal Mechanism

1.0 Introduction

Grievance Redressal Mechanism (GRM) shall be established to receive, assess and facilitate the resolution of affected persons' concerns, objections, and grievances about the social and environmental performance at project level. The main aim of GRM is to provide a time-bound and transparent mechanism to voice, influence and resolve social and environmental concerns related to the project. This system has been purely designed for stakeholders such as aggrieved parties, project affected people, employees, labor, contractor, workers etc. The GRM is anchored on the five principles to guide in facilitating and resolving concerns and grievances:

- **Transparency:** The GRM encourages comments and feedback (negative and positive) to improve the project. The community must be aware of all complaints, grievances and problems reported, must be involved in their solution and must be kept informed on progress made in resolving grievances.
- **Socially Inclusive:** The whole community is given the opportunity to raise concerns and the right to be accorded a response. The GRM provides an accessible, inclusive, gender-sensitive and culturally appropriate platform for receiving and facilitating resolution of affected persons' grievances related to the project.
- **Simple and Accessible:** Procedures to file complaints and seek solutions are to be kept simple and easy to understand by the affected people, most specially the non-literate, and their communities.
- **Anonymity and Security:** To remain accessible, open and trusted, the GRM must ensure that the identities of those filing complaints are kept confidential. This encourages people to openly participate.
- **Institutional Outreach:** Through the GRM, the project can strengthen channels of communication and mechanisms for grievance redressed or solution at the community/project area level.

2.0 Grievances under the Project

2.1 The possible grievances of the community as envisaged, and which could be addressed through this project include: **Grievances of workers**

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

2.2 Grievances of Community

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

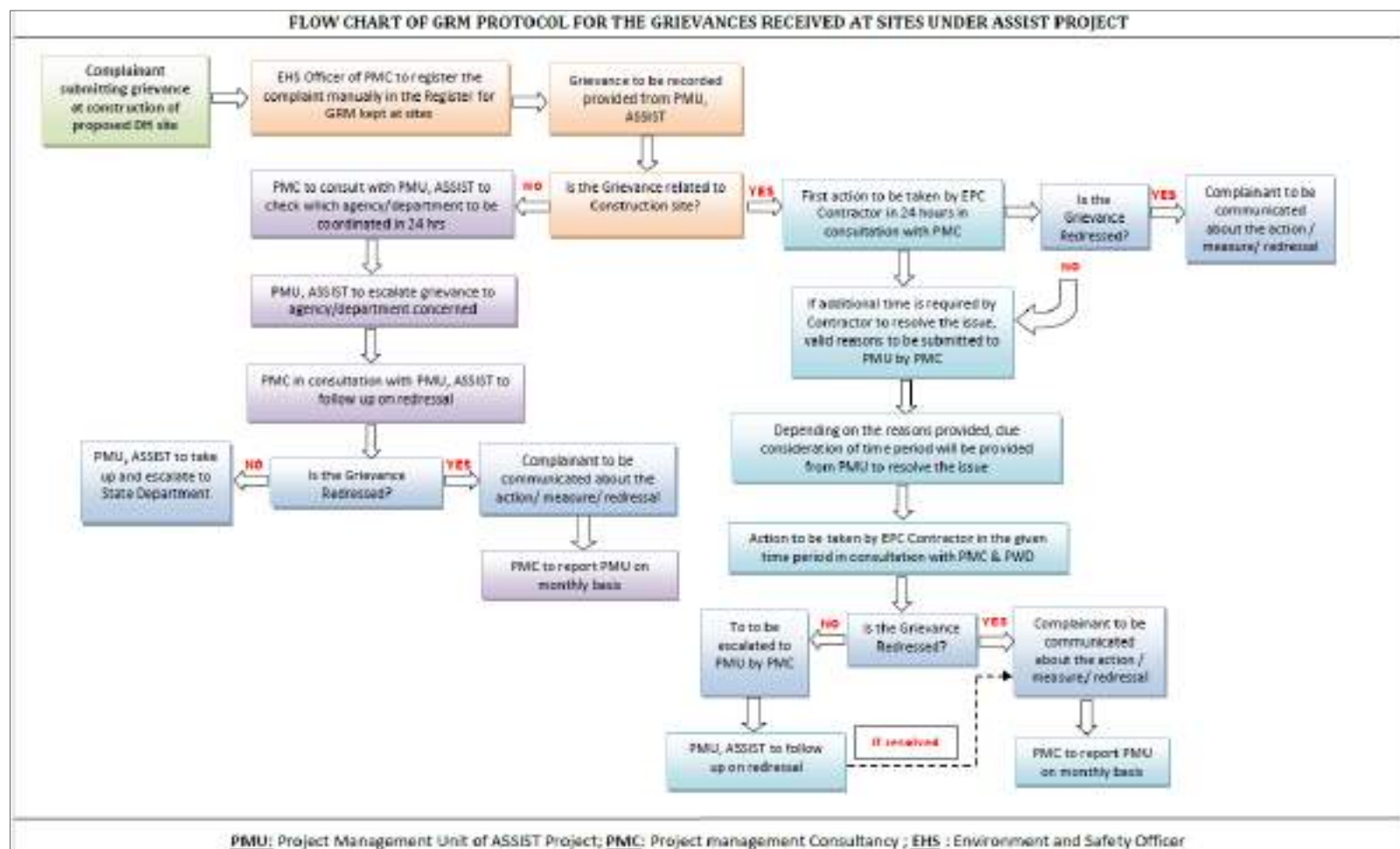
3.0 Functioning of GRM

All complaints and concerns will be addressed through a transparent, gender responsive, culturally appropriate process and will be readily available to the aggrieved party at no cost and without retribution. The following channels should be established to receive inquiries/comments and concerns /grievances:

- Toll free phone number
- Email, On-line form
- Regular post/mail
- Suggestion box/Walk-ins etc.

3.1 During Construction

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



For registering complaints of Community

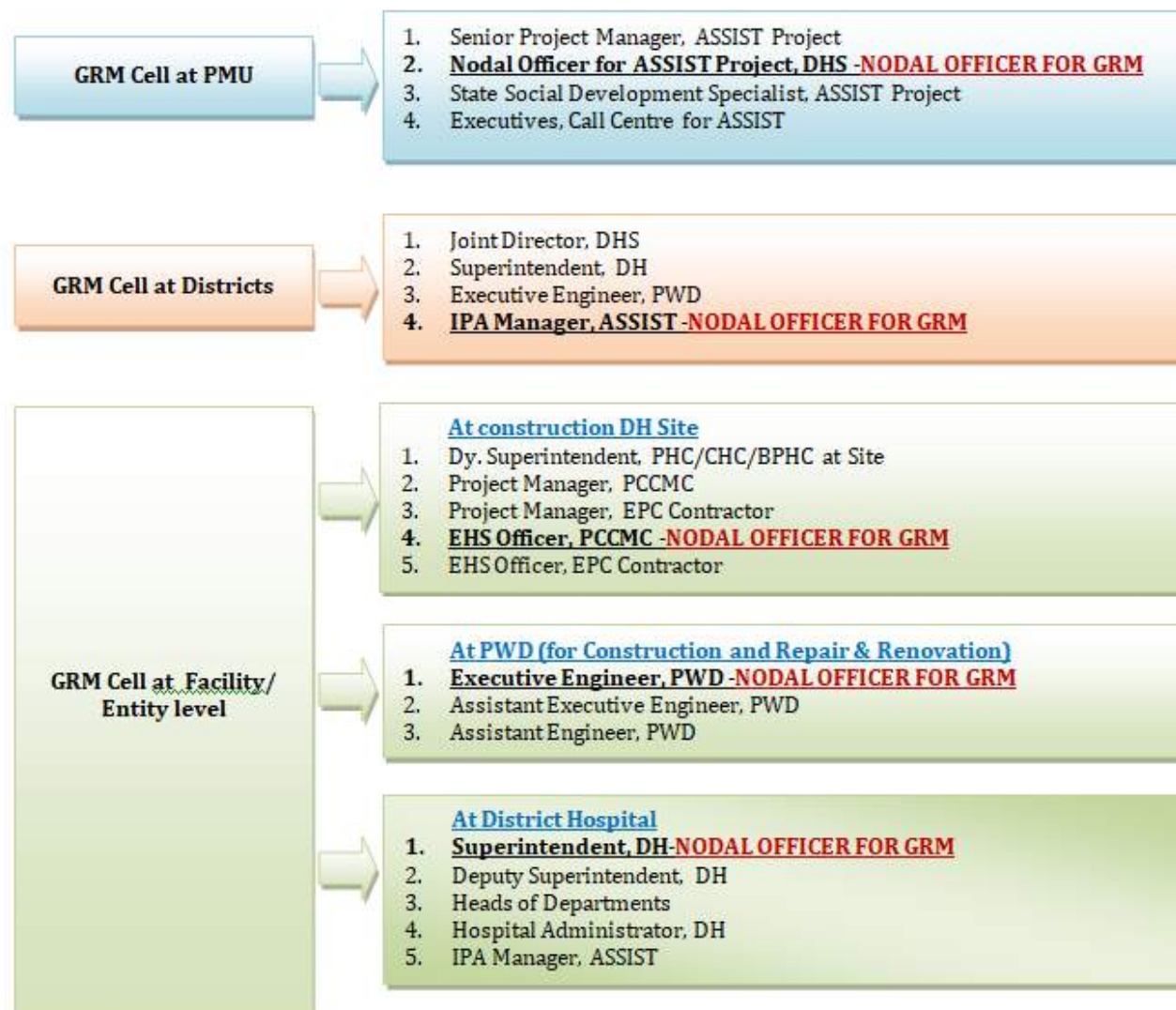
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For registering complaints of Workers

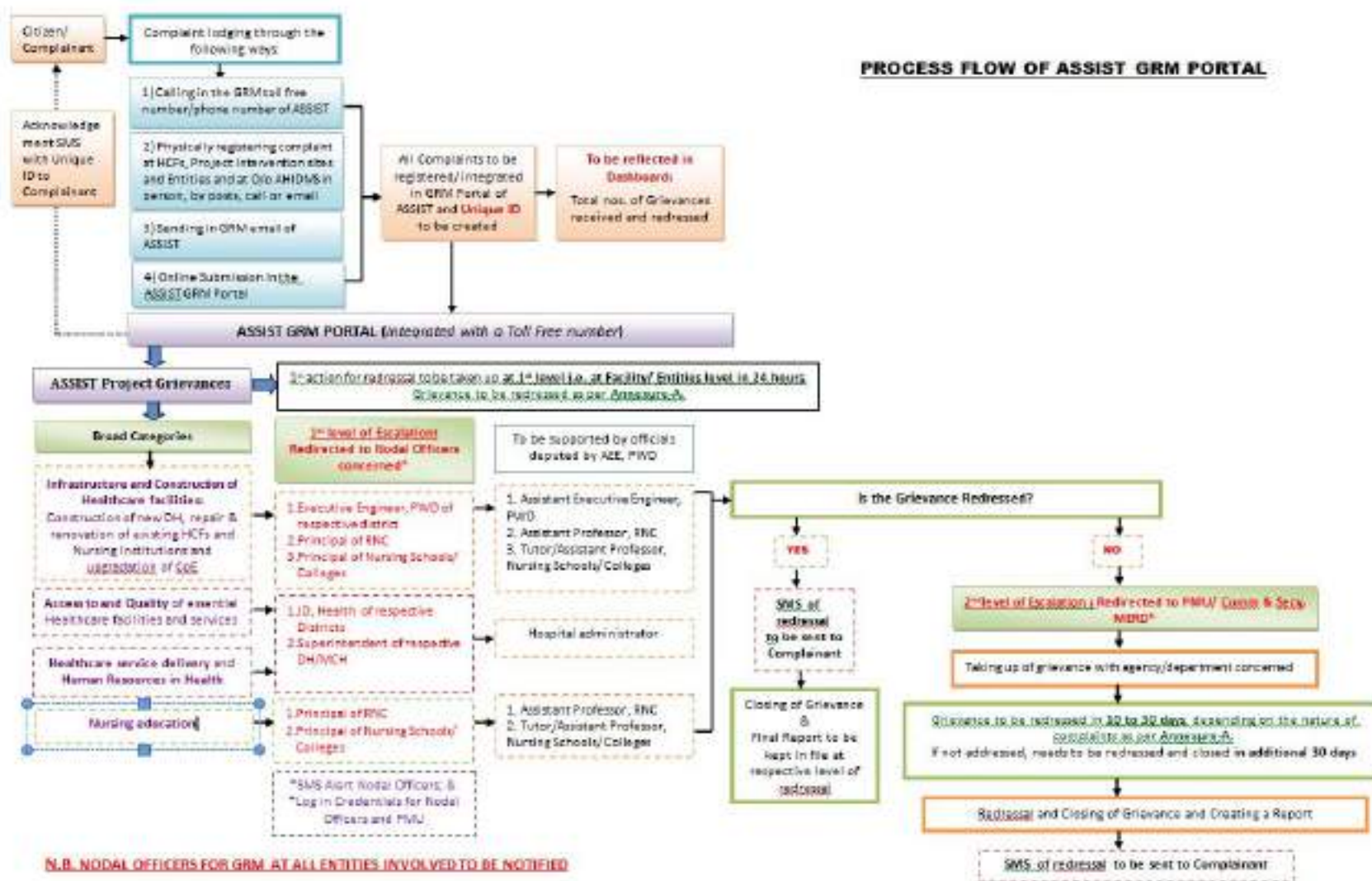
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4.1 During Operation Period :

4.1.1 The Institutional Mechanism for GRM during Operation Period is shown with the help of the flow chart below:



4.1.2 The process flow of the Online GRM Portal during Operation Period which will be an comprehensive mechanism for the project is shown with the help of the flow chart below:



ANNEXURE-XVII
Monitoring Photographs

ANNEXURE XVII

Monitoring Photographs



Soil Monitoring Photographs





(5) Fullertal Chowk (Commercial)

Air Monitoring Photographs

(1) Project site



(2) Niz-Lakhipur Pt III (Residential)



(3) Earle Higher Secondary School



(4) Satsang Kendra



(5) Fullertal Chowk (Commerical)
Noise Monitoring Photographs



Surface/Ground Water Monitoring Photographs

ANNEXURE-XVIII
**Hospital Infection Prevention
And Control Plan**

ANNEXURE-XVIII

HOSPITAL INFECTION PREVENTION AND CONTROL PLAN

1.0 Introduction: Health care-associated infections (HAIs) are preventable with correct infection prevention and control (IPC) practices. This IPC guideline will ensure a safe working environment for the health care providers and patients.

2.0 Cause of Infections: The most important HAIs are

- Urinary tract infections, pneumonia, and diarrhea
- Infections following surgery or invasive medical procedures
- Maternal and newborn infections

The organisms causing most HAIs come from the patient's own body (endogenous flora). They also can come from contact with staff (cross-contamination), contaminated instruments and needles, and the environment (exogenous flora). Key contributing factors are:

- Inadequate standards and practices for operating blood transfusion services
- Increasing use of invasive medical devices (e.g., mechanical ventilators, urinary catheters, and central intravenous lines) without proper training or laboratory support
- Use of contaminated intravenous fluids
- Antibiotic resistance due to overuse of broad spectrum antibiotics
- Unsafe and frequently unnecessary injections
- Unscientific disposal of BMW infection to waste handlers

3.0 Preventive Measures from the Infection: Most of these infections can be prevented with readily available, relatively inexpensive strategies by:

- Adhering to recommended infection prevention practices, especially hand hygiene and wearing gloves.
- Paying attention to well-established processes for decontamination and cleaning of soiled instruments and other items, followed by either sterilization or high-level disinfection
- Improving safety in operating rooms and other high-risk areas where the most serious and frequent injuries and exposures to infectious agents occur.

ANNEXURE-XIX

Flood Data

Assam Daily Flood Report as on 19-06-2022 at 4:00 PM			
Particulars	Situation as on 19-06-2022 (in last 24 hours)		
Rivers flowing above Danger Level (as per CWC bulletin issued at 8 AM)	Rivers flowing above danger level	Beki (Road Bridge), Manas (Nh Road Crossing), Pagladiya (Nt Road Crossing), Puthimari (Nh Road Crossing), Kopili (Dharamtul), Subansiri (Badatighat), Brahmaputra (Dhubri; Goalpara; Tezpur; Neamatighat)	
	Rivers flowing above highest flood level	Kopili (Kampur)	
District Affected	No. of Districts Affected	Name of Flood Affected Districts	Name of Urban Flood Districts
	33	Bajali, Baksa, Barpeta, Biswanath, Bongaigaon, Cachar, Chirang, Darrang, Dhemaji, Dhubri, Dibrugarh, Dima-Hasao, Goalpara, Golaghat, Hailakandi, Hojai, Jorhat, Kamrup, Kamrup (M), Karbi Anglong West, Karimganj, Kokrajhar, Lakhimpur, Majuli, Morigaon, Nagaon, Nalbari, Sivasagar, Sonitpur, South Salmara, Tamulpur, Tinsukia, Udalguri	Barpeta, Cachar, Darrang, Goalpara, Kamrup (M), Karimganj, Nalbari, Udalguri
No. Of Revenue Circles Affected	127		
Name Of Revenue Circles Affected	District	Total	Revenue Circle
	Bajali	2	Sarupeta, Bajali
	Baksa	5	Barama, Baska, Baganpara, Barnagar RC part, Jalah
	Barpeta	6	Barpeta, Baghbar, Kalgachia, Sarthebari, Barnagar, Chenga
	Biswanath	4	Gohpur, Halem, Naduar RC part, Biswanath
	Bongaigaon	3	Manikpur, Boitamari, Srijangram
	Cachar	5	Katigora, Silchar, Lakhimpur, Sonai, Udharbond
	Chirang	3	Sidli, Bengtal, Bijni
	Darrang	4	Mangaldoi, Dalgaon, Sipajhar, Patharighat
	Dhemaji	4	Sissiborgaon, Dhemaji, Jonai, Gogamukh
	Dhubri	8	Dhubri, Gauripur, South Salmara Part, Chapar, Athani, Bilasipara, Golakganj, Agamoni
	Dibrugarh	1	Chabua
	Dima-Hasao	1	Haflong
	Goalpara	4	Balijana, Lakhimpur, Matia, Rongjuli
	Golaghat	3	Dergaon, Khumtai, Bokakhat
	Hailakandi	4	Hailakandi, Katlicherra, Lala, Algapur
	Hojai	3	Lanka, Hojai, Doboka
	Jorhat	2	Jorhat East, Teok
	Kamrup	9	Rangia, Goroimari, Kayan, Palashbari, Chamaria, Chaygaon, Hajo, North Ghy, Kamalpur
	Kamrup (M)	3	Guwahati, Dispur, Sonapur
	Karbi Anglong West	1	Donkamokam
	Karimganj	5	Badarpur, Patherkandi, Karimganj, Nilambazar, RK Nagar
	Kokrajhar	5	Bhawraguri, Gossaigaon, Bagribari, Kokrajhar, Dotma
	Lakhimpur	6	North Lakhimpur, Dhakuakhana, Bihpuria, Kadam, Subansiri, Nowboicha
	Majuli	2	Majuli, Ujani Majuli
	Morigaon	4	Morigaon, Laharighat, Bhuragaon, Mayong
	Nagaon	5	Kampur, Raha, Kaliabor, Nagaon, Samaguri
	Nalbari	7	Ghograpar, Tihu, Banekuchi, Paschim Nalbari, Barkhetri, Barbhag, Nalbari

	Sivasagar	2	Demow, Sivsagar					
	Sonitpur	5	Dhekiajuli, Chariduar, Naduar, Thelamara, Tezpur					
	South Salmara	2	South Salmara, Mankachar					
	Tamulpur	2	Goreswar, Tamulpur					
	Tinsukia	2	Tinsukia, Doomdooma					
	Udalguri	5	Udalguri, Khairabari, Harisinga, Kalaigaon, Mazbat					
	Total	127						
Villages Affected	District	Total	Revenue Circle					
	Bajali	173	(Sarupeta 78), (Bajali 95)					
	Baksa	46	(Barama 10), (Baska 7), (Baganpara 8), (Barnagar RC part 20), (Jalah 1)					
	Barpeta	614	(Barpeta 145), (Baghbar 141), (Kalgachia 100), (Sarthebari 135), (Barnagar 29), (Chenga 64)					
	Biswanath	60	(Gohpur 14), (Halem 36), (Naduar RC part 3), (Biswanath 7)					
	Bongaigaon	88	(Manikpur 5), (Boitamari 20), (Srijangram 63)					
	Cachar	313	(Katigora 154), (Silchar 65), (Lakhimpur 20), (Sonai 60), (Udharbond 14)					
	Chirang	26	(Sidli 3), (Bengtal 7), (Bijni 16)					
	Darrang	394	(Mangaldoi 165), (Dalgaon 92), (Sipajhar 57), (Patharighat 80)					
	Dhemaji	107	(Sissiborgaon 25), (Dhemaji 5), (Jonai 39), (Gogamukh 38)					
	Dhubri	645	(Dhubri 52), (Gauripur 49), (South Salmara Part 126), (Chapar 2), (Athani 120), (Bilasipara 201), (Golakganj 64), (Agamoni 31)					
	Dibrugarh	4	(Chabua 4)					
	Dima-Hasao	11	(Haflong 11)					
	Goalpara	327	(Balijana 112), (Lakhimpur 125), (Matia 76), (Rongjuli 14)					
	Golaghat	26	(Dergaon 2), (Khumtai 4), (Bokakhat 20)					
	Hailakandi	20	(Hailakandi 11), (Katlicherra 1), (Lala 3), (Algapur 5)					
	Hojai	104	(Lanka 16), (Hojai 53), (Doboka 35)					
	Jorhat	10	(Jorhat East 7), (Teok 3)					
	Kamrup	328	(Rangia 83), (Goroimari 39), (Kayan 28), (Palashbari 24), (Chamaria 12), (Chaygaon 5), (Hajo 34), (North Ghy 35), (Kamalpur 68)					
	Kamrup (M)	25	(Guwahati 2), (Chandrapur 8), (Dispur 10), (Sonapur 5)					
	Karbi Anglong West	6	(Donkamokam 6)					
	Karimganj	235	(Badarpur 18), (Patherkandi 22), (Karimganj 19), (Nilambazar 81), (RK Nagar 95)					
	Kokrajhar	129	(Bhawraguri 3), (Gossaigaon 2), (Bagribari 106), (Kokrajhar 3), (Dotma 15)					
	Lakhimpur	172	(North Lakhimpur 52), (Dhakuakhana 7), (Bihpuria 38), (Kadam 11), (Narayanpur 17), (Subansiri 3), (Nowboicha 44)					
	Majuli	48	(Majuli 32), (Ujani Majuli 16)					
	Morigaon	174	(Morigaon 40), (Laharighat 2), (Bhuragaon 20), (Mayong 112)					
	Nagaon	229	(Kampur 107), (Raha 86), (Kaliabor 3), (Nagaon 26), (Samaguri 7)					
	Nalbari	331	(Ghograpar 81), (Tihu 28), (Banekuchi 19), (Paschim Nalbari 25), (Barkhetri 69), (Barbhag 37), (Nalbari 72)					
	Sivasagar	14	(Demow 5), (Sivsagar 9)					
	Sonitpur	189	(Dhekiajuli 66), (Chariduar 33), (Naduar 1), (Thelamara 33), (Tezpur 56)					
	South Salmara	69	(South Salmara 37), (Mankachar 32)					
	Tamulpur	46	(Goreswar 29), (Tamulpur 17)					
	Tinsukia	23	(Tinsukia 1), (Doomdooma 22)					
	Udalguri	151	(Udalguri 65), (Khairabari 13), (Harisinga 8), (Kalaigaon 56), (Mazbat 9)					
	Total	5137						
Population And Crop Area Affected	District	Male	Female	Children	Total Population	Population Details	Crop Area (in Hect.)	Crop Area Details
	Bajali	177700	137200	33400	348300	(Sarupeta 188300), (Bajali 160000)	520.00	(Sarupeta 520.00), (Bajali 0.00)
	Baksa	12418	9851	7721	29990	(Barnagar RC part 22064), (Barama 1450), (Baska 835), (Baganpara 3941), (Jalah 1700)	543.00	(Barnagar RC part 480.00), (Barama 7.00), (Baska 0.00), (Baganpara 41.00), (Jalah 15.00)

Barpeta	523403	505127	247579	1276109	(Barpeta 214076), (Baghbar 370497), (Kalgachia 198692), (Sarthebari 335837), (Barnagar 8857), (Chenga 148150)	27907.00	(Barpeta 779.00), (Baghbar 18983.00), (Kalgachia 1823.50), (Sarthebari 2014.00), (Barnagar 1757.50), (Chenga 2550.00)
Biswanath	8559	6670	4419	19648	(Gohpur 2889), (Halem 16247), (Naduar RC part 0), (Biswanath 512)	1379.50	(Gohpur 536.00), (Halem 571.00), (Naduar RC part 22.50), (Biswanath 250.00)
Bongaigaon	8316	6675	4218	19209	(Manikpur 12360), (Srijangram 0), (Boitamari 6849)	321.00	(Manikpur 321.00), (Srijangram 0.00), (Boitamari 0.00)
Cachar	55541	51692	38589	145822	(Katigorah 87108), (Silchar 28390), (Lakhipur 2925), (Sonai 25602), (Udharbond 1797)	0.00	(Katigorah 0.00), (Silchar 0.00), (Lakhipur 0.00), (Sonai 0.00), (Udharbond 0.00)
Chirang	4168	3223	2745	10136	(Sidli 599), (Bijni 6823), (Bengtal 2714)	3322.20	(Sidli 368.50), (Bijni 2922.50), (Bengtal 31.20)
Darrang	165089	145177	83703	393969	(Mangaldoi 125007), (Dalgao 123940), (Sipajhar 58537), (Patharighat 86485)	8380.00	(Mangaldoi 2328.00), (Dalgao 3795.50), (Sipajhar 256.50), (Patharighat 2000.00)
Dhemaji	16990	15547	8436	40973	(Sissiborgaon 11196), (Jonai 9126), (Gogamukh 17117), (Dhemaji 3534)	7175.50	(Sissiborgaon 730.00), (Jonai 5941.50), (Gogamukh 467.00), (Dhemaji 37.00)
Dhubri	46720	37962	21884	106566	(Dhubri 0), (Gauripur 0), (South Salmara Part 96013), (Chapar 570), (Athani 1695), (Bilasipara 7422), (Golakganj 866), (Agamoni 0)	8656.83	(Dhubri 564.00), (Gauripur 535.60), (South Salmara Part 2394.00), (Chapar 1018.20), (Athani 2289.03), (Bilasipara 0.00), (Golakganj 962.50), (Agamoni 893.50)
Dibrugarh	2870	2204	1593	6667	(Chabua 6667)	5.60	(Chabua 5.60)
Goalpara	129415	96748	40105	266268	(Balijana 98319), (Lakhipur 161317), (Matia 6632), (Rongjuli 0)	3630.50	(Balijana 762.50), (Lakhipur 2227.00), (Matia 614.00), (Rongjuli 27.00)
Golaghat	2537	1911	691	5139	(Dergaon 33), (Bokakhat 5106), (Khumtai 0)	57.00	(Dergaon 0.00), (Bokakhat 31.00), (Khumtai 26.00)
Hailakandi	1496	1024	407	2927	(Hailakandi 1300), (Lala 550), (Katlicherra 145), (Algapur 932)	25.00	(Hailakandi 0.00), (Lala 0.00), (Katlicherra 0.00), (Algapur 25.00)
Hojai	54276	41359	13111	108746	(Lanka 12494), (Hojai 68874), (Doboka 27378)	2785.00	(Lanka 815.00), (Hojai 1534.00), (Doboka 436.00)
Jorhat	174	116	102	392	(Jorhat East 321), (Teok 71)	0.00	(Jorhat East 0.00), (Teok 0.00)
Kamrup	110225	95076	49968	255269	(Rangia 76850), (Goroimari 0), (Kayan 38122), (Chamaria 0), (Chaygaon 0), (Kamalpur 27382), (Palashbari 0), (Hajo 101164), (North Ghy 11751)	4535.40	(Rangia 680.00), (Goroimari 559.00), (Kayan 358.00), (Chamaria 92.50), (Chaygaon 144.00), (Kamalpur 468.90), (Palashbari 305.50), (Hajo 1787.00), (North Ghy 140.50)

Camps / Centres Opened	Bajali	66	47(Sarupeta 9, Bajali 38)		19(Sarupeta 1, Bajali 18)			
	Baksa	22	6(Barama 3, Baska 3, Barnagar RC part 0)		16(Barama 1, Baska 0, Barnagar RC part 15)			
	Barpeta	94	82(Barpeta 33, Baghbar 4, Sarthebari 13, Chenga 32)		12(Barpeta 0, Baghbar 0, Sarthebari 8, Chenga 4)			
	Bongaigaon	66	32(Manikpur 3, Boitamari 3, Srijangram 26)		34(Manikpur 5, Boitamari 2, Srijangram 27)			
	Cachar	107	88(Katigorah 17, Silchar 57, Lakhipur 6, Sonai 7, Udharbond 1)		19(Katigorah 0, Silchar 0, Lakhipur 0, Sonai 19, Udharbond 0)			
	Chirang	12	12(Bengtal 1, Bijni 11)		0(Bengtal 0, Bijni 0)			
	Darrang	30	19(Mangaldoi 9, Dalgao 1, Sipajhar 4, Patharighat 5)		11(Mangaldoi 0, Dalgao 0, Sipajhar 0, Patharighat 11)			
	Dhemaji	10	0(Sissiborgaon 0, Dhemaji 0, Jonai 0, Gogamukh 0)		10(Sissiborgaon 2, Dhemaji 1, Jonai 3, Gogamukh 4)			
	Dhubri	43	43(Chapar 3, Athani 4, Bilasipara 35, Golakganj 1)		0(Chapar 0, Athani 0, Bilasipara 0, Golakganj 0)			
	Dibrugarh	3	0(Chabua 0)		3(Chabua 3)			
	Dima-Hasao	29	25(Haflong 25)		4(Haflong 4)			
	Goalpara	100	59(Balijana 26, Lakhipur 30, Matia 3)		41(Balijana 11, Lakhipur 30, Matia 0)			
	Hailakandi	16	8(Hailakandi 5, Algapur 3, Katlicherra 0, Lala 0)		8(Hailakandi 5, Algapur 0, Katlicherra 1, Lala 2)			
	Hojai	61	47(Hojai 33, Doboka 14)		14(Hojai 0, Doboka 14)			
	Kamrup	53	26(Rangia 9, Hajo 3, North Ghy 4, Kamalpur 10, Kayan 0)		27(Rangia 1, Hajo 0, North Ghy 11, Kamalpur 10, Kayan 5)			
	Kamrup (M)	6	2(Guwahati 2)		4(Guwahati 4)			
	Karbi Anglong West	6	0(Donkamokam 0)		6(Donkamokam 6)			
	Karimganj	73	30(Badarpur 10, Patherkandi 1, Karimganj 19, Nilambazar 0, RK Nagar 0)		43(Badarpur 8, Patherkandi 4, Karimganj 0, Nilambazar 6, RK Nagar 25)			
	Kokrajhar	40	16(Gossaigaon 2, Bagribari 9, Kokrajhar 3, Dotma 2, Bhawraguri 0)		24(Gossaigaon 0, Bagribari 4, Kokrajhar 0, Dotma 17, Bhawraguri 3)			
	Lakhimpur	12	0(North Lakhimpur 0, Dhakuakhana 0, Bihpuria 0, Nowboicha 0)		12(North Lakhimpur 3, Dhakuakhana 1, Bihpuria 2, Nowboicha 6)			
	Nagaon	33	33(Kampur 17, Raha 5, Nagaon 11)		0(Kampur 0, Raha 0, Nagaon 0)			
	Nalbari	120	111(Ghograpar 3, Tihu 20, Banekuchi 17, Paschim Nalbari 21, Barbhag 20, Nalbari 30)		9(Ghograpar 5, Tihu 0, Banekuchi 0, Paschim Nalbari 0, Barbhag 0, Nalbari 4)			
	Sivasagar	7	0(Sivsagar 0)		7(Sivsagar 7)			
	Sonitpur	26	2(Dhekiajuli 1, Chariduar 1, Thelamara 0, Tezpur 0)		24(Dhekiajuli 2, Chariduar 0, Thelamara 17, Tezpur 5)			
	Tamulpur	42	22(Goreswar 8, Tamulpur 14)		20(Goreswar 9, Tamulpur 11)			
	Tinsukia	10	4(Doomdooma 4, Tinsukia 0)		6(Doomdooma 4, Tinsukia 2)			
	Udalguri	60	30(Udalguri 10, Harisinga 5, Kalaigaon 6, Mazbat 9, Khairabari 0)		30(Udalguri 22, Harisinga 4, Kalaigaon 0, Mazbat 0, Khairabari 4)			
	Total	1147	744		403			
Inmates In Relief Camps	District	Total	Revenue Circlewise	Male	Female	Children	Pregnant / Lactating Mother	Person with Disability
	Bajali	6439	(Sarupeta 1662), (Bajali 4777)	2718	2983	628	93	17
	Baksa	681	(Baganpara 0), (Barnagar RC part 0), (Jalah 0), (Barama 305), (Baska 376)	293	289	91	8	0
	Barpeta	13178	(Barpeta 7253), (Kalgachia 0), (Sarthebari 2706), (Barnagar 0), (Chenga 1604), (Baghbar 1615)	5528	5021	2494	116	19
	Bongaigaon	8367	(Boitamari 586), (Srijangram 7021), (Manikpur 760)	3915	3358	1012	82	0
	Cachar	13259	(Katigorah 1962), (Silchar 10468), (Lakhipur 108), (Sonai 677), (Udharbond 44)	5570	4878	2809	0	2
	Chirang	3384	(Sidli 0), (Bengtal 224), (Bijni 3160)	1623	1197	546	18	0

	Darrang	6777	(Mangaldoi 4474), (Dalgaon 1670), (Sipajhar 0), (Patharighat 633)			2495	2330	1924	28	0
	Dhubri	8234	(Dhubri 0), (Gauripur 0), (South Salmara Part 0), (Athani 597), (Bilasipara 7422), (Agamoni 0), (Chapar 149), (Golakganj 66)			2366	3469	2379	20	0
	Dima-Hasao	1628	(Haflong 1628)			583	620	369	55	1
	Goalpara	16754	(Balijana 6962), (Lakhipur 9208), (Matia 584), (Rongjuli 0)			7529	5782	3264	148	31
	Hailakandi	1323	(Katlicherra 0), (Lala 0), (Hailakandi 772), (Algapur 551)			554	412	357	0	0
	Hojai	39405	(Lanka 0), (Hojai 35986), (Doboka 3419)			20534	17781	1080	8	2
	Kamrup	6059	(Goroimari 0), (Kayan 0), (Palashbari 0), (Chamaria 0), (Chaygaon 0), (Kamalpur 2454), (Rangia 2015), (Hajo 1060), (North Ghy 530)			2928	1913	1200	17	1
	Kamrup (M)	42	(Chandrapur 0), (Dispur 0), (Sonapur 0), (Guwahati 42)			25	10	7	0	0
	Karimganj	10304	(Nilambazar 0), (RK Nagar 0), (Badarpur 959), (Patherkandi 42), (Karimganj 9303)			4162	4096	2045	1	0
	Kokrajhar	3416	(Bhawraguri 0), (Gossaigaon 542), (Bagribari 2125), (Kokrajhar 483), (Dotma 266)			1267	1169	953	23	4
	Nagaon	8715	(Kaliabor 0), (Samaguri 0), (Kampur 4021), (Raha 296), (Nagaon 4398)			3362	3056	2263	31	3
	Nalbari	29965	(Tihu 7562), (Banekuchi 3645), (Paschim Nalbari 10914), (Barkhetri 0), (Barbhag 1746), (Nalbari 5500), (Ghograpar 598)			13993	11542	3918	467	45
	Sonitpur	617	(Dhekiajuli 500), (Chariduar 117), (Naduar 0), (Thelamara 0), (Tezpur 0)			221	252	138	6	0
	Tamulpur	2790	(Goreswar 1207), (Tamulpur 1583)			813	797	1156	24	0
	Tinsukia	1223	(Doomdooma 1223)			540	400	263	20	0
	Udalguri	3864	(Khairabari 0), (Mazbat 412), (Udalguri 1689), (Harisinga 744), (Kalaigaon 1019)			1629	1290	826	118	1
	Total	186424				82648	72645	29722	1283	126
Human Lives Lost - Confirmed	District	Total	Male	Female	Children	Revenue Circlewise				
	Bajali	1	1	0	0	(Bajali 1), (Sarupeta 0)				
	Barpeta	2	1	0	1	(Baghbar 0), (Barnagar 0), (Barpeta 0), (Chenga 1), (Kalgachia 0), (Sarthebari 1)				
	Cachar	3	2	0	1	(Katigorah 0), (Lakhipur 0), (Silchar 3), (Sonai 0), (Udharbond 0)				
	Kamrup	1	1	0	0	(Chamaria 0), (Chaygaon 0), (Goroimari 0), (Hajo 1), (Kamalpur 0), (Kayan 0), (North Ghy 0), (Palashbari 0), (Rangia 0)				
	Karimganj	1	1	0	0	(Badarpur 0), (Karimganj 0), (Nilambazar 1), (Patherkandi 0), (RK Nagar 0)				
	Udalguri	1	0	0	1	(Harisinga 1), (Kalaigaon 0), (Khairabari 0), (Mazbat 0), (Udalguri 0)				
	Total	9	6	0	3					
Human Lives Lost Confirmed - Death Type	District	Total	Flood Death	General Drownin g (Non Flood)	Landslide					

	Bajali	1	1	0	0					
	Barpeta	2	2	0	0					
	Cachar	3	0	0	3					
	Kamrup	1	1	0	0					
	Karimganj	1	1	0	0					
	Udalguri	1	1	0	0					
	Total	9	6	0	3					
Human Lives Lost - Missing	District	Total	Male	Female	Children	Details				
	Cachar	1	1	0	0	(Katigorah 0), (Lakhipur 0), (Silchar 0), (Sonai 1), (Udharbond 0)				
	Dibrugarh	4	4	0	0	(Chabua 4)				
	Hojai	1	1	0	0	(Doboka 1), (Hojai 0), (Lanka 0)				
	Tamulpur	1	1	0	0	(Goreswar 0), (Tamulpur 1)				
	Udalguri	1	1	0	0	(Harisinga 0), (Kalaigaon 0), (Khairabari 0), (Mazbat 0), (Udalguri 1)				
	Total	8	8	0	0					
Human Lives Lost Missing - Type	District	Total	Flood	Non Flood						
	Cachar	1	1	0						
	Dibrugarh	4	4	0						
	Hojai	1	1	0						
	Tamulpur	1	1	0						
	Udalguri	1	1	0						
	Total	8	8	0						
Animals Affected	District	Total	Big	Small	Poultry					
	Bajali	97784	55857	28477	13450					
	Baksa	26641	12461	9880	4300					
	Barpeta	826509	358676	163327	304506					
	Biswanath	1174	884	290	0					
	Cachar	15080	12450	2630	0					
	Chirang	9839	4360	2588	2891					
	Darrang	218987	129201	61201	28585					
	Dhemaji	60050	24387	13945	21718					
	Dhubri	336739	213779	122960	0					
	Dibrugarh	1754	1477	277	0					
	Goalpara	56618	35565	12266	8787					
	Golaghat	450	380	70	0					
	Hailakandi	1771	690	261	820					
	Hojai	71962	35185	19927	16850					
	Kamrup	379431	219160	41476	118795					
	Kamrup (M)	3710	2450	1260	0					
	Kokrajhar	36656	12967	5689	18000					
	Lakhimpur	44537	28318	12066	4153					
	Morigaon	38000	5500	2500	30000					
	Nagaon	57189	30563	17288	9338					
	Nalbari	303964	132024	109180	62760					
	Sonitpur	31793	16482	15101	210					
	South Salmara	271672	104987	74164	92521					
	Tamulpur	21971	10577	10119	1275					
	Udalguri	13749	6662	6265	822					
	Total	2928030	1455042	733207	739781					
Animals Washed Away	District	Total	Big	Small	Poultry					
	Chirang	66	0	5	61					
	Kamrup	743	41	75	627					
	Nalbari	1	1	0	0					
	Sonitpur	2	0	2	0					
	Total	812	42	82	688					
Houses Damaged	District	Fully Kuccha	Fully Pukka	Fully Total	Partially Kuccha	Partially Pukka	Partially Total	Others Huts	Others Cattle Shed	Others Total
	Barpeta	2	0	2	6	4	10	0	12	12

			0.000000)
	Darrang	1	
	Hailakandi	1	Algapur - Dyke along L/B of River Katakhal from Mohanpur Ch.- 4495 to 4520 village Mohanpur Part-III Under Algapur Revenue Circle on dtd. 19.06.2022 As per report of Water Resources some miscreant has cut the dyke. (Long - 92.635988, Lat - 24.753855)
	Sonitpur	1	Tezpur - emabankment at Bhojkhowa village Bhojkhowa village Dated: 19/06/2022. an embankment on the bank of Marabharali river at Bhojkhowa Gaon constructed by PNRD Dept. by Bhumuraguri Panchayat was damaged at around 2:00 AM. Length 20 m (approx) (Long - 92.831050, Lat - 26.626220)
	Tamulpur	1	Goreswar - Halongbari Puthimari Embankment Village Halongbari Dated 18/06/2022. Left bank embankment breached at Village Halongbari approximately damage 100 m (Long - 91.676329, Lat - 26.548262)
	Udalguri	1	Kalaigaon - Embankment from Parimal Das's house to Sunil Das's house Gerua The embankment has breached on 19/06/2022 due to heavy current of flood water from river Noa in the R/B of the river covering a length of 70 feet and breadth of 12 feet. (Long - 91.981011, Lat - 26.616542)
	Total	7	
Infrastructure Damaged - Embankment Affected	District	Number	Details
	Barpeta	1	Barnagar - RB Embankment at Khatakuchi Khatakuchi As per report received from J.E., WR Dept the embankment was damaged due to rising water of Beki and heavy rainfall. But it is repaired now. Date-18-6-2022 (Long - 26.429720, Lat - 90.892500)
	Darrang	5	
	Dhemaji	4	Dhemaji - Moridhal Dyke from Sarukacharigaon to Sissikalghar Maridhal Dyke from Sarukacharigaon to Sissikalghar Yesterday on 18/06/2022, Slump Down of Country side slope of the embankment occurred at Maridhal Dyke from Sarukachari gaon to Sissikalghar, Inbetween ch.11020m to ch.11150m. (Long - 0.000000, Lat - 0.000000), Gogamukh - Kumatiya Left Bank From NH-15 to Gurathali Chapori In between Ch.10000m to Ch.10400m. Severe boiling due to damage of country side slope on 18/06/2022 (Long - 0.000000, Lat - 0.000000), Kumatiya Right Bank Nepalibasti to Gurathali Chapori. In between Ch.12600m to Ch.13590m. Severe boiling due to damage of country side slope on 18/06/2022 (Long - 0.000000, Lat - 0.000000), Kumatiya Right Bank Nepalibasti to Gurathali Chapori. In between Ch.15200m to Ch.16000m. Severe boiling due to damage of country side slope on 18/06/2022 (Long - 0.000000, Lat - 0.000000)
	Kamrup	2	Rangia - Balagaon Embankment Rangia Vill- Balagaon Balagaon Embankment over topped at many locations as per report of AE, WR, Rangia on 18.6.2022 (Long - 91.614617, Lat - 26.463481), Rangia Town Protection Embankment Vill- Tatarkuchi Rangia Town protection Embankment over topped at many locations as per report of AE, WR, Rangia on 18.6.2022 (Long - 91.476083, Lat - 26.476083)
	Karimganj	1	Nilambazar - Bairagichak area Nilambazar As reported by Water Resource dated on 19/02/2022 around 160 mt of bank damages observed near the left bank embankment of river Longai from Patharkandi to Nilambazar. (Long - 92.344125, Lat - 24.741953)
	Total	13	
Infrastructure Damaged - Road	District	Number	Details
	Baksa	3	Barama - Barama-Dhamdhama Road At village Alagar Deulguri Chowk Road completely damaged at length of 10 m approx. 18-06-2022 (Long - 91.376628, Lat - 26.526894), Baganpara - Thakursupa LP school to uzirghat road culvert. Garbhitor The road on dated 15/06/2022 as informed by PWD has been damaged approx 4m due to flash flood. (Long - 91.487282, Lat - 26.573140), Garbhitor idghah maidan Garbhitor On dated 15/06/2022 as informed by PWD has been damaged approx 40m due to flash flood. (Long - 91.482781, Lat - 26.570265)
	Barpeta	26	Baghbar - FA Ahmed Medical college to Medhitory road Jati Gaon Medhitory Date of Damage: 16.06.2022 Damage Type: Both side Shoulder Damaged. Reported By: Pwd Deptt. (Long - 90.960972, Lat - 26.313267), Kalgachia - Various 20 nos of road (details mentioned in Remarks) Various places within the Circle (details mentioned in Remarks) As per report received from PWD department on 19/06/2022, total 20 nos of Roads are affected and damaged, they are - 1. Haldia village road has submerged and road surface damaged from Ch. 00.00 m to Ch. 800.00 m (Length = 800.00 m, Avg submerged height = 0.70 cm, location coordinate = 26.403573, 90.85168) 2. MonakosaAmtola road has submerged and road surface damaged from Ch. 1500.00 m to 1700.00 m. (Length = 200.00 m, submerged height = 0.30 cm, and location coordinate = 26.377592, 90.863063) 3. Dewkura to Lachanga road(PMGSY pkg no. AS-01-89) has submerged and surface damaged from Ch, 1300.00 m to 2500.00 m. (Length = 1200.00 m, Avg submerged height = 70 cm, location coordinate = 26.393582, 90.864336) 4. KalgachiaNittalkoran Madrassa to MajjarChor road has submerged and surface damaged from Ch. 300.00 m to Ch. 450.00 m and from Ch. 600.00 m to Ch. 1200.00 m. (Length = 700.00 m Avg.

		submerged height = 0.90 cm and location coordinate = 26.356478, 90.864683) 5. Nabajyoti college approach road to Dakshin Gunialguri Road formation washed away from Ch. 2350.00 m to Ch. 2365.00 m (Length = 15.00 m and width = 3.50 m Avg Height = 2.50 m location coordinate = 26.351053, 90.899336) 6. Kalgachia to kararkur via amguri road (PMGSY pkg no. AS-01-88) has submerged and surface damaged from Ch. 100.00 m to Ch. 250.00 m (Length = 150.00 m Submerged Height = 60 cm and location coordinate = 26.355418, 90.880886) 7. Monakosa Dimapur road surface damaged from Ch. 00.00 m to 600.00 m (Length = 600.00 m and width = 3.50 m and location coordinate = 26.37745, 90.86243) 8. Kalgachia IB approach road Paschim Amguri road submerged from Ch. 400.00 m to 1300.00 m (Length = 800.00 m and Avg. submerged Height = 1.00 m and location coordinate = 26.35900, 90.870745) 9. One Hume Pipe culvert damaged at Ch. 3.900 m and road Side berm damaged at 2nd Km, 3rd Km and 4th Km of Kalgachia to Bamuntary road. (length = 400.00 m, Avg. Width = 1.80 m and Avg. Height = 1.80 m and location coordinate = 26.332438, 90.859593) 10. Road surface damaged and road side berm damaged of Sorbhog to Kalgachia road at Ch. 7th Km, 9th Km, 10th km, and 11th Km (Length = 500.00 m, Width = 2.00 m and location coordinate = 26°23'21.16"N, 90°51'50.55"E) 11. Kalgachia Nadiapara Road formation damaged at 2nd Km and 3rd Km. (Length = 250.00, width = 2.00 m and location Coordinate = 26.358805, 90.856663) 12. Kalgachia Nadiapara road to Dakshin Gunialguri road surface damaged from Ch. 0.00 m to 400.00 m. (Length = 400.00 m, width = 3.00 m and location coordinate = 26.358178, 90.858828) 13. Haldia pather Mill ghar to Bilortari road submerged and surface damaged from Ch. 00.00 m to 1900.00 m. (Length = 1900.00 m, width = 3.00 m, Submerged Height = 0.800 m and location Coordinate = 26°24'5.00"N, 90°52'1.60"E) 14. Haldia pather Mill ghar to Chakla PMGSY road surface damaged from Ch. 00.00 m to 400.00 m. (Length = 400.00 m, width = 3.00 m and location Coordinate = 26°24'6.59"N, 90°51'26.44"E) 15. Barbhita Sewrachara road (PMGSY Pkg. No. AS-01-58) has submerged and road surface damaged at 1st Km, 2nd Km, 4th Km, and 5th Km and 8th km. and RCC Bridge No. 4/1 approach damaged. (Length = 2500.00 m, Avg. Submerged Height = 0.900 m and location coordinate = 26.263617, 90.787762) 16. SPT Bridge No. 2/1 bridge and approach damaged at Rampur Boroitoli road. (Bridge Approach Length = 60.00 m, Width = 1.80 m, Height = 2.50 m and location coordinate = 26.274437, 90.823299) 17. Kadong Hatchara road Surface damaged at Ch. 2nd Km, 3rd Km, 4th Km and RCC bridge No. 1/1 Approach Damaged. (Length = 3000.00 m, width = 3.00 m and location coordinate = 26.294013, 90.819317) 18. Chenimari Moinbori Road Surface and side berm damaged at 1st Km (damaged Length = 200.00 m) and Road submerged 4th Km, 5th Km. (Submerged length = 600.00 m, Avg. Height = 80.00 cm and location Coordinate = 26.283618, 90.782678) 19. Barbhita Mahia Road (PMGSY Package No. AS-01-89) road Submerged from Ch. 1300.00 m to 1700.00 m (Length = 400.00 m and Submerged Height = 1.00 m and location coordinate = 26.277271, 90.767375) 20. Kandulia to Garalipam PMGSY road (PKG No. AS-01-59) RCC bridge No. 2/1 approach damaged (Length = 150.00 m, Width = 1.80 m and height = 2.00 m) and road submerged at 2nd km (Submerged length = 200.00 m, Avg. Depth = 0.80 m and location coordinate = 26.286593, 90.783173). (Long - 0.000000, Lat - 0.000000), Barnagar - Santoradaha Deka Thakur Than to Ahompathar LP School Road Santoradaha & Ahompathar As per report received from Ex. Engineer, PWD Sorbhog & Jania Terri Road Divn, Barpetaroad on 18/06/2022 surface damage occurred. (Long - 0.000000, Lat - 0.000000), Noontola village Road Noontola As per report received from Ex. Engineer, PWD Sorbhog & Jania Terri Road Divn, Barpetaroad on 18/06/2022 surface damage occurred. (Long - 90.860235, Lat - 26.505140), Noontola LP School to PMGSY Road Noontola As per report received from Ex. Engineer, PWD Sorbhog & Jania Terri Road Divn, Barpetaroad on 18/06/2022 surface damage occurred. (Long - 90.860102, Lat - 26.501074), Noontola LP School to Rampur Shiv Mandir Noontola As per report received from Ex. Engineer, PWD Sorbhog & Jania Terri Road Divn, Barpetaroad on 18/06/2022 surface damage occurred. (Long - 90.860202, Lat - 26.500999), Pachim Rampur Shiv Mandir to PMGSY Road Rampur As per report received from Ex. Engineer, PWD Sorbhog & Jania Terri Road Divn, Barpetaroad on 18/06/2022 surface damage occurred. (Long - 90.809604, Lat - 26.494531)
Cachar	4	Lakhipur - NH 53/37 Lobonkhal Jiribam Road NH 53/37 Lobonkhal Jiribam Road Length 100 M, As reported by EE PWD NH Division, on dated 19.06.2022. (Long - 0.000000, Lat - 0.000000), NH 37 Pallorbond To Lakhipur NH 37 Pallorbond To Lakhipur at Ch 155 As reported by EE PWD Rural Road Division Lakhipur, on dated 19.06.2022. (Long - 24817278.000000, Lat - 9293961.000000), NH 37 Kunjolaki To Lakhipur NH 37 Kunjolaki To Lakhipur Length 12.9 M As reported by EE PWD Rural Road Division Lakhipur, on dated 19.06.2022. (Long - 93021013.000000, Lat - 24801691.000000), Lakhipur Swashan Road Swashan Road Lakhipur Swashan Road Length 100 M As reported by EE PWD Rural Road Division Lakhipur, on dated 19.06.2022. (Long - 9300085.000000, Lat - 24800638.000000)
Chirang	1	Sidli - Hagra bridge to Birhangaon road Bherbery As reported by PWD(R&B) Chirang, Hagra bridge to Birhangaon road surface and side shoulders damaged (Ch.300m to 1400m) on 18-06-2022, Damaged details Length-900m, Breadth-4m, depth- 0.30m (Long - 90.559842, Lat - 26.557211)

Assam Daily Flood Report as on 20-06-2022 at 4:00 PM

Particulars	Situation as on 20-06-2022 (in last 24 hours)		
Rivers flowing above Danger Level (as per CWC bulletin issued at 8 AM)	Rivers flowing above danger level	Beki (Road Bridge), Pagladiya (Nt Road Crossing), Puthimari (Nh Road Crossing), Kopili (Dharamtul), Brahmaputra (Dhubri; Goalpara; Guwahati; Tezpur; Neamatighat)	
	Rivers flowing above highest flood level	Kopili (Kampur)	
District Affected	No. of Districts Affected	Name of Flood Affected Districts	Name of Urban Flood Districts
	32	Bajali, Baksa, Barpeta, Biswanath, Bongaigaon, Cachar, Chirang, Darrang, Dhemaji, Dhubri, Dibrugarh, Dima-Hasao, Goalpara, Golaghat, Hailakandi, Hojai, Kamrup, Kamrup (M), Karbi Anglong West, Karimganj, Kokrajhar, Lakhimpur, Majuli, Morigaon, Nagaon, Nalbari, Sivasagar, Sonitpur, South Salmara, Tamulpur, Tinsukia, Udalguri	Barpeta, Cachar, Darrang, Goalpara, Kamrup (M), Karimganj
No. Of Revenue Circles Affected	125		
Name Of Revenue Circles Affected	District	Total	Revenue Circle
	Bajali	2	Sarupeta, Bajali
	Baksa	5	Baska, Baganpara, Barama, Barnagar RC part, Jalah
	Barpeta	6	Baghbar, Barpeta, Sarthebari, Barnagar, Kalgachia, Chenga
	Biswanath	4	Gohpur, Naduar RC part, Biswanath, Halem
	Bongaigaon	3	Boitamari, Manikpur, Srijangram
	Cachar	5	Silchar, Sonai, Udharbond, Katigorah, Lakhimpur
	Chirang	3	Bijni, Sidli, Bengtal
	Darrang	4	Mangaldoi, Patharighat, Dalgaon, Sipajhar
	Dhemaji	4	Dhemaji, Sissiborgaon, Jonai, Gogamukh
	Dhubri	8	Agamoni, Chapar, South Salmara Part, Athani, Dhubri, Gauripur, Golakganj, Bilasipara
	Dibrugarh	1	Chabua
	Dima-Hasao	1	Haflong
	Goalpara	4	Balijana, Matia, Rongjuli, Lakhimpur
	Golaghat	2	Khumtai, Bokakhat
	Hailakandi	4	Lala, Algapur, Hailakandi, Katlicherra
	Hojai	3	Lanka, Doboka, Hojai
	Kamrup	9	Rangia, Kayan, Chamaria, Chaygaon, Kamalpur, Goroimari, Palashbari, Hajo, North Ghy
	Kamrup (M)	5	Guwahati, Sonapur, Chandrapur, Azara, Dispur
	Karbi Anglong West	1	Donkamokam

	Karimganj	5	Karimganj, RK Nagar, Nilambazar, Badarpur, Patherkandi
	Kokrajhar	2	Bhawraguri, Bagribari
	Lakhimpur	6	Bihpuria, Dhakuakhana, Kadam, Nowboicha, Subansiri, North Lakhimpur
	Majuli	2	Ujani Majuli, Majuli
	Morigaon	4	Morigaon, Bhuragaon, Laharighat, Mayong
	Nagaon	7	Nagaon, Raha, Samaguri, Kampur, Rupahi, Dhing, Kaliabor
	Nalbari	7	Ghograpar, Tihu, Paschim Nalbari, Banekuchi, Barkhetri, Barbhag, Nalbari
	Sivasagar	2	Sivsagar, Demow
	Sonitpur	5	Chariduar, Thelamara, Naduar, Dhekiajuli, Tezpur
	South Salmara	2	South Salmara, Mankachar
	Tamulpur	2	Tamulpur, Goreswar
	Tinsukia	2	Doomdooma, Tinsukia
	Udalguri	5	Udalguri, Khairabari, Mazbat, Kalaigaon, Harisinga
	Total	125	
Villages Affected	District	Total	Revenue Circle
	Bajali	173	(Sarupeta 78), (Bajali 95)
	Baksa	59	(Baska 9), (Baganpara 3), (Barama 8), (Barnagar RC part 18), (Jalah 21)
	Barpeta	611	(Baghbar 141), (Barpeta 145), (Sarthebari 135), (Barnagar 21), (Kalgachia 100), (Chenga 69)
	Biswanath	42	(Gohpur 4), (Naduar RC part 3), (Biswanath 7), (Halem 28)
	Bongaigaon	115	(Boitamari 22), (Manikpur 2), (Srijangram 91)
	Cachar	449	(Silchar 98), (Sonai 76), (Udharbond 36), (Katigora 154), (Lakhimpur 85)
	Chirang	17	(Bijni 14), (Bengtal 3)
	Darrang	459	(Mangaldoi 165), (Patharighat 79), (Dalgaon 142), (Sipajhar 73)
	Dhemaji	86	(Dhemaji 5), (Sissiborgaon 28), (Jonai 49), (Gogamukh 4)
	Dhubri	671	(Agamoni 15), (Chapar 1), (South Salmara Part 164), (Athani 120), (Dhubri 58), (Gauripur 50), (Golakganj 62), (Bilasipara 201)
	Dibrugarh	1	(Chabua 1)
	Dima-Hasao	5	(Haflong 5)
	Goalpara	349	(Balijana 128), (Matia 76), (Rongjuli 8), (Lakhimpur 137)
	Golaghat	38	(Khumtai 4), (Bokakhat 34)
	Hailakandi	61	(Lala 9), (Algapur 22), (Hailakandi 27), (Katlicherra 3)
	Hojai	92	(Lanka 16), (Doboka 35), (Hojai 41)
	Kamrup	361	(Rangia 86), (Kayan 28), (Chamarua 22), (Chaygaon 5), (Kamalpur 100), (Goroimari 37), (Palashbari 15), (Hajo 37), (North Ghy 31)
	Kamrup (M)	30	(Guwahati 6), (Sonapur 8), (Chandrapur 9), (Azara 2), (Dispur 5)
	Karbi Anglong West	5	(Donkamokam 5)
	Karimganj	305	(Karimganj 21), (RK Nagar 97), (Nilambazar 127), (Badarpur 24), (Patherkandi 36)
	Kokrajhar	106	(Bagribari 106)
	Lakhimpur	126	(Bihpuria 18), (Dhakuakhana 7), (Kadam 12), (Narayanpur 12), (Nowboicha 34), (Subansiri 4), (North Lakhimpur 39)
	Majuli	47	(Ujani Majuli 17), (Majuli 30)
	Morigaon	230	(Morigaon 71), (Bhuragaon 27), (Laharighat 2), (Mayong 130)
	Nagaon	269	(Nagaon 44), (Raha 87), (Samaguri 7), (Kampur 109), (Rupahi 5), (Dhing 15), (Kaliabor 2)
	Nalbari	288	(Ghograpar 39), (Tihu 27), (Paschim Nalbari 24), (Banekuchi 16), (Barkhetri 69)

			), (Barbhag 37), (Nalbari 76)					
	Sivasagar	13	(Sivsagar 9), (Demow 4)					
	Sonitpur	167	(Chariduar 32), (Thelamara 33), (Naduar 4), (Dhekiajuli 41), (Tezpur 57)					
	South Salmara	75	(South Salmara 37), (Mankachar 38)					
	Tamulpur	37	(Tamulpur 9), (Goreswar 28)					
	Tinsukia	27	(Doomdooma 18), (Tinsukia 9)					
	Udalguri	110	(Udalguri 28), (Khairabari 13), (Mazbat 32), (Kalaigaon 32), (Harisinga 5)					
	Total	5424						
Population And Crop Area Affected	District	Male	Female	Children	Total Population	Population Details	Crop Area (in Hect.)	Crop Area Details
	Bajali	172115	135100	31300	338515	(Sarupeta 178515), (Bajali 160000)	490.00	(Sarupeta 490.00), (Bajali 0.00)
	Baksa	14650	12884	6216	33750	(Barnagar RC part 19682), (Baska 82), (Baganpara 1233), (Barama 252), (Jalah 12501)	668.33	(Barnagar RC part 410.00), (Baska 21.33), (Baganpara 12.00), (Barama 5.00), (Jalah 220.00)
	Barpeta	499536	470049	261136	1230721	(Baghbar 370497), (Barpeta 158760), (Sarthebari 335837), (Barnagar 12452), (Kalgachia 198692), (Chenga 154483)	28102.50	(Baghbar 18983.00), (Barpeta 875.00), (Sarthebari 2289.00), (Barnagar 1439.00), (Kalgachia 1823.50), (Chenga 2693.00)
	Biswanath	6366	5370	4816	16552	(Gohpur 668), (Naduar RC part 0), (Biswanath 138), (Halem 15746)	775.50	(Gohpur 212.00), (Naduar RC part 22.50), (Biswanath 0.00), (Halem 541.00)
	Bongaigaon	50545	46076	49810	146431	(Boitamari 12843), (Srijangram 130808), (Manikpur 2780)	2671.00	(Boitamari 0.00), (Srijangram 2445.00), (Manikpur 226.00)
	Cachar	80518	74620	52005	207143	(Silchar 42782), (Sonai 61300), (Udharbond 2724), (Katigora 87119), (Lakhimpur 13218)	15.00	(Silchar 0.00), (Sonai 15.00), (Udharbond 0.00), (Katigora 0.00), (Lakhimpur 0.00)
	Chirang	3417	2697	2099	8213	(Bijni 6129), (Sidli 0), (Bengtal 2084)	2444.90	(Bijni 2444.90), (Sidli 0.00), (Bengtal 0.00)
	Darrang	199377	168619	101245	469241	(Mangaldoi 125007), (Patharighat 77096), (Dalgaon 185900), (Sipajhar 81238)	9347.50	(Mangaldoi 2328.00), (Patharighat 2000.00), (Dalgaon 3795.50), (Sipajhar 1224.00)
	Dhemaji	14100	12058	8478	34636	(Sissiborgaon 12196), (Jonai 18295), (Gogamukh 1358), (Dhemaji 2787)	9709.50	(Sissiborgaon 885.00), (Jonai 8794.50), (Gogamukh 0.00), (Dhemaji 30.00)
	Dhubri	115788	93930	81481	291199	(Agamoni 430), (Chapar 690), (South Salmara Part 265395), (Athani	7617.33	(Agamoni 0.00), (Chapar 1018.20), (South Salmara Part 2394.00), (Athani

								589.36)
	Morigaon	32798	30504	20036	83338	(Morigaon 56587), (Bhuragaon 26751), (Mayong 0), (Laharighat 0)	10592.00	(Morigaon 770.00), (Bhuragaon 721.00), (Mayong 9000.00), (Laharighat 101.00)
	Nagaon	153567	141794	144774	440135	(Nagaon 44238), (Raha 130046), (Samaguri 5844), (Kampur 259500), (Rupahi 0), (Dhing 0), (Kaliabor 507)	15814.57	(Nagaon 152.00), (Raha 7047.57), (Samaguri 252.00), (Kampur 7835.00), (Rupahi 160.00), (Dhing 328.00), (Kaliabor 40.00)
	Nalbari	80711	70695	33032	184438	(Ghograpar 34928), (Tihu 30369), (Paschim Nalbari 48121), (Banekuchi 27760), (Barbhag 11500), (Nalbari 12500), (Barkhetri 19260)	6176.10	(Ghograpar 718.00), (Tihu 367.00), (Paschim Nalbari 554.00), (Banekuchi 111.00), (Barbhag 83.50), (Nalbari 338.10), (Barkhetri 4004.50)
	Sivasagar	2846	2752	694	6292	(Sivsagar 6292), (Demow 0)	56.00	(Sivsagar 40.00), (Demow 16.00)
	Sonitpur	27888	25581	27747	81216	(Naduar 0), (Chariduar 59814), (Thelamara 4954), (Dhekiajuli 12228), (Tezpur 4220)	3802.30	(Naduar 66.00), (Chariduar 0.00), (Thelamara 656.00), (Dhekiajuli 2347.70), (Tezpur 732.60)
	South Salmara	52511	47815	50827	151153	(South Salmara 139183), (Mankachar 11970)	405.00	(South Salmara 0.00), (Mankachar 405.00)
	Tamulpur	9535	9029	2015	20579	(Tamulpur 2558), (Goreswar 18021)	1710.00	(Tamulpur 400.00), (Goreswar 1310.00)
	Tinsukia	4199	3675	3008	10882	(Doomdooma 6361), (Tinsukia 4521)	1453.53	(Doomdooma 185.20), (Tinsukia 1268.33)
	Udalguri	11193	8221	6598	26012	(Udalguri 9515), (Khairabari 836), (Mazbat 382), (Kalaigaon 12606), (Harisinga 2673)	809.94	(Udalguri 0.00), (Khairabari 48.00), (Mazbat 475.44), (Kalaigaon 246.50), (Harisinga 40.00)
	Total	2019282	1709476	1043382	4772140		113485.37	
Relief Camps / Centres Opened	District	Total	Relief Camp			Relief Distribution Centres		
	Bajali	77	46(Sarupeta 9, Bajali 37)			31(Sarupeta 1, Bajali 30)		
	Baksa	13	5(Baska 1, Baganpara 1, Barama 3, Barnagar RC part 0)			8(Baska 1, Baganpara 2, Barama 0, Barnagar RC part 5)		
	Barpeta	112	96(Baghbar 5, Barpeta 39, Sarthebari 15, Chenga 37, Barnagar 0)			16(Baghbar 0, Barpeta 0, Sarthebari 6, Chenga 3, Barnagar 7)		
	Biswanath	3	0(Biswanath 0)			3(Biswanath 3)		
	Bongaigaon	32	30(Boitamari 2, Manikpur 2, Srijangram 26)			2(Boitamari 1, Manikpur 1, Srijangram 0)		
	Cachar	148	129(Silchar 58, Sonai 14, Udharbond 1, Katigorah 37, Lakhimpur 19)			19(Silchar 0, Sonai 6, Udharbond 0, Katigorah 9, Lakhimpur 4)		
	Chirang	14	12(Bijni 10, Bengtal 2)			2(Bijni 0, Bengtal 2)		
	Darrang	99	16(Mangaldoi 5, Patharighat 4, Dalgaon 1, Sipajhar 6)			83(Mangaldoi 55, Patharighat 8, Dalgaon 8, Sipajhar 12)		

	Dhemaji	6	0(Jonai 0, Gogamukh 0)		6(Jonai 4, Gogamukh 2)			
	Dhubri	37	37(Chapar 2, Athani 4, Dhubri 1, Golakganj 1, Bilasipara 29)		0(Chapar 0, Athani 0, Dhubri 0, Golakganj 0, Bilasipara 0)			
	Dima-Hasao	30	25(Haflong 25)		5(Haflong 5)			
	Goalpara	105	64(Balijana 28, Matia 6, Lakhipur 30)		41(Balijana 11, Matia 0, Lakhipur 30)			
	Golaghat	9	0(Bokakhat 0)		9(Bokakhat 9)			
	Hailakan di	30	5(Algapur 3, Katlicherra 2, Lala 0, Hailakandi 0)		25(Algapur 1, Katlicherra 3, Lala 13, Hailakandi 8)			
	Hojai	78	48(Doboka 14, Hojai 34, Lanka 0)		30(Doboka 19, Hojai 6, Lanka 5)			
	Kamrup	80	50(Rangia 18, Kayan 1, Kamalpur 17, Hajo 10, North Ghy 4)		30(Rangia 1, Kayan 4, Kamalpur 15, Hajo 6, North Ghy 4)			
	Kamrup (M)	5	2(Guwahati 2)		3(Guwahati 3)			
	Karbi Anglong West	4	0(Donkamokam 0)		4(Donkamokam 4)			
	Karimgan j	98	40(Karimganj 19, Badarpur 18, Patherkandi 3, RK Nagar 0, Nilambazar 0)		58(Karimganj 0, Badarpur 12, Patherkandi 8, RK Nagar 25, Nilambazar 13)			
	Lakhimp ur	27	0(Bihpuria 0, Dhakuakhana 0, Nowboicha 0, Subansiri 0, North Lakhimpur 0)		27(Bihpuria 11, Dhakuakhana 1, Nowboicha 4, Subansiri 6, North Lakhimpur 5)			
	Morigaon	20	0(Morigaon 0, Bhuragaon 0)		20(Morigaon 5, Bhuragaon 15)			
	Nagaon	127	50(Nagaon 22, Raha 11, Kampur 17, Samaguri 0)		77(Nagaon 25, Raha 39, Kampur 8, Samaguri 5)			
	Nalbari	107	105(Tihu 20, Paschim Nalbari 21, Banekuchi 14, Barkhetri 1, Barbhag 20, Nalbari 29, Ghograpar 0)		2(Tihu 0, Paschim Nalbari 0, Banekuchi 0, Barkhetri 0, Barbhag 0, Nalbari 1, Ghograpar 1)			
	Sonitpur	26	2(Chariduar 1, Dhekiajuli 1, Thelamara 0, Tezpur 0)		24(Chariduar 6, Dhekiajuli 3, Thelamara 4, Tezpur 11)			
	Tamulpur	52	22(Tamulpur 14, Goreswar 8)		30(Tamulpur 12, Goreswar 18)			
	Tinsukia	20	1(Doomdooma 1, Tinsukia 0)		19(Doomdooma 1, Tinsukia 18)			
Udalguri	66	25(Udalguri 10, Mazbat 7, Kalaigaon 3, Harisinga 5, Khairabari 0)		41(Udalguri 25, Mazbat 0, Kalaigaon 12, Harisinga 0, Khairabari 4)				
Total	1425	810		615				
Inmates In Relief Camps	District	Total	Revenue Circlewise	Male	Female	Children	Pregnant / Lactatin g Mother	Person with Disabili ty
	Bajali	5718	(Sarupeta 1702), (Bajali 4016)	2417	2644	571	77	9
	Baksa	277	(Barnagar RC part 0), (Jalah 0), (Baska 40), (Baganpara 148), (Barama 89)	98	133	44	2	0
	Barpeta	62477	(Barpeta 55933), (Sarthebari 2841), (Barnagar 0), (Kalgachia 0), (Chenga 1180), (Baghbar 2523)	15796	26614	19916	146	5
	Bongaiga on	8430	(Boitamari 656), (Srijangram 7021), (Manikpur 753)	3889	3419	1033	89	0
	Cachar	19433	(Silchar 10468), (Sonai 1823), (Udharbond 44), (Katigorah 4463), (Lakhipur 2635)	8364	7151	3915	1	2
	Chirang	3831	(Sidli 0), (Bijni 3090), (Bengtal 741)	1693	1382	691	60	5
	Darrang	5033	(Mangaldoi 1227), (Patharighat 572), (Dalgaon 1670), (Sipajhar 1564)	1870	1915	1214	29	5

	Dhubri	6990	(Agamoni 0), (Athani 596), (Dhubri 40), (Gauripur 0), (Bilasipara 6171), (Chapar 117), (Golakganj 66)			2168	2974	1828	20	0
	Dima-Hasao	1609	(Haflong 1609)			568	601	383	56	1
	Goalpara	19503	(Balijana 8622), (Matia 1673), (Rongjuli 0), (Lakhipur 9208)			8509	6709	4084	175	26
	Hailakan di	674	(Lala 0), (Hailakandi 0), (Algapur 429), (Katlicherra 245)			330	175	153	16	0
	Hojai	35383	(Lanka 0), (Hojai 31964), (Doboka 3419)			18894	15513	970	5	1
	Kamrup	8973	(Rangia 2419), (Chamaria 0), (Chaygaon 0), (Kamalpuri 2450), (Goroimari 0), (Palashbari 0), (Hajo 3387), (Kayan 163), (North Ghy 554)			3907	3216	1777	66	7
	Kamrup (M)	23	(Sonapur 0), (Chandrapur 0), (Azara 0), (Dispur 0), (Guwahati 23)			9	11	3	0	0
	Karimganj	10911	(RK Nagar 0), (Badarpur 1523), (Karimganj 9303), (Patherkandi 85)			4413	4361	2134	3	0
	Nagaon	12912	(Samaguri 0), (Rupahi 0), (Dhing 0), (Kaliabor 0), (Nagaon 7638), (Raha 1135), (Kampur 4139)			4820	4420	3550	110	12
	Nalbari	23200	(Ghograpar 0), (Tihu 3192), (Paschim Nalbari 10914), (Banekuchi 1763), (Barkhetri 85), (Barbhag 1746), (Nalbari 5500)			10422	9226	3245	284	23
	Sonitpur	287	(Chariduar 117), (Thelamara 0), (Dhekiajuli 170), (Tezpur 0)			112	108	61	6	0
	Tamulpur	2923	(Tamulpur 1512), (Goreswar 1411)			927	923	1073	0	0
	Tinsukia	54	(Tinsukia 0), (Doomdooma 54)			25	12	15	2	0
	Udalguri	3178	(Khairabari 0), (Mazbat 280), (Udalguri 1615), (Kalaigaon 540), (Harisinga 743)			1245	1246	592	95	0
	Total	231819				90476	92753	47252	1242	96
Human Lives Lost - Confirmed	District	Total	Male	Female	Children	Revenue Circlewise				
	Cachar	1	1	0	0	(Katigorah 0), (Lakhipur 0), (Silchar 0), (Sonai 1), (Udharbond 0)				
	Darrang	3	3	0	0	(Dalgao 1), (Mangaldoi 1), (Patharighat 0), (Sipajhar 1)				
	Dibrugarh	1	0	1	0	(Chabua 1)				
	Hailakan di	1	0	0	1	(Algapur 0), (Hailakandi 1), (Katlicherra 0), (Lala 0)				
	Hojai	1	1	0	0	(Doboka 0), (Hojai 1), (Lanka 0)				
	Kamrup	1	0	0	1	(Chamaria 0), (Chaygaon 0), (Goroimari 0), (Hajo 0), (Kamalpuri 0), (Kayan 0), (North Ghy 0), (Palashbari 0), (Rangia 1)				
	Lakhimpur	1	1	0	0	(Bihpuria 0), (Dhakuakhana 0), (Kadam 1),				

	ur					(Narayanpur 0), (North Lakhimpur 0), (Nowboicha 0), (Subansiri 0)
	Nagaon	2	2	0	0	(Dhing 0), (Kaliabor 0), (Kampur 2), (Nagaon 0), (Raha 0), (Rupahi 0), (Samaguri 0)
	Total	11	8	1	2	
Human Lives Lost Confirmed - Death Type	District	Total	Flood Death	General Drowning (Non Flood)	Landslide	
	Cachar	1	1	0	0	
	Darrang	3	3	0	0	
	Dibrugarh	1	1	0	0	
	Hailakandi	1	1	0	0	
	Hojai	1	1	0	0	
	Kamrup	1	1	0	0	
	Lakhimpur	1	0	1	0	
	Nagaon	2	2	0	0	
	Total	11	10	1	0	
Human Lives Lost - Missing	District	Total	Male	Female	Children	Details
	Cachar	1	1	0	0	(Katigora 0), (Lakhipur 0), (Silchar 1), (Sonai 0), (Udharbond 0)
	Darrang	1	1	0	0	(Dalgaon 0), (Mangaldoi 1), (Patharighat 0), (Sipajhar 0)
	Kamrup	2	1	0	1	(Chamaria 0), (Chaygaon 0), (Goroimari 0), (Hajo 0), (Kamalpur 0), (Kayan 0), (North Ghy 1), (Palashbari 0), (Rangia 1)
	Tamulpur	1	1	0	0	(Goreswar 0), (Tamulpur 1)
	Udalguri	2	1	0	1	(Harisinga 0), (Kalaigaon 0), (Khairabari 1), (Mazbat 0), (Udalguri 1)
	Total	7	5	0	2	
Human Lives Lost Missing - Type	District	Total	Flood	Non Flood		
	Cachar	1	1	0		
	Darrang	1	1	0		
	Kamrup	2	2	0		
	Tamulpur	1	1	0		
	Udalguri	2	2	0		
	Total	7	7	0		
Animals Affected	District	Total	Big	Small	Poultry	
	Bajali	96740	55863	28427	12450	
	Baksa	11278	5364	3762	2152	
	Barpeta	812849	350283	161571	300995	
	Biswanath	34649	24689	9960	0	
	Bongaigaon	77126	49379	27747	0	
	Cachar	112320	74152	15898	22270	
	Chirang	7245	3590	2240	1415	
	Darrang	341023	168666	89549	82808	
	Dhemaji	30792	19193	11599	0	
	Dhubri	380926	233775	147151	0	
	Goalpara	68681	43525	12976	12180	
	Golaghat	420	350	70	0	
	Hailakandi	13564	4565	2359	6640	

	r	Q		
	Lakhimpur	0.00-Q	1745.00-Pkt, 61.00-Pieces, 0.00-Q	CONCENTRATED CATTLE FEED GODREJ SUPREME-53.50-Q; TARPAULIN-560.00-Pieces
	Morigaon	0.00-Q	0.00-Q	Hand Tubewell-30.00-Pieces; Tarpuline-3000.00-Pieces
	Nagaon	3412.00-Pkt, 0.00-Q	4792.00-Pkt, 0.00-Q	Tube Well-4.00-Pieces; Halogen tablets-3000.00-Q; Mosquito Coil-100.00-Pkt; Candle-100.00-Pkt; HTW-2.00-Pieces; Drinking Water-11000.00-Pkt; Helogen Tablet-2000.00-Pieces
	Nalbari	0.00-Q	157.00-Pkt, 0.00-Q	Tarpaulin-160.00-Pkt; sanitary paid-3500.00-Pkt; tarpulin-340.00-Pkt; tarpaulin -1155.00-Pkt; Terpolin -1600.00-Pkt; Sanitary Paid -1000.00-Pkt; Coil-330.00-Pkt; Candle -330.00-Pkt; Match Box -400.00-Pkt; whaet bran-240.00-Q; tarpaulin-261.00-Pkt
	Sonitpur	0.00-Q	0.00-Q, 40.00-Pkt	TARPAULIN-50.00-Pieces
	South Salmara	0.00-Q	0.00-Q	0-0.00-Q
	Tamulpur	0.00-L, 0.00-Q	0.00-Kg, 0.00-Q	0-0.00-Kg
	Tinsukia	0.00-Q	0.00-Q	
	Udalguri	0.00-Q, 142.00-Pkt	1016.00-Pkt, 0.00-Q	Sanitary Pad-1992.00-Pkt; Tarpaulin-950.00-Pieces; Blanket-535.00-Pieces; Mosquito Net-350.00-Pieces; candle-230.00-Pkt; Match Box-40.00-Pkt; sanitary Pad-140.00-Pkt; tarpauline-89.00-Pieces; Geobags-300.00-Pieces
Infrastructure Damaged - Embankment Breached	District	Number	Details	
	Darrang	1	Patharighat - DUNI FIS under Irrigation Deptt Pandaghat Afflux bundh of Duni FIS breached at Ch 800 mt as reported by JE Irrigation on 20.6.22 (Long - 91.808914, Lat - 26.490462)	
	Lakhimpur	1	Nowboicha - Romjan chuburi to subed chuburi Singra River Side Bund Uttar Mahghuli Romjan chuburi to subed chuburi Singra River Side Bund breached (approx 50Mtr) at Uttar Mahghuli on 20.06.2022. Report received from Nowboicha Block Development Office. (Long - 0.000000, Lat - 0.000000)	
	Total	2		
Infrastructure Damaged - Embankment Affected	District	Number	Details	
	Bajali	1	Sarupeta - Erosion on Pahumara R/B embankment,16 KM at Dalorpathar village : Dalorpathar Reported by SDO , Water Resource Department, Bajali on 20/6/2022. (Long - 91.149300, Lat - 26.530000)	
	Bongaigaon	2	Dangtol - Mulagaon Chengmari Road at Panchapur Bridge approach Chengmari Embankment damaged at 4th, 5th & 6th KM. as per report received from PWRD, Bongaigaon date-20.06.2022 (Long - 90.497923, Lat - 26.417318), Boitamari - Pachagaon to Dakhapara Road Pachagaon Embankment damaged partially at 2nd KM. as per report received from PWRD, Bongaigaon date- 20.06.2022 (Long - 90.469129, Lat - 26.334561)	
	Golaghat	1	Bokakhat - Brahmaputra Dyke from KRF boundary to Diffaloo Pathar Sukani Gaon at CH 19000 m Breach like damage of embankment is occurred at ch 19000 m due to overtopping for a length of 20.00m on 20.06.2022 (Long - 93.517082, Lat - 26.657082)	
	Karimganj	1	Nilambazar - Abdullapur left bank Abdullapur As reported by Water Resource dated on 20/06/2022 around 185 meter reach of bank damages (slump down) has been observed near the toe of the embankment along left bank of river Longai from Patharkandi to Nilambazar at Abdullapur area. (Long - 92.344125, Lat - 24.741953)	
	Nalbari	1	Barbhag - L/B of River Baralia from Bhoiratola to Dusutimukh Dokoha As per report of W. R department breach length 70 M dated : 18/06/2022 (Long - 26.328253, Lat - 91.489736)	
	Total	6		
Infrastructure Damaged - Road	District	Number	Details	
	Barpeta	53	Baghbar - Jania to Howly road flood Submarged at chainage 1st, 2nd & 3rd km. Jania, Banglipara Date of Damage- 19.06.2022 Type of Damage- Surface & Both side Shoulder damaged Damage Length- 850 Reported by Pwd Deptt. (Long - 90.922713, Lat - 26.332484),	

			Barpeta Doulasal road Batgaon submerged at several stretches, report by PWD, Roads date-20/06/2022 (Long - 0.000000, Lat - 0.000000), Roumari Pathar to Khongra 2 no. Pachim Supa via Sonartari, package no.As-01-511, road Khongara, Roumari Pathar, Sonartari submerged from 2.00 km to 3.40 km, report by PWD, Roads date-20/06/2022 (Long - 0.000000, Lat - 0.000000), Niz Chenga to bampara Road Niz Chenga submerged, report by PWD, Roads date-20/06/2022 (Long - 0.000000, Lat - 0.000000), Batgaon Haripur Road Batgaon submerged, report by PWD, Roads date-20/06/2022 (Long - 0.000000, Lat - 0.000000), Batgaon Kadamtala road Batgaon submerged, report by PWD, Roads date-20/06/2022 (Long - 0.000000, Lat - 0.000000), Balapara Ganakpara road Balapara submerged, report by PWD, Roads date-20/06/2022 (Long - 0.000000, Lat - 0.000000), Ganakpara Piralabhitha road Ganakpara submerged, report by PWD, Roads date-20/06/2022 (Long - 0.000000, Lat - 0.000000), Batgaon Sutiapara road Sutiapara submerged, report by PWD, Roads date-20/06/2022 (Long - 0.000000, Lat - 0.000000)
Biswanath	1		Biswanath - BG road to 1 No. Japoriguri via Dakhin Moral gaon PMGSY PKG No.AS 22 635 for a length of about 300m (Ch 4900m to 5200m) was submerged by water of river Brahmaputra Japoriguri Report received from PWD(roads) Biswanath via whatsapp on 20.06.2022 (Long - 93.195645, Lat - 26.720255)
Bongaigaon	8		Bongaigaon - Dholagaon Dewangaon Road Dweangaon Breach occur Ch. 1500.00m. as per report received from PWRD, Bongaigaon date-20.06.2022 (Long - 90.526521, Lat - 26.405701), Salbari Bongaigaon Road Salbari Errosion and settlement of road embankment at 9th KM. as per report received from PWRD, Bongaigaon date-20.06.2022 (Long - 90.516932, Lat - 26.405897), Udmari Ravapara to Garopara Road Garopara Errosion of Road embankment at 3rd km. as per report received from PWRD, Bongaigaon date-20.06.2022 (Long - 90.609104, Lat - 26.465739), Boitamari - Jogighopa Chatpara Jogighopa Waterlogged at 1st KM. as per report received from PWRD, Bongaigaon date- 20.06.2022 (Long - 90.573925, Lat - 26.223333), Srijangram - Haripur New Piradhara road Haripur New Piradhara road Submerged at 2nd km report PWRD Bongaigaon dated 19.06.2022 (Long - 90.679285, Lat - 26.314749), Borigaon Bamungaon road Borigaon Bamungaon road Road surface damaged at 1st km report PWRD Bongaigaon dated 19.06.2022 (Long - 90.678895, Lat - 26.338603), Abhayapuri PS to 8th APBN approach road. Abhayapuri PS to 8th APBN approach road. Damaged road embankment partially at Culvert no2/1 report PWRD Bongaigaon dated 19.06.2022 (Long - 90.658694, Lat - 26.350326), Gerukabari kirtanpara road Gerukabari Kirtanpara road Erosion of road threaten at 10th km report PWRD Bongaigaon dated 19.06.2022 (Long - 90.456000, Lat - 26.245200)
Cachar	2		Lakhipur - HAZARIGRAM TO KALAPANI HAZARIGRAM TO KALAPANI HAZARIGRAM TO KALAPANI ILENGTH 25.0 M, AS REPORTED BY EE PWD RURAL ROADS, LAKHIPUR SUB-DIVISION ON DATED 20.06.2022. (Long - 92936058.000000, Lat - 24803742.000000), NH-37 PALORBOND TO LAKHIPUR PALORBOND TO LAKHIPUR NH-37 PALORBOND TO LAKHIPUR ILENGTH 2451.0 M AS REPORTED BY EE PWD RURAL ROADS, LAKHIPUR SUB-DIVISION ON DATED 20.06.2022. (Long - 92954963.000000, Lat - 24817264.000000)
Chirang	3		Bijni - Borobazar Bhabanipur Road at Nehru Bazar. at Subhaijhar As reported by PWD Chirang(R&B) Division, Borobazar bhabanipur Road at Nehru Bazar over topped & eroded at Subhaijhar. Length=200 mtr, Breadth=7.50, Depth=1.50 mtr. Date of Occurrence=18-06-2022 (Long - 90.603842, Lat - 26.595071), Khamarguri Amteka Road to Pub Baldi road Pub Baldi As reported by PWD Chirang(R&B) Division, khamarguri Amteka road to Pub Baldi road over topped & eroded. Length=100 mtr, Breadth=3.00 mtr, Depth=1.50 mtr. Date of Occurrence=18-06-2022. (Long - 90.601290, Lat - 26.599501), Bengtal - Koilamoila to Malivita Road Amteka As reported by PWD Road Embankment eroded on 19-06-2022, L-5000m B-7.50m D-0.50m (Long - 90.554244, Lat - 26.715406)
Darrang	69		Mangaldoi - Culvert Damage at MM Road under P.W.R.D under Mangaldai Revenue Circle as reported by P.W.R.D the Culvert Damage at MM Road due to flood under Mangaldai Revenue Circle . Dated 15-6-2022 (Long - 91.950000, Lat - 26.490000),