GOVERNMENT OF ASSAM

Assam Integrated River Basin Management Project (AIRBMP) – Phase I
(Assisted by the World Bank)

Environmental and Social Management Framework (ESMF)
December' 2022

FREMAA

Flood and River Erosion Management Agency of Assam (FREMAA)
Guwahati, Assam

Table of Contents

Contents

List of Tables vi
List of Figures vi
List of Acronyms vii
Executive Summary 9
1. Introduction 13
1.1 Project Context 13
1.2 Project Description 13
1.3 Project Beneficiaries 15
1.4 Implementing Agencies and Partners 15
1.5 Rationale and Purpose of ESMF 16
1.6 Structure of the ESMF 16
2. Policy Legal and Regulatory Framework 18
2.1 Introduction 18
2.2 Some Important Legal Provisions Related to Project Activities 18
2.2.1 International Labour Conventions 18
2.2.2 Key Statutory Clearances for Construction 19
2.3 World Bank E & S standards 20
2.3.1 Environmental and Social Framework (ESF) 20
2.3.2 Comparison of ESF and National Regulation – Gaps and Remedies 23
3. Project Environmental and Social Baseline 27
3.1 Introduction 27
3.2 Environmental 27
4. Potential Environment & Social Risks and Impacts 29
4.1 Introduction 29
4.2 Screening of Impacts Associated with Component 1 Interventions 29
4.3 Screening of Impacts Associated with Component 2 Interventions 30
4.4 Screening of Impacts Associated with Component 3 Interventions 32
4.5 ESS-wise Summary E&S Impacts and Risks of the Project 34
5. Environmental & Social Management Procedures - Component 2 38
5.1 Introduction 38
5.2 Proposed Interventions 38
5.2.1 Embankment Works 38
5.2.2 Anti-Erosion Works 38
5.3 E&S Management Procedures for Components 2.1 and 2.2 River Works 38
5.4 E&S Aspects for Component 2.2 IFRM Studies 45
5.5 E&S Management Procedures for Component 2.4 Works 45
6. Environmental& Social Management Procedures - Component 3 47
6.1 Introduction 47
6.2 Locations and Description of Component 3 Activities 47
6.2.1 Subcomponent 3.1.Flood Shelters - New 47
6.2.2 Flood Shelters – Augmentation of Existing Schools (Subcomponent 3.1) 47
6.2.3 Subcomponent 3.2.Early Warning and Dissemination System 48
6.2.4 Subcomponent 3.3.Revenue Circle Disaster Management 48
6.2.5 Subcomponent 3.4.Climate Resilient Villages 49
6.3 E&S Management of Component 3 Activities 49
7. Consultations and Disclosure 54
7.1 Stakeholder Engagement Activities 54
7.2 Feedback from Stakeholder Consultations 54

7.3 Disclosure of Project Documents 56
8. Implementation and Monitoring Arrangements 57
8.1 Institutional Arrangements for E&S Implementation 57
8.2 Roles and Responsibilities of Implementing Agencies 57
8.3 Monitoring Plan 60
8.3.1 Monitoring 60
8.3.2 Environmental and Social Monitoring 61
8.4 Grievance Mechanism 62
8.5 Capacity Building 63
8.5.1 Approach 63
8.5.2 Resource for training 63
8.5.3 Details of Training Programs 63
8.5.4 Training Budget 64
8.6 ESMF Budget 64
Annex 1: Government Regulations Relevant to the Project 67
Annex 2: Project Environment and Social Baseline 77
1.1 Project Area 77
1.2 Environmental Baseline 77
1.2.1 Physiography 77
1.2.2 Drainage 77
1.2.3 Brahmaputra River System 78
1.2.4 Barak River System 82
1.2.5 Climate 83
1.2.6 Rainfall 83
1.2.7 Soil Resources 83
1.2.8 Agro Climatic Zones 83
1.2.9 Geology 84
1.2.10 Land Use Pattern 84
1.2.11 Ground Water Status 84
1.2.12 Forests 85
1.2.13 Biodiversity 87
1.2.14 Biodiversity of Manas National Park & Tiger Reserve 88
1.2.14.1 Flora 88
1.2.14.2 Fauna 89
1.2.15 Tiger Status 90
1.2.16 Sub-Projects near Manas National Park 91
1.2.17 Earthquakes 91
1.2.18 Tourism 91
1.2.19 Eco-Tourism 92
1.3 Socio-Economic Baseline 92
1.3.1 Demography 92
1.3.2 Work Force 93
1.3.3 Health Facilities 94
1.3.4 Life Expectancy and Mortality Fertility Scenario 94
1.3.5 Education 95
1.3.6 Electricity, Water and Sanitation Facilities 96
1.3.7 Culture of Assam 96
Annex 3: Indigenous People Policy Framework (IPPF) 98
1. Profile of the state - Assam 100
1.1 Land, Agriculture and Forests 100

1.2 Economy 100
1.3 Demographic & socio-economic profile of tribal and related issues 100
1.4 Scheduled Areas of Assam 101
1.5 Tribal context in AIRBMP area 102
2. Socio-Economic profile of tribal population in the project districts 102
2.1 Population of Scheduled Tribes 102
2.2 ST Households, Family Size and Sex Ratio 102
2.3 Literacy Rate of Scheduled Tribes 103
2.4 Scheduled Tribes Total Population and Work Force 103
3. Legal and Regulatory Framework 104
3.1 Constitutional Safeguards 104
3.2 Provision of Scheduled Areas under Sixth Schedule of the Constitution 104
3.3 Autonomous Tribal Councils Established By State Legislations 105
3.4 Acts, Rules and Applicability 106
3.5 The World Bank's Environment and Social Standards 7 (ESS-7) 106
3.6 Assam State Policies and Programs for STs and Institutional Framework 107
3.7 Potential Impacts due to project interventions 108
4. Tribal Development Framework 110
4.1 Screening 110
4.2 Framework for Meaningful Consultations, and Free, Prior and Informed Consent (FPIC) 111
4.3 Mitigation measures to address project impacts 112
5. Implementation arrangements of TDP 115
6. Monitoring arrangements of TDP 116
Annexure 1: Scheduled Tribes: Screening Checklist 117
Annex 4: Vulnerable Peoples Framework 119
1.1 *Introduction* 119
1.1.1 Information on Vulnerable Groups 120
1.1.2 Participation of Vulnerable 120
1.1.3 Vulnerable Involvement during Construction 120
1.1.4 Other Actions 121
Annex 5: Gender Action Plan 122
List of Tables 124
List of Acronyms 125
1. Purpose of Gender Action Plan 127
2. Background 127
3. Assam – Secondary Gender Data 128
3.1 Female Population and Sex Ratio 128
3.2 Literacy Rates 128
3.3 Employment 129
3.4 Unemployment 130
3.5 Wages 131
3.6 Enterprise Ownership 131
3.7 Women Participation 132
3.8 Differently Abled 132
3.9 Health 133
3.10 Human Development Index (HDI)/ Gender Development Index (GDI)/Gender Inequality Index (GII) 133

4. AIRBMP – Primary Gender Data 133
4.1 Institutional Strengthening of WRD, FREMAA and ASDMA (Component 1) – Gender Equity in Workplace 136
4.2 Water Resources Management (Component 2) – Women's Participation in Project Planning 136
4.3 Disaster Risk Management (Component 3) – Women's Membership in Community Committees 136
5. Proposed Gender Actions 138
5.1 Institutional Strengthening of WRD, FREMAA and ASDMA (Component 1) – Gender Equity in the Workplace 138
5.2 Water Resources Management (Component 2) – Women's Participation in Project Planning 138
5.3 Disaster Risk Management (Component 3) – Women's Membership in Community Committees 139
5.4 Monitoring 140
Annex6: Screening Formats 142
Annex 7: ESMP – WRD Works – Assam Water Center Annex 153
Annex 8: ESMP – ASDMA – Flood Shelters 166
Annex 9: ESMP – ASDMA – Augmentation and Retrofitting of Existing Schools as Flood Shelters 181
Annex 10: GBV/SEA Risk Mitigation Framework 184

List of Tables

Table 1: International Labour Law Convention 18
Table 2: List of Statutory Clearances and Requirements..... 19
Table 3: The World Bank Environment and Social Standards 20
Table 4: Comparison of ESF and National Regulation – Gaps and Remedies..... 23
Table 5: Potential E&S Impacts and Risks of Component 1 Interventions 29
Table 6: Potential E&S Impacts and Risks of Component 2 Interventions 30
Table 7: Potential E&S Impacts and Risks of Component 3 Interventions 32
Table 8: Summary E&S Impacts and Risks of all Project Components (ESS-wise)..... 34
Table 9: ESMP Monitoring and Compliance Reports..... 43
Table 10: Sequence of Proposed Activities for Components 2.1 and 2.2 River Works 44
Table 11: Locations of Proposed New Flood Shelters. 47
Table 12: Locations of Schools for proposed Augmentation as Flood Shelters..... 48
Table 13: Application of ESMF to ASMDA - Component 3 50
Table 14: Feedback from Stakeholder Consultations..... 54
Table 15: E&S Staff in the Implementing Agencies 58
Table 16: Responsibilities of the Implementing Agencies in E&S Management 59
Table 17: Monitoring Indicators..... 61
Table 18: Details of proposed Training Programs 63
Table 19: Training Budget..... 64
Table 20: ESMF Budget..... 64

List of Figures

Figure 1: E&S Management Procedures for Components 2.1 and 2.2 River Works 40
Figure 2: Institutional Arrangements of AIRBMP 57
Figure 3: Location of the Beki, Buridehing and Jiadhal subbasins of the Brahmaputra in Assam..... 77
Figure 4: Embankment and anti-erosion work near Manas national park boundary 91

List of Acronyms

ADC	Autonomous District Council
AE	Anti-Erosion
AIFREPRMIP	Assam Integrated Flood and Riverbank Erosion Risk Management Investment Program
AIRBMP	Assam Integrated River Basin Management Program
AP	Affected Person
ASDMA	Assam State Disaster Management Authority
BC	Backward Classes
BPL	Below Poverty Line
CEO	Chief Executive Officer
COVID-19	Corona virus Disease – 2019
CPGRAMS	Centralised Public Grievance Redress and Monitoring System
CQRT	Circle Quick Response Teams
CTI	Central Training Institute
DMSC	Design Management and Supervision Consultants
DRM	Disaster Risk Management
EOC	Emergency Operations Centre
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESF	Environmental and Social Standard
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESS	Environmental and Social Standard
FGD	Focus Group Discussion
FREMAA	Flood and River Erosion Management Authority of Assam
GBV-SEAH	Gender Based Violence – Sexual Exploitation Abuse Harassment
GoA	Government of Assam
GOI	Government of India
GRM	Grievance Redressal Mechanism
IEC	Information Education Communication
IFRM	Integrated Flood Risk Management
IPPF	Indigenous People Policy Framework
IWRM	Integrated Water Resources Management
LARRA	Land Acquisition Rehabilitation and Resettlement Authority
LMP	Labour Management Procedures
MIS	Management Information System
MLA	Member of Legislative Assembly
MPA	Multiphase Programmatic Approach
NFHS	National Family Health Survey
NGO	Non-Governmental Organisation
PIU	Project Implementation Unit
PMU	Project Management Unit
PMTC	Project Management Technical Consultancy
PwD	Person with Disabilities
PWD	Public Works Department
RAP	Resettlement Action Plan
RFCTLARR Act 2013	Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013
RPF	Resettlement Policy Framework
SC	Scheduled Caste

SEP	Stakeholder Engagement Plan
SHG	Self Help Group
SOP	Standard Operating Procedures
ST	Scheduled Tribes
VAC	Violence Against Children
WB	World Bank
WRD	Water Resources Department

Executive Summary

Introduction

Assam is hardest hit by erosion and floods, as almost half of Assam is prone to floods. Between 1953 and 2020, about 178 million people were impacted by floods. Due to floods, a high percentage of Assam's landmass suffers from moderate to extremely severe soil loss. Under this context, The Government of Assam (GoA) has approached the World Bank (WB) to support the proposed Assam Integrated River Basin Management Program (AIRBMP) for improved water resources management to squarely address the "Water-Disaster Risk Management (DRM) Nexus" through a set of synergistic activities implemented by Water Resources Department (WRD), Flood and River Erosion Management Authority of Assam (FREMAA) and Assam State Disaster Management Authority (ASDMA). The AIRBMP is a twelve-year program with total WB financing of US$508 million with threeoverlapping phases. The present project is Phase 1 of the program is an IPF (Investment Project Finance) with WB financing of US$108 million. Phase 2 and Phase 3 of the program will be supported by WB financing of around US$200 million each.

Project Description

Phase 1 of the AIRBMP will mainly focus on three (Buridehing, Beki and Jiadhal) of the six sub-basins of the Brahmaputra River in Assam. The AIRBMP has 4 components:1) Institutional Strengthening and Strategic Studies, 2) Water Resources Management, 3) Disaster Risk Management and 4) Contingent Emergency Response Component. Component 2 includes river works in Beki and Buridehing basins, and ESIAs and RAPs have been prepared for already identified works under Phase 1 and the construction of a new office building. These works will be executed by WRD. Integrated Flood Risk Management (IFRM) plans for the Assam parts of the Beki, Buridehing and Jiadhal basins will be prepared under component 2. Component 3 works include low to moderate risk investments such as the construction of 5 to 10 multi-purpose flood shelters, augmentation of 30 schools as flood shelters, provision of necessary facilities to improve emergency management systems in the Emergency Operation Centres, and provision of emergency response equipment to each Circle Quick Response Team (CQRT), development of Village Disaster Mitigation Plans (VDMPs), and construction of about 25 Technical Demonstration Units (TDUs).

Objectives of the ESMF

ESIA has been prepared and disclosed for those subprojects already identified, i.e., Beki and Buridehing. This ESMF will be for future subprojects to be identified during implementation to guide the E&S screening and preparation of subproject-specific instruments, where needed, based on screening. This ESMF applies to only for Phase 1 subprojects not covered by the aforementioned ESIA/ESMPs (or those subprojects to be identified during implementation). Typologies of future subprojects to be covered by this ESMF are under 1) Institutional Strengthening and Strategic Studies, 2) Water Resources Management and3) Disaster Risk Management.

Policy, Legal and Regulatory Framework

The implementation of AIRBMP will be consistent with the national and state regulatory framework and WB's ESF. In general, all these sub-projects would result in positive environmental and social impacts, such as erosion control and improvement in livelihoods. The adverse environmental and social impacts would be minor, temporary, localized, reversible and mitigable. Some important legal and policy provisions of the Government of India (GoI) and GoA are, Environment Protection Act/ Rules 1986, The Forest (Conservation) Act, 1980, Assam Biodiversity Rules 2010, Wildlife Protection (Assam Amendment) Act 2009, The Disaster Management Act 2005 as Assam fall in earth quake Zone5 and has frequent floods, The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013,Right to Information Act 2005, Panchayats (Extension to the Scheduled Areas) Act 1996, Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act), etc. The permissions and clearances that need to be

obtained from competent authorities for sub-projects are for wildlife clearance, mining of minor minerals for construction, for setting up workers' camps, Pollution Under Control certification for vehicles, etc.

The World Bank Environmental and Social Framework

The Environmental and Social Standards set out the requirements for Borrowers relating to the identification and assessment of environmental and social risks and impacts associated with projects supported by the Bank through IPF. The World Bank's Environmental and Social Standards are relevant for this AIRBMP. The ESS1 is relevant and the ESMF was prepared as per the provisions of ESS1. The ESS2 is relevant as the project is going to work with different kinds of workers at different levels. The ESS3 is relevant, given the opportunities to promote resource use efficiency and prevent pollution from activities to be financed under the project. The ESS4 is relevant, as there are communities in the vicinity/ surroundings of sub-project locations and appropriate management measures would be required. The project needs to acquire private land for the construction of some of the proposed sub-projects, hence the ESS5 is relevant. The ESS6 is relevant as the sub-projects are in close vicinity of forests and near the Manas National Park. The ESS7 is relevant as there are tribal communities in the project area, including autonomous tribal councils. The ESS8 is relevant, given thevast geographical area of the state across which sub-projects would be located; there is a possibility of cultural heritage-related concerns, including chance finds, coming-up in the case of certain sub- projects under the proposed operation. The ESS10 is relevant, as stakeholders need to be consulted throughout the project preparation and implementation period and also duly informed through disclosure of project related information. The World Bank Group's General Environment, Health and Safety (EHS) Guidelines, 2007, in particular, the guidance in Section 4 on Construction and Decommissioning are applicable to this project. When national requirements differ from the standards and measures set out in these guidelines, then FREMAA will ensure that it achieveswhichever are more stringent.

Potential Environmental and Social Risks and Impacts by ESS

The project risks and impacts under the ESS2 include a) Occupational health and safety risks on workers, viz., communicable diseases, inadequate construction camps, etc., and b) risks due to labour influx, child and forced labour, risk of gender-based violence (GBV), risk of unequal wages to unskilled female workers, etc. The risks and impacts under the ESS3 include sourcing of soil and aggregates, generation of waste (solid and hazardous), groundwater use and pollution, surface water pollution, air pollution, loss of fertile topsoil, use of energy-inefficient electrical fixtures, etc. The risksand impacts that come under ESS4 are a) impact on the health of local communities, traffic pollution,presence of Asbestos containing material (ACM)in schools to be augmented as flood shelters, risk of accidents, construction/demolition wastes disposed of in community surroundings, storage of fossil fuels or other toxic substances and b) community exposure to construction-hazards and nuisances, disruption to utilities, access blockage, exposure of school children and teachers safety and GBV risks during augmentation of schools, etc. The risks and impacts under ESS5 are land loss, as the project requires both Government and Private land and livelihood loss, as there are encroachers and squatters. The risks and impacts under ESS6 are a) impacts on the riverbank and aquatic habitats, cutting of trees, impacts on the Reserve forests, key biodiversity areas, loss of natural resources flushing out the fish from their habitats, etc. and b) labour and communities competing for the natural resources, etc. The risks and impacts under ESS7 are impacts on tribal peoples due to land loss and livelihood loss. The risks and impacts under ESS8 are impacts on religious and cultural structures, relocation of common property resources, Chance finds during construction, etc. The risksand impacts under ESS10 are inadequate consultations and unresolved grievances.

Methodological Framework for Environmental and Social Management

The sequence of environmental and social procedures and activities followed for identified activities and to be followed for upcoming activities for each sub-project during the preparation of ESIAs and

its implementation (a) E&S Screening, b) E&S considerations in project design and analysis of alternatives, c) Usage of Standard ESMPs for Moderate and Low-risk sub-projects, d) E&S Studies for Substantial-risk subprojects [1]– Baseline Data Collection, Impact Assessment, and ESMP, e) Consultations and Disclosure, f) preparation of ESIA/ESMP and RAP and TDP g) Environmental and Social conditions for Bidding Documents and h) Implementation of ESMP, RAP and TDP. The PMU, PMTC, respective PIUs, DMSC and the E&S Staff of PMU and PIUs will be responsible for these. The overall responsibility for ESMP implementation will rest with the PMU/PIU. However, in the construction areas, the Environment, Social Health and Safety (ESHS) staff of the Contractor is responsible for implementing the ESMP, while the environmental and social specialists of the PIU& PMU will be responsible for the monitoring the ESMPs throughout the Project implementation. The ESMPs will be prepared prior to invitation of bids for respective civil works. Compliance monitoring comprises an on-site inspection of the construction activities to verify that measures identified in the ESMP and included in the clauses for contractors are being implemented. The monitoring and reporting requirements are monthly ESHS Monitoring Reports covering all environmental (pollution events), OHS (accidents) and social (SEA/SH complaints) incidents by contractors and Quarterly ESMP Monitoring Reports by PMU to the WB.

Consultations

Focused consultations were held with beneficiaries, women, affected persons, etc. while preparing ESMF during Jan-Feb 2022. A total of 65 consultations involving 1192 people (849 male and 343 female) were carried out, 20 in the Beki sub-basin and 45 in the Buridehing sub-basin. Focused Group Discussions were also carried out with officials from the Departments of Revenue and Disaster Management, Forest and Environment, Panchayat and Rural Development, etc. Project affected people and beneficiaries of project have concerns such as a) their land is eroding at a faster rate causing loss and request for early construction of anti-erosion works, b) loss of access to residences and river during construction works, c) proper compensation for private lands, d) fear of eviction of encroachers, e) loss of/ reduction in fish during constructions, etc. The concerns are a) labour influx and competition for natural and community resources, b) impacts on common property resources, c) information dissemination about the project, d) waste management at the flood shelters, etc., Disadvantaged/ vulnerable groups are concerned about a) universal access, b) separate rooms for men, women & lactating mothers, c) continued erosion of river banks, etc. There has been overwhelming support for the project from the communities as it will help the communities vulnerable to floods and riverbank erosion. Based on the feedback from the consultations, it was agreed that a) Specific consultations will be held near the sites/ facilities proposed, b) the draft mitigation plans will also be presented and explained to the people, and c) FREMAA/ WRD/ ASDMA/ will also hold consultations with the concerned line departments.

Implementation Arrangements

The overall responsibility for coordinating and implementing AIRBMP lies with the Project Management Unit (PMU), established at the Flood and River Erosion Management Agency of Assam (FREMAA). A Project Implementation Unit (PIU) has been established under the WRD to implement Component 2 activities, and a PIU has been established under the ASDMA to implement Component 3 activities. The PIUs of WRD and ASDMA will execute the civil works through contractors. A Project Management and Technical Support Consultancy (PMTC) have been engaged by the PMU to support them in the implementation of all project activities. ASDMA will engage a Design Management and Supervision Consultants (DMSC) for the design and supervision of component 3 investments. An E&S Monitoring and Evaluation (M&E) Consultant will be engaged by PMU for an independent evaluation of the ESMF implementation. The FREMAA and ASDMA have permanent Safeguard Units with E&S

[1]The TA support will be limited to substantial risk projects and in the event high risk projects need to be supported, the risk classification will be reclassified.

specialists and field supervisors. The PIU in the WRD is in the process of hiring E&S specialists. The PMTC has an environmental specialist and a social development specialist. The PMU will engage environmental and social consultants for independent evaluation. NGOs will be hired to support social mobilization, RAP implementation, and support capacity building on livelihoods.

Monitoring

The concurrent internal environmental and social monitoring will be done as part of the regular monitoring by the PMU and PIUs. At the PIUs level, the E&S Experts will oversee the implementation and monitoring of the provisions of ESMF and ESMP. All the sub-projects will be visited at regular intervals (at the minimum on a fortnightly basis) by the E&S Experts of PIUs to check if all environmental and social safeguard requirements are met and to identify any issues that need to be addressed. The E&S Staff of PMU will visit the sub-project sites at least every quarter. The PMU would submit quarterly progress reports to the WB on environmental and social management. The PMU will prepare a yearly environmental and social management status report.

Grievance Mechanism

A Grievance Redressal Mechanism (GRM) will be established to address stakeholders' grievances including project related SEA/SH grievances. This GRM will ensure that the stakeholders have access to legitimate, reliable, transparent, and efficient institutional mechanisms responsive to their complaints. The GRM will work within existing legal and cultural frameworks. The grievances arising from the project interventions are proposed to be dealt with through two separate grievance mechanisms – i) Component-2, managed by WRD and ii) Component-3, managed by ASDMA. The PMU (FREMAA) will have a Grievance Redress Committee (GRC) as the appellate authority under the Project. For Component 2 activities, GRM is established at the 2 (two) levels, viz, (i) Project level, (ii) District level handled by WRD. The PIU of WRD will oversee the project-level GRM. There will be 2 levels of GRM for Component 3 activities, (i) Project Level and (ii) PIU Level. Grievances are accepted, acknowledged and registered and will be responded to the complainant in writing within a month and in the prescribed manner. The Grievance Redress Committees will have representation from the communities. All grievances will be reviewed and resolved within six weeks of the submission date. Queries or complaints received in various forms, directly from PAPs or third parties, will be registered in grievance registers and the online portal.

ESMF Budget and Disclosure

The total budget for the implementation of ESMF is estimated to be INR 13.6 crores. The costs of implementation of ESMPs and RAPs are included in the ESMPs and RAPs of respective subprojects. The draft ESMF, along with RPF, SEP and ESCP will also be disclosed on the FREMAA, ASDMA and World Bank external websites.

1. Introduction[2]

1.1 Project Context

1. The State of Assam is strategically important as the largest and most populous State in the Northeast; it faces many of the challenges prevalent in other parts of the Northeast but also holds tremendous potential for development through improved water resources management. Assam forms the physical and economic backbone of the region, connecting the other Northeastern States and joining them with the Siliguri corridor. Climate change is expected to exacerbate the water-related challenges in Assam. Climate modeling studies project an increase in the frequency of extreme flooding events for the period 2020-2059 due to higher monsoon precipitation over the Indus-Ganga-Brahmaputra River basins and accelerated glacial melting in the Himalayas and the Tibetan Plateau due to warmer temperatures.

2. The 2020 Brahmaputra floods that hit Assam between May and October impacted over 7 million people and forced more than 47,000 people into 564 relief camps[3], raising fears of new COVID outbreak clusters. Floods can exacerbate COVID-19 transmission risks by interrupting preventive and essential health services such as water and sanitation, which already has poor coverage in this area. Disruptions in water supply due to floods make it more difficult for affected households to undertake basic hygiene practices such as hand washing. Building resilience to flooding and erosion risks and achieving water security in Assam take on greater urgency in the current COVID-19 crisis. Given the currently weak starting base and complexities, the reality is that considerable time and a gradual approach to tackling these challenges will be needed.

3. The Government of Assam (GoA) has approached the World Bank to provide support through the proposed Assam Integrated River Basin Management Program (AIRBMP)[4]. The proposed program focuses on strengthening institutions, filling critical knowledge gaps, and implementing integrated solutions to tackle the current challenges of floods and erosion, amongst others, and to seize opportunities for climate-resilient growth and improved livelihoods. The proposed program is aligned with the Government of India's initiative to make more optimal use of water resources and mitigate water-related risks in the Northeast to catalyze economic growth in the region.

1.2 Project Description

4. The AIRBMP is envisioned as a three-phase Multiphase Programmatic Approach (MPA). The Project Development Objective (PDO) of phase 1 is to "strengthen institutional capacity to improve integrated water resources planning and management and to build resilience to flood and erosion risks in Assam." The description of the proposed project components is given below.

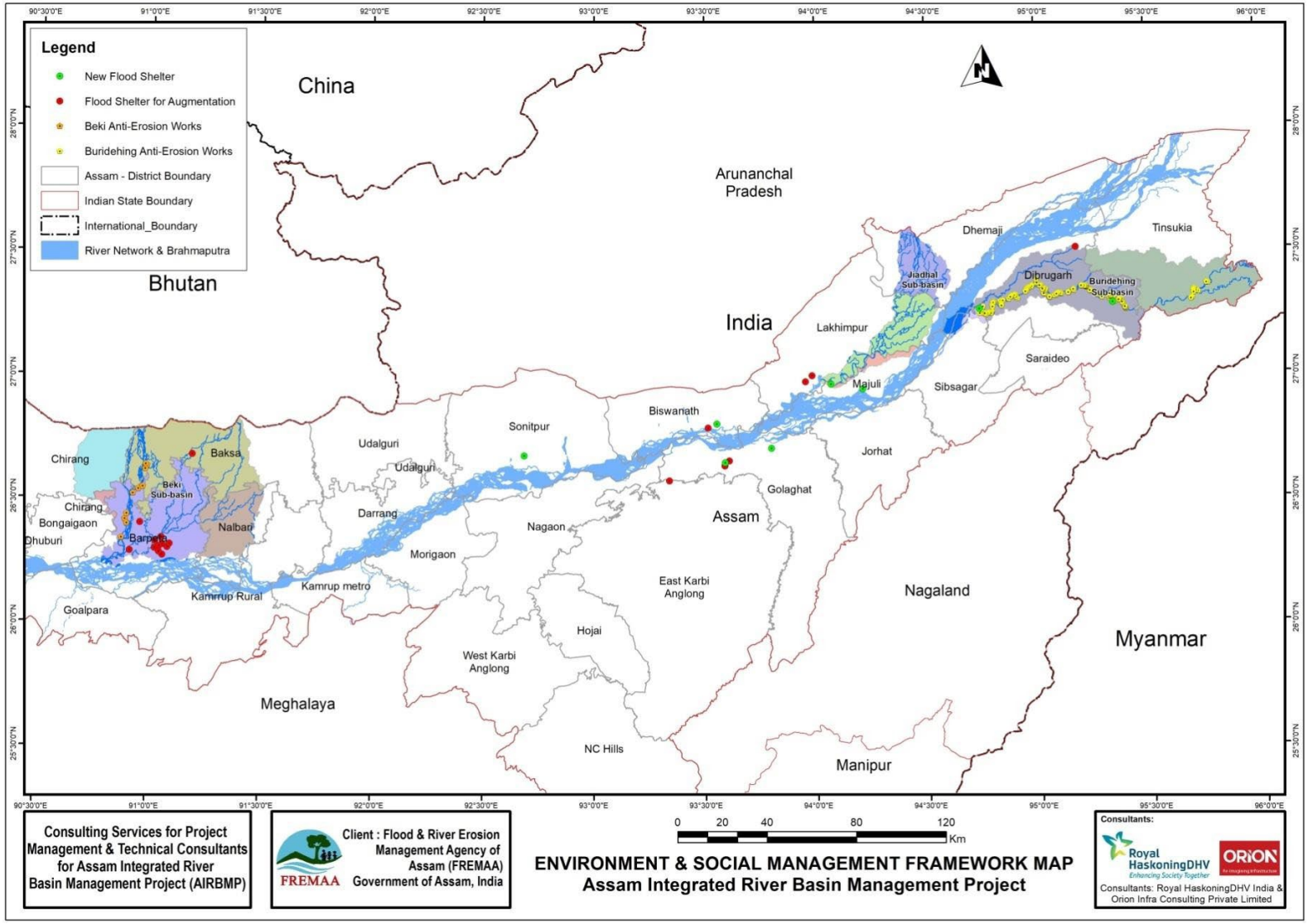
5. **Component 1: Institutional Strengthening and Strategic Studies.** This component focuses on institutional strengthening of WRD and ASDMA. Subcomponents include:

- Institutional strengthening of WRD
- Disaster Risk Management
- Project-wide Outreach and Technical Assistance

[2]This ESMF report is prepared by FREEMA, WRD and ASDMA and approved by the FREEMA, WRD and ASDMA for implementation on 30th November, 2022.

[3]Flood report as on July 25, 2020, Assam State Disaster Management Authority website, http://www.asdma.gov.in/pdf/flood_report/2020/Daily_Flood_Report_25.07.2020.pdf, accessed on July 26, 2020.

[4]The ESMF including RPP, IPPF, LMP, GAP & SEP and ESIA, ESMPs& RAP were prepared with support from **Scorpion**, Guwahati and **Center for Excellence in Management & Technology Pvt. Ltd**., Hyderabad, Telangana


Legend
New Flood Shelter
Flood Shelter for Augmentation
Beki Anti-Erosion Works
Buridehing Anti-Erosion Works
Assam - District Boundary
Indian State Boundary
International_Boundary
River Network & Brahmaputra
China
Bhutan
India
Arunanchal Pradesh
Nagaland
Myanmar
Meghalaya
Manipur
Assam
Dhemaji
Tinsukia
Jiadhal Sub-basin
Dibrugarh
Buridehing Sub-basin
Lakhimpur
Majuli
Saraideo
Sibsagar
Biswanath
Sonitpur
Udalguri
Jorhat
Golaghat
Darrang
Nagaon
Morigaon
East Karbi Anglong
Hojai
West Karbi Anglong
NC Hills
Kamrup metro
Kamrup Rural
Goalpara
Chirang
Baksa
Beki Sub-basin
Bongaigaon
Nalbari
Dhuburi
Barpeta
0 20 40 80 120
Km
Consulting Services for Project Management & Technical Consultants for Assam Integrated River Basin Management Project (AIRBMP)
Client : Flood & River Erosion Management Agency of Assam (FREMAA) Government of Assam, India
FREMAA
ENVIRONMENT & SOCIAL MANAGEMENT FRAMEWORK MAP
Assam Integrated River Basin Management Project
Consultants:
Royal HaskoningDHV
ORION
Consultants: Royal HaskoningDHV India & Orion Infra Consulting Private Limited

6. **Component 2: Water Resources Management.** This component will finance the structural and non-structural activities to reduce flood and river erosion risks in selected sub-basins and establish a foundation for IWRM. Subcomponents include:

- No-Regret Investments in Assam part of the Beki and Buridehing Sub-Basins and Emergency Works
- Integrated Water and Flood Management Planning in Selected Sub-Basins
- Flood Forecasting in Selected Sub-Basins
- Baseline Information and Levee Asset Management
- WRD Implementation Support

7. **Component 3: Disaster Risk Management:** This component strengthens Assam's overall disaster risk management capacity.

- Flood Shelters
- Early Warning and Dissemination System
- Strengthening of Circle Disaster Management Committees
- Climate Resilient Villages
- ASDMA Implementation Support

8. **Component 4: Contingent Emergency Response Component:** This allows an immediate response to an Eligible Crisis or Emergency, as needed, from other components to partially cover emergency response and recovery costs. This component could also be used to channel additional funds should they become available because of the Emergency.

1.3 Project Beneficiaries

9. These are people from villages/communities who are directly affected due to soil erosion and flood and losses of life, land, assets, livelihoods, etc. and are a) Affected due to River Bank Erosion and b) Affected due to floods. And these include all sections of society and the vulnerable population, including women, men, elderly persons (above 60 years), pregnant women, children, persons with disabilities, sexual minorities, religious minorities, etc.

10. There are three groups of direct beneficiaries. The first group consists of approximately 200,000 people in Beki and Buridehing river basins that will benefit from improved flood and river erosion protection and enhanced flood forecasting and EWDSs. The second group consists of approximately 100,000 people living in villages who will benefit from the implementation of their climate-resilient village plans. The third group consists of approximately 50,000 people who will benefit from access to flood shelters. Special attention will be given to the needs of disadvantaged groups, women, and children under the village climate resilience and flood shelter Programs.

1.4 Implementing Agencies and Partners

11. All project activities under AIRBMP shall be implemented through two project implementing units (PIUs), i.e. Water Resource Department (WRD), the Government of Assam & Assam State Disaster Management Authority (ASDMA). The Flood and River Erosion Management Agency of Assam (FREMAA) shall coordinate and oversee all the project preparation and implementation activities.

1.5 Rationale and Purpose of ESMF

12. The proposed subprojects under the AIRBMP are likely to have potential environmental and social impacts and hence require detailed environmental and social assessments for those investments with Substantial risk (mostly under component 2) and screening for those with Moderate/ Low risk (mostly under component 3); in compliance with the GoI, GoA and World Bank ESF requirements. According to the EIA Notification Act, 2006, none of the proposed project investments require EIA preparation; hence, the procedures described mainly follow the ESF requirements. As mentioned, the usage of MPA provides the following advantages: i) it supports sustained institutional development and capacity building of GoA agencies; ii) it allows for no regret investments under Phase 1 while undertaking IWRM planning to support investments in subsequent phases; iii) it provides sufficient time for new modalities of cooperation and coordination to evolve between GoA agencies, national agencies, other Northeast Indian states, civil society, academia, and the private sector that are needed to foster participatory water resources and disaster risk management; iv) it allows the flexibility to adapt over time and adjust approaches based on lessons learned; and v) it fosters the evolution of efforts to improve climate resilience and gender equality. At the time of appraisal, detailed feasibility studies of two subprojects, Buridehing – Package 1 and Beki- Package 1 (Component 2), basically no-regret investments, have been completed; hence ESIA, ESMPs and RAPs have been prepared for these subprojects; these are not the subject of this ESMF. With regard to Component 3, the presently identified works are of moderate to low risk, and hence are taken up during Phase 1. The screening of the proposed phase 1 works (both components 2 and 3) indicates that ESS1, ESS2 to ESS8 and ESS10 are relevant. However, for the remaining subprojects, feasibility studies are yet to be carried out to confirm the locations of the proposed project interventions and designs of these facilities. These feasibility studies will be carried out during the implementation of Phase 1 and will be constructed during the subsequent phases. This ESMF will be for future subprojects to be identified during implementation to guide the E&S screening and preparation of subproject-specific instruments, where needed, based on screening. This ESMF applies to only for Phase 1 subprojects not covered by the aforementioned ESIA/ESMPs (or those subprojects to be identified duringimplementation). Typologies of future subprojects to be covered by this ESMF are a) water resources management (anti erosion and embankment works) and b) disaster risk management (flood shelters and other disaster management works). The present Environmental and Social Management Framework (ESMF) has been developed to guide the implementing agencies with the screening, assessment, management and monitoring of environmental and social risks and impacts expected from AIRBMP subprojects. The ESMF provides a step-by-step approach to the important environmental and social considerations in all stages of future subproject preparation, implementation, monitoring and operation. In addition to the ESMF, the following documents have been prepared to comply with the World Bank Environmental and Social Management Framework (ESF) requirements.

- Resettlement Policy Framework (standalone document)
- Stakeholder Engagement Plan (standalone document)
- Tribal Development Framework (AsAnnex3 to the ESMF)
- Vulnerable Peoples Framework (As Annex 4 to the ESMF)
- Gender Action Plan (As Annex5 to the ESMF)
- GBV/SEA Risk Mitigation Framework (As Annex 10 to this ESMF)
- Labour Management Procedures (standalone document)

1.6 Structure of the ESMF

13. The ESMF report contains the following chapters:

- Chapter 1: Introduction provides the background of the project, a detailed description of project components, rationale and methodology for developing the ESMF.
- Chapter 2: Legal and Regulatory Framework: Review of the Legal Framework: Policies and Regulations of the Governments of Assam and India and the World Bank Environmental and Social Framework (ESF) those are relevant to the AIRBMP.
- Chapter 3: Description of the project area and a brief environmental and social baseline of the project area.
- Chapter 4: Screening of Project Environmental and Social Impacts and Risks: Describes the various environmental and social impacts and risks that may occur due to the implementation of the envisaged subcomponents and to help identify the nature and extent of impacts and identify the documentation requirements.
- Chapter 5: Environmental and Social Management Procedures for Component 2 Subprojects: contains details of the necessary activities to be carried out during various stages of the project planning, study, design and implementation. This chapter contains stepwise details on carrying out an environmental and social assessment for the subprojects, including the implementation of ESMP.
- Chapter 6: Environmental and Social Management Procedures for Component 3 Subprojects: contains details of the necessary activities carried out during various stages of the project planning, study, design and implementation. This chapter contains standard ESMPs for various activities implemented under Component 3.
- Chapter 7: Stakeholder Consultations and Disclosure: presents the details of consultations carried out so far for the development of ESMF.
- Chapter 8: Institutional Arrangement for ESMF Implementation: contains an assessment of the institutional arrangements for the implementation of the ESMF in the AIRBMP subprojects and measures to strengthen the capacity of these organizations, including grievance redressal arrangements.
- Annexes. Annexes contain the environmental and social baseline of the AIRBMP project area, GAP, IPPF, vulnerable people framework, environmental and social screening checklists for the proposed subprojects, standard ESMPs for low to moderate risk investments, and Terms of references for ESIA and other studies.

2. Policy Legal and Regulatory Framework

2.1 Introduction

14. The implementation of the activities proposed under the AIRBMP must be consistent with all applicable laws, regulations, and notifications. It is the responsibility of the FREMAA, WRD and ASDMA to ensure those project activities are consistent with the national, state and local regulatory framework. Additionally, the Implementation Agencies need to ensure that activities under the project are consistent with World Bank's Environment and Social Framework (ESF), including its relevant Environment and Social Standards (ESSs).

15. This chapter presents the policies, laws and regulations of the Government of India (GoI), Govt. of Assam (GoA) and the World Bank's Environmental and Social Framework (ESF) with corresponding Environmental and Social Standards (ESSs). Only the key laws, regulations, and policies relevant and applicable to the project have been covered here. It doesn't present a legal opinion on the applicability of the law but serves as guidance for the application of the legal and regulatory provisions to the current project context.

2.2 Some Important Legal Provisions Related to Project Activities

16. The sub-projects under the Project are local interventions which would benefit the local communities by contributing to their livelihoods. In general, all these sub-projects would result in positive environmental and social impacts. If there are any adverse environmental or social impacts; they would be minor, temporary, localized, reversible and mitigable. While the legislation given under Annex 1,some important legal and policy provisions of the Government of India (GoI), the Government of Assam (GoA), that are relevant to the project. Some important legal and policy provisions of the Government of India (GoI) and GoA are Environment Protection Act/ Rules 1986, The Forest (Conservation) Act, 1980, Assam Biodiversity Rules 2010, Wildlife Protection (Assam Amendment) Act 2009, The Disaster Management Act 2005 as Assam fall in earthquake Zone 5 and has frequent floods, The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013, Right to Information Act 2005, Panchayats (Extension to the Scheduled Areas) Act 1996, Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act), etc. The international conventions ratified by the country are briefly described below:

2.2.1 International Labour Conventions

17. India has ratified six out of the eight core/fundamental International Labour Organization (ILO) Conventions. These conventions and the provisions are given in the table below.

Table 1: International Labour Law Convention

S No	International Labour Law Convention	Stipulation/ Terms and Conditions
1.	Forced Labour Convention, 1930 (No. 29),	Prohibits all forms of forced or compulsory labour, which is defined as "all work or service which is exacted from any person under the menace of any penalty and for which the said person has not offered him voluntarily." The convention also requires that the illegal extraction of forced or compulsory labour is punishable as a penal offence and that ratifying states ensure that the relevant penalties imposed by law are adequate and strictly enforced.
2.	Abolition of Forced Labour	Prohibits forced or compulsory labour as a means of political

	Convention, 1957 (No. 105),	coercion or education or as a punishment for holding or expressing political views or views ideologically opposed to the established political, social, or economic system; as a method of mobilizing and using labour for economic development; as a means of labour discipline; as a punishment for having participated in strikes; and as a means of racial, social, national, or religious discrimination
3.	Equal Remuneration Convention, 1951 (No. 100)	Lays out the principles for equal remuneration for work of equal value and addresses gender discrimination
4.	Discrimination (Employment and Occupation) Convention, 1958 (No. 111),	Prohibits all discrimination and exclusion on any basis including of race or colour, sex, religion, political opinion, national or social origin in employment and repeal legislation that is not based on equal opportunities
5.	Minimum Age Convention, 1973 (No. 138)	To ensure the effective abolition of child labour and to rise progressively the minimum age for admission to employment orwork. India has ratified this convention with a minimum age of 14 years
6.	Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour, 1999 (No. 182).	Prohibition and elimination of the worst forms of child labour, including slavery, forced labour and trafficking in human beings. It prohibits the use of children in armed conflicts, prostitution and pornography, illegal activities such as drug trafficking and dangerous work.

2.2.2 Key Statutory Clearances for Construction

18. Certain permissions, clearances and authorizations need to be obtained from competent authorities during the design and construction phase of sub-projects. This will depend mainly on the area, type, size and scope of the sub-project in question. The key statutory permits that may be required are summarized below:

Table 2: List of Statutory Clearances and Requirements

S. No.	Clearance/ Authorization	Relevant Act	Competent Authority	Responsibility
1	Tree Cutting Permission	Forest Conservation Act, 1980	State Forest Department	PIU
2	Location/ layout of workers camp, equipment, and storage yards	Environment Protection Act, 1986 and Manufacturing, Storage and Import of Hazardous Chemicals Rules, 1989	Assam State Pollution Control Board (ASPCB)	Contractor
3	Discharges from Labour Camp	Water (Prevention and Control of Pollution) Act, 1974	ASPCB	Contractor
4	Permission for mining minerals (stones, aggregates, sand, earth, etc.) from riverbeds/ quarries	Environment Protection Act, 1986	Mines and Geology Department	Contractor
5	Pollution Under Control certificate for vehicles	Central Motor Vehicle Act 1988	Transport Department	Contractor/ PIU
6	Employing Labour/ Workers	The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996	Labour Department	Contractor
7	Fire Safety Clearance	National Building Code State Fire Prevention and Fire Safety Act/Rules Public Safety Standards of India	State Fire Department	Contractor
8	Electrical Safety	Indian Electricity Act, 1910 re-	Chief Electrical	Contractor

S. No.	Clearance/ Authorization	Relevant Act	Competent Authority	Responsibility
		enacted in 2003. Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010	Inspector	

19. The construction activities under the project are along rivers and in rural areas. These are considerably medium types of works to be built by local/ national contractors. As per the existing practices in Assam, mostly the labour will be local, and some will be migrants. There will be batching plants, crushing plants, etc., for the construction of these works. There will not be much extraction of groundwater for construction use; mostly river water will be used for these works; where groundwater is used, permissions required for extraction of groundwater will be obtained.

2.3 World Bank E & S standards

2.3.1 Environmental and Social Framework (ESF)

20. The World Bank's Environmental and Social Framework sets out the World Bank's commitment to sustainable development through a Bank Policy and a set of Environmental and Social Standards that are designed to support Borrowers' projects.

21. The Environmental and Social Standards set out the requirements for Borrowers relating to the identification and assessment of environmental and social risks and impacts associated with projects supported by the Bank through Investment Project Financing. The Bank believes that the application of these standards, by focusing on the identification and management of environmental and social risks, will support Borrowers in their goal to reduce poverty and increase prosperity in a sustainable manner for the benefit of the environment and their citizens. The standards will: (a) support Borrowers in achieving good international practice relating to environmental and social sustainability; (b) assist Borrowers in fulfilling their national and international environmental and social obligations; (c) enhance non-discrimination, transparency, participation, accountability and governance; and (d) enhance the sustainable development outcomes of projects through ongoing stakeholder engagement. The World Bank's Environmental and Social Standards relevant to this AIRBMP are presented in the table below:

Table 3: The World Bank Environment and Social Standards

Environment & Social Standard	Objective(s) of the ESS	Relevance
ESS1: Assessmentand Management of Environmental and Social Risks and Impacts	• Identify, assess, evaluate, and manage environment and social risks and impacts. • Adopt a mitigation hierarchy principle • Adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable. • Utilize national environmental and socialinstitutions, systems, laws, regulations and procedures where appropriate. • Promote improved environmental and social performance in ways which recognize and enhance Borrower capacity.	This standard is relevant; the ESMF study was undertakenas per the provisions of ESS1. The study reveals that various types of E&S risks under ESS2-8 and 10 are likely during construction and operation.
ESS2: Labour and Working Conditions	• Promote safety and health at work. • Promote fair treatment, non-discrimination, and	This standard is relevant as the project is going

Environment & Social Standard	Objective(s) of the ESS	Relevance
	equal opportunity for project workers. • Protect project workers, with emphasis on vulnerable workers. • Prevent the use of all forms of forced labor and child labor. • Support principles of freedom of association and collective bargaining of project workers. • Provide project workers with accessible means to raise workplace concerns.	to work with different kinds of labour of all categories, direct, indirect, contract, primary, etc., at different levels, and labour influx related risks are likely.
ESS3: Resource Efficiency and Pollution Prevention and Management	• Promote the sustainable use of resources, including energy, water and raw materials • Avoid or minimize adverse impacts on human health and the environment caused by pollution from project activities • Avoid or minimize project-related emissions of short and long-lived climate pollutants • Avoid or minimize the generation of hazardous and non-hazardous waste. • Minimize and manage the risks and impacts associated with pesticide use	This standard is relevant, given the opportunities to promote the efficiency of resource use and prevent pollution from activities to be financed under the project.
ESS4: Community Health and Safety	• Anticipate or avoid adverse impacts on the health and safety of project-affected communities during the project life-cycle. • Promote quality, safety and climate change considerations in infrastructure design and construction • Avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials, and have in place effective measures to address emergency events. • Ensure that the safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities	This standard is relevant, as there are communities in the vicinity/ surroundings of sub-project locations, and appropriate management measures would be required.
ESS5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	• Avoid or minimize involuntary resettlement by exploring project design alternatives. • Avoid forced eviction • Mitigate unavoidable adverse impacts from land acquisition or restrictions on land use through timely compensation for loss of assets at replacement cost and assisting displaced persons in their efforts to improve, or at least restore, livelihoods and living standards. • Improve living conditions of poor or vulnerable persons who are physically displaced. • Appropriate disclosure of information, meaningful consultation, and informed participation during resettlement activities	The project needs to acquire private land for the construction of some of the proposed sub-projects. The government land that is proposed to be used for sub-projects has encroachments and squatters, impacting livelihoods.
ESS6: Biodiversity Conservation and	This standard recognizes the importance of maintaining the core ecological functions of habitats,	Based on the environmental

Environment & Social Standard	Objective(s) of the ESS	Relevance
Sustainable Management of Living Natural Resources	including forests, and the biodiversity they support. All habitats support the complexities of living organisms and vary in terms of species diversity, abundance and importance. This ESS also addresses sustainable management of primary production and harvesting of living natural resources. This recognizes the need to consider the livelihood of project-affected parties, including Indigenous Peoples, who's access to,or use of, biodiversity or living natural resources may be affected by a project. The potential, positive role of project affected parties, including Indigenous Peoples, in biodiversity conservation and sustainable management of living natural resources is also considered.	assessment carried out as part of ESIA, impacts on biodiversity and habitats, including 'protected areas', 'critical natural habitats', 'modified habitats' and/or 'species with critical biodiversity value' are likely to be negligible. Any potential adverse impacts on biodiversity-rich areas/living resources on account of such works will be determined through an environmental screening process and assessment conducted, resulting in the preparation of a management plan.
ESS7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	• Ensure that the development process fosters full respect for affected parties' human rights, dignity, aspirational, identity, culture, and natural resource-based livelihoods • Promote sustainable development benefits and opportunities in a manner that is accessible, culturally appropriate and inclusive • Establish and maintain an ongoing relationship based on meaningful consultation with project-affected parties • Obtain Free, Prior, and Informed Consent (FPIC) of affected parties. • Recognize, respect and preserve the culture, knowledge, and practices of Indigenous Peoples	This standard is relevant as there are tribal communities in the project area.
ESS8: Cultural Heritage	• To protect cultural heritage from the adverse impacts of project activities and support its preservation. • To address cultural heritage as an integral aspect of sustainable development. • To promote meaningful consultation with stakeholders regarding cultural heritage.	Given the vast geographical area of the state across which sub-projects would be located, there is a possibility of cultural heritage related concerns, including chance finds, coming-up in the case of certain sub-projects under the proposed operation.

Environment & Social Standard	Objective(s) of the ESS	Relevance
ESS9- Financial Intermediaries	• Deals with projects funded by financial institutions as intermediaries.	Not applicable
ESS10: Stakeholder Engagement and Information Disclosure	• Establish a systematic approach to stakeholder engagement that helps Borrowers identify stakeholders and maintain a constructive relationship with them • Assess stakeholder interest and support for the project and enable stakeholders' views to be taken into account in project design • Promote and provide means for effective and inclusive engagement with project-affected parties throughout the project life-cycle • Ensure that appropriate project information is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner	This standard is relevant, as stakeholders need to be consulted throughout the project preparation and implementation period and also duly informed through disclosure of project related information.
OP 7.50 for projects on international waterways	• The environmental and social assessment will consider potentially significant project-related transboundary and global risks and impacts, such as impacts from effluents and emissions, and increased use or contamination of international waterways.	Where relevant, the environmental and social assessment will take into account these requirements.

22. The World Bank Group's General Environment, Health and Safety (EHS) Guidelines, 2007 set out international good practice related to environment, health and safety, which the project should follow regarding assessment of potential impacts and applicable standards and management measures, performance indicators, and monitoring guidelines. In particular, the guidance in Section 4 on Construction and Decommissioning will be applicable to this project. When national requirements differ from the standards and measures set out in these guidelines, then FREMAA will need to ensure that it achieves whichever is more stringent.

2.3.2 Comparison of ESF and National Regulation – Gaps and Remedies

23. The table below compares each of The World Bank's Environmental and Social Standards with the equivalent national and state environmental and social acts/ policies/ regulations and the gaps, including the remedial measures to fill the gaps.

Table 4: Comparison of ESF and National Regulation – Gaps and Remedies

ESS	Equivalent National and State Environment/ Social Policy/ Regulation	Policy Gaps, Remedies and Redressal
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Environment Protection Act/ Rules 1986 and amendments till date EIA Notification 14th Sep 2006 and amendments till date. The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	As per the MoEF&CC EIA Notification 2006, embankment works do not require any EIA or approval from MoEF&CC or ASPCB. Borrowing of the earth for embankment will require permissions from ASPCB and will require prior environment clearance under the mining of minor minerals category. The PMU and PIUs will ensure that the

		ESS1 provisions are implemented through PMTC and DMSC and monitored by E&S Specialists of PMU and PIUs.
ESS 2: Labour and Working Conditions	Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 Workmen Compensation Act, 1923 Inter-state Migrant Workers Act, 1979 The Child Labour (Prohibition & Regulation) Amendment Act, 2016 Building and Other Construction Workers Welfare Cess Act, 1996 Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act) Contract Labour (Regulation & Abolition) Act 1970 Payment of Wages Act, 1936 The minimum wages rules Assam 1952 Payment of Gratuity Act, 1972 The payment of gratuity rules Assam 1972 Employees Provident Fund and Miscellaneous Provision Act, 1952 Maternity Benefit Act, 1951 Assam Maternity benefit Rules 1965 Payment of Bonus Act, 1965 The Payment of Bonus Rules Assam 1975 The Bonded Labour (Abolition) Act 1976 Bonded Labour System (Abolition) Rules 1976 The Trade Union Act, 1926 The new labour codes of India; 1) Code on Social Security, 2020, 2) Code on Wages, 2019, 3) Industrial Relation Code, 2020 and 4) Occupational Safety, Health, and Working Conditions Code, 2020.	The national and state legal provisions cover almost all requirements in ESS2 and the requirements of a functional GRM for different types of workers. For this project, a Labour Management Procedures is prepared to regulate working conditions and managementof labour relations including worker specific GRM, terms and conditions of employment, code of conduct, non-discrimination and equal opportunities, protection of labour force, prohibition of child/force labour and provision of OHS requirements. The main gap that LMP will cover is the OHS requirements of direct and contracted workers. The other gaps that the LMP fills are the provision of Code of Conduct for workers, GBV prevention measures, GRM for workers, etc. The PMU and PIUs will ensure that the ESS2 provisions are implemented through PMTC and DMSC and monitored by E&S Specialists of PMU and PIUs. The concerned Labour Officers will also be monitoring these.
ESS 3: Resource Efficiency and Pollution Prevention and Management	The Mines and Minerals (Development and Regulation) Act, 1957 Assam Minor Mineral Concession Rules 2013 Assam Mineral Regulation and Dealers Rules 2020 Air (Prevention and Control of Pollution) Act, 1981, 1987 Water Prevention and Control of Pollution) Act, 1974, 1988 Noise Pollution (Regulation and Control Act) 2000 and amendments till date Hazardous & Other Waste (Management and Trans-boundary Movement) Rules, 2016 Manufacture, Storage & imports of Hazardous Chemicals (MSIHC) Rules, 1989 as amended till date The Batteries (Management and Handling) Rules 2001 Construction and Demolition Waste Management Rules, 2016 Vehicle Act 1988 Central Motor Vehicle Rules 1989 Energy Conservation Act, 2001 Roof-top Rain Water Harvesting, 1999	The majority of ESS3 requirements are directly addressed by existing regulations and indirectly for resource efficiency and climate change aspects, including pollution prevention and management. The PMU and PIUs will ensure that the ESS3 provisions are implemented through PMTC and DMSC and monitored by E&S Specialists of PMU and PIUs. The ASPCB will also be monitoring these.
ESS 4: Community Health and Safety	The Gas Cylinder Rules 2016 Hazardous & Other Waste (Management and Trans-boundary Movement) Rules, 2016	These existing laws and rules are to protect community health and safety. Hence, these laws and rules fulfil the

	Disaster Management Act, 2005 Assam State Disaster Management Policy 2010 Solid Waste management Rules, 2016 Plastic waste management Rules, 2016 E-Waste Management Rules, 2016 Rights of Persons with Disabilities Act, 2016 Air (Prevention and Control of Pollution) Act, 1981, 1987 Water Prevention and Control of Pollution) Act, 1974, 1988 Noise Pollution (Regulation and Control Act) 2000 and amendment till date Manufacture, Storage & imports of Hazardous Chemicals (MSIHC) Rules, 1989 as amended till date The Batteries (Management and Handling) Rules 2001 Construction and Demolition Waste Management Rules, 2016 Vehicle Act 1988 Central Motor Vehicle Rules 1989 Bureau of Indian Standards (BIS) National Building Codes	community health and safety requirements. The BIS standards and building codes address the community health and safety requirements. In addition, an ESMP is prepared to be implemented by the contractors, keeping community health and safety in mind. This ESMP deals with community health and safety which includes OHS plan, labour Influx management Plan, workers camp management plan, traffic and road safety management plan, etc. The PMU and PIUs will ensure that the ESS4 provisions are implemented through PMTC and DMSC and monitored by E&S Specialists of PMU and PIUs.
ESS 5: LA, Restriction on Land Use and Involuntary Resettlement	The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 Notification on Land Acquisition through Direct Purchase by the way of negotiated settlement for public purpose of all departments in the state of Assam No. RLA.177/2021/3 dated 07/03/2022	Gap exists specifically related to aspects such as the identification of non-titleholders as PAPs and cut off dates for non-titleholders. The gaps are addressed with suitable provisions in RPF. The PMU and PIUs will ensure that the ESS5 provisions are implemented through PMTC and DMSC and monitored by E&S Specialists of PMU and PIUs. The Revenue Department, through the concerned Deputy Commissioners, will be part of the implementation and monitoring.
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	The Forest (Conservation) Act, 1980 and Amendments and The Forest (conservation) Rules 1981 and Amendments National Forest Policy 1988 Biological Diversity Act, 2002 Assam Forest Policy, 2004 Assam Biodiversity Rules, 2010 Wildlife Protection (Assam Amendment) Act 2009 Eco-sensitive Zone Notifications 2015 State Compensatory Afforestation Fund Management and Planning Authority Forest (Conservation) Amendment Rules, 2014 The Assam Compensatory Afforestation Fund Rules, 1994 Assam (Control of Felling & Removal of trees from Non-forest Land) Rules 2002 Assam Rhinoceros Preservation Act 1954 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	Provisions from the acts meet the ESS requirements. ESMP is prepared to address the wildlife presence and movement outside the protected area and in and around the project corridor. The PMU and PIUs will ensure that the ESS6 provisions are implemented through PMTC and DMSC and monitored by E&S Specialists of PMU and PIUs. The Forest Department and the concerned Wildlife Wardens will be monitoring the implementation of these measures.
ESS 7: Indigenous Peoples	Article 366 (25) of the Constitution of India Article 244(1) of Constitution of India - The Fifth Schedule under Article 244(1) of a subsequent Act of Constitution “Scheduled Areas” as such areas as the	The legislation meets the requirements of ESS, including FPIC. The PMU and PIUs will ensure that the ESS7 provisions are implemented

	President may by order declare to be Scheduled Areas after consultation with Governor of that State. Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 Panchayats (Extension to the Scheduled Areas) Act, 1996	through PMTC and DMSC and monitored by E&S Specialists of PMU and PIUs. The concerned Tribal Development Councils will monitor these provisions.
ESS 8: Cultural Heritage	Ancient Monuments and Archaeological Sites and Remains Act, 1958 and 1959 The Treasure Trove Act 1878	The legislation meets the requirements of ESS. The Chance Finds procedures are available in the legislation. The chance find procedures are included in ESMP. Impacts on religious structures (not protected, but social and cultural value) will be mitigated or managed through provisions for restoration. The PMU and PIUs will ensure that the ESS8 provisions are implemented through PMTC and DMSC and monitored by E&S Specialists of PMU and PIUs.
ESS 9: Financial Intermediaries	Not Applicable	
ESS 10: Stakeholder Engagement and Information Disclosure	EIA Notification 14th Sep 2006 and amendments till date. The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 Panchayats (Extension to the Scheduled Areas) Act, 1996 Right to Information Act, 2005	The legislation partly covers this ESS with the act requiring providing information when asked for. Almost all government agencies have GRM and Citizen Charters detailing the redressal and service services. ESS 10 has the provision for borrower to respond grievances of project-affected parties related to the environmental and social performance of the project in a timely manner as well as to proactively disclose publicly project related information. The PMU and PIUs will ensure that the ESS10 provisions are implemented through PMTC and DMSC and monitored by E&S Specialists of PMU and PIUs.

3. Project Environmental and Social Baseline

3.1 Introduction

24. This chapter presents a summary of environmental and social baseline conditions. The ESIA of the identified subprojects under the Beki and Buridehing sub-basins presents an E&S baseline for those subprojects. However, for the sub-projects using this ESMF, where an ESIA is required, a sub- project specific environmental and social baseline will be collected and included in the ESIA report.

25. The AIRBMP, in general, will focus on the entire Assam to build requisite institutional capacity and implement integrated solutions to tackle the current challenges of floods and erosion. However, the physical investments of AIRBMP will mainly focus on three of the six sub basins of the Brahmaputra River in Assam. These three sub basins are Buridehing, Beki and Jiadhal. A detailed Environmental and Social Baseline is presented under Annex 2. A Brief summary is provided below:

3.2 Environmental

26. Geologically, the state can be divided into three structural regions: the alluvial plains of Brahmaputra and Barak, the plateau region of Karbi Anglong, and the Tertiary Era Mountains of North Cachar Hills. Assam is comprised of two river systems: the Brahmaputra and the Barak. The Brahmaputra Valley has an average width of about 80 Km. The Buridehing, Beki and Jiadhal basins form some of the major sub-basins of the Brahmaputra. The Buridehing catchment area experiences heavy showers during monsoon (ranging from 2000mm to 4000mm) and is located in the seismically most unstable zone. Heavy shower lashing on the steep hill slopes causes a great deal of soil erosion. The high flood water in the Beki River exerts a heavy thrust on the bank from Mothanguri to Safakamar.

27. From the climatic point of view, the year in Assam can broadly be divided into the cold and rainy seasons. With an average of 24.1°C (75.4°F), February is the warmest month. July is the coldest month, with temperatures averaging 21.9°C (71.4°F). The precipitation varies from 297 mm to 340 mm between the driest and wettest months. Throughout the year, temperatures vary by 2.2°C (36.0°F). Assam is categorized as earthquake Zone 5.

28. The soils of Assam are very rich in content of nitrogen and organic matter. The alluvial soils of the Brahmaputra and the Barak valley are highly fertile and are very much suitable for raising varieties of crops around the year. Based on the rainfall pattern, terrain and soil characteristics, Assam has been delineated into six agro-climatic zones, viz.; North Bank Plain Zone, Upper Brahmaputra Valley Zone, Central Brahmaputra Valley Zone, Lower Brahmaputra Valley Zone, Barak Valley Zone, and Hill Zone. Agriculture is the dominant land use category in the state. It accounts for about 54.11% of the state's total geographical area. The quality of groundwater is generally safe for drinking, industrial and agricultural purposes.

29. Assam, one of the biodiversity hotspots, occupies a special place in North Eastern India. The State has reported the extent of recorded forest area (RFA) as 26,832 sq km, which is 34.21% of its geographical area. The reserved and unclassed forests are 66.58% and 33.42% of the recorded forest area in the State, respectively. The Protected area Network in Assam occupies 3925 sq. km. area and constitutes about 5% of the State’s geographical area; they play a very important role in the in-situ conservation of biodiversity.

30. The Protected Areas Network (PAN) in Assam includes; 7 National Parks, 17 Wildlife sanctuaries, 3 Proposed Wildlife Sanctuaries, 3 Tiger Reserves (Manas, Nameri, Kaziranga), 5

Elephant Reserves, 2 Biosphere Reserves and 2 World Natural Heritage Sites. The State of Assam is a constituent unit of the Eastern Himalayan Biodiversity Region, one of the two biodiversity's "Hot Spots" in the country. Assam is part of one of the 25 mega-diverse regions on planet earth. Categories of threatened plants recognized by the IUCN have been reported from Assam. Besides theabove, 284 species of plants are observed to be critically endangered, 149 species as endangered, 58 species as vulnerable, and 13 species as near threatened.

31. The Manas National Park is a world heritage site containing the most important and significant natural habitats for in-situ conservation of biological diversity. This park includes the Manas Tiger Reserve (MTR). A total of 543 plant species have been recorded from the core zone of the park. The tiger reserve has tremendous faunal diversity and the species include: 61 mammals, 450 birds, 42 reptiles, 9 amphibians, 79 fishes, more than 200 butterflies and 100 invertebrates. The habitat supports (IUCN listed) 1 critically endangered, 7 endangered and 10 vulnerable mammals. The Manas hosts more than 450 species of birds. The Manas habitat has a very good potential for harboring tigers. As per the 2010 country-level assessment of tigers, the density was assessed as 1.8 tigers per 100 sq.km. There are 3 works under the sub-project located in the vicinity of the Manas National Park.

4. Potential Environment & Social Risks and Impacts

4.1 Introduction

32. This chapter presents an overview of potential activities involved in various project components and identifies typical environmental and social impacts and risks. The objective of this exercise has been to assess the overall environmental and social risk of each subcomponent (on the scale of High, Substantial, Moderate and Low – consistent with ESF guidelines) and develop clear procedures for the preparation of ESIAs, ESMPs, and other detailed studies for the proposed project activities. According to the EIA Notification Act, 2006, none of the proposed investments in the project require preparation of EIA, and hence the procedures described for the preparation of ESIA and ESMPs follow the World Bank ESF requirements. The E&S management procedures for Components 2 and 3 works are presented in the next two chapters.

4.2 Screening of Impacts Associated with Component 1 Interventions

33. Component 1 interventions will mainly consist of Technical Assistance to carry out strategic studies and institutional strengthening of WRD and ASDMA. There will be no civil works under this component. Hence interventions under Component 1 will mainly result in positive environmental and social impacts. The potential environmental and social impacts and risks due to Component 1 interventions are given in **Table 5**, along with the proposed mitigation measures. No further E&S procedures are required for Component 1 activities during the project implementation.

Table 5: Potential E&S Impacts and Risks of Component 1 Interventions

Components and Interventions	**Potential E&S Benefits**	**Potential E&S Risks and Impacts**	**Relevant ESS and Type of Assessment**
Formulating Assam Water Policy (Technical Assistance)	The new water policy will establish a foundation for integrated water resources management (IWRM) to facilitate water-related environmental sustainability.	**Low**: The new water policy should not have any indirect adverse impacts. The water policy might not focus enough on environmental sustainability and social equity.	ESS2, ESS10 E&S requirements to be integrated into the TORs
Assam Brahmaputra Basin Strategic Studies (Technical Assistance)	The plan will consolidate the baseline E&S features of the Brahmaputra River in Assam. Provide strategic directions to WRD on infrastructure development and water-related environmental priorities in Phase 2.	**Low**. A properly developed strategic plan should not generate any adverse impacts but rather provide strategic direction to Assam on reducing environmental degradation. Inadequate coverage of environmental and social issues in the studies. Lack of proper consultation with stakeholder groups, including marginalized and vulnerable groups	ESS2, ESS10 E&S requirements to be integrated into the TORs
1.2 Institutional Strengthening of ASDMA (Technical Assistance)	Provide a reliable and advanced flood forecasting system to save vulnerable communities from flood-related hazards.	**Low.** No adverse environmental or social impacts are anticipated due to the strengthening of ASDMA.	ESS2, ESS10 E&S requirements to be integrated into the TORs
1.3 Project Management Support	Supports overall project implementation.	**Low**. Generation of waste in offices. Labour-related issues, including facilities for workers and grievances	ESS2, ESS10 E&S requirements

Components and Interventions	Potential E&S Benefits	Potential E&S Risks and Impacts	Relevant ESS and Type of Assessment
(Technical Assistance)		from workers	to be integrated into the TORs

High - projects that are likely to generate a wide range of significant adverse risks and impacts on human populations or the environment. This could be because of the complex nature of the projects, the scale (large to very large) or the sensitivity of the location(s) of the projects. The present Project doesn't have such activities.
Substantial - projects may not be as complex as High-Risk Projects, their ES scale and impact may be smaller (large to medium), and the location may not be in such a highly sensitive area, and some risks and impacts may be significant.
Moderate - the potential adverse risks and impacts on human populations and/or the environment are not likely to be significant.
Low - its potential adverse risks to and impacts on human populations and/or the environment are likely to be minimal or negligible

4.3 Screening of Impacts Associated with Component 2 Interventions

34. Component 2 interventions will include civil works in anti-erosion and embankment strengthening works and strategic studies that will lead to civil works in subsequent phases of the AIRBMP. This ESMF is for Phase 1 as mentioned and will be updated for the subsequent phases. The E&S risk rating of these investments will be substantial. Component 2 works also involve the procurement of goods for improved data acquisition and the construction of a new office building adjacent to the FREMAA office. The potential environmental and social impacts and risks due to Component 2 interventions are given in **Table 6**, along with the proposed mitigation measures. E&S procedures to be followed for Component 2 activities are detailed in the next chapter.

Table 6: Potential E&S Impacts and Risks of Component 2 Interventions

Components and Interventions	Potential E&S Benefits	Potential E&S Risks and Impacts	Relevant ESS and Type of Assessment
River Works in Beki and Buridehing under Package 1 (Civil works) (These works are not the subject of this ESMF as an ESIA is conducted and site-specific ESMPs are already prepared and approved)	Anti-erosion works will control further riverbank erosion in critical areas and save about 200 ha of fertile floodplain land annually from erosion. Embankment rehabilitation works will safeguard the livelihoods of about 120,000 people from floods.	**Substantial**: Significant construction-related environmental and social impacts. Land loss and restrictions on access during construction and labour influx impacts are key adverse impacts apart from a total of about 169 Ha of land (127 Ha of Government land and 42 Ha of private land) impacting 553 PAFsis required for Package 1 Beki works. Works are carried out in the vicinity of Manas National Park, rivers, a Tiger and Biodiversity reserve and reserve forests. Significant construction-related environmental, social and OHS risks and gender-based violence associated with large-scale construction works Significant land acquisition and resettlement.	ESS2-8 and 10 Screening, ESIA and Site Specific ESMPs.

Future River Works in Beki and Buridehing Phase 1 (Civil works)	Control of river bank erosion in the high-priority areas that may emerge during project implementation	**Substantial.** Significant construction-related environmental and social impacts. Works in proximity to reserve forests. Risk of land and assets loss. Significant construction-related environmental, social and OHS risks	ESS2-8 and 10 Screening, ESIA and Site Specific ESMPs.
Preparation of Integrated Flood Risk Management (IFRM) Plans for Beki, Buridehing and Jiadhal basins and preparation investments (Technical Assistance in Phase 1)	The Plans will assess and address key water and environmental issues with an integrated approach. Provide strategic directions to the WRD on identifying proposed investments considering E&S priorities. Sustainable IWRM through assessment and management of cumulative environmental impacts and risks.	**Low.** Properly formulated IFRMs should not generate any adverse impacts but rather provide strategic directions to WRD on how to reduce cumulative environmental and social impacts. Inadequate coverage of environmental and social issues in the IFRMs. Lack of proper consultations with all relevant stakeholders, including marginalized and vulnerable groups	ESS2, ESS10 E&S requirements to be integrated into the TORs
Implementation of the above-identified river works in Beki, Buridehing and Jiadhal basins under Phase 2 and 3. (Civil works)	Control of river bank erosion in the high-priority areas that may emerge during project implementation	**Substantial.** Significant construction-related environmental and social impacts. Works in proximity to reserve forests. Risk of land and assetsloss. Significant construction-related environmental, social and OHS risks	ESS2-6 & 8 This ESMF will be updated for Phase 2 and 3, as required.
2.3 Data Collection and Asset Management (Goods and Technical Assistance)	Supports improved flood forecasting and planning.	**Low**. No adverse environmental and social impacts. Procurement of non-energy efficient data acquisition systems.	ESS2, ESS3, ESS10
2.4 Assam Water Centre Annex	Improved coordination between WRD and ASDM during flood emergencies.	**Moderate.** Low to moderate environmental risks are associated with constructing a new building in Guwahati adjacent to the existing Assam Water Centre. No land acquisition and resettlement are needed. Lack of adequate building design facilities such as water supply and sanitation, structural safety, and universal access. Potential environmental and OHS risks during construction	ESS2-4, ESS8 and 10 Site specific ESMP
2.5 WRD Project Management	**Substantial.** Provision for engagement of specialized E&S consultants	**None** Not Applicable	ESS2

4.4 Screening of Impacts Associated with Component 3 Interventions

35. Component 3 interventions will involve the construction of 5-10 new flood shelters and the augmentation of around 30 schools as flood shelters. These are small-scale civil works and the E&S risk rating of these investments will be low to moderate. The potential environmental and social impacts and risks due to Component 3 interventions are given in **Table 7**, along with the proposed mitigation measures. E&S procedures to be followed for Component 3 activities are detailed in the next Chapter.

Table 7: Potential E&S Impacts and Risks of Component 3 Interventions

Components and Interventions	Potential E&S Benefits	Potential E&S Risks and Impacts	Relevant ESS and Type of Assessment
Construction of 5 to 10 new flood shelters(9 locations have been identified) (Civil works)	Provide safe and secure accommodation to about 400 to 500 people in each shelter during floods.	**Low**: General construction-related impacts associated with small civil works such as soil erosion, dust and noise pollution, waste generation, groundwater pollution, traffic and road safety, occupational health and safety risks, SEA/SH risk life and fire safety risks for structures (both temporary and permanent), etc. No land acquisition and resettlement are needed as they will be constructed in government lands free of encroachment. Lack of adequate management of shelter facilities, such as water supply, toilets, waste and wastewater management, universal access etc.	ESS2-8 and 10 Screening, Site Specific ESMP
Augmentation of 30 schools (22 schools have been identified) (Civil Works)	Provide safe and secure accommodation to about 400 to 500 people in each shelter during floods.	**Moderate**: General construction-related impacts associated with small civil works such as soil erosion, dust and noise pollution, generation of waste, groundwater pollution, traffic and road safety, occupational health and safety risks, etc. No land acquisition and resettlement is needed. Exposure of children (students), teachers, staff, parents, etc., to a) construction-related accidents and health and safety risks, b) labour influx risks, c) GBV-related risks, d) VAC and child trafficking, etc. During operation, lack of adequate management of shelter facilities, such as water supply, toilets, waste and wastewater management, universal access, etc.	ESS2-8 and 10 Screening, Site Specific ESMP
3.2 Early Warning and Dissemination System (Goods and Technical Services)	Improved early warning and dissemination systems in the disaster-risk vulnerable areas	**Low.** No civil works in this component. Lack of understanding of the messages by non-Assamese speakers.	ESS2, 3 and 10 Screening
3.3 Revenue Circle Disaster Management (Goods and Civil Works)	Decentralization of disaster response functions to local communities.	**Low.** Inadequate representation of women and tribal's in CQRT teams	ESS2-4, 8 and 10 Screening, simplified ESMP
3.4 Climate Resilient Villages (Technical Assistance and	Enhance community resilience through the strengthening of the village disaster management	**Low.** Minor civil works for constructing low-cost flood-resilient housing structures with local materials. Lack of consideration of E&S aspects in the preparation of Village Disaster Mitigation Plans	ESS2-8 and 10 Screening, Simplified ESMP

Components and Interventions	Potential E&S Benefits	Potential E&S Risks and Impacts	Relevant ESS and Type of Assessment
Civil Works)	planning process	(VDMPs)	
3.5 ASDMA Project Management	**None**	**None**	ESS2

4.5 ESS-wise Summary E&S Impacts and Risks of the Project

36. The ESS-wise potential adverse E&S impacts and risks of the project are summarized and presented in **Table 8**.

Table 8: Summary E&S Impacts and Risks of all Project Components (ESS-wise)

Environmental and Social Standards	Project Components having Impacts	Potential Environmental Impacts	Potential Social Impacts
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	➢ Anti-Erosion Works ➢ Rehabilitation of Existing River Banks works ➢ The Assam Water Center Annex ➢ Technological Demonstration Units (TDU) ➢ New Flood Shelters ➢ Augmentation and retrofitting of existing Schools as Flood Shelters All the above components are assessed for environmental and social risks and impacts, and management plans prepared	➢ OHS Risks ➢ Risks due to Labour influx ➢ Risks due to inefficient resource use and pollution ➢ CHS Risks ➢ Impacts on River banks, terrestrial and aquatic habitats, cutting of trees and location of national parks and reserve forests in the vicinity ➢ Risk of Impacts on cultural resources and chance finds	➢ GBV/ SEA/ SH risks ➢ Labour-related risks and risks due to Labour influx ➢ Inefficient use of resources ➢ CHS Risks ➢ Land and livelihoods loss ➢ Loss of natural resources ➢ Risks of working in tribal areas and impacts on tribal's ➢ Loss of Common Property Resources ➢ Unresolved Grievances and information disclosure
ESS2: Labour and Working Conditions	➢ Anti-Erosion Works ➢ Rehabilitation of Existing River Banks works ➢ The Assam Water Center Annex ➢ Technological Demonstration Units (TDU) ➢ New Flood Shelters ➢ Augmentation and retrofitting of existing Schools as Flood Shelters ➢ All the above components will need labour and will have impacts related to labour influx.	➢ OHS Risks. Occupational health and safety risks on workers due to hazards associated with construction activities. ➢ Labour Influx: As mostly only unskilled labour is available locally, the sub-projects would increase the floating population and influx of labour and may adversely spread certain communicable diseases if not checked. ➢ Risk of Covid-19 and HIV-AIDS ➢ Risk of child and forced labour	➢ Health risks. Potential health risks to workers due to inadequate facilities in the construction camps. ➢ Labour Influx: A brief assessment during the consultations reveals that mostly unskilled labour is available in the project communities. ➢ Risk gender-based violence (GBV), Sexual Exploitation and Abuse (SEA) and sexual harassment (SH) ➢ Unequal Wages: Unequal wages to unskilled female workers.
AESS3: Resource Efficiency and	➢ Anti-Erosion Works ➢ Rehabilitation of Existing River Banks works	➢ Sourcing of soil and aggregates for Construction of anti-erosion and embankment	➢ Inefficient use of water resources in the construction camps, flood shelters and

Environmental and Social Standards	Project Components having Impacts	Potential Environmental Impacts	Potential Social Impacts
Pollution Prevention and Management	➢ The Assam Water Center Annex ➢ Technological Demonstration Units (TDU) ➢ New Flood Shelters ➢ Augmentation and retrofitting of existing Schools as Flood Shelters	works ➢ Generation of waste, including solid waste and hazardous waste from construction activities and also from flood shelter maintenance activities. ➢ Groundwater use and pollution: Groundwateris presently being used for household and drinking purposes by the local communities. Project activities and contractors may extract groundwater. Groundwater is located at shallow depths and is susceptible to pollution from construction activities. ➢ Surface water pollution: It is observed that Surface water is used for washing and for animals. It is possible that the project activities will pollute the surface water. ➢ Air Pollution due to construction equipment: The sub-projects will require power during construction and diesel generators might be used for power supply during the operation of flood shelters. ➢ Debris Disposal and pollution: The project may result in improperly disposed of construction debris. Appropriate mitigation measures are suggested to control air, water, noise pollution, solid and liquid waste management, etc. Improper housekeeping practices at construction sites may lead to pollution. ➢ Loss of topsoil: The project activities may cause loss of top fertile soil.	offices. ➢ Use of energy-inefficient electrical fixtures in the construction camps and offices
ESS 4: Community Health and Safety	➢ Anti-Erosion Works ➢ Rehabilitation of Existing River Banks works ➢ The Assam Water Center Annex ➢ Technological Demonstration Units (TDU)	➢ The project will have an impact on the health of local communities due to water contamination, emissions, dust, and traffic pollution during the implementation phase,	➢ Community exposure to construction hazards and nuisances ➢ The community might face problems of labour influx in terms of health and safety

Environmental and Social Standards	Project Components having Impacts	Potential Environmental Impacts	Potential Social Impacts
	➢ New Flood Shelters ➢ Augmentation and retrofitting of existing Schools as Flood Shelters All the above components will have an interface with the communities and will have impacts on community health and safety.	which will be nullified by implementing a proper environmental management plan. ➢ There could be a risk of accidents due to the vehicles plying for project purposes. ➢ The project vehicles will contribute to the pollution in the area. ➢ Possibility of construction/demolition wastes (including de-weeding wastes, muck/silt, dust, etc.) disposed of in the community surroundings. ➢ There is a possibility of storage of fossil fuels or other toxic substances stored and spills/ leaks might occur. ➢ Handling and disposal of ACM foraugmentation of existing schools ➢ Assam falls under Seismic Zone 5 and is also susceptible to frequent floods and cyclones.	issues. ➢ There is a possibility of disruption to utilities such as water, electricity, telephone, internet, etc., during the construction operations. This could be planned or accidental due to damage from construction operations. ➢ It is observed that there is a possibility of temporary access block to the nearby villagers/ communities during construction activities. ➢ Barrier effect by the embankment on the movement of people and livestock between the countryside and the river ➢ School children will be exposed to construction-related risks during the augmentation of schools ➢ Lack of universal access and adequate drinking water and toilet facilities in the flood shelters and new buildings to be constructed in the project ➢ Potential risk of SEA/SH and VAC
ESS 5: LA, Restriction on Land Use and Involuntary Resettlement	➢ Anti-Erosion Works ➢ Rehabilitation of Existing River Banks works The above works may require land acquisition and resettlement.		➢ Land Loss: The project requires both Government and Private land and the resultant physical displacement. ➢ Livelihood Loss: There are encroachers mostly doing agriculture.
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	➢ Anti-Erosion Works ➢ Rehabilitation of Existing River Banks works ➢ New Flood Shelters The above works may have impact on the biodiversity.	➢ Impact on riverbank and aquatic habitats due to construction of revetment works and placing of geobags. ➢ Cutting of trees from the existingembankments and river banks. ➢ Impacts on the Reserve forests and key	➢ Loss of natural resources: It is observed that the local communities do fishing in the river for their own consumption and for occasional sale when the catch is sufficient. Project activities may flush out the fish.

Environmental and Social Standards	Project Components having Impacts	Potential Environmental Impacts	Potential Social Impacts
		biodiversity areas are located within the sub basins. 3 of the Beki Basins works (2 Anti-Erosion works and 1 Embankment work) under Package 1 are located in the vicinity of Manas National Park.	➢ Most communities at the sub-project sites tend to harvest natural resources to supplement their living. Consultations reveal that a few people do collect and sell fuel wood for additional income. Labour may emulate the same practices.
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Understand Traditional Local Communities	➢ Anti-Erosion Works ➢ Rehabilitation of Existing River Banks works ➢ Technological Demonstration Units (TDU) ➢ New Flood Shelters ➢ Augmentation and retrofitting of existing Schools as Flood Shelters Some of the project sites are located in the Schedule 6 areas that are dominated by the tribal's.		➢ Impacts of Tribal's: Presence of tribal's in sub-project locations having characteristics described under ESS7. ➢ Presently there are no adverse impactson Tribal's. If there is any adverse impact on the indigenous population due to land loss/livelihood loss/ other impacts due to project, then it requires Free Prior Informed Consultations.
ESS 8: Cultural Heritage	➢ Anti-Erosion Works ➢ Rehabilitation of Existing River Banks works ➢ The Assam Water Center Annex ➢ New Flood Shelters ➢ Augmentation and retrofitting of existing Schools as Flood Shelters	➢ The Anti-Erosion Works and Rehabilitation of Existing River Banks works may have some places of religious and cultural importance but not any recognized cultural heritage areas. ➢ Relocation of religious places from the construction sites. ➢ Likelihood of not following Chance Finds procedures in the event of chance finds.	➢ Common Property Resources may get affected due to project activities
ESS 10: Stakeholder Engagement and Information Disclosure	➢ All project activities	➢ Consultations were conducted for the preparation of ESMF ➢ Continued consultations during the project implementation as per Stakeholder Engagement Plan	➢ Grievances from the project-affected communities.

5. Environmental & Social Management Procedures - Component 2

5.1 Introduction

37. This ESMF is for Phase 1 of the program. This chapter describes the step-by-step procedures to be followed for carrying out the environmental and social assessment studies for these subprojects, from the screening stage to the completion stage. The environmental and social aspects to be considered in preparing the integrated flood risk management plans (Component 2.2) are given in Annex 6.The environmental and social management plans for all the components to be taken up under Phase 1 are given under the Annexes, including that of the construction of the new office building (Component 2.4).Procedures for preparing the Resettlement Action Plan (RAP) and Tribal Development Plan (TDP) are detailed in RPF and TDF, respectively.

5.2 Proposed Interventions

38. Considering the current conditions, WRD proposes urgent protection of the (i) most vulnerable riverbanks, especially those that directly protect adjacent embankments and other critical infrastructure (bridges, quay walls in cities, river ports, pipelines, important buildings etc.) and (ii) vulnerable embankments.

5.2.1 Embankment Works

39. In the current phase, the proposed works include strengthening and raising existing embankments at the most critical reach. The unsuitable material from the embankment will be removed and replaced by approved materials laid in layers to the required degree of compaction. The embankment shoulders/verge and side slopes will be shaped to conform to the alignment, levels, cross-sections and dimensions as per the designs. Finally, the embankment slopes and verges will be furnished with live sod of perennial grass turf.

5.2.2 Anti-Erosion Works

40. The proposed anti-erosion works for control of riverbank erosion include the construction of (i) an apron with sand-filled geobags, (ii) revetment with geo-bags over geo filter media and toe key with PVC-coated crates filled with geobags and (iii) launching of porcupines. Anti-erosion works will be carried out to protect the riverbank from further erosion. The riverbank protection work will be comprised of the controlled placing of crates filled with geobags and dumping of Geo-bags belowthe Lowest Low Water (LLW, the lowest water level recorded over a 50-year return period) as an apron, placed over the Geotextile filter media as a revetment. In the transition zone between the revetment and the falling apron, at LWL, a toe key will be constructed with wire-netting boxes filled with geobags as per specifications and drawings. This protection extends below Lowest Low Water and forms a transitional berm towards the underwater slope protection. The protection extends below the Lowest Low Water and forms a transitional berm toward the underwater slope protection. Concrete porcupine[5] bars will be placed upstream and downstream of the site.

5.3 E&S Management Procedures for Components 2.1 and 2.2 River Works

[5]"Porcupines" is a prismatic type permeable structure, comprises of six members of made of Reinforced Cement Concrete (RCC)/ Pre- Stressed Concrete (PSC), which are joined with the help of iron nuts and bolts. These structures are used as permeable screens which are used to dampening of the velocity to induce siltation from silt laden flow and to deposit the silt along the affected area so as to shift the flow away from the protected reach.

41. Component 2.1 includes river works in Beki and Buridehing basins, and ESIAs and RAPs have been prepared for already identified works under Package 1. Component 2.1 also includes a provision of US$ 15 million for the implementation of small and high-priority river works thatemerge during the implementation. The E&S procedures for the management of these river works are described below. The river works that will be implemented in Phases 2 and 3 will be identified through integrated flood risk management plans for Beki, Buridehing and Jiadhal basins. Detailed designs, including ESIA studies for these works, will be carried out in Phase 1; for which E&S requirements will 1be integrated into the TORs.

The sequence of Proposed Subproject Activities

42. These activities are presented as a flowchart in Figure 1. Detailed guidelines for carrying out these activities are described in the subsequent sections. The Project Implementing Agency (PIU) of WRD and the Project Management Technical Consultants (PMTC) will be mainly responsible for completing these activities.

Step 1: Screening

43. For subprojects that are yet to be identified, a screening exercise will be carried out once they are identified through a reconnaissance site visit. The purpose of this visit will be to initiate the environmental and social assessment of the project, to assess the baseline conditions of the area, to identify the key environmental resources and social features of the area, to identify any environmental and or social sensitivity of the area, and to determine the presence of any environmental and or social hotspots in the area and to identify relevant ESS. A checklist (**Annex 6**) will be filled for subprojects based on the findings and observations of the reconnaissance visit.

44. The outcome of the screening exercise suggests whether the proposed subprojects would need detailed ESIAs or site-specific ESMPs. If the screening concludes that the proposed subprojects are of substantial-risk category, a detailed ESIA will need to be developed. For the moderate-risk projects, the site-specific ESMPs will be prepared. All the river works subprojects are expected to fall into the substantial risk category.

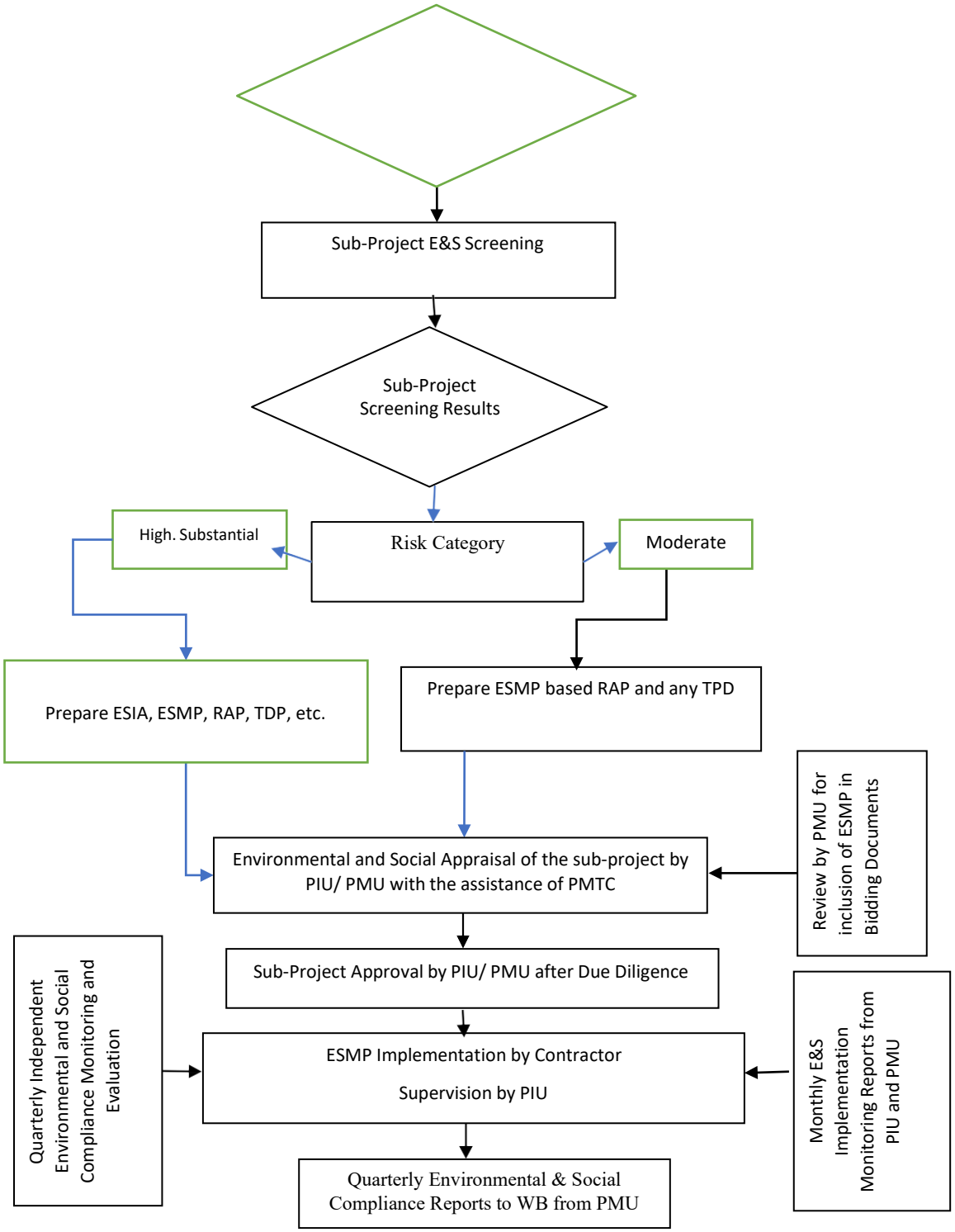


Figure 1: E&S Management Procedures for Components 2.1 and 2.2 River Works

Step 2: E&S Considerations in Subproject Design and Analysis of Alternatives

45. Environmental and social issues will be mainstreamed into the subproject design through a detailed analysis of alternatives to the subproject location and design of subprojects. The primary objective of the 'analysis of alternatives is to identify the location/design/technology for a particular subproject that would generate the least adverse impact and maximize the positive impacts. The

criteria to be considered in evaluating various alternatives will be based on the following sub- criteria:

- Technical Aspects: Robustness, constructability, geology, and maintenance requirements.
- Financial Aspects: Construction cost and maintenance cost
- Environmental Aspects: project footprints, impacts on terrestrial and aquatic ecology, and
- Social Aspects: Land acquisition, Restrictions on Land Use, Resettlement, nuisance, and socioeconomic impacts.

Step 3: E&S Studies

Baseline Data Collection

46. Project influence area for each subproject will be identified, covering areas likely to be directly or indirectly affected by the subproject construction and operation and their associated facilities; areas that will be subjected to impacts from unplanned but predictable developments caused by the subproject, and areas that will be subjected to cumulative impacts that result from the subproject in conjunction with the other activities in its area of influence.

47. Baseline environmental data of the project influence area (covering physical, chemical, biological, and socioeconomic environment) will be collected through a review of secondary literature and primary data collection/survey. Primary data collection will be carried out for the assessment of wildlife habitats and other ecological conditions in the project influence, ambient air and noise quality, and surface water and groundwater quality. Primary surveys will also be carried out to establish the baseline socioeconomic conditions of the communities in the Project area.

Impact Assessment

48. Detailed characterization and assessment of these impacts will be carried out in the respective subproject-specific ESIA/ESMP prior to invitation of bids. In addition, the impacts of the proposed subprojects on the environmental and social components will be identified through field visits, and consultation with experts and the local community. The impacts will be analyzed and graded qualitatively (e.g., high, substantial, moderate, low) in order to identify the major impacts. The mitigation hierarchy will guide the impact assessment and analysis of alternatives. Potential impacts will be predicted using the professional judgment of the multi-disciplinary team members based on baseline information collected and any modeling studies if required. The impact assessment will also consider both cumulative and induced impacts of the subprojects.

Environmental and Social Management Plan

49. ESMPs will be prepared in order to address all the identified potential environmental and social impacts and risks following the principles of the mitigation hierarchy. The ESMP will detail (i) the measures to be taken during the implementation and operation of a project to eliminate or offset adverse environmental and social impacts or to reduce them to acceptable levels; and (ii) the actions needed to implement these measures. To the extent feasible, all potential impacts and risks will be avoided through design changes, and if avoidance is not possible – measures will be taken to minimize the magnitude of the impact. Mitigation measures will be proposed for all the significant impacts. Compensation measures will be proposed if the residual impacts are still significant even after applying the mitigation measures. Further, enhancement measures will be proposed to increase the benefits of positive impacts.

50. An environmental monitoring plan will also be prepared in the ESMP to monitor the effectiveness of the mitigation measures and compliance with the environmental standards. Detailed guidelines for the preparation of RAPs are given in RPF.

51. Physical and cultural resources management framework, including chance-Find procedures to be implemented in case any chance finds are made during earthworks.

Step 4: Stakeholder Consultations and Disclosure

52. Stakeholder consultation will help identify opportunities and risks, improve subproject design and implementation, and increase subproject ownership and sustainability. Stakeholder consultations will be carried out during all phases of the subproject. The stakeholders of the Project have been classified into the following two categories:

- Project-affected parties include people, groups, and institutions that either directly influence the project or are directly impacted (positively or adversely) by the project and its activities. These stakeholders include local communities, civil society organizations, etc.
- Other-interested parties: are those that have a bearing on the project and its activities by virtue of their being closely linked or associated with the primary stakeholders, and due to the influence they have on the primary stakeholder groups.

53. Stakeholder consultations will be carried out in two stages. The first-stage stakeholder consultations will be carried out during the preparation of the E&S instruments to obtain their feedback and address their concerns. The second stage consultations will be carried out after preparing a draft ESIA/ESMP to share the outcome of the E&S study and obtain their feedback.

54. The ESIA/ESMP and RAP of each subproject will be disclosed on the PMU. The Executive summary of the ESIAs and RAPs will be translated into the local language and disclosed on the PMU website. Hardcopies of the Executive Summary report in the local language will also be madeavailable in local GP offices.

55. A stakeholder engagement plan for the project is prepared for implementation. The ESMP includes certain activities of the SEP.

Step 5: ESIA will be finalised, approved and disclosed.

56. ESIA/ESMP and RAP for each subproject will be approved by concerned authority before initiating any bidding process. In addition, the proposed subprojects require various approvals from the relevant government departments during implementation.

Step 6: Environmental and Social Requirements in Bidding Documents

57. The subprojects will be implemented by the contractors, who may not have experience implementing the ESMPs. PIU will include the following Environmental, Social, Health, and Safety (ESHS) Conditions in the bidding documents to ensure all the mitigation measures proposed in the ESMPs are effectively implemented:

- ESHS Staff with the Promoter/Contractor;
- Performance Security;
- Payments for implementation of ESHS measures for subprojects that involve large-scale civil works;
- Code of conduct of Promoter/Contractor’s Personnel;
- Management Strategies and Implementation Plans (MSIP) to manage the subprojects' ESHS risks involving large-scale civil works.

Step 7: Implementation of ESMPs of Subprojects

58. The steps to be followed during the construction stage of subprojects for effective implementation of ESMP are described below:

Construction Environmental Social Management Plan

59. For subprojects that involve civil works, as a requirement under the bidding documents, the Contractors must submit a Construction Environmental Action Plan (C-ESMP) before their mobilization for PIU approval. This plan will consist of the following site-specific management plans that will be prepared in compliance with the requirements of the bidding documents, ESMP, and World Bank EHS guidelines:

- Waste management plan
- Wastewater discharges management plan
- Air and noise emissions management plan
- Hazardous material management and spill control plan
- Water supply and sanitation management at the worksites and workers' accommodations
- Management of labor influx and facilities for the foreign workers
- Labor recruitment procedures and labor management
- Traffic management plan
- Training plan for OHS and CHS risks, including HIV/AIDS, sexual exploitation and abuse / sexual harassment
- Emergency Response Plan
- Grievance Redress Mechanism
- Demobilization plan after completion of works

Step 8: Compliance Monitoring and Reporting

60. The overall responsibility for ESMP implementation will rest with the PMU/PIU. However, at the construction areas, the ESHS staff of the Contractor is responsible for implementing the ESMP, while the environmental and social specialists of the PIU will be responsible for the monitoring of the ESMPs throughout the Project implementation.

61. Compliance monitoring comprises an on-site inspection of the construction activities to verify that measures identified in the ESMP and included in the clauses for contractors are being implemented. This type of monitoring is similar to the normal technical supervision tasks ensuring that the Contractor achieves the required standards and quality of work. The reports to be prepared for each subproject are given in the table below: All these documents will be disclosed in the respective implementing agencies websites

Table 9: ESMP Monitoring and Compliance Reports

S.No.	Title of the Report	Contents of the Report	Frequency of Report Preparation	Report to be prepared by
1	ESHS Monitoring Report	The subproject's compliance status with environmental and social mitigation and monitoring measures. The report also covers the following: • environmental incidents; • health and safety incidents, • health and safety supervision:	Monthly	Contractor

S.No.	Title of the Report	Contents of the Report	Frequency of Report Preparation	Report to be prepared by
		• Usage of PPEs by workers • worker accommodations • Training conducted, and workers participated • Workers grievances • Community grievances • Chance finds (if any)		
2	ESMP. RAP, TDP Monitoring Report	The compliance status of the overall Project with ESMP requirements	Quarterly	PMU, PMTC PIU
3	Incident Reports covering all environmental (pollution events), OHS (accidents) and social (SEA/SH allegations) incidents	Incident investigation reports for all major incidents covering details of the incident, root cause analysis, and actions taken to address the future recurrence of this event	Initial investigation report within 24 hours Detailed Investigation Report within ten days	Contractor

62. Regular training programs will be conducted throughout the project implementation on the EHS issues associated with the construction activities.

63. Table 10 presents the sequence of activities to be followed during preparing ESIAs for the proposed subprojects and their implementation.

Table 10: Sequence of Proposed Activities for Components 2.1 and 2.2 River Works

S.No.	Activity	Description of the Activity	Timing/Status	Responsibility
1	Screening	Screening of the proposed subprojects to assess the requirement of safeguard instruments to be prepared	After identification of the proposed subproject	PMTC will carry out screening exercises whenever new subprojects are identified. PIU needs to validate the screening results.
2	E&S Considerations in Project Design & Analysis of Alternatives	Environmental and social aspects (e.g., waste management, site selection, land acquisition) shall be considered during the analysis of various project alternatives and designs	During Feasibility and E&S studies	PMTC and PIU PIU
3	E&A Studies for substantial risk subprojects – Baseline Data Collection, Impact Assessment, and ESMP	Primary baseline environmental data of the project influence area (covering physical, chemical, biological and socioeconomic environment) will be collected. Assessment of impacts and their significance Preparation of site-specific ESMP	During E&S studies	Prepared by PMTC Approved by PIU
4	Consultations	Consult with the	During E&S	PMTC and PIU

S.No.	Activity	Description of the Activity	Timing/Status	Responsibility
	and Disclosure	stakeholders (including affected communities) before E&S studies, and after the draft, ESMP/ESIA was completed. Disclosure of the ESMP/ESIA and RAP (including translated summaries) on the project website	studies After completion of ESMP/ESIA	With the support of E&S Specialists of FREMAA
5	Submission of ESMP/ESIA and RAP for WB clearance	Submission of E&S documents	After Completion of ESIA – Prior to construction	FREMAA (PMU)
6	Environmental and Social conditions for Bidding Documents	Preparation of environmental and social specifications for bidding documents, including preparing BOQs and including ESMP in the bidding documents.	Prior to bidding	PMU and its Environmental and Social Staff
7	Implementation of ESMP	Implementation of actions in ESMP Regular monitoring of compliance by the Construction supervision consultant and PMU.	During Construction	Subproject contractors PIU E&S staff

5.4 E&S Aspects for Component 2.2 IFRM Studies

64. Component 2.2 includes preparing Integrated Flood Risk Management (IFRM) plans for the Assam parts of the Beki, Buridehing and Jiadhal basins. The plans will eventually identify grey and green infrastructure investments to address flood and river erosion risks.

65. Environmental and social aspects are to be integrated into these plans to ensure they will assess and address key water and environmental issues with an integrated approach. A cumulative impact assessment will be conducted as part of these plans to protect and enhance the valued environmental components and provide strategic directions to the WRD on identifying grey and green infrastructure investments considering E&S priorities.

66. A draft scope of work for IFRM is prepared and kept in project files that highlight the importance of having E&S-related valued environmental components. The scope of the study will be updated by FREMAA and submitted for the World Bank approval before hiring the consulting firm.

5.5 E&S Management Procedures for Component 2.4 Works

67. Component 2.4 includes the construction of a new office building next to the recently constructed Assam Water Centre in Guwahati. The land is available for the construction of the building on the existing premises of the Assam Water Centre. An ESMP has been prepared for these works and presented as **Annex 7** of the ESMF. The ESMP will be directly inserted into the bidding documents.

68. Step7, given in **Table 10**, will be followed during the implementation of the civil works to ensure the successful implementation of the ESMP.

6. Environmental& Social Management Procedures - Component 3

6.1 Introduction

69. A detailed description of Component 3 activities and E&S procedures to be followed during the construction and operation of these activities are given in this Chapter. Component 3 works will mainly include low to moderate risk investments. Standard ESMPs for these works have been prepared and annexed to the ESMF. These standard ESMPs will be customized as per site requirements. The implementation of the ESMPs will follow step 7 of Table 10.

6.2 Locations and Description of Component 3 Activities

6.2.1 Subcomponent 3.1.Flood Shelters - New

70. Subcomponent 3.1 involves the construction of about 5 to 10 flood shelters. The new flood shelters will be constructed on government lands free of encroachment. About 1-3 bighas of land (1 Bigha is 14,400 square feet) will be required to construct each flood shelter. A 3-storied building will be constructed in a plinth area of 5,000 square feet, based on certain criteria of usage and expected users, etc.

71. ASDMA has finalized 9 sites to construct these flood shelters, and the locations of these shelters are given in Table 11. The screening of these sites is completed and assessed as low-risk investments based on Bank directives. A screening checklist (Annex 6) will be used to screen any other newly identified sites. ASDMA will engage a consultancy firm (Design Management and Supervision Consultants – DMSC) to design these facilities and later provide construction supervision services. During non-flood times, the shelters can also be used as schools, community centers, or any other function critical to the community's well-being. A standard ESMP for the new floodshelters has been prepared and included as **Annex 8** of the ESMF.

Table 11: Locations of Proposed New Flood Shelters.

S No	Village where the shelter is located	Circle	District
1	Naharkatia Purani Kaibatragaon	Tengakhat	Dibrugarh
2	Bhekurisapori	Demow	Sivasagar
3	Goroimari	Bokakhat	Golaghat
4	Bahikhuwa	Bokakhat	Golaghat
5	Bortika	Bokakhat	Golaghat
6	Naam temera	Khumtai	Golaghat
7	Dathkola	Halem	Biswanath
8	Bengenakalia	Majuli	Majuli
9	Chilakola Chapori	Majuli	Majuli

6.2.2 Flood Shelters – Augmentation of Existing Schools (Subcomponent 3.1)

72. Component 3.1 works also involve 'up gradation or augmentation of 30 schools as flood shelters. ASDMA has finalized 22 schools, which are presently being used as flood shelters during floods, for the proposed upgrading/augmentation. The locations of the schools are given in **Table 12**. The proposed works include the up gradation of flooring, roofing, false ceiling, waterproofing and structural retrofitting, construction of the new kitchen, dining and toilet facilities, and building electrification works. The screening of these schools is completed using the screening checklist given

in Annex 6. The filled in screening formats are in project files at ASDMA. A standard ESMP for the augmentation of the schools has been prepared and included as **Annex 9** of the ESMF.

Table 12: Locations of Schools for proposed Augmentation as Flood Shelters

S. No	School name	Village	District
1	530 No Barilla Balak LP School	Khankarpara village	Barpeta
2	107 No Radhakuchi LP school	Radhakuchi Village	Barpeta
3	Sundaridiya High School	Sundaridiya Village	Barpeta
4	Patbausi High School	Patbausi Village	Barpeta
5	1835 Paschim SidhuniGhunapara LP school	Sidhuni	Barpeta
6	Dhakua High Madrassa	Dhakua Village	Barpeta
7	Banbariya ME madrassa	Banbariya	Barpeta
8	982 No Damal Jar LPS	Damaljar	Barpeta
9	1268 No PakdaDamaljar LPS	Pakdabilarpathar	Barpeta
10	1860 pub Joshihatipara LPS	Joshihati	Barpeta
11	1629 Pakabetbaripam LPS	Pakabetbarigaon	Barpeta
12	519 No Keotkuchi Balika LPS	Keotkuchi	Barpeta
13	DinjoyHazarimal HS school	Dadhia forest village	Dibrugarh
14	Namdoyang LPS	Ward no-1, Bokakhat	Golaghat
15	Bokakhat H.S School	Ward no-1, Bokakhat	Golaghat
16	Mungilal Krishna devi Balika Bidyalaya	Ward no-1, Bokakhat	Golaghat
17	2 No Hatikhuli LPS	Hatikhuli	Golaghat
18	BokakhatKendriya Girls MES	Ward no-1, Bokakhat	Golaghat
19	Dhansirimukhjanajati MV school	Polashguri	Golaghat
20	Teleni LPS	TeleniPukhuri	Biswanath
21	Bahgara Balika LPS	BahgoraDeuri Gaon	Lakhimpur
22	315/1 Takurakuchi LPS	Takurakuchi	Baksa

Note: LPS: Lower Primary School; MES: Middle Elementary School, HS: Higher Secondary School

6.2.3 Subcomponent 3.2.Early Warning and Dissemination System

73. Subcomponent 3 involves the provision of necessary facilities to improve the existing emergency management systems in the circle, district and state-level Emergency Operation Centers. The activities taken up are limited to improved early warning and dissemination systems in the disaster-risk vulnerable areas. There will be no construction activities under this subcomponent.

6.2.4 Subcomponent 3.3.Revenue Circle Disaster Management

74. Subcomponent 3.3 includes the following activities

- Provision of emergency response equipment to each CQRT. They include Gum boots, Dungaree, Torch light, Ropes, Tarpaulin, Life jackets, Life buoys, Stretchers, Nylon ropes, Generator set, Chain saw, Tent, Light mounted helmets, Foldable ladders etc.
- 39 revenue circles have been identified for Equipment Material Bank. In phase 1, Equipment Material Banks will be developed at 11 Revenue Circles to keep the emergency response equipment for CQRT and first responders to handle local level disaster events. The structure of the storage bank will be pre-fabricated type. Land

identification for the structure is under process. 2 katha (5760 feet^2) of land for each location has been requested from all the 39 RCs for the construction.

6.2.5 Subcomponent 3.4.Climate Resilient Villages

75. Subcomponent 3.4 involves the development of Village Disaster Mitigation Plans (VDMPs) in around 50 of the most vulnerable and disaster-prone villages. The plan proposes investments for improvements in housing, transportation, power, water supply and sanitation, etc. The Program will not finance these investments directly in Phase 1, but rather ASDMA will work with relevant GoA departments such as the Public Works Department, the Public Health Engineering Department, Rural Development Department, etc., to mainstream these resilience-related investments into their own programs. The objective of the plan is to

- Reduce the loss of human lives, animal lives and properties.
- Ensure the availability of food, drinking water and sanitation during any disaster.
- Enhance the capacity of the villager to face any kind of disaster.
- Link up the various development schemes with disaster management in the village.
- Have a clear responsibility during different disasters and during the response, relief and recovery.
- To protect the wetlands, available open spaces, soil health, VGR/PGR etc.

76. Subcomponent 3.4 also involves the construction of about 25 Technical Demonstration Units (TDUs). These low-cost, resilient housing structures utilize local materials and can withstand high floods and earthquakes.

6.3 E&S Management of Component 3 Activities

77. The ASDMA will plan and execute all the proposed activities under Component 3 to comply with the World Bank ESF. Details of the proposed actions to be carried out under each subcomponent are given in **Table 13**.

Table 13: Application of ESMF to ASMDA - Component 3

ESS/ Component	Component 3.1 Flood Shelters	Component 3.2 Early Warning Dissemination Systems	Component 3.3 CQRT	Component 3.4 Climate-Resilient Villages
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	• ASDMA has completed the E&S screening of all the proposed flood shelters using an E&S Screening checklist. The Screening checklist is given in Annex 6 and this checklist will be used if any new sites have been identified. • The E&S risk of the proposed activities is assessed as Low to Moderate as the proposed construction activities will be small-scale civil works and located in existing government-owned lands (free of any encroachment), and E&S risks and impacts from the proposed activities are minimal and temporary in nature and limited to the construction period and can be readily mitigated by the standard mitigation measures • A standard ESMP is prepared for the new flood shelters and annexed to the ESMF (**Annex 8**). A standard ESMPS is also prepared to augment existing shelters and annexed to the ESMF (**Annex9**).	Not relevant since there will be no construction activities in this subcomponent	The E&S risk screening is assessed as Low. Project activities have minimal adverse environmental and social risks.	The demonstration units are small housing structures that will be constructed by local communities. No ESMP is needed for this subcomponent. E&S issues to be considered in preparing the Village Disaster Mitigation Plans (VDMPs) • Use of indigenous knowledge • Use of locally available material and resources • Representation from women, vulnerable and indigenous people • Identification of environmentally sensitive areas and ensuring their protection • Build consensus on community-level action to address those factors. • Use of PRA techniques to engage the community
	ASDMA's Environmental and Social Specialist will regularly monitor actions proposed in the ESMP. ASMDA will prepare quarterly monitoring reports and submit them to the World Bank.	Not relevant	ASDMA's Environmental and Social Specialist will regularly monitoractions proposed under thiscomponent.	ASDMA's Environmental and Social Specialist will regularly monitor actions proposed in the ESMP.
ESS 2: Labour and Workers Condition	<u>Relevant to the subcomponent</u> Labour Management Procedures (LMP) developed for the Project will be implemented. This ESMP has included measures related to the occupational health and safety of construction workers.	<u>Relevant to the subcomponent</u> Direct workers and primary supply workers are relevant to this subcomponent. Labour Management Procedures (LMP) developed for the Project will be implemented.	<u>Relevant to the subcomponent</u> The staff of ASDMA and Design and Supervision consultancy Contracted Workers, Community Workers and Primary Suppliers will be relevant to the Project. LMP will be followed.	<u>Relevant to the subcomponent</u> The staff of ASDMA and Technical Support Agency will follow LMP Training on OHS will be provided by ASDMA

ESS/ Component	Component 3.1 Flood Shelters	Component 3.2 Early Warning Dissemination Systems	Component 3.3 CQRT	Component 3.4 Climate-Resilient Villages
		.	This ESMP has included measures related to the occupational health and safety of construction workers.	
ESS 3: Resource Efficiency and Pollution Prevention and Management	<u>Relevant to the Subcomponent</u> ASDMA will implement the following energy efficiency measures: • LED lighting throughout the building to reduce energy consumption and long lifespan. • Options for Renewable energy through solar panels will be studied by the Design Consultant • water-efficient fixtures will be used for the kitchen, toilets and bathrooms • Rainwater harvesting structures will be built to collect and store the rainwater	<u>Relevant to the Subcomponent</u> Energy-efficient electrical appliances and electrical bulbs will be installed in the offices Fuel-efficient generators will be installed at the offices for a reliable power supply	<u>Relevant to the Subcomponent</u> None	<u>Relevant to the Subcomponent</u> Local materials (such as bamboo, straw, wood, and soil) will be used to construct TDUs. Energy-efficient electrical bulbs will be installed. Options for Renewable energy through solar panels will be studied by the STA Rainwater harvesting structures will be studied by STA
	Pollution prevention and management measures are included in the ESMP. Wastewater treatment will be through septic tanks for the toilets and cattle sheds. Kitchen and bathroom wastewater will be diverted to the kitchen gardens or soak pits or to the existing drains. Gas stoves will be provided at the flood shelters. Smokeless stoves will also be madeavailable at the shelters.		None	
	Some of the roofs of the existing buildings might contain asbestos-containing material (ACM). They will be treated as hazardous waste and disposed of per government regulations. Biodegradable napkins will be provided in the vending machines. Large waste containers (adequate size and capacity) will be placed in the shelters to temporarily store organic waste during the	E-waste will be sent to the state-level EOC, which will then be sold to authorized vendors. The solid waste from the offices will be managed through existing municipal facilities.	None	

ESS/ Component	Component 3.1 Flood Shelters	Component 3.2 Early Warning Dissemination Systems	Component 3.3 CQRT	Component 3.4 Climate-Resilient Villages
	floods. Later, the waste will be managed through on-site composting. Inorganic waste will also be stored in large containers. Later they will be disposed of at the approved disposal sites. Cattle waste will be stored in separate containers and will be reused.			
ESS 4: Community Health and Safety	<u>Relevant to the subcomponent</u> Construction-related nuisances such as dust and noise may have an impact on the nearby communities. ESMP included the relevant mitigation measures.	<u>Not relevant</u>	<u>Relevant to the subcomponent</u> None	<u>Not relevant</u>
	• The structural improvements to withstand storm surges and earthquakes (as per the national building codes). • The structures will be constructed above high flood levels • Mosquito nets and repellents will be provided to the flood shelters • Flood shelters will include facilities for the disabled to ensure universal access. These include ramps, wheel-chair access to all rooms and toilets, and disabled-friendly toilets,	•	• None	• The structures will be constructed above high flood levels • Mosquito nets and repellents will be provided to the flood shelters
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	<u>Not relevant</u> The project activities will be carried out within the existing school boundary or the government-owned lands (free of encroachment); hence, no land acquisition and resettlement will be required.	<u>Not relevant</u>	<u>Not relevant</u>	<u>Not relevant</u>
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	<u>Not relevant</u> All flood shelter sites will be screened for biodiversity to ensure no biodiversity impacts.	<u>Not relevant</u>	<u>Not relevant</u>	<u>Not relevant</u>
ESS 7: Indigenous Peoples/	<u>Relevant</u> One of the proposed 11 districts is located in	<u>Relevant</u> In addition to Assamese, the early	<u>Relevant</u> Representatives from IP communities	<u>Relevant</u> TDUs designs will adopt indigenous

ESS/ Component	Component 3.1 Flood Shelters	Component 3.2 Early Warning Dissemination Systems	Component 3.3 CQRT	Component 3.4 Climate-Resilient Villages
Sub-Saharan African Historically Underserved Traditional Local Communities	the 6thSchedule Areas (designated by the Government of Assam). Representatives from IP communities will be mandatorily included in the VLCDMC and Flood Shelters Management Committees	warning messages should be conveyed in other languages, suchas Bengali, Hindi, Bodo, English orother local languages wherenecessary.	will be mandatorily included in the CQRTs if they are present in those villages.	knowledge and architecture.
ESS 8: Cultural Heritage	Not relevant The project activities will not impact any cultural heritage. The chance find procedures are included in the ESMP. .	Not relevant	Not relevant	Not relevant
ESS 9: Financial Intermediaries	Not relevant	Not relevant	Not relevant	Not relevant
ESS 10: Stakeholder Engagement and Information Disclosure	Implementation of SEP The Project information is being shared with the stakeholders regularly through community engagement by circle-level and district-level DDMA and VLCDMC This ESMF will be disclosed on the ASMDA website. ASMDA will continue to share the project updates with all the stakeholders through its 'Communication Specialist'.	Implementation of SEP	Implementation of SEP	Implementation of SEP

7. Consultations and Disclosure

7.1 Stakeholder Engagement Activities

78. Consultations have been carried out during the preparation of ESMF in January and February 2022. Transect walks were conducted along the potentially impacted areas to understand land requirements the presence of human settlements, and to collect the communities' views on any adverse social and environmental impacts and to elicit necessary community participation in the program. Focused consultations were also held with women, affected persons, etc. Before the consultations, relevant information in the local language was shared with the stakeholders to give them information on the project objectives and activities and seek their feedback and concerns. A total of 65 consultations were carried out, 20 in the Beki sub basin and 45 in the Buridehing sub basin. 1192 people (849 male and343 female) participated in these meetings. The locations of consultations and the number of participantsin these meetings are available in the project files.

79. Focused Group Discussions were also carried out with officials from the Departments of Revenue and Disaster Management, Forest and Environment, Panchayat and Rural Development, etc. to get a broader view of flood and erosion management issues and explore possibilities of conjoint efforts in the implementation of the project.

7.2 Feedback from Stakeholder Consultations

80. A summary of the feedback received from the consultations is given in Table 14. There has been overwhelming support for the project from the communities as it will help the communities vulnerable to floods and riverbank erosion.

Table 14: Feedback from Stakeholder Consultations

Project affected parties (and also beneficiaries of such measures)	1. wanted early construction of anti-erosion works as every year they face loss of land, assets, animals and, in some cases, loss of human life. 2. were also of the opinion that floods bring fertility to the soil. 3. were of the view that during the strengthening of the embankment, i.e., during construction, the works will obstruct access to people and cattle from settlements to the riverside resources and requested make appropriate design provisions. Another request is to provide concrete ramps and steps at roadscrossing the embankments. 4. there could be accidents due to vehicular movements during construction. 5. willing to work during construction if proper payments are made. 6. Private landholders expressed their concerns regarding the extent of land that will be affected and related compensation. 7. Encroachers, mostly doing agriculture, were apprehensive that they would be evicted when the construction activities occurred.	This feedback from the stakeholders is included in the ESIA and in the respective ESMPs. The stakeholders were informed of these provisions.

	8. Local communities do fishing for their own consumption and sale. This may be temporarily affected. 9. Some villagers own boats to cross the river to reach villages on the other side of the river. This may get affected. 10. Communities have mentioned that constructing Flood shelters close to the flood-affected village will be really helpful during floods. 11. Villagers have also mentioned that during the non-emergency period, the flood shelters can be used as warehouses, for weaving purposes, for conducting training by various departments or for community activities. 12. In context to augmentation andretrofitting works at schools, the school authorities have requested that it would be convenient if the construction work is undertaken during winter vacation.	
Other interested parties	1. There will be a possibility of temporary access blocks to the nearby villagers/ communities during construction activities 2. The community might face problems of labour influx in terms of health and safety issues and utilization of community resources. 3. There are some schools, places of worship, and other buildings close to the proposed construction sites of some of the sub-projects. These might get affected. 4. Presently information about the program is communicated through Gaon burah and through Circle Officials and Mandal. 5. Lack of equipment in the flood shelters, like torches, mics, etc. to manage the inmates at the shelters. 6. Without a designated sheltermanagement committee, the burden of managing the flood shelters falls on the school authorities and the community. 7. Since mostly the schools are used as flood shelters during the emergency period,thus it causes a lot of damage to the school infrastructures, which ultimately hampers the education of the school students. 8. During and after the flood period, waste management becomes a huge burden for the shelter management committee.	This feedback from the stakeholders is included in the ESIA and in the respective ESMPs. The stakeholders were informed of these provisions.
Disadvantaged/ vulnerable	1. No proper toilet facilities at the shelters 2. Mostly the shelters are not disabled friendly 3. There are no separate rooms for men, women & lactating mother	This feedback from the stakeholders is included in the ESIA and in the respective ESMPs. The stakeholders were informed of these provisions.

	4. During heavy floods, communication disruption creates a major problem 5. The villagers shared their concern for protecting the land demarcated for anti-erosion works as the river would continue eroding the land till the commissioning of the works.	

81. Based on the feedback from the above consultations, the IAs have proposed suitable measures in the ESMF, RPF, TDF and the Environmental and Social Management Plans; which include the following actions.

- Specific consultations will be held near the sites/ facilities proposed. The consultations will be documented, and the outcome will be incorporated as appropriate in the sub-project designs and mitigation plans.
- During consultations, the draft mitigation plans will also be presented and explained to the people on the content and process of the implementation of the plans as well as how their suggestions were incorporated into the project design, such as minimizing land taken by design changes in the embankment design, anti-erosion measures, etc.
- The FREMAA/ WRD/ ASDMA/ shall also hold consultations not only with the community but also with the concerned line departments at the district and village level and provide opportunities for information sharing and collaboration measures.

7.3 Disclosure of Project Documents

82. The draft ESMF, along with RPF, SEP and ESCP will also be disclosed on the FREMAA and ASDMA websites. The executive summary of the ESMF has been translated into the Assamese language and uploaded on the FREMAA and ASDMA websites, and hard copies of these documents will be made available at local WRD offices for public access. The ESIA and RAP documents, including the Monitoring Reports, Progress Reports, etc., to be prepared for proposed subprojects will also be consulted upon and disclosed on the PIUs and made available to the local communities by placing them at local revenue circleoffices.

8. Implementation and Monitoring Arrangements

8.1 Institutional Arrangements for E&S Implementation

83. The overall responsibility for coordinating and implementing AIRBMP lies with the Project Management Unit (PMU), established at the Flood and River Erosion Management Agency of Assam (FREMAA). A Project Implementation Unit (PIU) has been established under the WRD to implement Component 2 activities, and a PIU has been established under the ASDMA to implement Component 3 activities. The PIUs of WRD and ASDMA will execute the civil works through contractors. A Project Management and Technical Support Consultancy (PMTC) will be engaged by the PMU to support them in the implementation of all project activities. An E&S Independent External Evaluation Consultant (IEEC) will be engaged by PMU for an independent evaluation of the ESMF implementation. The overall project arrangements are summarized in Figure 2.

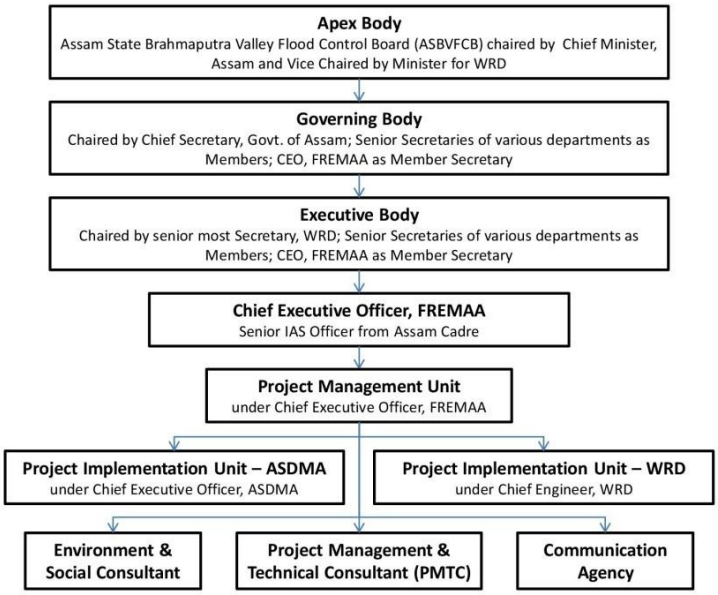


Figure 2: Institutional Arrangements of AIRBMP

8.2 Roles and Responsibilities of Implementing Agencies

84. The roles and responsibilities of implementation agencies are:

- **Apex Body:** The Apex Body makes policy decisions with regard to Brahmaputra valley flood control measures and Water Resources in the Basin.
- **Governing Body:** The Governing body directs all the stakeholder departments to implement the policy decisions taken by the Apex Body.
- **Executive Body:** The Executive Body executes the actions initiated to implement the policy decisions taken by the Apex Body and coordinates with the stakeholder departments.

85. **PMU**. The primary responsibility for implementing ESMF, RPF, ESCP, etc., rests with the PMU. The PMU is headed by a Chief Executive Officer (CEO) and will be responsible for the overall coordination and

implementation of the project. For environment and social management, the overall responsibility for day-to-day monitoring and supervision will be with the Deputy CEO, supported by E&S specialists.

86. **PIU of WRD**. The PIU is established in WRD and is headed by an Additional Chief Engineer and supported by a superintendent engineer and executive Engineers. The PIU will be responsible for the procurement of contractors and supervision of the construction works. The E&S Specialists at the PIU will coordinate internally with the procurement and civil works units, and ensure that the subproject ESIA/ESMPs are prepared before bidding and included in the bidding documents. The E&S specialists at PIU will be directly responsible for overseeing the implementation of ESMPs and RAPs of the subprojects and for the preparation of documentation for future investments. The PIU shall work closely with other line departments for participation, inclusiveness, accountability, equity, transparency and sustainable implementation of these instruments, including contractors and suppliers/ vendors.

87. **PIU of ASDMA**. The PIU established at ASMDA is headed by a Chief Executive Officer (CEO). For environment and social management, the overall responsibility for day-to-day monitoring and supervision at the PIU level will be with the State Project Coordinator (SPC), supported by the E&S Specialists. The E&S Specialists at the PIU will coordinate internally with the procurement and civil works units, and ensure that the subproject ESIA/ESMPs are prepared before bidding and included in the bidding documents. The PIU's responsibility for implementing ESMF, SEP and IPPF at the project level rests with the PIU ASDMA. The PIU shall work closely with other line departments for participation, inclusiveness, accountability, equity, transparency and sustainable implementation of these instruments, including contractors and suppliers/ vendors.

88. The FREMAA and ASDMA have permanent E&S Units with E&S specialists and field supervisors. The PIU in the WRD is in the process of procurement of E&S specialists. The details of the E&S staffing at the implementing agencies are given in Table 15.

Table 15: E&S Staff in the Implementing Agencies

S.No.	Position	No. of position	Recruited (Yes/No)
PMU/FREMAA			
1	Social Development Specialist	1	Yes
2	Environmental Specialist	1	Yes
3	Communication Specialist	1	Yes
4	Field Supervisors	3	Yes (One vacant)
PIU/ASDMA			
1	Social Development Specialist	1	Yes
2	Environmental Specialist	1	Yes
3	Communication Specialist	1	Yes
PIU/WRD			
1	Social Safeguard Officer *	1	No
2	Environment Officer*	1	No

* - Presently interviews are being held to recruit these officers.

89. **PMTC**. The PMTC team is responsible for supporting the technical activities of waterresource/risk management. The major role of PMTC is to prepare Assam Water Policy and support FREMAA and its PIUs for managing structural and non-structural components under the AIRBMP, including preparing feasibility studies and ESIA reports of the subprojects. The PMTC will have an environmental specialist, a social specialist and a biodiversity specialist. The PMTC reviews the studies of various TA Consultants.

90. **E&S Consultants**. PMU will engage environmental and social consultants for independent monitoring and evaluation, and the ToR for the consultancy is in project files**.** The objective of the evaluation is to review the LMP, GAP, SEP, ESMP and RAP compliance in project implementation for corrective action. NGOs will be hired to support social mobilization, provide oversight on the process of SIA, ensure identification of vulnerable/ excluded groups and likely project impacts on them, facilitate community consultations as part of RAP preparation and implementation, facilitate RAP implementation, stakeholder engagement through the project life cycle and support capacity building on livelihoods, skill development and income restoration and on R&R procedures.

91. **Contractors**. The contractors will have adequate ESHS specialists to implement the environmental and social management plans prescribed in the ESMP.
The detailed responsibilities of all the above implementing agencies are given in Table 16.

Table 16: Responsibilities of the Implementing Agencies in E&S Management

Organization	Responsibility
PMU	• Coordination with WRD, ASDMA and other line agencies • Recruitment of PMTC, IEEC Consultants and RAP implementation consultants • Preparation of Quarterly Progress Reports and sharing with the World Bank. • Ensure that all project activities are well-managed and coordinated • Coordination for land acquisition & implementation of RAPs • Payment of compensation to the project affected households; • Coordination for clearances related to safeguards • Implementation of ESCP • Preparation of implementation report on SEP The CEO, FREMAA has administrative and financial powers of INR 2 Crores. Over and above this, the Executive Body (EB) permission is required.
E&S staff within PMUs	• Screening of proposed subprojects to identify their risk category and requirement of safeguard instruments to be prepared (ESIA or ESMP, RAP, TDP, etc.) • Prepare terms of reference for the E&S studies of subprojects • Reviewing consultant deliverables related to environmental assessment, reviewing bid documents for inclusion of ESMP measures, supervising construction activities, producing periodic monitoring reports, • Supervising PMTC for the implementation of ESMP • Closely coordinate with other concerned agencies, local governments, and communities to support the implementation of ESMP • Assist in Land Acquisition & RAP implementation
PIU, WRD	• Ensure that all project activities are well-managed and coordinated • Procurement of works and goods; • Supervision of civil works, ensuring compliance with all design parameters and ESMP implementation; • Ensure day-to-day compliance monitoring during the execution of works • Obtain clearances related to safeguards The Chief Engineer of WRD has full powers for approved budgets.
PIU, ASDMA	• Ensure that all project activities are well-managed and coordinated • Procurement of works and goods; • Supervision of civil works, ensuring compliance with all design parameters and ESMP implementation; • Ensure day-to-day compliance monitoring during the execution of works • Obtain clearances related to safeguards The CEO, ASDMA has administrative and financial powers of INR 5 Lakhs. Over and above this, the SEC (State Executive Council) approval is required.

PMTC	• Prepare Assam Water Policy • Support E&S staff of PMU & PIUs and capacity building • E&S screening of subprojects and preparing ESIA studies

E&S Consultants for Evaluation	• Independent
	• Undertake Evaluation of Environmental and Social Management Framework implementation by PMU and PIUs
	• prepare corrective actions required by any stakeholders.
	• Submit the Evaluation Report to PMU for sharing with World Bank.
	• Evaluation will include':
	  • 1. Compliance with ESIA and ESMPs requirements developed for the project
	  • 2. Compliance with different subject specific plans if required under ESMP; like Biodiversity Management Plan, Occupational Health and Safety Management Plan, Cultural Heritage Management Plan, Labor management plan, implementation status and compliance level.
	  • 3. Effectiveness of GRMs
	  • 4. Annual Reporting on the Implementation of SEP

Contractors	• Prepare construction ESMP (C-ESMP) with site-specific mitigation measures; • Implementation of mitigation and monitoring measures proposed in the ESMP; • Each contractor will recruit an Environmental, Social, Health, and Safety Manager, who will be responsible for implementing the contractors' environmental, health and safety responsibilities, and liaising with government agencies. • The contractors will have adequate environmental, social, health, and safety staff. • Prepare monthly & Quarterly reports (E&S report) and submit to PIU as per the ESMP & C-ESMP.
CQRT	• The revenue circle of Assam is equipped with basic equipment and resources to respond to an emergency. • These CQRT teams will work under the immediate disposition of the committee and help in immediate response to any kind of natural or man-made disaster. • CQRT Teams will mobilize immediately on call.

8.3 Monitoring Plan

92. The ESMF requires detailed supervision, monitoring and evaluation of the project's impact on environmental and social aspects. In order to carry out this, Project will have specific arrangements made at PMU and PIUs levels as mentioned above. This includes designating focal persons for environmental and social management for the project period at the field level. The E&S experts at PIUs will be trained in implementing the ESMP in compliance with ESMF. This training will be an on-going regular process involving retraining and refresher training with additional training inputs as and when required. The Environmental and Social management focal persons at the PMU will guide the project staff and PIUs staff on environmental and social matters related to project components and on how to implement the ESMF, site specific ESMP and other associated safeguards plans. At the PIUs level, the E&S Experts will oversee the implementation of the provisions of ESMF and ESMP. In addition, several orientations and trainings are proposed as a part of this ESMF to build their capacity. The following provisions include the arrangements made for the effective implementation of the ESMF:

8.3.1 Monitoring

93. All the sub-projects will be visited at regular intervals (at the minimum on a fortnightly basis) by the E&S Experts of PIUs to check if all environmental and social safeguard requirements are met and to identify any issues that need to be addressed. The Environmental and Social management focal persons at the PMU will visit the sub-project sites at least every quarter. The PMU would submit Quarterly progress reports to the WB on environmental and social management. On a yearly basis, the PMU will prepare a report on the project's environmental and social management status, including data and analysis of relevant parameters as given in the table below. This Environmental and Social Monitoring report will be a part of the overall Project Monitoring Report as a distinct chapter. In the table below are indicators for project interventions, for which monitoring needs to be taken up by PMU and the PIUs regularly.

8.3.2 Environmental and Social Monitoring

94. The concurrent internal environmental and social monitoring will be done as part of the regular monitoring by the PMU and PIUs. The PMU will also choose a sample of sub-projects (all having Substantial and Moderate impacts per screening) and will closely monitor them regularly. The objectives of this are:

- To review and verify compliance with ESMF during project planning and implementation.
- To assess the individual and cumulative impacts of the project activities and how the project area is sensitive to the project activities.
- To assess the effectiveness of the implementation of ESMF in the project activities and report any gaps.
- To review and verify how well the environmental and social management systems are performing and how well the environmental and social management plans are being implemented.
- To identify and document best practices in environmental and social management systems compliance.
- To assess institutional and administrative effectiveness and recommend improving ESMF compliance performance.
- To sensitize the field staff to the environmental and social issues during field visits.
- To make recommendations to improve ESMF implementation.

Table 17: Monitoring Indicators

Monitoring Indicators	Frequency	Agency
Institutional	Quarterly	
• Fatalities • Strikes • Conflict with nearby communities • Pollutions (spills, explosions, uncontrolled discharges, etc.) • Negative media attention • Lawsuits/ Court Cases • Grievances	• Concurrent Monitoring by PIU offices • Environmental and Social Monitoring and Evaluation of sampled Sub-Projects • Quarterly and Yearly Reports by PMU • For all these indicators, the PMU will send comprehensive reportsto WB immediately after the incident occurrence.	• PMU guides the collection of information on indicators • PIU collects information at the field level from Implementing Agencies/ Departments • PMTC assists PIUs in monitoring.
Environmental	Quarterly	

Monitoring Indicators	Frequency	Agency
• Surface Water Quality, when there are any water bodies near sub-project locations • Soil erosion • Survival of trees, if any, planted (%) • Instances of archaeological chance finds • Construction Debris management • Disruptions to public utilities during construction • Any induced impacts/activities arising from undertaking the project financed investments	• Concurrent Monitoring by PMU and PIU offices • Environmental and Social Monitoring and Evaluation of sampled sub-Projects. • Quarterly Reports byPMU	• PMU guides the collection of information on indicators • PIU collects information at the field level from implementing agencies/ departments • PMTC assists PIUs in collecting specific information
• Social	Quarterly	
• Number of grievances registered and resolved by gender • All gender actions listed in the GAP • All actions for TDF adherence • Number of court cases and judgments • Feedback from PAPS by gender • Compensation disbursement before start of civil works • R&R assistance before the start of civil works • Number of women trained • Change in Incomes of PAPs/ PAFs and their patterns • Changes in occupations of PAPs/ PAFs • Housing status of PAPs/ PAFs • Ownership of household assets by PAPs/ PAFs	• Concurrent Monitoring by PMU and PIU offices • Environmental and Social Monitoring and Evaluation of sampled sub-projects • Quarterly Reports byPMU	• PMU guides the collection of information on indicators • PIU collects information at the field level from Implementing Agencies/ Departments for the department • PMTC assists PIUs in collecting specific information
Other		
• No. of Awareness Program conducted • No. of Sensitization Programs conducted • No. of training programs conducted for community workers/ volunteers • No. of personnel trained • Achievement of learning objectives	• Concurrent Monitoring by PMU and PIU offices • Environmental and Social Monitoring and Evaluation of sampled sub-projects • Quarterly Reports byPMU	• PMU guides the collection of information on indicators • PIU collects information at the field level from Implementing Agencies/ Departments • PMTC assists PIUs in collecting department-specific information

8.4 Grievance Mechanism

95. A Grievance Redressal Mechanism (GRM) is established to address stakeholders' grievances and dissatisfactions about actual or perceived impacts and to find a satisfactory solution. The grievances arising out of the project interventions are proposed to be dealt with through 2 (two) separate grievance mechanisms – i) Component-2, managed by WRD, and ii) Component-3, managed by ASDMA. The PMU (FREMAA) will have a GR committee as the appellate authority under the Project. The existing platforms used by the PMU and PIUs, namely CPGRAMs and other platforms under ASDMA, will be integrated with the GRM under AIRBMP and will be addressed through the designated committees. All project related grievances are tagged, and a register is maintained. The details of the GRM are given in the Stakeholder Engagement Plan (SEP).

8.5 Capacity Building

96. The objectives of the capacity-building initiatives are:

- To build and strengthen the capability of PMU, PIUs (WRD and ASDMA), NGOs and other staff, to integrate sound environmental and social management principles into sub- project implementation.
- To orient the Project staff and NGOs to the requirements of the project's ESMF.

8.5.1 Approach

97. Systematic capacity-building initiatives need to be introduced only after the completion of the Training Needs Assessment. The trainings will be conducted at state and district levels, depending on training requirements. However, since capacity building goes beyond mere imparting training, the institutionalization of best practices becomes a prerequisite for an improved sub-project environment and social management. The training outcomes, like trainees' understanding of the training content, achievement of learning objectives, application of methods, tools and techniques learnt during training, etc., will need to be monitored. This will be done through periodic tracking of learning outcomes.

8.5.2 Resource for training

98. In view of the specialized training and capacity building required, it is necessary to identify nodal training institutes that will work closely with PMU for conceptualizing, designing and conducting training programs on the ESMF. The project may conduct these trainings in partnership with, experienced consultants/ autonomous institutions specialized in environment and social safeguards management. The project can also send the trainees for custom-made trainings on Environmental and Social Management at autonomous institutions like Engineering Staff College of India, Hyderabad, which conducts such programs on a regular basis.

8.5.3 Details of Training Programs

Table 18: Details of proposed Training Programs

Training Program	Objectives	Participants	Number of Trainings
T1. Orientation/ Sensitization Training Programs – 1 Day	▪ To orient/ sensitize the project staff atthe project launch towards the environmental and social issues of the project ▪ To orient the project staff about the ESMF and its importance, provisions and implications.	CEO, FREMAA Heads of WRD and ASDMA PMU, PIUs E&S Experts PMTC NGO Consultants of TA studies	5 (during first year of project)
T2. Training on the ESMF, RPF, and Management Plans – 2 Days	▪ To equip with knowledge and skills necessary for use of ESMF, undertaking environmental and social screening and appraisal as per the requirements of the ESMF, conduct ESIA and preparation of management/ mitigation plans ▪ To prepare for undertaking periodic supervision of the implementation of environmental and social management/	PMU and PIUs E&S Experts PMTC E&S Experts NGO Staff Consultants doing TA studies Community Workers/ Volunteers	10 (during project implementation. A minimum of 2 trainings per year)

	mitigation plans and performance monitoring of sub-projects		

99. About 20 to 30 trainees would participate in each of the training programs. It is intended that these trained persons will, in turn, provide onsite training to NGOs, resource persons, etc., onsite at the district level.

8.5.4 Training Budget

100. The total estimated cost of training in Environmental and Social Management for project staff, implementing agencies, NGOs, etc., under the Project is presented in the table below:

Table 19: Training Budget

Training Budget				
S. No.	Training	No. of Programs	Estimated Unit Cost in Rs.	Total Cost In Rs.
1	Training Needs Assessment	1	20,00,000	20,00,000
1	T1	10	2,00,000	20,00,000
2	T2	10	5,00,000	50,00,000
4	Workshops (State level) for experience sharing and learning	5	2,00,000	10,00,000
5	Provision for contingencies and unforeseen expenses, etc.			10,00,000
6	Total			INR 1,10,00,000

8.6 ESMF Budget

101. The total budget for the implementation of ESMF is estimated to be INR 13.6crores.The cost of implementation of ESMPs and RAPs will be included in the ESMPs and RAPs of respective subprojects and not included in the overall ESMF budget. A detailed breakup of the budget is presented in Table 20. This budget will be coming from the project funds (except for land acquisition which will come from state funding), and the approvals will be given by FREMAA and WRD and ASDMA.

Table 20: ESMF Budget

S No.	Activity	Amount in INR
1	Environment Specialists, Gender Specialists, Communication Specialists and Social Specialists at PMU (4) and PIUs (WRD 2 + ASDMA 2) (Total 8 numbers) - This cost is borne by the overall project budget for hiring persons for these positions - @ average 2 Lakhs per person per month	9,60,00,000
2	Training and workshops (as estimated) @ INR 5,00,000 per year per district	1,10,00,000
3	Independent Environmental and Social Evaluation consultants (mid-term and end-term) @ INR 75,00,000 per evaluation	1,50,00,000
4	Preparation of specific environmental and social-related community awareness materials @ INR 5,00,000 per district for 10 districts and 20 Lakhs at the state level	70,00,000
5	Contingencies and unforeseen items (5% of all above items)	64,50,000
	Total	**13,54,50,000**

Annexure

Annex 1: Government Regulations Relevant to the Project
Annex 2: Project Environment and Social Baseline
Annex 3: Indigenous People Policy Framework (IPPF)
Annex 4: Vulnerable People Framework
Annex 5: Gender Action Plan (GAP)
Annex 6: Screening Formats
Annex 7: ESMP – WRD Works – Assam Water Centre Annex
Annex 8: ESMP – ASDMA – Flood Shelters
Annex 9: ESMP – ASDMA – Augmentation and Retrofitting of Existing Schools as Flood Shelters
Annex 10: GBV/SEA Risk Mitigation Framework

Annex 1: Government Regulations Relevant to the Project

S. No.	Relevant Acts and Policies of GoI and GoA	Mandate of the Act/ Policy	Applicability	Responsibilities
ENVIRONMENTAL REGULATIONS				
1.	Environment Protection Act/ Rules 1986	The Environment Protection Act, 1986 (the "Environment Act") provides for the protection and improvement of environment. The term "environment" is understood in a very wide term under s 2(a) of the Environment Act. It includes water, air and land as well as the interrelationship which exists between water, air and land, and human beings, other living creatures, plants, microorganisms and property. Under the Environment Act, the Central Government issues notifications under the Environment Act for the protection of ecologically-sensitive areas or issues guidelines for matters under the Environment Act	The various environmental quality standards notified under this act are applicable to the project. These include: General standards for discharge of environmental pollutants • Ambient air quality standards in respect of noise • Vehicular exhaust norms • Noise limits for vehicles Emission and noise limits for gensets	MoEF&CC
2.	EIA Notification 14th Sep 2006 and amendments till date	Requires prior environmental clearance for new, modernization and expansion projects listed in schedule 1 of EIA Notification, 2006	Considered Not Applicable (EIA Notification 2006 does notclassify for embankmentconstruction). Borrowing of earth for embankment and road construction as may be required, will require prior environment clearance under mining category	MoEF&CC
3.	Air (Prevention and Control of Pollution) Act, 1981, 1987	To provide for the prevention, control and abatement of air pollution, and for the establishment of Boards to carry out these purposes.	Yes. Air pollution from proposed activities during construction stage	SPCB. Consent to establish and operate to be obtained by contractor for operation of DG sets, of applicable ratings and any other air pollution system like ready mix plant etc.

S. No.	Relevant Acts and Policies of GoI and GoA	Mandate of the Act/ Policy	Applicability	Responsibilities
4.	Water Prevention and Control of Pollution) Act, 1974, 1988	To provide for the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water.	Yes. Water pollution from proposed activities during construction stage	SPCB. Consent to establish and operate to be obtained by contractor for setting up construction camp/labour camp.
5.	Noise Pollution (Regulation and Control Act) 2000 and amendment till date	Work place noise is covered under Indian factories Act, 1948 but this rule provides safety against noise in ambient condition with generation of noise by certain point and area source.	Yes. Noise emission from proposed activities during construction stage like operation of DG sets of applicable ratings	CPCB & SPCB
6.	Hazardous & Other Waste (Management and Trans-boundary Movement) Rules, 2016	Protection to general public against improper handling, storage and disposal of hazardous waste. The rules prescribe the management requirement of hazardous wastes from its generation to final disposal.	Yes. Hazardous waste generation from proposed activities like generation of paints waste, used oil/waste oil	SPCB. Authorization for handling and disposal of hazardous wastes.
7.	Manufacture Storage, & imports of Hazardous Chemicals (MSIHC) Rules, 1989 as amended till date	Usage and storage of hazardous substances	Yes. If Painting is proposed which will require use of solvents/thinners which will fall under hazardous chemicals category or generation of waste oil is involved. Otherwise not applicable	Chief Inspector of Factories. Arrange MSDS and store quantity of hazardous chemicals below threshold quantity
8.	Construction and Demolition Waste Management Rules,2016	To manage the demolition and construction waste and prevent environmental degradation	Yes. Construction and demolition waste will be generated from proposed activities	Local bodies of the area. Contractor needs to submit plan for reuse or safe disposal
9.	Solid Waste management Rules, 2016	To manage solid waste or semi-solid domestic waste, sanitary waste	Yes. Solid Waste will be generated from proposed activities due to influx of labour	Local bodies of the area Contractor needs to submit plans for its safe disposal/burial

S. No.	Relevant Acts and Policies of GoI and GoA	Mandate of the Act/ Policy	Applicability	Responsibilities
10.	Vehicle Act 1988 Central Motor Vehicle Rules 1989	To minimize the road accidents, penalizing the guilty, provision of compensation to victim and family and check vehicular air and noise pollution.	Yes. Transportation of manpower and material	Motor Vehicle Department (Licensing authority, registration authority & State Transport Authorities)
11.	The Gas Cylinder Rules 2016	To regulate the storage of gas / possession of gas cylinder more than the exempted quantity.	Yes. Gas cylinders may be used during welding and other electromechanical work. Storage within threshold quantity and as per capability analysis. Handling with defined safe practices	Petroleum and Explosives Safety Organization (PESO)
12. \	Hazardous & Other Waste (Management and Trans-boundary Movement) Rules, 2016	Protection to general public against improper handling, storage and disposal of hazardous waste. The rules prescribe the management requirement of hazardous wastes from its generation to final disposal.	Yes. Hazardous waste generation from proposed activities like generation of paints waste, used oil/waste oil	SPCB. Authorization for handling and disposal of hazardous wastes.
13.	The Mines And Minerals (Development And Regulation) Act, 1957 Assam Minor Mineral Concession Rules 2013 Assam Mineral Regulation and Dealers Rules 2020	For development and regulation of mines and minerals in a sustainable manner. The rules regulate the mining of mineral and dealerships for mining and trading.	Yes, the construction of works will require stones, aggregates, sand, earth, etc.	Mines and Geology Department
14.	The Forest (Conservation) Act, 1980 and Amendments and The Forest (conservation) Rules 1981 and Amendments	To help conserve the country's forests. It strictly restricts and regulates the de-reservation of forests or use of forest land for non-forest purposes without the prior approval of the Government. To this end the Act lays down the pre-requisites for the diversion of forest land for non-forest purposes	Applicability will depend on specific to stretches (Sub-Projects) and activities proposed. Depends on requirement of diversion of forest land	State Forest Department, MoEF&CC
15.	National Forest Policy 1988	It articulates the twin objectives of ecological stability and social justice; recognizes people's dependence and their symbiotic relation with forest, emphasizes protection of people's rights over forest resource and offers space for participation of forest dependent communities in the conservation, protection and management of	Applicability will depend on specific to stretches (Sub-Projects) and activities proposed	State Forest Department, MoEF&CC

S. No.	Relevant Acts and Policies of GoI and GoA	Mandate of the Act/ Policy	Applicability	Responsibilities
		state-owned forests.		
16.	Biological Diversity Act, 2002	The Act provides a comprehensive legal framework for conservation and sustainable use of bio-resources reflects a strict regime for access, control and benefit sharing. It restricts access and use of biological resources by outsiders and creates decentralized institutional structures (State Biodiversity Boards -SBB and GP level Biodiversity Management Committees) for conservation of biological diversity.	Applicability will depend on specific to stretches (Sub-Projects) and activities proposed	Assam State Biodiversity Board
17.	Assam Forest Policy, 2004	Conservation of forest and controlled felling of trees	Applicability will depend on specific to stretches (Sub-Projects) and activities proposed	State Forest Department
18.	Assam Biodiversity Rules, 2010	Conservation of biological diversity, sustainable use of its components and fair and equitable sharing of benefits arising out of the use of biological resources	Applicability will depend on specific to stretches (Sub-Projects) and activities proposed	Assam State Biodiversity Board
19.	Wildlife Protection (Assam Amendment) Act 2009	Protection of wildlife in the state of Assam	Applicability will depend on specific to stretches (sub-projects) and its location from the notified forest area (National Park, Wildlife Sanctuary, Protected & reserve Forest, Animal Corridor etc.)	State Forest Department
20.	Eco-sensitive Zone Notifications 2015	The activities in areas around Wildlife Sanctuaries and National Parks are regulated from the perspective of conservation of wildlife	Applicability will depend on specific to stretches (Sub-Projects) and activities proposed	MoEF&CC
21.	State Compensatory Afforestation Fund Management and Planning Authority Forest (Conservation) Amendment Rules, 2014	It seeks to establish the National Compensatory Afforestation Fund under the Public Account of India, and a State Compensatory Afforestation Fund under the Public Account of each state. The collected funds will be utilized for afforestation, regeneration of forest ecosystem, wildlife protection and infrastructure development.	Applicability will depend on specific to stretches (Sub-Projects) and activities proposed	State Forest Department

S. No.	Relevant Acts and Policies of GoI and GoA	Mandate of the Act/ Policy	Applicability	Responsibilities
22.	The Assam Compensatory Afforestation Fund Rules, 1994	To constitute a Fund for the purpose of Compensatory Afforestation to be raised against the Forest Area diverted for non-forest use under the provisions of Section 4(1) of the Forest (Conservation) Act, 1980	Applicability will depend on specific to stretches (Sub-Projects) and activities proposed	State Forest Department
23.	Assam (Control of Felling & Removal of trees from Non-forest Land) Rules 2002	Conservation of forest and controlled felling of trees	Applicability will depend on specific to stretches (Sub-Projects) and activities proposed Depends on Tree cutting requirement in proposed intervention	State Forest Department
24.	Assam Rhinoceros Preservation Act 1954	Conservation of Rhinoceros	Applicability will depend on specific to stretches (Sub-Projects) and activities proposed	State Forest Department
25.	Disaster Management Act, 2005	The purpose is to have an effective management of disasters and for matters connected therewith or incidental thereto	The subproject areas falls under the seismic (earth quake prone) zone V and hence any construction activities/ interventions will be under purview of this act	Assam State Disaster Management Authority
26.	Assam State Disaster Management Policy 2010	The policy is to provide measures' to be adopted for prevention and mitigation of disaster; mitigation measure to be integrated with development plans and projects; build capacity and preparedness measure; and specify roles and responsibilities to each dept. in relation to adopted measure	Yes. During implementation, setting of labour camps and capacity building of contractor staff	PMU/PIU
27.	Energy Conservation Act, 2001	The objective is for efficient use of energy and its conservation and for matters connected therewith or incidental thereto	Yes. For activities (shelters) involves use of energy efficient equipment, energy conservation building etc.	PMU/PIU
28.	Roof-top Rain Water Harvesting, 1999	Rain water harvesting for any infrastructure facility more than 1000 Sq.m plinth area.	Building infrastructure (shelters) of this scale is likely to be supported under the project	PMU/PIU

S. No.	Relevant Acts and Policies of GoIand GoA	Mandate of the Act/ Policy	Applicability	Responsibilities
29.	Ancient Monuments and Archaeological Sites and Remains Act, 1958	Conservation of cultural and historical remains found in India.	Yes. If Presence of historical sitesof archaeological importance	Archaeological Dept. GoI
30.	Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996	To regulate the employment and conditions of service of buildings and other construction workers and to provide for their safety, health and welfare measures and for other matters connected therewith or incidental thereto.	Yes. Involvement of workforce/labour	Chief Labour Commissioner
31.	Plastic waste managementRules, 2016	To manage the plastic waste generated such that it does not affect thewater pipeline, animals and other environmental components	Yes. Plastic waste generationfrom proposed activities. Safe disposal as per Rules	Local bodies of the area
32.	E-Waste Management Rules, 2016	Protection of environment against improper handling storage and disposal of hazardous waste.	Yes. E-waste generation from replacement of instrumentation. Safe disposalas per Rules	CPCB & SPCB
33.	Convention on InternationalTrade in Endangered Species of Wild Fauna and Flora(CITES)	This international convention, to which India is a signatory category, lists the endangered flora and fauna and regulates trade of these species	Though Project Interventiondoes not involve any trade of significant Endangered species yet Environmental safety measures are to be adhered	MoEF&CC
SOCIAL REGULATIONS				
34.	The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	The act provides for a transparent process and fair compensation in land acquisition for public purpose and provides for rehabilitation and resettlement of land owners and those affected by land acquisition. It comprises four schedules that provide the minimum applicable norms for compensation based on market value, multiplier and solatium; resettlement and rehabilitation (R&R) entitlements to land owners and livelihood losers; and facilities at resettlement sites for displaced persons, besides providing flexibility to states and implementing agencies to provide higher norms for compensation and R&R.	Yes. Applicable to all sub- projects when private land is required to acquired involuntary basis	Revenue Department/ District Administration Stage wise notification as per Act
35.	Notification on Land Acquisition through Direct Purchase by the way of negotiated settlement for public purpose of all departments in the state of Assam No. RLA.177/2021/3 dated 07/03/2022	This Notification enacted by GoA, Section 46(i) of RFCTLAR&R Act 2013 facilitates direct purchase of land by way of negotiated settlement, provides an opportunity to the land losers to negotiate on the cost of their land, they will be paid The direct purchase price shall be 25% higher on the compensation as per provisions of Section 26 to 30 Schedule I of RFCTLARR Act 2013	Yes. For all the subproject where private land is to be acquired	District Level Land Purchase Committee (DLLPC) Stage wise notification as per G.0

S. No.	Relevant Acts and Policies of GoI and GoA	Mandate of the Act/ Policy	Applicability	Responsibilities
		with multiplier factor. The R&R benefits will be deemed included in it. For expeditious acquisition of land for speedy implementation of the programs and fulfill GoI readiness criteria for EAPs stipulate 50% of LA for a project has to be completed before project negotiation.		
36.	Rights of Persons with Disabilities Act, 2016	Ensures that the Persons with Disability (PWD) enjoy the right to equality, life with dignity, and respect for his or her own integrity equally with others.	Yes. For all the sub-project were PWD are present and affected	PMU/PIU
37.	Right to Information Act, 2005	The Act provides for setting out the practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, the constitution of a Central Information Commission and State Information Commissions and for matters connected therewith or incidental thereto.	All documents pertaining to the project would be disclosed to public.	PMU/PIU/ Other implementation Agencies
38.	Article 366 (25) of the Constitution of India Article 244(1) of Constitution of India - The Fifth Schedule under Article 244(1) of a subsequent Act of Constitution "Scheduled Areas" as such areas as the President may by order declare to be Scheduled Areas after consultation with Governor of that State.	Defines following essential characteristics, for a community to be identified as Scheduled Tribes are; • Indications of primitive traits; • Distinctive culture; • Shyness of contact with the community at large; • Geographical isolation; and • Backwardness. The criteria for declaring any area as a "Scheduled Area" under the Fifth Schedule are; (a) preponderance of tribal population, (b) compactness and reasonable size of the area, (c) a viable administrative entity such as a district, block or Taluka, and (d) economic backwardness of the area as compared to the neighboring areas.	Yes. Applicable to all sub-projects where tribal's are present	Government of India

39.	Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	To recognize and vest the forest rights and occupation in forest land in forest dwelling STs and other traditional forest dwellers who are residing in such forests for generations but whose rights could not be recorded. Its objective is to facilitate the overall development and welfare of the tribal people by empowering them socially, economically, politically without any impact on their culture, habitation and tradition and in terms of their age-old rights and	Yes. Applicable to all sub-projects where tribal's are present	The Gram Sabha resolution for determining the nature and extent of individual or community forests rights Ministry of Tribal

S. No.	Relevant Acts and Policies of GoI and GoA	Mandate of the Act/ Policy	Applicability	Responsibilities
		privileges.		Affairs/ Tribal Affairs department of the state
40.	Panchayats (Extension to the Scheduled Areas) Act, 1996	The Gram Sabha or the Panchayats at the appropriate level shall be consulted before making the acquisition of land in the Scheduled Areas for development projects and before re-settling or rehabilitating persons affected by such projects in the Scheduled Areas.	Yes (in select states with Schedule V and VI areas)	The Gram Sabha or the Panchayats at the appropriate level shall be consulted before making the acquisition of land in the Scheduled Areas for development projects and before resettling or rehabilitating persons affected by such projects in the Scheduled Areas
	Labour Laws Applicable to Establishments Engaged In Building And Other Construction Work			
41.	Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996	It regulates the employment and conditions of service of building and other construction workers and provides for their safety, health and welfare.	This will be applicable for all building or other constructions works under the project that employ 10 or more workers.	Chief labour Commissioner
42.	Workmen Compensation Act, 1923	It provides for payment of compensation by employers to their employees for injury by accident i.e., personal injury or occupational disease.	Construction workers will be involved in the sub-projects	Commissioner for Workmen's Compensation
43.	ESI Act, 1948 (Employees State Insurance Act, 1948)	Employees State Insurance Act provides for health care and hospitalization benefits for construction work force	Construction workers will be involved in the sub-projects	Commissioner for Workmen's Compensation
44.	Inter-state Migrant Workers Act, 1979	It protects workers whose services are requisitioned outside their native states in India. A contractor who employs or who employed five or more Inter-State migrant workmen need to obtain registration under this act	Construction workers will be involved in the sub-projects	Chief labour Commissioner
45.	The Child Labour (Prohibition & Regulation) Amendment Act, 2016	It prohibits employment of children in specified hazardous occupations and processes and regulates the working conditions in others.	There should not be any child labour (less than 14 years) inany project activity and adolescents (above 14 and less	Chief labour Commissioner

S. No.	Relevant Acts and Policies of GoI and GoA	Mandate of the Act/ Policy	Applicability	Responsibilities
			than 18 years) in any hazardous activity.	
46.	Building and Other Construction Workers Welfare Cess Act, 1996	An Act to provide for the levy and collection of a Cess on the cost of construction incurred by employers.	Sub-projects will involve construction workers	Chief labour Commissioner
47.	Sexual Harassment of Women at the Workplace (Prevention, Prohibition and Redressal) Act, 2013 (POSH Act)	It mandates every organization having more than ten employees to constitute an Internal Complaints Committee (ICC) in the prescribed manner to receive and address the complaints of any sort of sexual harassment from women in a time-bound and extremely confidential manner	Applicable to all implementing agencies	District Officer (District Magistrate or Additional District Magistrate)
48.	Contract Labour (Regulation & Abolition) Act 1970	To provide proper and habitable working conditions. To regulate the functioning of the advisory boards. To lay down the rules and regulations regarding the registration procedure of the establishments employing contract labour	Applicable to all implementing agencies	Chief labour Commissioner
49.	Payment of Wages Act, 1936 The minimum wages rules Assam 1952	Lays down as to by what date, wages are to be paid, when it will be paid and what deductions be made from the wages of the workers, if any.	Applicable to all implementing agencies	Chief labour Commissioner
50.	Payment of Gratuity Act, 1972 The payment of gratuity rules Assam 1972	Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation, if an employee has completed 5 years of service with employer	Applicable to all implementing agencies	Chief labour Commissioner
51.	Employees Provident Fund and Miscellaneous Provision Act, 1952	Provides for monthly contributions by the employer and as well as by workers with a provision as return of pension of a lump sum (principal and interest accrued) at the end of his/her service term).	Applicable to all implementing agencies	Chief labour Commissioner
52.	Maternity Benefit Act, 1951 Assam Maternity benefit Rules 1965	Provides for maternity leave for women, during pregnancy and after giving birth and some other benefits to women employees, in case of medical recommendation of bed rest or miscarriage etc.	Applicable to all implementing agencies	Chief labour Commissioner
53.	Payment of Bonus Act, 1965 The Payment of Bonus Rules Assam 1975	Provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 20% of wages.	Applicable to all implementing agencies	Chief labour Commissioner
54.	The Bonded Labour (Abolition) Act 1976 Bonded Labour System (Abolition) Rules 1976	An Act to provide for the abolition of bonded labour system, with a view to prevent economic and physical exploitation of the weaker sections of the people and for all matters connected there with or incidental thereto	Applicable to all implementing agencies	Chief labour Commissioner
55.	The Trade Union Act, 1926	Lays down the procedure for registration of trade union of workers	Applicable to all implementing	Chief Labour

S. No.	Relevant Acts and Policies of GoI and GoA	Mandate of the Act/ Policy	Applicability	Responsibilities
		and employers. The trade unions registered under the Act have been given certain immunities for civil and criminal liabilities.	agencies	Commissioner
56.	Draft Code on Occupational Safety, Health and Working Conditions, 2019	This is a comprehensive code on Occupational Safety, Health and Working Conditions and amalgamates 13 existing labour laws/acts relating to Safety and Health Standards, Health and Working Conditions	Applicable to all implementing agencies	Chief labour Commissioner

Annex 2: Project Environment and Social Baseline

1.1 Project Area

The AIRBMP, in general, will focus on the entire Assam to build requisite institutional capacity and implement integrated solutions to tackle the current challenges of floods and erosion. However, the physical investments of AIRBMP will mainly focus on three of the six sub basins of the Brahmaputra River in Assam. These three sub basins are Buridehing, Beki and Jiadhal. The locations of these three sub basins are given in Figure 3.

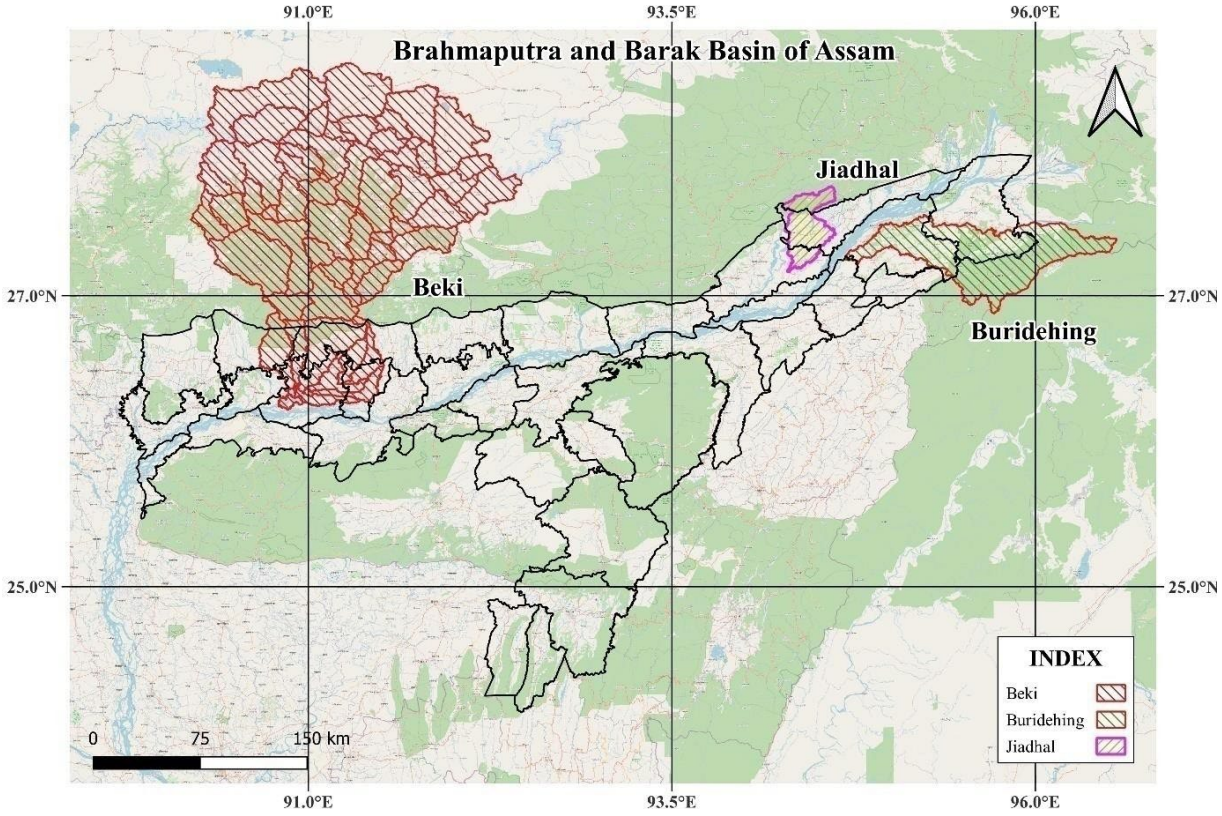


Figure 3: Location of the Beki, Buridehing and Jiadhal sub basins of the Brahmaputra in Assam

1.2 Environmental Baseline

1.2.1 Physiography

Geologically, the state can be divided into three structural regions: the alluvial plains of Brahmaputra and Barak, the plateau region of Karbi Anglong, and the Tertiary Era Mountains of North Cachar Hills. The project activities will be mainly implemented in the alluvial plains.

1.2.2 Drainage

The State of Assam is comprised of two river systems: the Brahmaputra and the Barak.

1.2.3 Brahmaputra River System

The Brahmaputra Valley has an average width of about 80 Km. The main river of the valley, Brahmaputra, is one of the largest rivers in the world and ranks fifth with respect to its average discharge. The average annual discharge is about 20,000 cumec and the average dry season discharge is 4,420 cumec.

During its course in Assam valley from Kobo to Dhubri, the river is joined by about twenty important tributaries on its North bank and thirteen on its South bank. The tributaries, namely Subansiri, Ronganadi, Dikrong, Buroi, Borgong, Jiabharali, Dhansiri (North),Puthimari, Manas, Beki, Aieand Sonkosh are the main tributaries on the North while the Noadehing, Buridehing, Desang, Dikhow, Bhogdoi, Dhansiri (South), Kopilli, Kulsi, Krishnai, Dhdhnoi, Jinjiran are the main tributaries on the south bank of the river Brahmaputra.

There are several other small streams also which drain directly to the river. Some important tributaries of Brahmaputra are: Teesta River, Manas River, Subansiri River, and Dhansiri River.

Buridehing Sub-basin

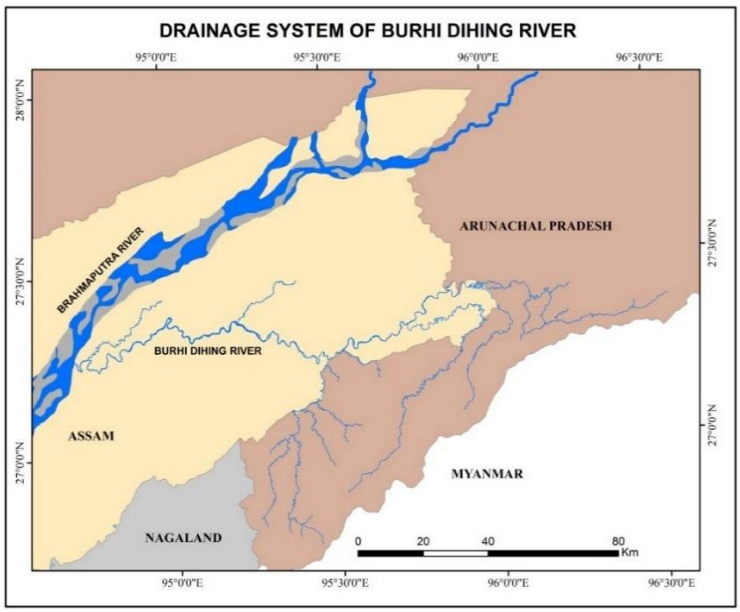
The Buridehing basin is situated in the North-Eastern part of Assam and lies between latitudes 26°45'north and 27°45' north and longitude 94°30'-96°45'east. This basin is bounded by Dibru and Lohit basins on the north and the Desang on the west and hilly terrains of Burma on the south and east. The hilly terrains of the basin belong to Synphos range of Burma Border and Patkai ranges of Tirap District of Arunachal Pradesh (Map-1).

The Buridehing basin forms one of the major sub-basins of the Brahmaputra and covers a catchment area of about 5447 Sq.Km, nearly 2.30% of the Brahmaputra basin exists within the periphery of the states of Assam and Arunachal Pradesh. Out of this total catchment area of 5447 Sq. Km, the proportion of catchment area falling under the states of Assam and Arunachal Pradesh is 45:55, respectively (Map-2).

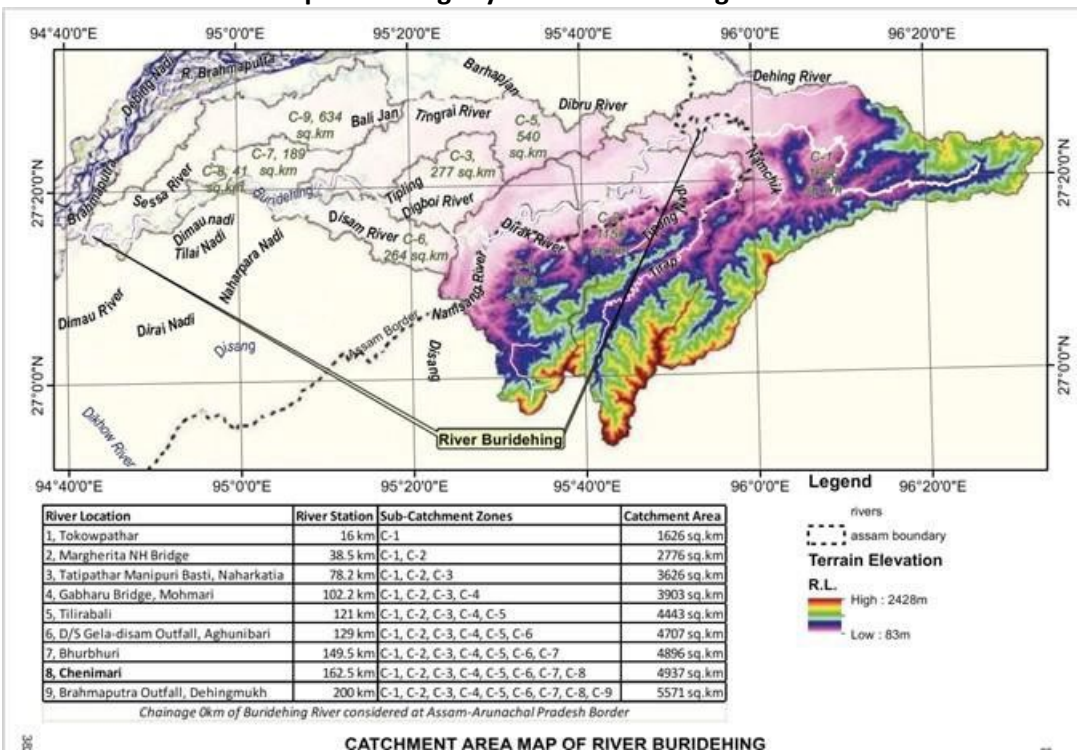
The river Buridehing is one of the major tributaries of the river Brahmaputra that originates from the hill ranges of Patkai in Arunachal Pradesh. It finally outfalls at the Brahmaputra at about 32 Km downstream of Dibrugarh town. The outfall is known as Dehingmukh. The total length of the river is 360 Km, including that of the river Namchuk.

Almost the entire basin of the river Buridehing comprises fertile land. It is suitable for all types of cultivation, including tea. Besides these fertile lands of high agricultural productivity and intensity, the basin also contains tertiary rocks in its geomorphic structure suitable for the occurrence of Natural Oil and Gases. The flood problem of the Buridehing River significantly affects the economic and social life of the inhabitants of this basin.

Since the early fifties, the entire area of Buridehing basin has been chronically flood affected due to inundation caused by bank spilling and bank erosion during flood season. Moreover, these areas fall under high intensive rainfall; therefore, the surface runoff over the catchment area is large enough to contribute to a large volume of discharge in the river.



Map 1: Drainage system of Buridehing River



River Location	River Station	Sub-Catchment Zones	Catchment Area
1, Tokowpathar	16 km	C-1	1626 sq.km
2, Margherita NH Bridge	38.5 km	C-1, C-2	2776 sq.km
3, Tatipathar Manipuri Basti, Naharkatia	78.2 km	C-1, C-2, C-3	3626 sq.km
4, Gabharu Bridge, Mohmari	102.2 km	C-1, C-2, C-3, C-4	3903 sq.km
5, Tilirabali	121 km	C-1, C-2, C-3, C-4, C-5	4443 sq.km
6, D/S Gela-disam Outfall, Aghunibari	129 km	C-1, C-2, C-3, C-4, C-5, C-6	4707 sq.km
7, Bhurbhuri	149.5 km	C-1, C-2, C-3, C-4, C-5, C-6, C-7	4896 sq.km
8, Chenimari	162.5 km	C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-8	4937 sq.km
9, Brahmaputra Outfall, Dehingmukh	200 km	C-1, C-2, C-3, C-4, C-5, C-6, C-7, C-8, C-9	5571 sq.km

Chainage 0km of Buridehing River considered at Assam-Arunachal Pradesh Border

CATCHMENT AREA MAP OF RIVER BURIDEHING

Map 2: Catchment Area of Buridehing River

The river Buridehing originates from a tributary called Namphuk from the hilly terrain of Patkai ranges in Arunachal Pradesh. The channel Namphuk, after traversing for a couple of kilometres over the hilly track in a westerly direction, combines with another activated channel called Namchik. The river Noadehing, which originates from the Patkai ranges in Arunachal Pradesh, flows in the westerly direction in the hilly regions until it bifurcates into two distinct channels near Miao. The northern channel is known as Noadehing and the Southern Channel is known as Khoikee and then Maganton. This channel, after traversing a few kilometres in the westerly direction, joins Namphuk Namchik channel and from this confluence point the channel is known as Buridehing River. After traversing about 75Km, another tributary Tirap joins the Buridehing river just upstream of Ledo on the left bank.

The Buridehing River starts meandering acutely below Margherita towards its downstream to its confluence and there are three major loops towards the left bank and similar number of such bends towards the right bank. After travelling through the plain areas of Tinsukia, Dibrugarh and Sivasagar Districts, it outfalls at river Brahmaputra at Dehingmukh, about 32Km downstream of Dibrugarh Town. The total length of the river is 360Km including the length of Namphuk, which is considered to be the origin of the Buridehing river.

On the basis of topography, river gradient and the confluence/bifurcations of tributaries, the entire length of river Buridehing may be divided into three major reaches. These reaches are:

i) The reaches from the source of Namphuk in Arunachal Pradesh to the joining point of flood plains at the interstate border of Assam and Arunachal Pradesh, which has a steep gradient of about 1 in 85

ii) The reach within the flood plains of Assam from the interstate border to Jeypore with a gradient of about 1 in 2600. This reach can be further sub-divided into two parts as follows:
   a. The first part of reach from the interstate border to about 46km downstream upto Dehing-Patkai Wildlife Sanctuary, where the soil characteristics is of alluvial nature. Here the river tends to meander, thereby causing erosion at several concave bends. Most of the banks are high and bank spillage during high stages is insignificant except for a few reaches. In this stretch of the river, the locations proposed for various works are Manmow Pathar, Moulang, Borfakial, Bansbari & Maichang Pathar which are thicklypopulated, besides the area is highly industrialized with tea estates and coal mines.
   b. The second part of the reach from Dehing Patkai Wildlife Sanctuary to Jeypore, where the soil characteristics are of rocky nature. In this reach, the river has been observed to be very stable, and no works have been proposed.

iii) The reach from Jeypore to the out fall at Buridehing into river Brahmaputra with an average gradient of about 1 in 6000. Here the river flows through alluvial soil and severe meandering has been observed in the past decades from satellite imageries. Most of the banks at this stretch of river are overtopped by flood water during the high stage and thus both the banks of the river in this stretch are fortified with embankments for flood protection to the adjacent areas. The river is very problematic here due to the meandering tendency, which causes severe erosion and eventually erodes away parts of embankments. Most of the project sites are located in this stretch which includes up gradation of the embankment system and bank stabilization of erosion-prone reach at locations with high significance of population, industries, agricultural land and tea estates, oil mining areas etc. Important areas like Naharkatia, Duliajan, Jagun, Tengakhat, Sassoni, Khowang etc., are located within this stretch of the river.

Problems: The river system of Buridehing originates and initially traverses through the hilly terrain of geologically wound mountain ranges which predominantly consists of origillatous sand stones with thick forest cover. The catchment area also experiences heavy showers during monsoon (ranging from 2000mm to 4000mm) and is located in the seismically most unstable zone. Heavy shower lashing on the steep hill slopes causes a great deal of soil erosion. The eroded soils, along with the debris of landslides, pour into the river during rains when the river carries not only an enormous discharge but also excessive silt loads. Under these circumstances, the river tries to build steeper bed slope resulting in widening the river bed and braiding of the channel. The widening of the subsequently erodes its banks. This bank erosion process has been going on for a long time and continues in the basin of river Buridehing.

Of the total length of 360 Km of the Buridehing River, 160 Km falls in the hilly region of Arunachal Pradesh and the rest in the plain zone of Assam. In the hilly areas, there is no such problem as flood inundation, bank erosion, drainage congestion, etc. The 200 km stretch of the river, which lies in the floodplains of Assam, faces problems of erosions and overflowing of riverbanks at different reaches.

Beki Sub-basin

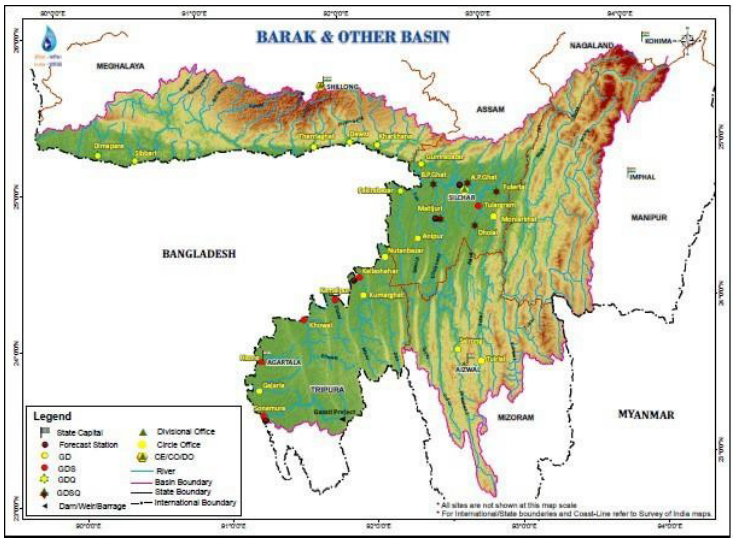
The Manas River is transboundary in the Himalayan foot hills between southern Bhutan and India. The river got its name after the Serpent God in Hindu mythology. After debouching from the foot hills, the river flows in two channels, namely Beki and Manas. The high-intensity rainfall in the hilly areas of Bhutancontributes a high-order discharge to the river. The landslides in Bhutan hills and soil erosion in the region contribute to a large amount of silt load carried to the foot hills. From the foot hills of Bhutan up to the confluence, these two rivers, Beki and Manas, drain low-lying areas of the flood plain. The spatial and temporal distribution of rain in the area sometimes gives rise to huge flood in the downstream plain. In 2004 such an occurrence change the river scenario in which the original course of Manas was silted up and nearly 80% of flood discharge flow through the river Beki. In addition, the flood of river Buradia (which drains a huge area and joins the river Beki) in 2004 accelerated the problem further on downstream. After this flood, the river Beki created a lot of problems by eroding the banks to get the river regime and still continuing. During the process, the river has eroded numbers of villages and large tracks of cultivable lands.

Problem: The high flood water in the Beki River exerts a heavy thrust on the bank from Mothanguri to Safakamar. This portion is affected by the heavy erosion of Beki. After crossing Raghabill, the river erodes at many places on its left bank. Due to continuous erosion during flood time the most affected places between Raghabill and NH31 on left bank of the river Beki are Raghabill, Elengbari, Chunbari, Khagrabari, Gobardhana, Udalguri, Barpeta, Safakamar, Katajar, Dumunighat, Tilabori, Nichuka. After crossing the NH31 erosion on right bank is intensive and heavy erosion creates problem at Chantabari, Kurobaha, Salsalia, Bordonga, Guileza, Mowamari, Kaurjahi, Kharbali-Sutirpathar, Daukmari, Sawpur, Alipur, Rasulpur, Bheragaon, Satrakanara, Morabhaj, Jaurimari, Takakata, Pub-Moinbori, Hatchara, Joypur, Kismat Moinbori, Tarakandi, and Puran Chikartari Chotala. Apart from the erosions of the river bank in different reaches, the flood wave through incoming channels in many locations are causing instant flood havoc destroying number of buildings, schools, etc. and eating up huge cultivable/homestead land immediately making Lakhs of people homeless as well as paddy loss.

Map 3: Beki River

1.2.4 Barak River System

The Barak River is one of the major rivers of South Assam and is a part of the Surma-Meghna River System. In Assam,the Barak has a total length of 225 km and it drains the southern part of the state, including the districts of Cachar, Karimganj, Hailakandi and the southern part of the North Cachar Hills. The important north bank tributaries of Barak River are Jiri, Siri, Madhura, Jatinga and Larang, while the important south bank tributaries include Sonai, Ghagra, Katakhal, Dhaleswari, Singla and Longai.The Barak valley has a geographical area of 6922 Sq. Km excluding two hill districts.



Map 4. Barack and other basins

1.2.5 Climate

From the climatic point of view, the year in Assam can broadly be divided into the cold and rainy seasons. However, there are two other short seasons, namely spring and autumn, representing the transition between cold and rainy seasons and rainy and cold seasons, respectively.

With an average of 24.1°C (75.4°F), February is the warmest month. July is the coldest month, with temperatures averaging 21.9°C (71.4°F).

1.2.6 Rainfall

The precipitation varies from 297 mm to 340 mm between the driest and wettest months. Throughout the year, temperatures vary by 2.2°C (36.0°F).

Table 21: Assam Weather by month & weather average

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature (°C)	23.8	24.1	23.9	24	23.8	23.1	21.9	22	22.7	23	22.8	23.5
Min. Temperature (°C)	19.5	19.4	19.1	19.2	19.3	19.1	18.1	18	18.8	18.7	18.6	19.4
Max. Temperature (°C)	28.1	28.8	28.8	28.8	28.3	27.1	25.7	26	26.6	27.3	27.1	27.7
Avg. Temperature (°F)	74.8	75.4	75.0	75.2	74.8	73.6	71.4	71.6	72.9	73.4	73.0	74.3
Min. Temperature (°F)	67.1	66.9	66.4	66.6	66.7	66.4	64.6	64.4	65.8	65.7	65.5	66.9
Max. Temperature (°F)	82.6	83.8	83.8	83.8	82.9	80.8	78.3	78.8	79.9	81.1	80.8	81.9
Precipitation / Rainfall (mm)	48	102	189	227	236	153	43	63	254	340	205	67

1.2.7 Soil Resources

The soils of Assam are very rich in content of nitrogen and organic matter. The alluvial soils of the Brahmaputra and the Barak valley are highly fertile and are very much suitable for raising varieties of crops around the year, such as cereals, pulses, oilseeds, plantation crops, etc. The well-drained, deep, acidic alluvial soils of upper Assam with a good proportion of phosphoric content are most suitable for the plantations. New alluvial soils occurring in the char lands of the Brahmaputra are most suitable for growing oilseeds, pulses and Rabi crops. The alluvium of the plains offers an excellent opportunity for cultivating rice and vegetables. The soils occurring in the upper reaches of the hill slopes are very suitable for horticulture.

Table 22: Distribution of Soils in Assam under different orders

Soil Order	Area (in 000 hectares)	Percentage of Soils	Local name
Inceptisols	3245.3	41.4%	Brahmaputra alluvial soils, Old alluvial soils
Entisols	2640.1	33.6%	Recent alluvial soils, Sandy soils
Alfisols	886.9	11.3%	Red soils
Ultisols	436.5	5.6%	Red soils
Miscellaneous	635.3	8.1%	
Total	7844	100%	

Source: Agriculture Department Assam, 2011

1.2.8 Agro Climatic Zones

Based on the rainfall pattern, terrain and soil characteristics, Assam has been delineated into six agro-climatic zones, viz.

- North Bank Plain Zone (Darrang, Sonitpur, Lakhimpur, and Dhemaji districts) has 18.37% of the total state area.

- Upper Brahmaputra Valley Zone (Golaghat, Jorhat, Sivasagar, Dibrugarh, and Tinsukia districts) has 20.4% of the total State area.
- Central Brahmaputra Valley Zone (Nagaon, Marigaon districts) has 7.08% of the total area of the State.
- Lower Brahmaputra Valley Zone (Goalpara, Dhubri, Kokrajhar, Bongaigaon, and Kamrup, Nalbari, and Barpeta districts) has 25.75% of the total area of the state.
- Barak Valley Zone (Cachar, Karimganj, Hailakandi districts) has 8.9% of the total area of the state.
- Hill Zone (North Cachar Hills, Karbi Anglong districts) has 19.4% of the total area of the state.

1.2.9 Geology

Assam has a diversified geological spectrum. It is located near the hairpin bend of the Himalayas. Hence the extreme geostatic pressures exerted on the landmass during the creation of the Himalayas have resulted in Assam having large areas of sedimentary deposits. This explains the huge amount of oil found in places like Digboi, Bongaigaon, etc. Cachar district of Assam is a huge storehouse of limestone. Limestone, which is basically Calcium Carbonate, is primarily a sedimentary rock. Of the four types of coal, namely Peat, Lignite, Bituminous and Anthracite, the third kind is readily available out here.

Karbi Anglong is also rich in Kaolin (China Clay) deposits. Another district, Morigaon, contains extensive reserves of granite. The famous Dhubri district has an approximate reserve of more than ten million tons of Iron Ore. Nagaon district has got very high reserves of Glass Sand. Thus, Assam is vouchsafed with geology that depicts a rich repository of minerals with its diversified geographical structure.

1.2.10 Land Use Pattern

Agriculture is the dominant land use category in the state. It accounts for about 54.11% of the state's total geographical area. The total area under different types of the forest is approximately23.62 % of the state's total area.

Table 23: Land Use Pattern

Land Use Types	Area (in 000’ ha)	Percentage
Geographical Area	7,844	
Reporting area for land utilization	7,844	100
Forests	1,853	23.62
Not available for land cultivation	2,460	31.37
Permanent pastures and other grazing lands	167	2.13
Land under misc. tree crops and groves	220	2.80
Cultivable wasteland	142	1.81
Fallow land other than current fallows	87	1.11
Current fallows	87	1.11
Net area sown	2827	36.05

Source: Land Use Statistics, Ministry of Agriculture, GOI, (2014-15)

1.2.11 Ground Water Status

Assam set up a Ground water Cell in 1967 to explore and exploit the ground water resources on a scientific line. It has carried out a systematic hydrogeological survey in some parts of the State to study ground water conditions and the feasibility of developing ground water through deep and shallow tube wells. The Department, so far, has covered 50,000 sq km. areas by hydrogeological studies with about 200 numbers of exploratory wells in different parts of the State and out of these 120 numbers have been converted to production well. The Directorate is collecting scientific hydrogeological data and maintaining the periodic water level in most parts of the State. These data are essential for proper exploration and exploitation of ground water for future use.

The quality of ground water is generally safe for drinking, industrial and agricultural purposes. The pH value ranges from 7.5 to 9.0. All parameters are within the permissible limit except iron, fluoride and

arsenic at certain locations. Fluoride is present only in deeper aquifers. (Status of Ground Water | Directorate of Geology & Mining | Government of Assam, India).

1.2.12 Forests

Assam, one of the biodiversity hotspots, occupies a special place in North Eastern India. The floristic richness has prompted many scholars to describe Assam as the "Biological Gateway" of the North East and the Cradle of flowering plants.

Forest Status

The State has reported the extent of recorded forest area (RFA) as 26,832 sq km which is 34.21% of its geographical area. The reserved and unclassed forests are 66.58% and 33.42% of the recorded forest area in the State, respectively.

Table 24: District-wise Forest Cover in Assam (Area in Sq. Km)

District	Geographical Area (GA)	2019 Assessment				% of GA	Change wrt 2017 assessment	Scrub
		Very Dense Forest	Mod. Dense Forest	Open Forest	Total			
Baksa[T]	2,457	156.00	130.01	273.66	559.67	22.78	3.67	6.00
Barpeta[T]	2,282	0.00	33.21	81.97	115.18	5.05	10.18	1.00
Bongaigaon	1,093	0.00	62.18	187.95	250.13	22.88	14.13	0.00
Cachar[T]	3,786	93.00	1,077.58	1,051.76	2,222.34	58.70	-0.66	17.45
Chirang	1,923	402.00	110.45	187.39	699.84	36.39	5.84	3.00
Darrang[T]	1,585	0.00	13.89	75.54	89.43	5.64	3.43	1.00
Dhemaji[T]	3,237	68.00	124.66	152.14	344.80	10.65	6.80	4.00
Dhubri[T]	2,176	1.00	22.44	75.02	98.46	4.52	8.46	4.00
Dibrugarh[T]	3,381	105.86	68.10	581.27	755.23	22.34	-1.77	1.00
Dima Hasao[H]	4,888	209.00	1,519.73	2,478.20	4,206.93	86.07	-3.07	4.00
Goalpara[T]	1,824	14.00	137.66	244.08	395.74	21.70	97.74	1.72
Golaghat	3,502	21.00	119.30	529.61	669.91	19.12	18.91	4.00
Hailakandi	1,327	13.00	366.04	395.30	774.34	58.35	1.34	1.48
Jorhat[T]	2,851	12.00	103.00	445.10	560.10	19.65	6.10	4.00
Kamrup[T]	3,105	50.00	455.95	457.52	963.47	31.03	44.47	3.00
Kamrup Metropolitan[T]	955	0.00	225.00	235.05	460.05	48.17	0.05	1.00
Karbi-Anglong[H]	10,434	583.93	3,766.62	3,538.63	7,889.18	75.61	-93.82	84.38
Karimganj	1,809	3.00	300.23	548.20	851.43	47.07	35.43	0.76
Kokrajhar[T]	3,296	438.00	270.19	458.38	1,166.57	35.39	8.57	1.00
Lakhimpur[T]	2,277	29.00	85.88	191.69	306.57	13.46	11.57	0.96
Morigaon[T]	1,551	10.00	42.00	122.11	174.11	11.23	0.11	4.00
Naogaon[H]	3,973	50.00	363.00	498.26	911.26	22.94	1.26	9.00
Nalbari[T]	1,052	0.00	30.84	76.27	107.11	10.18	13.11	0.00
Sibsagar[T]	2,668	9.00	152.83	528.13	689.96	25.86	1.96	2.40
Sonitpur[T]	5,204	108.97	257.53	703.11	1,069.61	20.55	14.61	3.38
Tinsukia[T]	3,790	410.10	353.92	818.55	1,582.57	41.76	3.57	9.90
Udalguri[T]	2,012	8.00	86.67	317.85	412.52	20.50	9.52	1.00
Grand Total	**78,438**	**2,794.86**	**10,278.91**	**15,252.74**	**28,326.51**	**36.11**	**221.51**	**173.43**

(Source: India State of Forest Report, 2019)

Forest Types in Assam

Percentage area under different forest types of Assam as per the Champion & Seth classification (1968), according to the latest exercise, is presented in the following table.

Table 25: Percentage area under different forest types of Assam

S.No.	**Forest Type**	**% of Forest cover**
1.	1B/C1 Assam Valley Tropical Wet Evergreen Forest (Dipterocarpus)	**3.56**
2.	1B/C3 Cachar Tropical Evergreen Forest	**3.11**
3.	1B/C2a Kayea Forest	**0.76**
4.	1B/C2b Mesua Forest	**0.02**
5.	2B/C2 Cachar Semi-Evergreen Forest	**37.75**
6.	2/2S1 Secondary Moist Bamboo Brakes	**3.01**
7.	2B/C1a Assam Alluvial Plains Semi-Evergreen Forest	**1.60**
8.	2B/1S1 Sub-Himalayan Light Alluvial Semi-Evergreen Forest	**1.25**
9.	2B/2S2 Eastern Alluvial Secondary Semi-Evergreen Forest	**1.23**
10.	2B/2S1 (Pioneer Euphorbiaceous Scrub)	**0.28**
11.	2B/1S2 Syzygium Parkland	**0.07**
12.	3C/C3b East Himalayan Moist Mixed Deciduous Forest	**17.92**
13.	3C/C2d(iv) App. Kamrup Sal	**2.71**
14.	3C/C1b(I) East Himalayan Upper Bhabar Sal	**2.37**
15.	3C/2S1 Northern Secondary Moist Mixed Deciduous Forest	**1.93**
16.	3C/1S1 Low Alluvial Savannah Woodland (Salmalia albizzia)	**0.05**
17.	3C/C1a(ii) Khasi Hill Sal	**0.12**
18.	3/1S2a Terminalia-Lagerstroemia	0.01
19.	4D/SS1 Eastern Seasonal Swamp Forest	0.01
20.	4C/FS3 Creeper Swamp Forest	0.00
21.	4D/2S1 (Syzygium Parkland)	0.00
22.	4D/2S2 Eastern Wet Alluvial Grassland	0.53
23.	5/1S2 Khair-Sissu Forest	0.08
24.	8B/DS1 (Assam Subtropical Hill Savannah Woodland)	0.04
25.	9/C2 Assam Sub-Tropical Pine Forest	0.41
26.	Plantation/TOF	21.18
	Total	**100.00**

Source: India State of Forest Report, 2019

Protected Areas Network in Assam

The Protected area Network in Assam occupies 3925 sq. km. area and constitutes about 5% of the State's geographical area; they play a very important role in the in-situ conservation of biodiversity.

The Protected Areas Network (PAN) includes:

- 7 National Parks
- 17 Wildlife sanctuaries
- 3 Proposed Wildlife Sanctuaries
- 3 Tiger Reserves (Manas, Nameri, Kaziranga)
- 5 Elephant Reserves

- 2 Biosphere Reserves
- 2 World Natural Heritage Sites

1.2.13 Biodiversity

India is one of the 17 Mega bio-diverse countries in the world and accounts for 7-8 % of the recorded species. The State of Assam is a constituent unit of the Eastern Himalayan Biodiversity Region, one of the two biodiversity's "Hot Spots" in the country. Assam is part of one of the 25 mega-diverse regions on planet earth. Assam is known for its ecological diversity, and for the range of floral and faunal species.

Table 26: General Statistical analysis of Flora of Assam

Name of the plant group	No. families of	No. Genera of	No. Taxa of	Remarks
Fern Allies	4	6	40	Fern and Fern Allies with 315 and 40 species, respectively, in Assam, represent 25.45% and 35.84% of Indian Pteridophytes.
Ferns	28	91	315	
Angiosperms				
Gymnosperm	7	14	22	This represents about 22.68% of the Indian flora
Dycolyledous	189	1012	2752	
Monocolyles	40	368	1080	
Total	236	1394	3854	

Rare and Endangered Species: Categories of threatened plants recognized by the IUCN have been reported from Assam. Besides the above, 284 species of plants are observed to be critically endangered, 149 species as endangered, 58 species as vulnerable, and 13 species as near threatened.

The Rich Faunal Diversity

Assam is part of the transitional zone between the Indian, Indo- Malayan and Indo-Chinese Biographical regions, which provides the gateway for the spread of both oriental and Palaearctic fauna to other parts of the country. Favourable climate, topographic and edaphic factors support the luxuriant growth of diverse plant communities and create varied habitats. The forests, as well as the extensive network of river systems and swamps, marshes and wetlands, provide ideal conditions and suitable habitat for the sustenance of a wide variety of fauna with the existence of one of the most diverse faunal populations of mammals, primates, reptiles, amphibians, fishes, molluscs, birds, butterflies, moths, etc.

Table 27: Status of Fauna

Fauna	No. of Species
Mammals	193
Primates	9 (Out of 15 Indian primate species, 9 are found in Assam)
Birds	950 (State is home to 53.5% of the bird species found in the Indian Sub-Continent, 17 species of birds are endemic to Assam), 45 species of birds from Assam found mentioned in the Indian Red Data Book.
Migratory birds	280
Amphibians	Assam and other parts of the N.E. region have 70 species of Amphibians reported from the region which 60+ species are found in Assam. Gangenophisfulleri and Ichthyphisgaroensis are endemic to Assam.
Butterflies	Around 1500 species of butterflies are reported from India, of which nearly half are reported from Assam and N.E. India.
Moths	About 387 species of moths are reported in the state.
Reptiles	116 (19 species of tortoises and 77 species of snakes and lizards are found in the state)

Molluscan	39 species of freshwater snails have been reported from Assam, of which 10 species are used as food.
Fish	185 (25 species are identified as Threatened)
Mosquito	156

(Source: Environment and Forest Department, Assam)

1.2.14 Biodiversity of Manas National Park & Tiger Reserve

The Manas National Park is a world heritage site with areas of exceptional natural beauty and aesthetic importance; and contains the most important and significant natural habitats for in-situ conservation of biological diversity. Manas Tiger Reserve (MTR) spans across the districts of Kokrajhar, Chirang, Buxa and Udalguri in north-west Assam. To the north, it is separated from the Royal Manas National Park of Bhutan by the River Manas and its tributaries; while to the west, it is separated from the Buxa Tiger Reserve of West Bengal by the River Sankosh. The area has a unique distinction of being a Natural World Heritage Site, a Tiger Reserve, an Elephant Reserve, a Biosphere Reserve and an Important Bird Area. Evolutionarily, it is the entry point of tigers into India. It forms part of a large tiger conservation landscapewhich includes Buxa-Nameri-Pakke-Namdapha tiger reserves and protected areas of Bhutan and Myanmar.

The total area of the MTR is 2837.31 sq.km, in which the core/critical tiger habitat is 526.22 sq.km and the buffer/peripheral area is 2310.88 sq.km. The core area has the status of the National Park with an exclusive tiger agenda. Though, the area has a long history of wildlife conservation dating back to 1905, several important species like the rhino and other herbivores suffer during the insurgency period that lasted from 1989 to 2003.Restoration of law and order in the landscape and strengthening of protection infrastructure is fostering recovery of several species. The protected area also regained its UNESCO heritage site status in 2011. The buffer area comprises of five territorial forest divisions with considerable biotic pressure. The insurgency period between 1989 to 2003, along with encroachment and altered land- use patterns significantly impacted the quality of forests, especially in forest blocks such as Kachugan, Bengtol, Chirang, Khalingduar and Bhairabkunda.

1.2.14.1 Flora

In general, the vegetation comprises of Sal (Shorearobusta), scrub forests, old plantations (in buffer areas), semi-evergreen and mixed deciduous forests, interspersed with grasslands and riparianvegetation (in core area). The habitat comprises of Sub-Himalayan High alluvial Semi evergreen forests, Eastern Bhabar Sal type Forests, East Himalayan Moist mixed deciduous forests, Eastern wet alluvial grassland, low alluvial savannah woodlands, Riparian fringing forest and Khair-Sisoo forests.

A total of 543 plant species have been recorded from the core zone. Of these, 374 species are dicotyledons (including 89 trees), 139 species monocotyledons and 30 are pteridophytes and gymnosperms.

Common Flora at Manas National Park

S.No	Local /Common Name	Scientific Name	Family	IUCN Status
1	Xakhoribakhori	*Aphanamixispolystachya*	Meliaceae	LC
2	Kadam	*Anthocephalus chinensis*	Rubiaceae	Not Evaluated
3	Jamun	*Syzygiumcumini*	Myrtaceae	LC
4	Bhukuachepa	*Syzygiumformosum*	Myrtaceae	LC
5	Jambuhutan	*Syzygium oblatum*	Myrtaceae	Not Evaluated
6	Rongakanchan	*Bauhinia purpurea*	Fabaceae	LC
7	Joroth	*Mallotusphilippensis*	Euphorbiaceae	LC
8	Tej Pat	*Cinnamomum tamala*	Lauraceae	LC

9	Nogabaghnola	*Actinodaphneobvata*	Lauraceae	LC
10	Silk cotton/ Simalu	*Bombax ceiba*	Malvaceae	LC
11	Elephant rope tree/ Udar	*Sterculia villosa*	Malvaceae	Not Evaluated
12	Elephant apple/ /Outenga	*Dillenia indica*	Dilleniaceae	LC
13	Okshi	*Dilleniapentagyna*	Dilleniaceae	Not Evaluated
14	Kumbhi	*Careya arborea*	Lecythidaceae	Not Evaluated
15	Dhauli	*Lagerstroemia parviflora*	Lythraceae	LC
16	Ejar	*Lagerstroemia speciosa*	Lythraceae	LC
17	Bhomora	*Terminalia bellirica*	Combretaceae	Not Evaluated
18	Silikha	*Terminalia chebula*	Combretaceae	LC
19	Unknown	*Trewiapolycarpa*	Euphorbiaceae	Not Evaluated
20	Gomari	*Gmelina arborea*	Lamiaceae	LC
21	Indian Trumpet Tree/ Toguna	*Oroxylum indicum*	Bignoniaceae	Not Evaluated
22	Borhaita	*Bridelia spp.*	Phyllanthaceae	Not Evaluated

1.2.14.2 Fauna

The tiger reserve has tremendous faunal diversity and the species include: 61 mammals, 450 birds, 42 reptiles, 9 amphibians, 79 fishes, more than 200 butterflies and 100 invertebrates. The habitat supports (IUCN listed) 1 critically endangered, 7 endangered and 10 vulnerable mammals. Besides, there are 5 critically endangered, 2 endangered, 18 vulnerable bird species, along with 4 endangered and 9 vulnerable reptiles. The avifauna is diverse with more than 450 bird species. The rich faunal assemblage in Manas is due to its unique bio-geographical location which is at the confluence of Indo-Malayan, Indo- Chinese and Australasian pathways, thus making it an important refuge for several endemic and charismatic wildlife species. It also provides an ideal habitat, ranging from high altitude Himalayan dense canopied forests to the sub-tropical woodlands, alluvial floodplain grasslands and riverine ecosystems in the lower elevations.

Common Fauna at Manas National Park				
S.No	**Local /Common Name**	**Scientific Name**	**Family**	**IUCN Status**
1	Indian elephants	*Elephas maximus indicus*	Proboscidea	EN
2	Indian rhinoceros	*Rhinoceros unicornis*	Rhinocerotidae	VU
3	Gaurs	*Bos gaurus*	Bovidae	VU
4	Wild water buffaloe	*Bubalus bubalis*	Bovidae	LC
5	Barasingha	*Rucervusduvaucelii*	Cervidae	VU
6	Indian tigers	*Panthera tigristigris*	Felidae	EN
7	Indian leopards	*Panthera pardus fusca*	Felidae	VU
8	clouded leopards	*Neofelisnebulosa*	Felidae	VU
9	Asian golden cats	*Catopumatemminckii*	Felidae	NT
10	Jungle cat	*Felis chaus*	Felidae	LC
11	Leopard cat	*Prionailurus bengalensis*	Felidae	LC
12	Fishing cat	*Prionailurusviverrinus*	Felidae	VU
13	Marbled cat	*Pardofelis marmorata*	Felidae	NT
14	Dholes	*Cuonalpinus*	Canidae	EN
15	Golden jackal,	*Canis aureus*	Canidae	LC
16	Bengal fox	*Vulpes bengalensis*	Canidae	LC
17	Capped langurs	*Trachypithecuspileatus*	Cercopithecidae	VU
18	Golden langurs,	*Trachypithecusgeei*	Cercopithecidae	EN
19	Assamese macaques	*Macaca assamensis*	Cercopithecidae	NT
20	Rhesus macaque	*Macaca mulatta*	Cercopithecidae	LC
21	Slow loris	*Nycticebus bengalensis*	Lorisidae	EN

22	Hoolock gibbons	*Hoolock hoolock*	Hylobatidae	EN
23	Smooth-coated otters	*Lutrogaleperspicillata*	Mustelidae	VU
24	Sloth bears	*Melursus ursinus*	Ursidae	VU
25	Barking deer	*Muntiacusmuntjak*	Cervidae	LC
26	Hog deers	*Axis porcinus*	Cervidae	EN
27	Black panthers	*Panthera pardus*	Felidae	VU
28	Sambar deer	*Rusa unicolor*	Cervidae	VU
29	Chitals	*Axis axis*	Cervidae	LC
30	Large Indian civet	*Viverrazibetha*	Viverridae	LC
31	Common palm civet	*Paradoxurus hermaphroditus*	Viverridae	LC
32	Spotted Linsang	*Prionodonpardicolor*	Prionodontidae	LC
33	Yellow-throated marten	*Martes flavigula*	Mustelidae	LC
34	Black giant squirrel,	*Ratufabicolor*	Sciuridae	NT
35	Indian porcupine,	*Hystrix indica*	Hystricidae	LC
37	Chinese pangolin	*Manis pentadactyla*	Manidae	CR
38	Wild boar	*Sus scrofa*	Suidae	LC

The Manas hosts more than 450 species of birds. It has the largest population of the endangered Bengalflorican.

Common Bird Species at Manas National Park				
Sl.No	**Local /Common Name**	**Scientific Name**	**Family**	**IUCN Status**
1	Bengal florican	*Houbaropsis bengalensis*	Otididae	CR
2	Great hornbills	*Bucerosbicornis*	Bucerotidae	VU
3	Jungle fowls	*Gallus gallus*	Phasianidae	LC
4	bulbuls	*Pycnonotuscafer*	Pycnonotidae	LC
5	Kalij pheasants	*Lophuraleucomelanos*	Phasianidae	LC
6	Egrets	*Bubulcus ibis*	Ardeidae	LC
7	Pelicans	*Pelecanus sp.*	Pelecanidae	LC
8	Fishing eagles	*Ichthyophaga sp.*	Accipitridae	NT
9	Crested serpent-eagles	*Spilornischeela*	Accipitridae	LC
10	Falcons	*Falco sp.*	Falconidae	LC/ NT
11	Scarlet minivets	*Pericrocotusspeciosus*	Passeriformes	LC
12	Bee-eaters	*Merops sp.*	Meropidae	LC
13	Magpie robins	*Copsychussaularis*	Muscicapidae	LC
14	Pied hornbills	*Anthracocerosalbirostris*	Bucerotidae	LC
15	Grey hornbills	*Ocycerosbirostris*	Bucerotidae	LC
16	Mergansers	*Mergus merganser*	Anatidae	LC
17	Harriers	*Circus sp.*	Accipitridae	LC
18	Indian peafowl	*Pavocristatus*	Phasianidae	LC
19	Ospreys	*Pandion haliaetus*	Pandionidae	LC
20	Herons	*Ardeolagrayii*	Ardeidae	LC
21	Brahminy ducks	*Tadornaferruginea*	Anatidae	LC

1.2.15 Tiger Status

The Manas habitat has a very good potential for harbouring tigers. As per the 2010 country-level assessment of tigers, the density was assessed as 1.8 tigers per 100 sq.km.

1.2.16 Sub-Projects near Manas National Park

There are 3 works under the sub-project located in the vicinity of the Manas National Park they are:

a. Elengmari AE of 1600 m length
b. Chunbari AE of 1500 m length
c. Embankment R/S of 4000 long

The PIU has applied for permission from the MoEFCC under The Wildlife (Protection) Act 1972 for taking up non-forestry works in wildlife habitat and the same is under process.

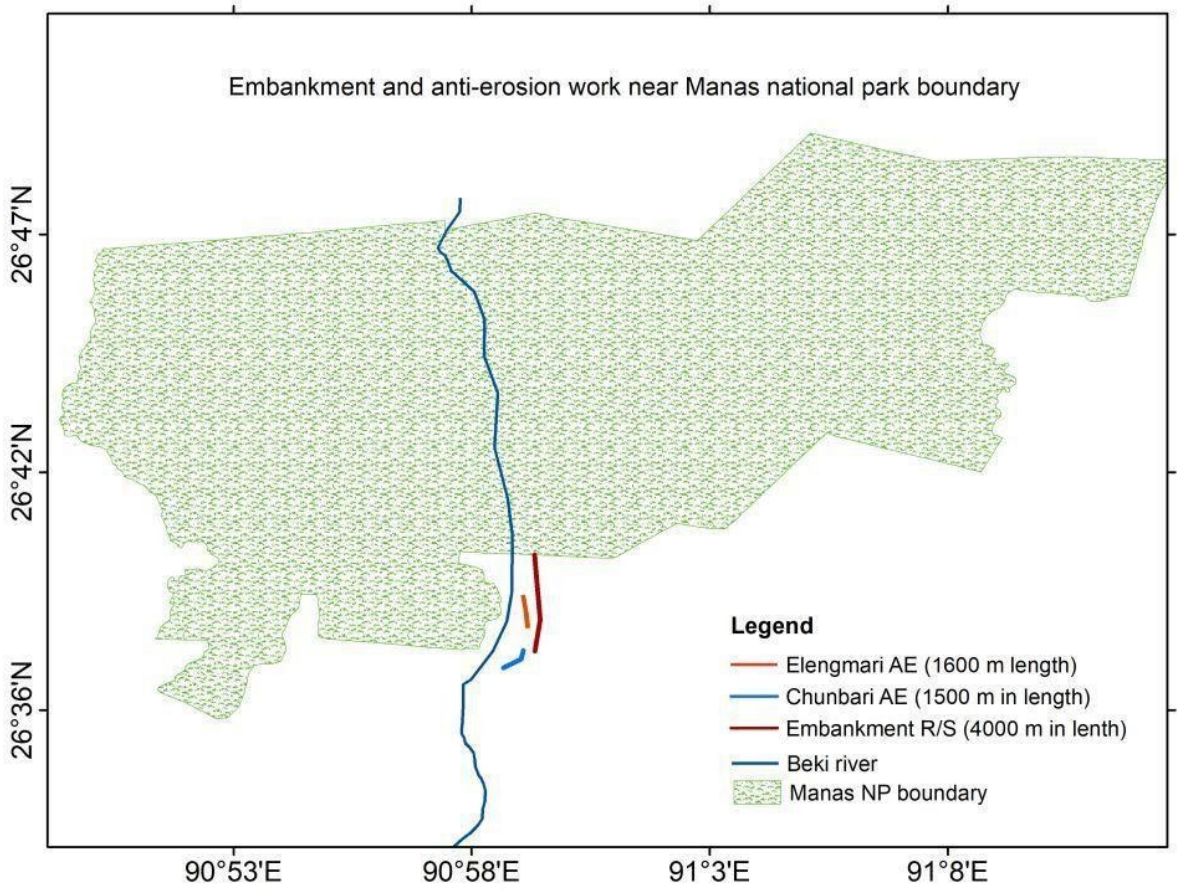


Figure 4: Embankment and anti-erosion work near Manas national park boundary

1.2.17 Earthquakes

Wedges between two collision plate boundaries, the Himalayan in the north and the Indo-Burman in the east, Assam and, for that matter, entire North-eastern India is seismically a very active region of the world. Although seismically stable, Assam valley constitutes the most vulnerable one because of the thick sedimentary cover. Any earthquake occurring in the neighbouring seismic zones, like the Himalayan tectonic zone, Indo-buran belt, Shillong Plateau can bring unexpected damage to the valley. Assam is categorized as earthquake Zone 5.

1.2.18 Tourism

The Department of Tourism, Assam has categorized tourism as follows: wildlife tourism, cultural tourism, pilgrimage tourism, adventure tourism and tea tourism. The Sakti Peeth Kamakhya and Kaziranga

National Park constitute the most attractive points for both domestic and foreign tourists. The Department of Tourism has identified as many as 31 sites of tourist interest.

1.2.19 Eco-Tourism

Assam is also counted as one of the prime Eco-Tourism destinations in India. There are five National Parks, a number of wildlife sanctuaries and two bird sanctuaries for the protection and preservation of wildlife in the state. The wide range of Assam's tourism bouquet, tea, rivers, wildlife, religions, adventure,and culture provides Assam with an unrivalled aura. Lofty mountains and green valley's abound in the state. The dense forests, rich flora and fauna and large waterways provide breath-taking scenes.

1.3 Socio-Economic Baseline

The information given under this section is secondary information from the Census 2011, Sample Registration System, 2012-16, Annual Health Survey 2014-16, NFHS-4, 2015-16 and Economic Survey 2017 – 18. For each of the sub-projects an ESIA will be conducted, which will conduct social baseline data on indicators to be monitoring and tracked.

1.3.1 Demography

Schedule Castes

As per the census 2011, the schedule castes population in Assam is 1,145,314, which constitutes 7.15% of the total population. Out of the total SC population, 81.82% resides in rural area and 18.18% in urban areas.

Table 28: Schedule Caste Population details

	Male		Female		Total		% of Total Population
	Person	%	Person	%	Person	%	
Rural	938664	51.41	887097	48.6	1825761	81.82	6.81
Urban	206650	50.95	198910	49.0	405560	18.18	9.22
Total	1145314	51.33	1086007	48.7	2231321	100	7.15

Schedule Tribes

The total Schedule tribe's population in Assam is 3,884,371, which constitutes 12.45% of the total state population. The table below indicates that out of the total ST population, 50.38% are male and the rest 49.6%, are female. The ST population predominantly lives in rural areas (94.36%), and a very small percent lives in urban areas.

Table 29: Schedule Tribe Profile of Assam

Population (Census 2011)	3884371
Total Households	755194
Male Population (Census 2011)	1957005
Female Population (Census 2011)	1927366
Rural Population (Census 2011)	3665405
Urban Population (Census 2011)	218966
Sex Ratio (female per 1000 male) (Census 2011)	985
Sex ratio (Rural)	984
Sex ratio (Urban)	996
HH Size (Census 2011)	5.14
HH Size (Rural)	5.19
HH Size (Urban)	4.50
Literacy Rate (%) (Census 2011)	72.06
Literacy Rate (%) (Rural) (Census 2011)	70.95
Literacy Rate (%) (Urban) (Census 2011)	90.04

Male Literacy Rate (%) (Census 2011)	78.96
Male Literacy Rate (Rural) (Census 2011)	78.04
Male Literacy Rate (Urban) (Census 2011)	93.75
Female Literacy Rate (%) (Census 2011)	65.10
Female Literacy Rate (Rural) (Census 2011)	63.77
Female Literacy Rate (Urban) (Census 2011)	86.35
Total Worker (%) (Census 2011)	43.99
Total Worker (%) (Rural) (Census 2011)	44.54
Total Worker (%) (Urban) (Census 2011)	34.71
Male Worker (%) (Census 2011)	53.06
Male Worker (Rural) (Census 2011)	53.26
Male Worker (Urban) (Census 2011)	49.66
Female Worker (%) (Census 2011)	34.78
Female Worker (Rural) (Census 2011)	35.69
Female Worker (Urban) (Census 2011)	19.72

The average household size of Scheduled Tribes is 5.14, which is more than the state household size of 4.87. The rural household size is 5.19, which is higher than the urban household size (4.50).
The sex ratio of the ST population is 985, which is much higher than the state sex ratio. The rural and urban sex ratio is 984 and 996, respectively.

The ST population records 72.06%as literates as per Census 2011. The urban literacy rate is 90.04%, which is higher than the rural rate (70.95). Out of the total, 78.96% of males are literate, and 65.1% of females are literate.

The total number of workers among the ST population is 1,708,763, which constitutes 43.99%. Among the urban ST population, 34.71% are involved in some kind of economic activities, and 44.54%of rural population are involved in economic activities.

1.3.2 Work Force

About 38.36% members of the population in the state are workers. From the table below, it is evident that out of the total population in the state, 71.36%are male workers, and 28.6% are female workers. More rural folks are involved in economic activities than the urban population.

Table 30: Work Force details

	Male		Female		Total		% of Total Population
	Person	%	Person	%	Person	%	
Rural	7257852	70.00	3110431	30.0	10368283	88.62	38.68
Urban	1283708	80.16	317699	19.8	1601407	11.38	36.41
Total	8541560	71.36	3428130	28.6	11969690	100	38.36

Source: Census 2011

From the table below, out of the total workers, 73 percent are main workers, and 27 percent are marginal workers. Out of the total main workers, 47 percent are employed in the agriculture sector, and 51 percent are involved in economic activities other than the agricultural sector and HH industries.

Table 31: Category of workers

	Category	Persons	%	% of Total	% of Total Population

Total workers		11969690			38.36
Main Workers	Total	8687123		72.58	
	Cultivators	3138554	36.13		
	Agricultural Labours	903294	10.40		
	HH Industry Workers	242071	2.79		
	Other Workers	4403204	50.69		
Marginal Workers		3282567		27.42	
Non-workers		19235886			61.64

Source: Census 2011

1.3.3 Health Facilities

The status of Health infrastructure in the State has been improving over the years. There are 25 Civil Hospitals, 14 Sub-Divisional Civil Hospitals, 1014 PHCs, 62 FRUs, 162 CHCs and 4621 Sub Centres, with 18886 numbers of total beds in the State at the end of 2016. The number of Medical and Paramedical staff in the state is 5004, including Ayurvedic and Homeopathic doctors. The status of health infrastructure is presented in the table below.

Table 32: Status of Health infrastructure in the State

S No	Item	Nos
1.	Government Hospitals	25
2.	Primary Health Center	1014
3.	Sub-division Civil Hospital	14
4.	Sub-centres	4621
5.	Community Health centre	162
6.	MBBS Doctors (Govt. + NHM)	3052
7.	Specialist Doctors (Govt. + NHM)	1022

Source: Economic Survey 2017 - 18

The State is implementing Health Sector Schemes both in the urban and rural areas to provide healthcare facilities at free and at affordable cost. Some of the schemes being implemented in the State are as follows

- Primary health cares both in rural and urban areas.
- Secondary health care
- Ayush
- Control of communicable diseases
- Non-communicable diseases
- Schemes for food safety measures
- Public health education v School health services
- Assam Bikash Yojana
- National Fluorosis Control Programme
- Pilot project for prevention of burn injuries
- Indradhanush
- Atal Amrit Abhiyan- Health Insurance Scheme

1.3.4 Life Expectancy and Mortality Fertility Scenario

Table 33: Life Expectancy and Mortality

S No	Category	Assam	India

1	Life expectancy - Male	64.4	67.4
2	Life expectancy - Female	66.8	70.2
3	Life expectancy - Total	65.5	68.7
4	MMR (Maternal Mortality Ratio) Per 1,00,000 live births	229	130
5	IMR (Infant Mortality Rate) Per 1000 live birth	48	33.2
6	TFR (Total Fertility Rate)	2.2	2.27
7	Crude Birth Rate (Birth Rate) per 1000	22	18.33
8	Crude Death Rate (Death Rate) per 1000	7.1	6.4

Source: Sample Registration System, 2012-16, Annual Health Survey 2014-16, NFHS-4, 2015-16, SRS

The average life expectancy in Assam is 65.5 years which is less than India's average of 69 years. The Assam Male life expectancy is 64.4 years, and female life expectancy is 66.8 years.
The Maternal Mortality Ratio (MMR) in Assam (2014-16) of 229 per 100,000 live births is much higher than the corresponding national ratio of 130. Assam is one of the maternal death-prone states in India. The Infant Mortality Rate (IMR) in Assam (2014-16) is 48 per 1000 live births against 33.2 for the country as a whole. Thus, both infant and maternal health status are very poor in Assam compared to All of India.

The total fertility rate of Assam and India are almost equal. The crude Birth Rate per 1000 population is 22 in Assam and 18.33 in India. The crude death rate per 1000 population is 7.1 for Assam and 6.4 for India. Thus, both the Crude Birth Rate and Crude death rate of the state of Assam are higher compared toIndia.

1.3.5 Education

The Table below presents the status of education infrastructure and facilities in the state.
Table 34: Status of Education infrastructure in the State

S No	Item	Nos
	Elementary Education Institution	
1.	No of Primary School	40465
2.	No of Middle School	11741
3.	No. of High School	4314
4.	No Primary School Teachers	109558
5.	No of Middle School Teachers	76210
6.	No. of High School Teachers	13013
	Higher Education Institution	
7.	University (Private + Govt.)	14
8.	Government Colleges	5
9.	Provincialised Colleges	300
10.	Non-Govt. Colleges	43
11.	Provincialised Sanskrit & Pali Tools	97
12.	Literary & Voluntary Organization	19
13.	Govt. Law College	1
14.	Non-Govt. Law Colleges	19

Source: Economic Survey 2017 - 18

The State Government, in order to provide and promote quality education, attract children of all social groups, and also see to the implementation of various Central Government schemes and programmes, the following facilities are provided through DEE-

- Mid-day Meal for students of primary and upper primary schools.
- Teaching Learning Materials (TLM) to Government and Provisional Schools.
- Provision of free textbooks up to Class VIII to all categories of schools, including institutions not receiving financial assistance.
- Provisions of scholarships to SC, ST, disabled children and meritorious students.
- Provision of uniforms to students up to Class VIII level

1.3.6 Electricity, Water and Sanitation Facilities

More than 78 percent of households have electricity. Urban households (96 %) are more likely than rural households (75%) to have electricity.

Table 35: Households with electricity (%)

S No	Category	Percentage
1	Total	78.2
2	Urban	95.5
3	Rural	75.0

Source: NFHS-4, 2015-16

84 percent of households use an improved source of drinking water (Piped water into dwelling/yard/plot, Public tap/standpipe, Tube well or borehole).

Table 36: Households with an improved drinking water source (%)

S No	Category	Total	Rural	Urban
1	Improved Source*	83.8	82.8	89.0
2	Unimproved source	16.1	17.1	10.9
3	Other sources	0.1	0.1	0.1
	Total	100	100	100

Source: NFHS-4, 2015-16

* With Piped water into dwelling/yard/plot, Public tap/standpipe, Tube well or borehole

89 percent of households have access to sanitation facilities. Only 11 percent of households do not use a sanitation facility, which means that household members practice open defecation. Open defecation is more common among rural households (13%) than urban households (1%)

Table 37: Households with improved sanitation facilities (%)

S No	Category	Total	Rural	Urban
1	Improved facilities*	47.7	45.1	62.1
3	Unimproved	38.6	44.1	9.3
4	Other unimproved	2.1	2.3	0.8
5	No facility/Open space/field	11.1	12.9	1.0
	Total	100	100	100

Source: NFHS-4, 2015-16

* With Flush/pour flush to a piped sewer system, septic tank, or pit latrine

1.3.7 Culture of Assam

Assam is the meeting ground of diverse cultures. The people of the enchanting state of Assam are an intermixture of various racial stocks such as Mongoloid, Indo-Burmese, Indo-Iranian and Aryan. The natives of the state of Assam are known as "Asomiya" (Assamese), which is also the state language of Assam. The state has a large number of tribes, each unique in its tradition, culture, dress and exotic way of life. Diverse tribes like Bodo, Kachari, Karbi, Miri, Mishimi, Rabha, etc., co-exist in Assam, most tribes have their own languages. A majority of the Assamese are the Vaishnavas (a sect of Hinduism). Other religions such as Buddhism, Christianity, Hinduism, Islam etc. are also practiced in Assam. The national festival of Assam is the Bihu which is celebrated in three parts during the year. Assam has traditionally been craftsmen. Artists, sculptors, masons, weavers, spinners, potters, goldsmiths, and artisans of ivory, wood, bamboo, cane and hide have flourished in Assam from ancient times.

Annex 3: Indigenous People Policy Framework (IPPF)

Table of Contents

1. Profile of the state - Assam 100
   1.1 Land, Agriculture and Forests 100
   1.2 Economy 100
   1.3 Demographic & socio-economic profile of tribal and related issues 100
   1.4 Scheduled Areas of Assam 101
   1.5 Tribal context in AIRBMP area 102
2. Socio-Economic profile of tribal population in the project districts 102
   2.1 Population of Scheduled Tribes 102
   2.2 ST Households, Family Size and Sex Ratio 102
   2.3 Literacy Rate of Scheduled Tribes 103
   2.4 Scheduled Tribes Total Population and Work Force 103
3. Legal and Regulatory Framework 104
   3.1 Constitutional Safeguards 104
   3.2 Provision of Scheduled Areas under Sixth Schedule of The Constitution 104
   3.3 Autonomous Tribal Councils Established By State Legislations 105
   3.4 Acts, Rules and Applicability 106
   3.5 The World Bank's Environment and Social Standards 7 (ESS-7) 106
   3.6 Assam State Policies and Programs for STs and Institutional Framework 107
   3.7 Potential Impacts due to project interventions 108
4. Tribal Development Framework 110

4.1 Screening 110

4.2 Framework for Meaningful Consultations, and Free, Prior and Informed Consent (FPIC) 111

4.3 Mitigation measures to address project impacts 112

5. Implementation arrangements of TDP 115
6. Monitoring arrangements of TDP 116

Annexure 1: Scheduled Tribes: Impact Screening Checklist 117

1. Profile of the state - Assam

The State of Assam is situated just below the eastern Himalayan foothills and lies between 89°5'- 96°1' East and 24°3'- 27°58' north. Assam is surrounded by six of the other seven north-eastern states (together called as 'seven sisters'): Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, and Meghalaya. Geographically Assam and these States are connected to the rest of India via a strip of land inWest Bengal called the Siliguri Corridor. Assam shares international borders with Bhutan and Bangladesh.

1.1 Land, Agriculture and Forests

Due to the influence of Brahmaputra and Barak rivers the State is bestowed with vast alluvial plains; and it continues to be predominantly agrarian state Assam has an agriculture-based economy and more than 70 per cent of the population depends on agriculture as its primary source of livelihood. The principal food crops produced in the State are rice (paddy), maize (corn), pulses, potato, wheat, etc. In the interior hilly areas, the tribal people practice shifting cultivation, and raise mixed crops along with paddy in hum cultivation. The principal cash crops are tea, jute, oilseeds, sugarcane, cotton, and tobacco. Tea is the most important cash crop in Assam; and makes up for more than 50% of all India production. The recorded forest area of Assam is 26,832 sq. km; and forest cover constitutes 35.28% of total land area of this State.

1.2 Economy

In comparison to the other States of India, the economic profile of Assam is not very promising. However, among eight States of the North Eastern Region, Assam is most industrially advanced State. There are several large, medium and small-scale industries based on the resources like agriculture, forest and minerals available here. Assam is endowed with petroleum, natural gas, coal, limestone and many other minor minerals such as magnetic quartzite, kaolin, clay and feldspar. Presently, Assam is the 3rd largest producer of petroleum (crude) and natural gas in the country accounting for 16% and 8% respectively of the total production of this mineral in the country.

1.3 Demographic & socio-economic profile of tribal and related issues

As per the 2011 census, the total population of Assam is 3, 12, 05,576; the population of Assam constitutes 2.58% of India's total population. The Gender Ratio in Assam is 958 women for each 1000 men; and it has improved substantially over the last decade. The gender related development indices in Assam are more-or-less favourable compared with the corresponding national figure, implying lesser instances of gender-based disparity in the State. Women enjoy better status as compared to women in India in terms of decision-making power at the household level; however, women's participation in political process or in the government services is low.

The tribal population is 38, 84,371, which is 12.4% of the total population of the state. The tribal people in Assam constitute 3.72% of total tribal population of the country. The overall sex ratio among tribal people is 984, which is marginally less than the national average of 990. The tribal population in Assam is predominantly rural with 94.4% residing in rural areas.

Assam is an ethnically diverse state with different languages, traditions and cultural practices; Major tribes of Assam are: Bodo (35.1%), Mishing (17.52%), Karbi (11.1%), Rabha (7.6%), Sonowal Kachari (6.5%), Lalung (5.2%), Garo (4.2%), and Dimasa tribes (3.2%). They constitute ninety per cent ST population of the state. The other tribal people in Assam are Deori, Hajong, Thengal Kachari, Khasi, Jaintia, Mech, Chakma, Mizo, Hmar, Kuki tribes, Naga tribes, Barmans (in Cachar), Man (Tai speaking),

Khampti and Singhpho tribes. The spatial distribution of tribal population in Assam could be broadly classified under two groups: Hill tribes and Plain tribes.8 (eight) districts of Assam have Scheduled Tribe (ST) population of more than 25%. These districts are:

Table 38: Districts of Assam having ST population more than 25%

District	Total Population	ST Population	Percentage of ST
Dima Hasao	214,102	151,843	70.9
Karbi Anglong	956,313	538,738	56.3
West Karbi Anglong	295,358	193,518	65.5
Dhemaji	686,133	325,560	47.4
Baksa	950,075	331,007	34.8
Chirang	482,162	178,688	37.1
Udalguri	831,668	267,372	32.1
Kokrajhar	887,142	278,665	31.4
			Source: 2011 Census

These 8 (eight) districts together account for more than 50% of the tribal population of the State. Another interesting aspect of distribution of tribal population in Assam is that most of the plain tribes areinhabitants of Brahmaputra valley and only a small proportion lives in Barak Valley.

The literacy rate among tribal people in Assam is 72.1%, which broadly mirrors the overall literacy rate of the state; and is well above the national average. However, the gap between the male and female literacy rate (79% & 65% respectively) highlights that tribal women are still lagging behind on educational attainment.

The overall economic condition of an average tribal household appears to be similar (or slightly better) than that of an ordinary household. In Census 2011, only 18.6% tribal households had reported absence of any durable household assets, which is 5 percentages lower than that of all social groups. However, access to banking services and grid electricity are considerably lower.

Demographic diversity, together with complex socio-economic dynamics in Assam has resulted in inequities of service access; certain groups of the society are at a disadvantage in accessing government services. Notable among these groups are the tribal people, especially those in the scheduled areas; but beyond them, communities living in riverine areas and forest villages near the border areas, and migrant tea-garden workers of Adivasi origin (commonly termed as Tea-tribe communities) also are at disadvantage, such as poor health; i.e., skin diseases and back pain, no sanitation facilities, children dropping out from high schools in tea garden area, social evil practises, i.e., child labour and child marriage, etc.

1.4 Scheduled Areas of Assam

In order to protect the interests of the tribal population, provision of Sixth Schedule is enshrined in the Constitution under Articles 244(2) and 275(1) to enable autonomous administration of the tribal areas of Assam. 7 (seven) tribal districts of Assam: Karbi Anglong, West Karbi Anglong, Dima Hasao, Kokrajhar, Chirang, Baksa and Udalguri have been declared as the Scheduled Areas.

The administration of these autonomous areas is vested in the Autonomous Councils established as per the provisions laid down in the Sixth Schedule. These councils are endowed with legislative, judicial executive and financial powers. They are also expected to oversee the traditional bodies in local tribes.

The Autonomous Councils have power to make laws related to land administration and inheritance of property, management of forest and water-resources, regulation of *Jhum* cultivation practice, establishing village or town committees and matter relating to tribal administration, marriage and social customs. The Autonomous Councils of Assam have been conferred with additional powers to make laws within its areas on delegated subjects.

1.5 Tribal context in AIRBMP area

While the tribal population of Assam is not entirely primitive or socio-culturally cut-off, there is a need to minimize the gap of development in the Tribal areas.

2. Socio-Economic profile of tribal population in the project districts

The Phase 1 of AIRBMP comprises of the following districts:

PIU	Component 2 (Water Resources Department)	Component 3 (Assam State Disaster Management Authority
Districts	Dibrugarh, Tinsukia, Barpeta and Baksa Other districts as may be taken in future phases	Dibrugarh, Sivasagar, Golaghat, Majuli, Biswanath, Barpeta, Baksa and Lakhimpur Other districts as may be taken in future phases

The socio-economic profile of the tribal population in the project districts is as discussed below-

2.1 Population of Scheduled Tribes

Among the project districts, Majuli has the highest ST population with 46% and majority belonging to the Mishing tribe, followed by Baksa at 34.84% with mostly the Bodo Tribe.

Table 39: Population of Scheduled Tribes by Project Districts

District	Total Population	Scheduled Tribes			% to District Total
		Rural	Urban	Total	
ASSAM	31205576	3665405	218966	3884371	12.45
Tinsukia	1327929	76272	5794	82066	6.18
Dibrugarh	1326335	92593	10278	102871	7.76
Baksa	950075	329894	1113	331007	34.84
Barpeta	1693622	25829	1515	27344	1.61
Lakhimpur	1042137	243145	6281	249426	23.93
Sivasagar	1151050	47274	1765	49039	4.26
Majuli	167304	77603	0	77603	46.00
Golaghat*	1066888	108974	2791	111765	10.48

Source: Census 2011

2.2 ST Households, Family Size and Sex Ratio

As shown in the table below, the sex ratio is highest in Barpeta with 1021 followed by Baksa with 998. Baksa also has the highest number of ST households among the project districts. It is also seen that the family size at 5.8 in Lakhimpur district is on a higher side compared to that of the state average at 5.1.

Table 40: District wise ST Households, Family Size and Sex Ratio

District	Total HH	Male	Female	Family Size	Sex Ratio
ASSAM	755194	3884371	1957005	5.1	985
Tinsukia	15877	82066	41769	5.2	965
Dibrugarh	21324	102871	51835	4.8	985
Baksa	66672	331007	165634	5.0	998
Barpeta	5706	27344	13530	4.8	1021
Lakhimpur	42647	249426	126716	5.8	968
Sivasagar	9354	49039	24989	5.2	962
Majuli	32236	85566	81738	NA	955
Golaghat	21686	111765	56420	5.2	981

Source: Census 2011

2.3 Literacy Rate of Scheduled Tribes

The literacy rate is highest in Lakhimpur with 89% followed by Baksa with 80%. It is seen that the literacy rate is lowest among Golaghat and Dibrugarh districts with 67% which is even lower that the state percentage.

Table 41: Literacy Rate of Scheduled Tribes by State/ Districts

Name	Male	Female	Total
ASSAM	79.0	65.1	72.1
Tinsukia	86.9	75.0	70.5
Dibrugarh	93.4	84.6	67.9
Baksa	78.4	61.3	80.5
Barpeta	83.1	65.2	74.0
Lakhimpur	79.7	63.8	89.0
Sivasagar	87.2	73.2	75.4
Majuli	86.1	70.6	78.5
Golaghat	79.3	63.6	67.3

Source: Census 2011

2.4 Scheduled Tribes Total Population and Work Force

The table below shows the work force participation of the Scheduled Tribes in the project districts.

Table 42: Scheduled Tribes Total Population and Work Force

Name	ST Worker Force			% of Total ST Population
	Total	% of Male	% of Female	
ASSAM	1708763	44.0	60.8	39.2
Tinsukia	36974	45.1	61.2	38.8
Dibrugarh	43468	42.3	65.1	34.9
Baksa	146678	44.3	62.0	38.0
Barpeta	10489	38.4	68.4	31.6
Lakhimpur	118138	47.4	56.6	43.4

Sivasagar	22280	45.4	61.0	39.0
Golaghat	54553	48.8	58.4	41.6

Source: Census 2011

3. Legal and Regulatory Framework

3.1 Constitutional Safeguards

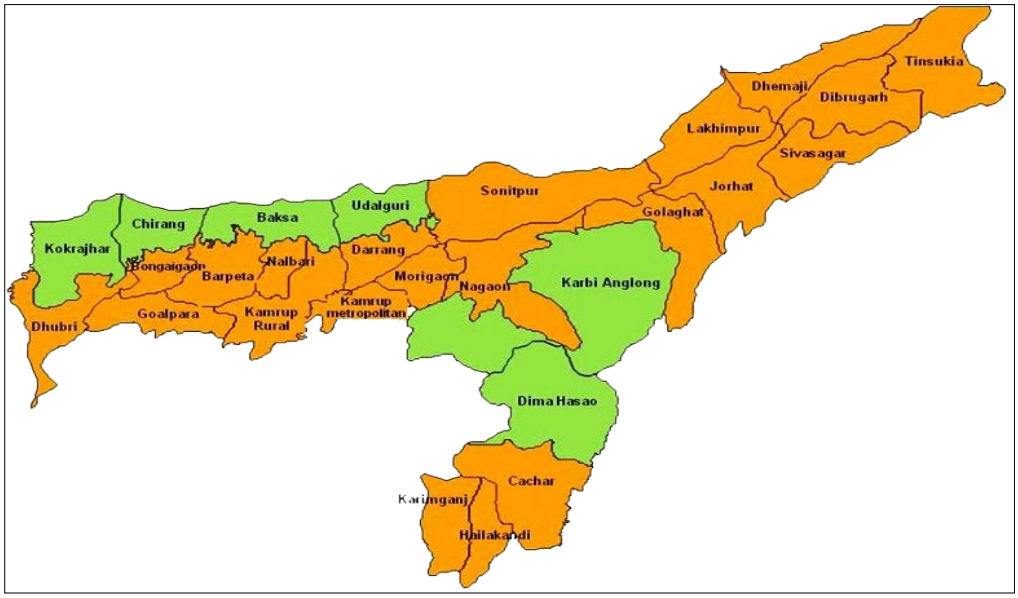
The constitutional safeguards related to tribal's are: (i) Article 14, related to Equal rights and opportunities; (ii) Article 15, prohibits discrimination on grounds of sex, religion, race, caste etc; (iii) Article 15 (4), enjoins upon state to make special provisions for the tribals; (iv) Article 16 (3), empowers state to make special provisions for reservation in appointments or posts in favour of Scheduled Tribes;
(v) Article 46, enjoins upon State to promote with special care educational and economic interests of tribal people, protection from social injustice and exploitation; (vi) Article 243D related to the reservation of seats for Scheduled Tribes in Panchayats & Municipalities (vii) Article 275 (1), Grant-in-aid for promoting the welfare of Scheduled Tribes; (viii) Article 330, 332, 335, related to the reservation of seats for Scheduled Tribes in Lok Sabha, State Assemblies and official positions in central & state governments; and (ix) Article 339, 340, related to Control of the Union over the Welfare of tribal and powers to investigations thereof.

The administrative provisions under the Fifth Schedule and Sixth Schedule of the Constitution provide special provision for tribal autonomy and welfare in selected regions of the country. The Sixth Schedule is specifically applicable for Assam (and other North Eastern States of Meghalaya, Tripura and Mizoram)

3.2 Provision of Scheduled Areas under Sixth Schedule of the Constitution

The tribal people normally live in contiguous areas; and their lives are closely associated with the nature: streams, trees, plants, animals, etc. It is therefore recognized that maintaining their identities would invariably mean keeping their traditional environment intact with them. Given the contiguous inhabitations, it also becomes simpler to have area approach for development activities and also regulatory provisions to protect their interests. In order to protect the interests of the tribal population, provision of Sixth Schedule is protected in the Constitution under Articles 244(2) and 275(1) to enable autonomous administration of the tribal areas of Assam. Six tribal districts of Assam: Karbi Anglong, Dima Hasao, Kokrajhar, Chirang, Baksa & Udalguri have been declared as the Scheduled Areas.

To provide regional autonomy, protect the interests of the Scheduled tribes and improve their status, certain areas of Assam have been declared as the Scheduled Areas; these areas are usually populated by a predominant Scheduled Tribes.



The Sixth Schedule under article 244 (2) of the Constitution provides for establishment of Autonomous councils to substantially administer tribal districts of Assam. These districts are Karbi Anglong and Dima Hasao Districts; and the four Bodoland Territorial Autonomous Districts (BTAD) of Kokrajhar, Baksa, Chirang and Udalguri. These Autonomous Councils of Scheduled Areas are endowed with legislative, judicial executive and financial powers for the benefit tribal people. They are also expected to oversee the traditional bodies among the local tribes:

- Karbi Anglong Autonomous Council (KAAC): The Karbi Anglong came into being as a full-fledged separate district The council covers the three sub-divisions of Diphu, Bokajan and Hamren;
- Dima Hasao Autonomous Council (DHAC): The Dima Hasao Autonomous District Council is an autonomous council constituted to administer the district and to develop the Dimasa people. It covers the two sub divisions of Haflong and Maibang;
- Bodoland Territorial Council (BTC): the Bodoland Territorial Areas Districts comprising four 4(four) Administrative Districts viz. Udalguri, Baksa. Chirang, Kokrajhar

The Autonomous Councils of Karbi Anglong and Dima Hasao are constituted with 30 members each, 26 are elected and 4 members are nominated from unrepresented Communities by the Governor of Assam. Bodoland Territorial Council is constituted of 46 members: 40 are elected and 6 nominated members.

These Autonomous Councils have been conferred with powers to make laws within its areas on subjects delegated to the Councils. No Act of the State Legislature with respect to which a District Council or a Regional Council may make laws, shall apply to any autonomous district or autonomous region in that State unless the respective Autonomous Council gives direction with respect to applicability of the Act in Scheduled Areas under its jurisdiction.

The Autonomous Councils are empowered to constitute traditional Village Councils or Courts for the trial of suits and cases between the parties all of whom belong to Scheduled Tribes, and appoint suitable persons to be members of such village councils or presiding officers of such courts for administration of justice. The Autonomous Councils also exercise the powers of a court of appeal in respect of all suits and cases tribal by a traditional Village Council

In the areas under the Sixth Schedule districts of Karbi Anglong and Dima Hasao, traditional system of land tenure is practiced under village level authority; communal ownership of land is the norm in these areas and on most instances the ownership-titles of land are not available with the customary land owners. Many villages do not have a fixed boundary as the village locations keep shifting; or even the village name since it gets derived from the name of the traditional Village Headman. Land records are maintained by traditional means by the Autonomous Councils. However, the revenue administration in BTC is similar to the one being practiced in non-Sixth Schedule plains areas of Assam.

3.3 Autonomous Tribal Councils Established By State Legislations

In addition, the Government of Assam has constituted six other Autonomous Councils through enactment of law in the State Legislature for social, economic, educational, ethnic and cultural advancement of tribal communities in these autonomous council areas. These Autonomous Councils are entrusted with the responsibilities of formulating integrated development plans for the Council Area, and implement development schemes and programs in adherence to the general policy of the Government. The Council is also authorized to guide customs and traditions of the Scheduled Tribe communities according to the traditional laws. The Autonomous Councils established through State Legislation are

- Mishing Autonomous Council (MAC): The council covers as 'Core Area' as well as 'Satellite Areas' in eight districts namely, Dhemaji, Lakhimpur, Sonitpur, Golaghat, Jorhat, Sibsagar, Dibrugarh and Tinsukia.
- Rabha Hasong Autonomous Council (RHAC): The jurisdiction of this council extents upto Rani area of Kamrup district and except some parts of Matia, Balijana and Lakhipur revenue Circles, it embraces almost the entire district of Goalpara.
- Tiwa Autonomous Council (TAC): The council covers western areas of Karbi-Anglong district and in the southern banks of Brahmaputra valley, mostly in Morigaon and Nagaon district where the Tiwa is residing.
- Deori Autonomous Council (DAC): The council area is scattered in medium/small villages/parts of villages/settlements in seven upper Assam Districts namely Dhemaji, Lakhimpur, Sonitpur, Jorhat, Sibsagar, Dibrugarh and Tinsukia where the Deori community is situated.
- Thengal Kachari Autonomous Council (TKAC): The council area is scattered in Jorhat, Golaghat, Dibrugarh, Lakhimpur, Dhemaji and Karbi Anglong districts of Assam.
- Sonowal Kachari Autonomous Council (SKAC): The council covers 450 villages within the jurisdiction in seven districts of Upper Assam, viz. Dibrugarh, Tinsukia, Dhemaji, Lakhimpur, Sivasagar, Jorhat and Golaghat.

The administrative jurisdictions of these Autonomous Councils covers the Village Councils formed out of blocks of contiguous revenue villages, each having 50% and above the dominant Scheduled Tribes population and other Scheduled Tribes communities residing there. The General Council is constituted with twenty elected members and two members nominated by the Government of Assam. The Members of Parliament and the members of the legislative Assembly, Assam belonging to Scheduled Tribes Reserved Constituencies of the Council Area are ex-officio members of the General Council. The elected members of the General Council elect the Executive Council, comprising of Chairman, Deputy Chairman, Chief Executive Councillor, Deputy Chief Executive Councillor and Executive Councillors. The executive responsibilities of the Autonomous Council are vested with the Executive Council, which is headed by the Chief Executive Councillor.

3.4 Acts, Rules and Applicability

This section presents all applicable National and State regulations and the World Bank Environment and Social Standards to be considered for preparation and implementation of Indigenous Peoples Development Plan addressing issues of tribal community and their cultural aspects. The list of applicable Acts/ Policies are given under Chapter 2.

3.5 The World Bank's Environment and Social Standards 7 (ESS-7)

In ESS 7, the term "Indigenous Peoples/Sub- Saharan African Historically Underserved Traditional Local Communities" (or Scheduled Tribes) refer exclusively to a distinct social and cultural group possessing the following characteristics in varying degrees:

i. Self-identification as members of a distinct indigenous social and cultural group and recognition of this identity by others; and
ii. Collective attachment to geographically distinct habitats, ancestral territories, or areas of seasonal use or occupation, as well as to the natural resources in these areas; and
iii. Customary cultural, economic, social, or political institutions that are distinct or separate from those of the mainstream society or culture; and
iv. A distinct language or dialect, often different from the official language or languages of the country or region in which they reside.

Hence, AIRBMP shall assess tribal groups as per the above four criteria. In the Indian context, projects/sub-projects in schedule V or VI areas automatically require preparation of a TDP.

The objectives of this ESS are as follows:

1. To ensure that the development process fosters full respect for the human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods.
2. To avoid adverse impacts of projects or when avoidance is not possible, to minimize, mitigate and/or compensate for such impacts.
3. To promote sustainable development benefits and opportunities in a manner that is accessible, culturally appropriate and inclusive.
4. To improve project design and promote local support by establishing and maintaining an ongoing relationship based on meaningful consultation throughout the project's life-cycle.
5. To obtain Free, Prior, and Informed Consent (FPIC) in the following three circumstances
    a. adverse impacts on land and natural resources subject to traditional ownership or under use or occupation.
    b. cause physical relocation of tribal communities from their land and natural resources subject to traditional ownership or under customary use or occupation; or
    c. significant impacts on the cultural, spiritual, natural and or religious heritage of the tribal communities;
6. To recognize, respect and preserve the culture, knowledge, and practices, and to provide them with an opportunity to adapt to changing conditions in a manner and in a time-frame acceptable to them.

The ESS-7 aims to ensure that the Scheduled Tribe Communities present in, or with collective attachment to, the project area are fully consulted about, and have opportunities to actively participate in, project design and the determination of project implementation arrangements. The scope and scale of consultation, as well as subsequent project planning and documentation processes, will be proportionate to the scope and scale of potential project risks and impacts as they may affect the Tribal Communities present in the project area.

3.6 Assam State Policies and Programs for STs and Institutional Framework

Department of Welfare of Plain Tribes and Backward Classes (WPT&BC): The Department of WPT&BC is responsible for the overall socio-economic development of Schedule Caste, Schedule Tribe (Plains) and Other Backward Class population in the state of Assam; and caters to the welfare needs of approximately 46% of the state population. The department functions as the nodal department for the formulation and implementation of policies and programmes governing the welfare and development of the Schedule Tribes in the State. This includes channelling funds to BTC and Autonomous Councils (constituted by State Legislature) for the implementation of schemes and programmes.

WPT&BC department is mandated to implement the Tribal Sub-Plan (TSP), which provides for non-divertible flow of outlays within the provisions of Annual Plan; and is the primary mechanism for channelizing the benefits for the development of Schedules Tribes in districts, which are not under Sixth Schedule but have concentration of tribal's in a contiguous area. There are 19 Integrated Tribal Development Projects (ITDPs) for implementation of the Tribal Sub Plan (TSP). The work of ITDP is multi-disciplinary in nature and it functions as a nodal agency for planning, formulation, implementation and monitoring of tribal development programmes. For each ITDP there is a Project Director who is a Senior State Civil Service Officer. The Project Director is empowered with adequate administrative and financial powers so that they function as watch dog to schemes and programmes implemented by ITDP. There is a Project Implementation Committee (PIC), with a non-official chairperson, to approve beneficiaries and to

review implementation of the TSP Schemes; the Project Director of ITDP is the Secretary of Project Implementation Committee. In addition to these ITDPs, the Government of Assam had established Assam Plains Tribal Development Corporation to look after socio-economic development of tribal population under Below Poverty Line. Advisory Council for the Welfare of Scheduled Tribes is headed by the Minister, Welfare of Plain Tribes and backward Classes. All MPs and MLAs of the State (Plain Districts) of the respective communities are the member of this State Level Advisory Council. It provides recommendation for proper implementation of programmes and to review the progress of the various sectoral schemes under Tribal Sub-Plan.

Special Assistance to Tribal Sub-Plan (SCA to TSP)-It is a Central Earmarked Scheme. Family Oriented Income Generating Scheme (FOIGS) is implemented to cover the BPL ST (P) families of the state under the scheme inputs like Power Tiller, Tractor, Financial Grants of Rs.25, 000/- to individual beneficiaries are provided for their income generation as well as for self-employment. This scheme implemented to create self-employment among the Tribal people with an aim to eradicate poverty. Fund under this scheme is provided by the Govt. of India as 100% grant-in-aid, as special central assistance to SC.

Assam Institute of Research for Tribal's and Scheduled Castes: The basic objective behind the creation of the Directorate of TRI was to contribute towards the intellectual aspect of Government of India's Policy of upliftment of the Tribal and the Scheduled Castes people to the status of the general categories of the population. Initially, the Tribal Research Institute (TRI) was a Government organization under the centrally sponsored scheme on matching contribution of 50:50 bases. Its benefits have been extended to all sections of the ST/SC people of the entire state. Being a premier research institute of the Northeast, it has been working as a Nodal TRI for the Northeast region as declared by the Ministry of Tribal Affairs, Government of India. The State Government with a view to widen the functional scope renamed the institute as "Assam Institute of Research for Tribal's and Scheduled Castes" (AIRT&SC) in the year 1990. The institute has become a premier research and training institute of the Government of Assam working for scheduled castes, scheduled tribes, other backward classes and other disadvantaged and deprived communities of Assam in particular and the Northeast India as a whole.

3.7 Potential Impacts due to project interventions

The possible impacts due to project interventions are as follows:

For Component-2 - Water Resources Management interventions and Component-3 - The flood shelters shall positively benefit the tribal populations particularly the Mishing and Bodo tribes. The new as well as augmented flood shelters will not impact directly or indirectly to the land, assets and livelihood of local indigenous community. There could be health and safety issues, in the unlikely event of influx people from nearby villages to use the shelters during floods.

Table 43: WRD and ASDMA interventions impacts on Tribal's and mitigation measures

S. No.	Impacts	Mitigation measures
WRD Interventions (Component 2)		
1.	• Adverse social impacts such as loss of land, disruption during construction etc.	• Land taking is anticipated in the Project as the sub components activities will be either on government and/or private land. A conscious effort towards minimization of adverse social impacts due to land acquisition is taken up as an integral part of the entire project preparation and design of the AIRBMP project. However, in cases where sub component activities are to be constructed, there could be possibility of

		encroachments with existing structures. Wherever unavoidable, efforts to minimize impacts through design interventions will be worked out for sub- projects.
	• Limited accessibility and exclusion of vulnerable sub-groups such as Scheduled Tribes (ST)	• From targeting mechanisms for services such as education and skill development training and market linked employment opportunities are a potential risk under the project. To mitigate this risks, meaningful consultations and outreach must be carried out with vulnerable sub-groups to identify their needs and concerns, in order to establish a robust mechanism for better identification and targeting of tribal persons (Component 2 and 3).
2.	• Lack of awareness among the tribal communities relating to Project and GRM • Lack of capacity among the tribal communities in participating in the project stakeholder engagement and in accessing GRM. • May cause disruption such as noise, pollution and accessibility to the local community during construction phase due to the movement of vehicles and other construction activities.	• Training and capacity building measures; in particular on Project Components, Stakeholder Engagement and GRM. • Distribution of IEC materials. • Incorporation of the traditional knowledge of the tribal people into the training module. • Precautionary safety measured such as display of safety signboards, reflecting lights etc. needs to be installed during the construction phase.
	• Lack of representation in the flood shelter management committee	• Equal representation of tribal population in the management committees.
	• Limited involvement in the preparation and implementation of village disaster management plan	• Inclusiveness of tribal people in the planning and development of village disaster management plan. • The village disaster management committee will be members and representatives from the local tribal community.
	• Limited access to information on disaster.	• First-hand information dissemination through early warning dissemination system. • Equitable dissemination of information including the tribal population with proper and appropriate IEC materials.
ASDMA Interventions (Component 3)		
1	• Lack of awareness among the tribal communities relating to Project and GRM • Lack of capacity among the tribal communities in participating in the project stakeholder engagement and in accessing GRM. • May cause disruption such as noise, pollution and accessibility to the local community during construction phase due to the movement of vehicles and other	• Training and capacity building measures; in particular on Project Components, Stakeholder Engagement and GRM. • Distribution of IEC materials. • Incorporation of the traditional knowledge of the tribal people into the training module. • Precautionary safety measured such as display of safety signboards, reflecting lights etc. needs to be installed during the construction phase.

	construction activities.	
2	• Lack of representation in the flood shelter management committee	• Equal representation of tribal population in the management committees.
3	• Limited involvement in the preparation and implementation of village disaster management plan	• Inclusiveness of tribal people in the planning and development of village disaster management plan. • The village disaster management committee will be members and representatives from the local tribal community.
4	• Limited access to information on disaster.	• First-hand information dissemination through early warning dissemination system. • Equitable dissemination of information including the tribal population with proper and appropriate IEC materials.

4. Tribal Development Framework

The main features of TDF are:

i. Provide guidance and establish requirements for screening, consultations, preparation of TDPs.
ii. Provide guidance on avoiding or minimizing and/or mitigating any potential adverse impacts on tribal households and their livelihoods.
iii. ensure that the project obtains Free, Prior and Informed Consent (FPIC) with tribal people in the entire process of planning, implementation and monitoring of project;
iv. ensure that project benefits are accessible to the tribal communities living in the project area;
v. Establish appropriate strategies for information sharing, communication and capacity building of tribal stakeholders at all stages of the project and proposes additional interventions/ investments that may be required to enhance project benefits and their outreach/ access to the tribal communities.
vi. Ensure that a grievance mechanism is established as described in Stakeholder Engagement Plan for this project and that it is culturally appropriate and accessible to affected tribal groups and takes into account the availability of judicial recourse and customary dispute settlement mechanisms such tribal groups.

4.1 Screening

The project will undertake a screening for tribal populations with the help of tribal community leaders and local leaders. Screening Format is given in Annexure 1. The screening will check for the following:

1) Confirm the presence of tribal population in the project area which exhibit the characteristics as out lined in section 3.5
2) Names of tribal groups in the project influence area
3) Total number of tribal groups in the project influence area
4) Percentage of tribal population in project influence area versus total population
5) Number and percentage of tribal households to be affected/ benefitted in the project influence area
6) Vulnerability of the tribal groups in the project influence area
7) Clarifies if any project activities will trigger adverse impacts on tribal groups
8) If the project activities solely benefit tribal groups

The vulnerability of especially Tribal Groups and their existing socio-economic conditions that may further deteriorate due to project impacts are assessed. As per the requirements of the ESS-7, if such

especially vulnerable groups among the Scheduled Tribal community are identified within the project area, the project will take appropriate measures to recognize, respect and protect their land and territories, environment, health and culture, as well as measures to avoid all undesired contact with them as a consequence of the project.

4.2 Framework for Meaningful Consultations, and Free, Prior and Informed Consent (FPIC)

ASDMA & WRD requires obtaining Free, Prior and Informed Consent (FPIC) for any project interventions that are likely to cause:

a) adverse impacts on land and natural resources subject to traditional ownership or under customary use or occupation;
b) causephysicalrelocationoftribalcommunitiesfromtheirlandandnaturalresourcessubjectto traditional ownership under customary use or occupation ; or
c) significant impacts on the cultural, spiritual, natural and/ or religious heritage of the tribal communities;

No activity that does not receive FPIC will be taken up under the project. The consultations involving FPIC is required when the subproject causes a) adverse impacts on land and natural resources subject to traditional ownership or under customary use or occupation, b) relocation of Tribals from land and natural resources subject to traditional ownership or under customary use or occupation; or c) significant impacts on Tribals' cultural heritage that is material to the identity and/or cultural, ceremonial, or spiritual aspects of the affected Tribals' lives.

For this purpose, the implementing agencies (PIUs of ASDMA & WRD) will undertake a participatory process in conducting meaningful consultations and will involve: Gram Panchayats; community leaders, community groups (fishing community, Village Headman, and which will ensure the active inclusion of tribal communities, including their farmers and leaders and other disadvantaged groups. Tribal communities will be involved in the planning, implementation and monitoring process. Identification of these stakeholders will be undertaken in accordance with the Stakeholder Engagement Plan based on the type and nature of project intervention. The consultations document the feedback, concerns, and needs of these tribal groups which will be incorporated into the project activities.

A Stakeholder Engagement Plan (SEP) has been prepared with the objectives of i) systematic approach to stakeholder engagement and information disclosure; ii) maintenance of positive relationships with them; iii) monitoring of stakeholder interests and feedback. PIU will be supported Environment, Social and CommunicationspecialistsatthePMUleveltoeffectivelyengagewithprimarystakeholders throughout project implementation. The Stakeholder Engagement Plan (SEP) – to be included in the ESMP of each project will ensure that the tribal groups are able to engage with the project in socially and culturally meaningful way/language on queries, information disclosure, and grievances. Other project-related information will be shared with the primary stakeholders in Assamese language, where necessary.

All ESS plans and documents will be disclosed at appropriateplatform(https://fremaa.assam.gov.in/;https://waterresources.assam.gov.in/;http://sdmassam.nic.in/).ESMF and all project interventions specific safeguard documents will be disclosed in country as well as on Bank's website in English and Assamese and any other local language spoken and understood in the area.

4.3 Mitigation measures to address project impacts

The various mitigation measures which apply to the tribal groups are given in the table below:

S.No.	Mitigation Measure	Responsibility
1	Screening of Subprojects	PIU with PMTC/ DMSA Consultants
2	FPIC wherever, there are adverse impacts on tribals	PIU with PTC/ DMSA Consultants
3	Capacity Building of tribals including vulnerabletribals such as women, persons with disabilities, gender minorities, etc.	PIU with PMTC/ DMSA Consultants
4	R&R entitlements; wherever R&R is involved, Free Prior Informed Consultations will be conducted with Tribals wherever there are adverse impacts on them	PIU with PMTC/ DMSA Consultants
5	Coverage under household census/socio-economic surveys	PIU with PMTC/ DMSA Consultants
6	Monitoring and evaluation of implementation of these special provisions, etc.	PIU with PMTC/ DMSA Consultants
7	Grievance Redress Mechanism: In projects where Tribal presence is there, the Grievance Redress Committees at the project level will have membership from the tribal communities.	PIU with PMTC/ DMSA Consultants
8	The project development benefits and opportunities will be informed to the tribal groups on regular basis and they will be assisted in reaping those benefits, viz., employment opportunities in the contract works.	PIU with PMTC/ DMSA Consultants

Table 44: Application of Tribal Development Framework to sub-projects

Stage	Actions for Social Assessment, Meaningful Consultations and Tribal Plan preparation and implementation in Tribal Areas
	▪ Screen for presence of tribal communities in project village (using screening checklist) /ascertain if the project site is located within designated tribal area (Schedule VI) ♦ Name(s) of IP community group(s) in the area; ♦ Total number of IP community groups in the area; ♦ Percentage of IP community population in the area compared with the total population; and ♦ Number and percentage of IP households to be affected by the sub-project ▪ List nature of potential activities relating to structural, non-structural (VDMP/ DPRP) and related interventions likely to be undertaken in presence and/or tribal groups ▪ List the nature of tribal groups present or likely to be affected by the interventions ▪ Conclude on the need for: ♦ A Tribal Development Plan and its likely content depending on whether it is only for: • non-structural measures such as(VDMP/ DPRP) • involves structural measures, ♦ for obtaining FPIC (indicate type of impact i.e., on land, requiring relocation, cultural heritage) The scope and scale of consultation, as well as subsequent planning /documentation and TDP preparation processes, will be proportionate to the scope and scale of potential project risks and impacts as they may affect such tribal groups
Preparation stage	▪ Identify stakeholder–tribal groups, areas and households ▪ Engage Social experts to support the PMU with relevant knowledge of the area Capacity building of SDS and other PIU personnel on TDF; ▪ Develop culturally appropriate IEC materials for dissemination in the project areas with ST population ▪ Orient tribal communities on project objectives, interventions and implementation processes through use of culturally appropriate IEC materials; ▪ Disclose of interventions and approach under TDF ▪ Mobilize tribal households for proposed interventions ▪ Prepare of socio-economic baseline of the tribal groups including profiling of tribal communities in GPs; ▪ Hold Gram Sabha meetings ensuring representation of the tribal households on project interventions. Send letters of intimation to Gaon Sabha, PRI Members, local Civil Society Organizations about the meetings/ consultations in advance say at least 10 days before. Along with the intimation send project activity related details and agenda. Ensure that there is participation from all sections of tribals including females and more than two thirds participation. Record the meeting discussions and issue minutes/ proceedings and maintain records. Take consent of the Gaon Sabha for any project activity. ▪ Hold regular, periodic consultations with affected and benefitted tribal communities during planning by involving: ♦ Representative bodies and organizations (e.g., councils of elders or village councils, or Gaon Burah/ PRI members) other community members; ♦ Provide sufficient time for decision-making processes; and ♦ Allow for effective participation in the design of project activities or mitigation measures that could potentially affect them either positively or negatively. ▪ Identify existing Grievance resolution mechanisms and processes respected and used by the locals

	▪ Identify schemes that promote social and economic empowerment of tribal communities with which project activities can be converged ▪ Hold consultations with other departments and facilitate convergence of other existing government schemes through support from the project.
Preparation of TDP (within ESMP or a stand-alone document in case of Flood shelters given their smaller scale)	▪ WRD/ ASDMA will take all necessary measures to screen and identify such locations and avoid any additional land procuring through design interventions without jeopardizing the safety standards to be followed. ▪ The PIUs will work with the Addl. Deputy Commissioner, Revenue of the concerned district for negotiation with pattaders for purchase of land required for the project; preparation and finalization of land acquisition estimates for approval from concerned Deputy Commissioner/ DLLPC Chairperson. ▪ The IPPF provides for rehabilitation/reconstruction of any damaged/ impacted community assets through community participation ▪ In case encroachments are found, these will be dealt with as per the Resettlement Policy Framework (RPF) for this project Depending on the presence of tribal people and their socio economic vulnerability and cultural distinctiveness the, prepare project specific TDPs as per outline presented below ▪ A summary of Targeted Social Assessment, including the applicable legal and institutional framework; ▪ Baseline seriocomic data that profiles occupations, landholdings, household incomes, existing customary usufruct rights over forest resources, participation in project operations as well as community institutions to assess impact ▪ A summary of the results of the meaningful consultation; and FPIC where necessary formal, written community endorsement/sign off of the subproject/activity(locations, design, etc.) by elected representatives and customary tribal leaders; PESA resolution, etc. where necessary (As is required under the legislations governing Schedule areas) ▪ Specific Measures to avoid, minimize, mitigate, or compensate for any potential adverse impacts identified. ▪ Specific Measures for ensuring culturally appropriate social and economic benefits for tribal communities; e.g., preference in provision of benefits from tourism development, water recreation activities, etc. In case of flood shelters FPIC will be taken during the onsite social screening also collective resolution of all the stakeholders may be documented for further legitimacy. In case of FPIC is unsuccessful, then record the proceedings about the same in the records ▪ Details of cost estimates, financing plan, schedule, and implementation arrangements; ▪ Accessible and culturally appropriate grievance redressal procedures ▪ Project Monitoring and Evaluation arrangements including monitoring indicators and evaluation parameters ▪ Disclosure arrangements
Implementation	▪ Continue holding consultations as per TDP and SEP using IEC materials developed ▪ Administer and monitor mitigation measures stated in the TDP. Key monitoring indicators would be ♦ Coverage of tribal households in different activities implemented under the project ♦ Benefits rendered to and accessed by the tribal households ♦ Number of tribal families selected under capacity building activities ♦ Number of tribal family members having engaged in civil work, VDMP, DPRP ▪ Liaise with other relevant departments involved in convergence ▪ Progress Reporting including reporting on functioning of grievance redressal

5. Implementation arrangements of TDP

The TDP implementation responsibility will be in sync with the overall implementation strategy of the project. The Social Specialist at the PIU (ASDMA or WRD) with oversight from PMU FREMAA being responsible for its implementation under the overall guidance provided by the Head of the IA, Project Director. The Social Specialists will also be responsible for coordinating with other line departments, provide requisite support for organizing community consultations, data collection and provide oversight on the process of preparation and quality of the TDF. The role and responsibilities of the Social Specialists are as follows:

1. Support the implementing entities in preparation and finalization of tribal plans for their greater inclusion.
2. Overall planning, designing, guiding, implementing and coordinating institutional development and capacity building strategies proposed for tribal's and institutions existing in scheduled areas.
3. Identifying stakeholders and ensuring their participation;
4. Monitoring implementation of the framework by different implementing entities as per TDF;
5. Designing the community manual and guidelines for the support organization and developing training modules/ manuals/ IEC materials;
6. Monitoring the activities of the unit;
7. Ensuring timely implementation of capacity building measures, taking into account specific needs of the tribals.

The Social Specialists will be the responsible person to guide the overall process related to tribal inclusion and their greater participation in the development process. She/he will monitor the processes followed in execution of the planned activities and realization of the tribal inclusion parameters. In additional, an external consultant will be hired for preparation of the tribal development plans.

The NGO will play the role in implementation of the RAP including and in helping mitigating the adverse effects of the project. The NGOs shall remain responsible for the development of a comprehensive livelihood system to facilitate the PAPs to take advantages of the options available (as per the RAP). The following are the NGO role

- Identification and verification of affected persons
- Conducting specific consultations in tribal areas
- Dissemination of information of project including GRC and the need for land acquisition, the provisions of the policy and the entitlements under the RAP
- Assisting and facilitating affected person in getting entitlements
- Identifying alternate place for relocation for displaced persons
- Accompanying and representing the affected persons at the grievance Committee Meetings
- Provide assistance to eligible PAPs to take advantage of the existing Government Housing and other Schemes
- Will track the absentee titleholders if any who is not available to receive the compensation
- Will facilitate the FPIC process for interventions.

The PMTC will play a monitoring role and will help following the correct process as per the ESS 7. The specialists at PMTC will also train the field staff in implementing the IPPF.

Implementation Costs and budget: Implementation of the TDP would need to factor in the following and will be reflected in the SEP.

Table 45: Budget table for implementing the TDP (Indicative)

Items (indicative)	Unit	Rate	No.	Amount
Additional resource persons (Tribal experts etc.)				
Conducting FPICs (vehicle, fuel, photography, videography)				
Training				
IEC materials develop and dissemination				
Budget for any identified special community needs				

6. Monitoring arrangements of TDP

Throughout the implementation of the project, the Social Development Specialist of PMU (FREMAA) and PIUs (ASDMA) and will monitor the project compliance with TDP. The Social Development Specialist will visit the project sites at least on a quarterly basis since the planning until three months after the completion of civil works under Component 2 and Component 3 and meet the tribal communities and their leaders. The Specialist will also monitor activities to ensure adequate participation and inclusion of ST persons in availing benefits under the project. Upon the completion of the sub-component and implementation of IPDP, the Social Specialist will carry out an IPDP completion assessment to confirm that all measures under this IPDP have been fully implemented.

Towards enhancing the quality of IPDP implementation, in addition to the internal monitoring by the PMU, external monitoring shall be done by a third- party agency for environmental/ social aspects. The role of Independent External Evaluation Consultants (IEEC) towards external monitoring and evaluating of social safeguards shall include the following:

- Conduct periodic monitoring and audit of IPDP implementation to provide early alert to redress any potential problems; and,
- Conduct mid-term, annual and end term monitoring and audit to assess target achievements and slippages with respect to implementation of IPDP.
- Grievance redressal mechanism – monitors and audits its functioning and processes along with complaints received and resolved shall be monitored and audited.

The results of this monitoring and audit shall be summarized in reports which will be submitted to the FREMAA on a regular basis. Provision will be made for participatory monitoring involving the PAPs. The summarized reports of this monitoring and audit should be sent to the World Bank on quarterly basis.

Annexure 1: Scheduled Tribes: Screening Checklist

(Screening to be conducted through meaningful consultations with proper participation of Tribal communities; in particular the affected people)

KEY CONCERNS (Please provide elaborations on the Remarks column)	YES	NO	NOT KNOWN	Remarks
A. Scheduled Tribes Identification				
1. Are there socio-cultural groups present in or use the project area who may be considered as "tribes" (hill tribes, schedules tribes, tribal peoples), in the project area?				
2. Are national or local laws or policies or anthropological researches/studies that consider these groups present in or using the project area as belonging to scheduled tribes, tribal peoples?				
3. Do such groups self-identify as being part of a distinct social and schedules tribes?				
4. Do such groups maintain collective attachments to distinct habitats or ancestral territories and/or to the natural resources in these habitats and territories?				
5. Do such groups maintain cultural, economic, social, and political institutions distinct from the dominant society and culture?				.
6. Do such groups speak a distinct language or dialect?				
7. Has such groups been historically, socially and economically marginalized, disempowered, excluded, and/or discriminated against?				
8. Are such groups represented as "Scheduled Tribes" or as "ethnic minorities" or "tribal populations" in any formal decision-making bodies at the national or local levels?				
Identification Potential Impacts				
9. Will the project directly or indirectly benefit or target Scheduled Tribes?				
10. Will the project directly or indirectly affect Scheduled Tribes' traditional socio-cultural and belief practices? (e.g. child-rearing, health, education, arts, and governance)				
11. Will the project affect the livelihood systems of Scheduled Tribes? (e.g., food production system, natural resource management, crafts and trade, employment status)				
12. Will the project be in an area (land or territory) occupied, owned, or used by Scheduled Tribes, and/or claimed as ancestral domain?				
C. Identification of Special Requirements Will the project activities include:				
13. Commercial development of the cultural resources and knowledge of Scheduled Tribes?				

KEY CONCERNS (Please provide elaborations on the Remarks column)	YES	NO	NOT KNOWN	Remarks
14. Physical displacement from traditional or customary lands?				
15. Commercial development of natural resources (such as minerals, hydrocarbons, forests, water, hunting or fishing grounds) within customary lands under use that would impact the livelihoods or the cultural, ceremonial, spiritual uses that define the identity and community of Scheduled Tribes?				
16. Establishing legal recognition of rights to lands and territories that are traditionally owned or customarily used, occupied or claimed by Scheduled Tribes?				
17. Acquisition of lands that are traditionally owned or customarily used, occupied, or claimed by Scheduled Tribes?				

Annex 4: Vulnerable Peoples Framework

Addressing inequities - Vulnerable People Framework

1.1 Introduction

It is envisaged that in the locations where component 3 interventions are taken up, there are some vulnerable groups, who may be alienated and prevented from accessing the project benefits, such as usage of Flood Shelters. These includes Scheduled Castes, Scheduled Tribes, Muslim OBC, families/households headed by women, families/ households having Persons with Disabilities as family members, Below Poverty Line (BPL) families (proof ration card), widows, and persons above the age of 65 years irrespective of their status of title (ownership). Vulnerable groups would also include those farmers who (after acquisition of land) become small/marginal farmers. Among the above groups, the Scheduled Tribes related issues are taken care of through preparation and implementation of the Indigenous People Planning Framework. In order to ensure interests of these remaining vulnerable groups would be adequately addressed and protected, this Vulnerable People Framework is prepared for implementation by the Project. The below table gives the population of the some of the villages where component 3 works will be taken up (Census 2011).

S No	Retrofitting/ New Shelter	District	Names of Villages/Habitations Shelter Catering to	Village in which Shelter is located	Total Village Pop	ST Pop	SC Pop	OBC Pop	Other Pop
1	New flood shelter	Dibrugarh	Naharkatiya kaibatragaon	Kaibatra	858	1	782	75	0
2	New flood shelter	Sivasagar	Bhekurisapori	Bhekurisapori	993	993	0	0	0
3	New flood shelter	Golaghat	Garaimari	Garaimari	2005	0	0	0	0
4	New flood shelter	Golaghat	Bahikhawa	Bahikhawa	2644	2530	114	0	0
5	New flood shelter	Golaghat	Naam temera	Naam temeragaon	1107	1103	4	0	0
6	New flood shelter	Biswanath	Dathkola	Dathkola	1213	1056	144	13	0
7	New flood shelter	Majuli	Bengenakalia	Bengenakalia	326	326	0	0	0
8	New flood shelter	Majuli	Chilakolagaon	Chilakola	602	602	0	0	0
9	Retrofitting	Barpeta	Sidhani	Dsidhani	2034	0	0	0	2034
10	Retrofitting	Barpeta	Banbariya	Banbariya	1900	11	42	0	1847
11	Retrofitting	Barpeta	Patbausi	Patbausi	1514	0	600	0	914
12	Retrofitting	Barpeta	Damal Jar	Damaljar	2874	0	0	0	2874
13	Retrofitting	Barpeta	Radhakuchi	Radhakushi	3960	0	0	0	3960
14	Retrofitting	Barpeta	Dhakua	Dhakua	2179	0	0	0	2179
15	Retrofitting	Barpeta	Sundaridia	Sundaridia	2524	0	502	0	2022
16	Retrofitting	Dibrugarh	Dadhia forest village	Dadhia forest village	3379	3121	3	0	255
17	Retrofitting	Dibrugarh	Balijan Tea Estate	Balijan Tea Estate	2765	0	27	38	2700
18	Retrofitting	Dibrugarh	June gaon	June gaon	689	651	1	37	0
19	Retrofitting	Baksha	Tukurakuchi	Tukurakuchi	1243	1	293	0	949

1.1.1 Information on Vulnerable Groups

As per available experience from ASDMA, these vulnerable groups are likely to experience differential socio-economic setbacks due to their disadvantaged positioning within socio-economic structures and processes. This is likely to be manifested most in accessing and using the project benefits. In order to mitigate such inequities, the PIUs during planning shall collect information on the following, through socio-economic surveys:

- Number of vulnerables households
- Socio-demographic characteristics vulnerable households
- Participation and decision making power among vulnerable groups in committees in which they are members

As such vulnerable groups are subject of exclusion; they have to be integrated in the project as full-fledged participants taking part in all the stages of the project starting from planning through implementation and on to the post-project stages. This is the only way to make sure that the in equitable distribution of resources and benefits in an inclusive manner.

1.1.2 Participation of Vulnerable

Participation and engagement of vulnerable can be ensured specifically in the following ways:

- **Awareness:** Conduct awareness sessions to these groups on the Project, project benefits, opportunities for participation
- **Participation:** Allow and facilitate then to take part in the consultation process.
- **Access and Control:** Ensure that the they are consulted and invited to participate in group-based activities, to gain access and control over the resources.
- **Training:** Provide separate trainings to these groups for upgrading their skills
- **Feedback:** Encourage these groups to give feedback and evaluate the project outputs from their point of view and their useful suggestions should be noted for taking necessary actions for further modifications in the project creating better and congenial situation for increasing participation from them.
- **Committees:** Select the members from vulnerable groups as members of various committees formed at the village level. In each committee at least one member from vulnerable groups should be in a decision making position.
- **Opportunities:** Devise ways and create opportunities to make vulnerable to participate in the project activities.

All these done in a participatory manner might bring sustainable results.

1.1.3 Vulnerable Involvement during Construction

Wherever possible, vulnerables involvement in construction activities should be encouraged in order to help them have access to benefits of project activities. The construction works starts after the R&R activities are over and sites are clear of any encroachment and other encumbrances. The construction contractors set up their construction camps on identified locations, where labour force required for the construction activities will be provided with temporary residential accommodation and other necessary infrastructure facilities. The labour force required for the construction activities has to be of a skilled nature, as there is a lot of mechanized work in construction of sub-projects. In addition, there is also a requirement of unskilled labour. Vulnerable groups certainly contribute, both as skilled and unskilled. The construction contractors are expected to bring along skilled labourwhere as local labour available will be used for unskilled

activities.

1.1.4 Other Actions

- **Identification:** The PIUs shall prepare a list of able bodied and willing vulnerables for constructional activities and hand over the same to contractors.
- **Selection:**Vulnerables identified should be given first preference in selection for any project benefit, viz., demonstration works, construction work, etc.
- **Petty Contracts:** The petty contracts arising out of the sub-project should considered entrusting to these groups on contract basis.
- **Training:** While selecting community members for training at least half of them should be vulnerable.

Annex 5: Gender Action Plan

Table of Contents

Annex 5: Gender Action Plan 122
List of Tables 124
List of Acronyms 125
1. Purpose of Gender Action Plan 127
2. Background 127
3. Assam – Secondary Gender Data 128
3.1 Female Population and Sex Ratio 128
3.2 Literacy Rates 128
3.3 Employment 129
3.4 Unemployment 130
3.5 Wages 131
3.6 Enterprise Ownership 131
3.7 Women Participation 132
3.8 Differently Abled 132
3.9 Health 133
3.10 Human Development Index (HDI)/ Gender Development Index (GDI)/Gender Inequality Index(GII) 133
4. AIRBMP – Primary Gender Data 133
4.1 Institutional Strengthening of WRD, FREMAA and ASDMA (Component 1) – Gender Equity in Workplace 136
4.2 Water Resources Management (Component 2) – Women's Participation in Project Planning 136
4.3 Disaster Risk Management (Component 3) – Women's Membership in Community Committees 136
5. Proposed Gender Actions 138
5.1 Institutional Strengthening of WRD, FREMAA and ASDMA (Component 1) – Gender Equity in the Workplace 138
5.2 Water Resources Management (Component 2) – Women's Participation in Project Planning 138
5.3 Disaster Risk Management (Component 3) – Women's Membership in Community Committees 139
5.4 Monitoring 140

List of Tables

Table 46: The percentage share of the female population in the total population and sex ratio-2011 128
Table 47: Year-wise Sex Ratio in post-Independent India..... 128
Table 48: Literacy rate Male and Female..... 129
Table 49: Gap in the Literacy rates of Males and Females in the last two decades..... 129
Table 50: Workforce Participation Rate:2011..... 129
Table 51: Percentage Distribution of Workers According to Broad Employment Status 2011-12..... 129
Table 52: Worker Population Ratio for year 2011-12..... 130
Table 53: Labour Force Participation Rate:2011-12..... 130
Table 54: Unemployment Rates:2011-12..... 130
Table 55: Unemployment Rate for Persons aged 15years &above:2015-16..... 130
Table 56: AverageWage/Salary (inRs.) receivedperdayby Regular Wage/SalariedEmployeesofAge15-59 Years: 2011-12..... 131
Table 57: Average Wage Earning (inRs.) received perday by Casual Labourers of Age15-59 Years in Specified Works: 2011-12..... 131
Table 58: Distribution of proprietary establishments by sex of owner:2014..... 131
Table 59: Number of Establishments under women entrepreneur by Major Source of Finance: 2014 132
Table 60: Participation of Women in Legislative Assemblies..... 132
Table 61: Status of representation of women in Panchayati Raj Institutions (PRIs)..... 132
Table 62: Percentage of Disabled persons to Total Population..... 132
Table 63: Percentage of females by type of disability among disabled females-Census 2011..... 133
Table 64: Monitoring Progress of Gender Action Plan..... 140

List of Acronyms

AIDS	Acquired Immune Deficiency Syndrome
AIRBMP	Assam Integrated River Basin Management Program
BC	Backward Class
CBSE	Central Board of Secondary Education
CEDAW	Convention on Elimination of Discrimination against Women
CoC	Code of Conduct
CQRT	Circle Quick Response Team
FGD	Focus Group Discussion
FREMAA	Flood and River Erosion Management Agency of Assam
GAP	Gender Action Plan
GBV	Gender Based Violence
GDI	Gender Development Index
GII	Gender Inequality Index
GP	Gram Panchayat
GPN	Good Practice Note
GRM	Grievance Redressal Mechanism
HDI	Human Development Index
HH	Household
HSLC	High School Leaving Certificate
ICT	Information Communication Technology
IEC	Information Education & Communication
IFRM	Integrated Flood Risk Management Plan
IPC	Indian Penal Code
MGNREGA	The Mahatma Gandhi National Rural Employment Guarantee Act 2005
MoU	Memorandum of Understanding
NCERT	National Council of Educational Research and Training
NFHS	National Family Health Survey
NGO	Non-Governmental Organisation
PAF	Project Affected Family
PAP	Project Affected Person
PHC	Primary Health Center
PIU	Project Implementation Unit
POSH Act 2013	The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013
PRA	Participatory Rural Appraisal
PwD	Person with Disabilities
RCH	Reproductive and Child Health
SC	Schedule Caste
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SHG	Self Help Group
SLL	Special and Local Laws
ST	Schedule Tribe
STI	Sexually Transmitted Infection
TFR	Total Fertility Rate
ToR	Terms of Reference
VAW	Violence Against Women
VDMP	Village Disaster Mitigation Plan

VLCDMC	Village Land Conservation and Disaster Management Committee
WHO	World Health Organisation

1. Purpose of Gender Action Plan

The GAP is developed to systematically address gender-based inclusion gaps and to include a greater gender balance by ensuring a more equitable role for women in the planning and implementation of water resources management and flood risk management.

The GAP intends to prioritize the following:

- **Implement capacity-building, knowledge sharing and communication activities:** to enhance the understanding and expertise of stakeholders on the systematic integration of gender considerations and the application of such understanding and expertise in the thematic areas of the Project.

- **Promote gender balance, participation and women's leadership:** to achieve and sustain the full, equal and meaningful participation of women in leadership and decision-making processes.

- **Support gender-responsive implementation:** to ensure the respect, promotion and consideration of gender equality and empowerment in the implementation of the Project.

- **Implement monitoring and reporting mechanism:** to improve tracking in relation to the implementation of and to report on gender-related mandates under the Project.

2. Background

The proposed project interventions, under AIRBMP, will include

(i) institutional strengthening of WRD, FREMAA and ASDMA under Component 1,
(ii) improvement of water resources management in Assam through flood forecasting and flood risk management and structural works for erosion and flood control under Component 2, and
(iii) Strengthening disaster risk management approaches through the building of flood shelters, early warning systems, and climate resilient villages under Component 3.

Phase 1 of AIRBMP comprises the following districts:

PIU	Water Resources Department	Assam State Disaster Management Authority
Districts	Dibrugarh, Tinsukia, Barpeta and Baksa	Dibrugarh, Sivasagar, Golaghat, Majuli, Biswanath, Barpeta, Baksa and Lakhimpur

Women are among the primary stakeholders of planning and implementation of water resources management and flood risk management. Women, BPL households, Persons with Disabilities, the minorities, the elderly above 60 years of age, the children and the scheduled castes and tribe's population comprise the vulnerable/ disadvantaged section of the local communities. Other backward communities are also included in the Project area. Like in other projects, as per available experience, in these sub-projects as well, women are likely to experience differential socio-economicimpacts due to their disadvantaged position within socio-economic structures and processes. Amongthe inequities and barriers they suffer, some of the key ones are:

- Education and Illiteracy
- Domestic and Invisible Work

- Female Work Participation and Wage disparity
- Poor Economic Opportunities
- Exploitative Work Conditions
- Sex Selection, Neglect of Girl Child
- Nutritional Status of Women, Anemia
- Vulnerable Adolescent Girls, Age at Marriage
- GBV, Women Trafficking ,SEAH, VAW, Domestic Violence, Other Crimes
- Women Headed Households – Triple/ Quadruple Disadvantaged
- Limited and Bracketed Political Participation
- Poor Access to Justice
- Multiple Vulnerabilities of Women
- Social and cultural norms, practices, customs and pressures
- Male-dominated society and environment
- No understanding of gender equality and inequality
- Poor female friendly environment in public
- Limited opportunities to participate decision making process

3. Assam – Secondary Gender Data

3.1 Female Population and Sex Ratio

Demographically, the female population recorded a growth rate of 19.7% during the last decade compared to 18.2% males against the previous decade's 18.5% and 15.7%. There was an increase of 2,162,406 males and 2,387,642 females in the ten-year period. The percentage share of the female population in the total population is 48.92%, nearly the same as the national percentage (48.53).

Table 46: The percentage share of the female population in the total population and sex ratio-2011

	% Share of Women			Sex Ratio		
	Rural	Urban	Total	Rural	Urban	Total
Assam	48.97	48.61	48.92	960	946	958
India	48.69	48.16	48.53	949	929	943

Source: Census of India 2011

The sex ratio (females per 1000 males) in Assam in the rural area is 960 and in the urban area is 946, which is slightly above the national sex ratio for rural and urban areas. There has been about a 2.43% improvement in Assam Sex Ratio over the last 10 years, which is higher than the India ratio.

Table 47: Year-wise Sex Ratio in post-Independent India

Year	**1951**	**1961**	**1971**	**1981**	**1991**	**2001**	**2011**	**% Improvement over last 10 years**
Assam	868	869	896	910	923	935	958	2.43
India	946	941	930	934	927	933	943	1.07

Source: Census of India 2011

3.2 Literacy Rates

Educational status is very important in the assessment of human development in a country or in a region. The literacy rate in Assam is 72.2% (male77.8, female66.3), and in India, 73.0 % (male 80.9, female 64.6). The literacy rate gap between males and females in the last two decades has declined by 30.5% in Assam, which is below the all-India average.

Higher levels of education are not as easily assessable to girls; while they remain literate, employment or gainful economic engagement is not always achievable aims (MHRD Report 2013- 14).

Table 48: Literacy rate Male and Female

	2001			2011		
	Female	**Male**	**Total**	**Female**	**Male**	**Total**
Assam	54.6	71.3	63.3	66.3	77.8	72.2
India	**53.7**	**75.3**	**64.8**	**64.6**	**80.9**	**73.0**

Table 49: Gap in the Literacy rates of Male sand Females in the last two decades

	Gender Gap in literacy rate*		**Declined by (%)**
	2001	**2011**	**2001-2011**
Assam	16.7	11.6	30.5
India	**21.6**	**16.3**	**24.7**

Source: OfficeofRegistrarGeneral, India

** Gender Gap=Literacy rate formals-Literacy rate for female*

3.3 Employment

The total workforce participation rate in Assam is 38.36%, with a female participation rate of 22.46%. The rural and urban female work participation is 23.7% and 14.9%, respectively. The Assam female work participation (total, rural and urban) is much closer to national figures (presented in thetable below). The women are employed in the Tea Industry, which is one of the largest organised sectors in Assam, either as permanent/ temporary/ casual labour.

Table 50: Work force Participation Rate: 2011

	Rural			Urban			Combined		
	Female	**Male**	**Total**	**Female**	**Male**	**Total**	**Female**	**Male**	**Total**
Assam	23.7	53.1	38.7	14.9	56.79	36.41	22.46	53.59	38.36
India	**30.0**	**53.0**	**41.8**	**15.4**	**53.76**	**35.31**	**25.51**	**53.26**	**39.79**

Source: Census2011, Office oftheRegistrarGeneral, India

The table below presents the percentage of workers based on employment status for Assam and India. In rural areas of Assam, out of the total female workforce, 63.9% are self-employed, 17.2% are regular wage employees, and 18.0% are casual labour. Likewise, in urban areas of Assam, 46.7% are self-employed, 44.4% are salaried employees, and 7.8% are casual labours.

Table 51: PercentageDistributionofWorkersAccordingtoBroadEmploymentStatus2011-12

	Rural						Urban					
	Self-employed		**Regular wage/Salaried Employee**		**Casual Labor**		**Self-employed**		Regular wage/Salaried Employee		**Casual Labour**	
	Female	**Male**	**Female**	**Male**	**Female**	**Male**	**Femal**	**Male**	**Female**	**Male**	**Female**	**Male**
Assam	63.9	71.1	17.2	10.4	18.0	18.5	46.7	55.0	44.4	35.2	7.8	9.8
India	**59.3**	**54.5**	**5.6**	**10.0**	**35.1**	**35.5**	**42.8**	**41.7**	**42.8**	**43.4**	**14.3**	**14.9**

Source: National Sample Survey Office, 68thRound, July2011- June 2012.

Notes: 1. Figures relate to usual status principal and subsidiary (all) workers.

2. The figures represent size of workforce as percentage of population

The female worker population ratio (size of the workforce as a percentage of population) in rural areas of Assam is 12.2% which is half of India's female worker percentage (24.8%). Similarly, the urban female worker population ratio is 9.0%, less than the national figure (14.7%).

Table 52: Worker Population Ratio for year 2011-12

	Rural		Urbann	
	Female	**Male**	**Female**	**Male**
Assam	12.2	54.0	9.0	54.2
India	**24.8**	**54.3**	**14.7**	**54.6**

Source: National Sample Survey Office, 68th Round, July2011- June 2012.

Notes: 1. Figures are based on usual status approach and includes principal status and subsidiary status workers of allege

2. The figures represent size of workforce as percentage of population.

From the table below, the female labour population ratio (size of labour as a percentage population) in rural areas of Assam is 12.9% which is less than half of India's female labour percentage (25.3%). Similarly, the urban female labour population ratio is 9.7%, less than the national figure (15.5%).

Table 53: Labour Force Participation Rate: 2011-12

	Rural			Urban		
	Female	**Male**	**Total**	**Female**	**Male**	**Total**
Assam	12	56	35	9	57	34
India	**25.3**	**55.3**	**40.6**	**15.5**	**56.3**	**36.7**

Source: National Sample Survey Office, 68th Round, July2011- June 2012.

Notes: 1. Figuresarebasedonusualstatusapproachandincludesprincipalstatusandsubsidiarystatus persons of allages.

2. The figures represent size of labour force as percentage of population

3.4 Unemployment

The rural female unemployment rate in Assam rural is 5.7%, thrice India's female unemployment ratio. The urban female ratio is 7.0% which is higher than the national ratio (5.2%).

Table 54: Unemployment Rates: 2011-12

	Rural			Urban		
	Female	**Male**	**Total**	**Female**	**Male**	**Total**
Assam	5.7	4.3	4.5	7.0	5.4	5.6
India	**1.7**	**1.7**	**1.7**	**5.2**	**3.0**	**3.4**

Source: National Sample Survey Office, 68thRound, July2011- June 2012. Notes: 1.Figuresrelatetousual status principal and subsidiary (all) workers

According to the Fifth Annual Employment –Unemployment Survey 2015-16, the female unemployment rate for a person aged 15 years& above is 8.4% (for males, 2.6%). The rural and urban female unemployment rate for 15 years & above persons is 7.2% and 18% (2.1% and 5.9% for males), respectively.

Table 55: UnemploymentRateforPersonsaged15years&above: 2015-16

	Rural	Urban	Total

	Female	Male	Total	Female	Male	Total	Female	Male	Total
Assam	7.2	2.1	3.3	18.0	5.9	8.5	8.4	2.6	4.0
India	**4.7**	**2.9**	**3.4**	**10.9**	**3.0**	**4.4**	**5.8**	**3.0**	**3.7**

Source: Fifth Annual Employment-Unemployment Survey, Labour Bureau, Ministry of Labour & Employment (2015-16)
Note: 1. the rate is according to Usual Principal & Subsidiary Status Approach (ps+ss).
2. Total includes transgender also.

3.5 Wages

In rural areas, the female average Wage/Salary received per day by Regular Wage/Salaried Employees of Age 15-59 Years during 2011-12 is Rs 179.71, which is much lower than the national average (Rs 201.56). Whereas in an urban areas, the average female salary is Rs 561.63, which is higherthan the national average (Rs 366.15).

Table 56: Average Wage/Salary (in Rs.) received per day by Regular Wage/Salaried EmployeesofAge15-59 Years: 2011-12

	Rural		Urban	
	Female	Male	Female	Male
Assam	179.71	343.97	561.63	615.23
India	**201.56**	**322.28**	**366.15**	**469.87**

Source: National Sample Survey Office, 68th Round, July 2011- June 2012.

The table below presents the average wage earned (in Rs.)per day by Casual Labourers of Age15-59Years in Specified Works during2011-12. The female earns about Rs 98 per day as a labourer in rural areas, Rs 181 for public work other than MGNREGA and Rs 169 for MGNREG public work. Similarly, females in urban areas earn Rs 159 per day as labourers.

Table 57: Average Wage Earning (in Rs.) received per day by Casual Labourers of Age 15 -59Years in Specified Works: 2011-12

	Rural						Urban	
	Works other than Public Works		Public Works other than MGNREGA Public Works		MGNREG Public Works		Works other than Public Works	
	Female	Male	Female	Male	Female	Male	Female	Male
Assam	98	143	181	169	169	-	159	102
India	**103**	**149**	**111**	**127**	**112**	**102**	**182**	**111**

Source: National Sample Survey Office, 68th Round, July 2011- June 2012.
MGNREGA: Mahatma Gandhi National Rural Employment Guarantee Act

3.6 Enterprise Ownership

Table 58: Distributionofproprietaryestablishmentsbysexofowner:2014

	Rural			Urban			Total		
	Male	Female	%Female	Male	Female	%Female	Male	Female	%Female
Assam	44142	24414	36%	15292	5427	26%	59434	29841	33%
India	**823609**	**258633**	**24%**	**583264**	**137485**	**19%**	**140687**	**396118**	**22%**

Source: Sixth Economic Census (2014), Ministry of Statistics & Programme Implementation

Out of a total of 68,556 rural proprietary establishments in Assam, 36%are owned by the female population, as per the sixth economic census 2014. Similarly, out of 20,719 urban proprietary establishments, 26% are owned by the female population.

The table below details the number of Establishments under women entrepreneurs by Major source of Finance as per the *Sixth Economic Census*2014.

Table 59: NumberofEstablishmentsunderwomenentrepreneurbyMajorSourceofFinance: 2014

	Self-finance	Financial Assistance from Govt	Borrowing from financial institutions	Borrowing From Non-institutions/ Money Lenders	Loan from Self Help Group	Donations/ Transfers from other agencies	Total
Assam	139193	3438	1887	1250	1146	7244	154158
India	**6365447**	**270978**	**86789**	**67525**	**80660**	**1179420**	**8050819**

Source: Sixth Economic Census (2014), Ministry of Statistics & Programme Imple

3.7 Women Participation

As per the 2021 general elections, 7.8%of women have contested state general elections. Only 0.8% of women were represented in the Legislative Assembly of Assam in 1978; this has increased to 10. 31 % is 2011. This figure has further reduced to 6.34 % in the 2016 state assembly elections (Source: Election commission of India).

Table 60: Participation of Women in Legislative Assemblies

	Year of Last general elections	%of women contestants	Seats won By women (in %)	Registered women Electors (In %)	Women votes Polled (in %)	Women votes Polled as %of registered women elector
Assam	2021	7.8	4.67	11550403(49.41%	9476334(49.41%)	**82.04**

Source: Final_Per_Phase-I & III_2021.pdf (ceoassam.nic.in)

The status of representation of women in Panchayati Raj Institutions (PRIs) is presented in the table below. 50% of elected representatives at all levels in PRIs are women.

Table 61: Status of representation of women in Panchayat Raj Institutions (PRIs)

	No of Panchayats*			Elected Representatives#		
	District Level	Intermediate Level	Village Level	Total	Total Women	Women (%)
Assam	21	191	2199	26844	13422	50
India	**621**	**6626**	**248891**	**2911961**	**1345990**	**46**

Source: Ministry of Panchayat Raj

** As of December 2017; # asofNovember2016*

3.8 Differently Abled

About 1.5% of the total female population has disabilities in Assam, which is less than the national disability percentage (2.0). The various disability among the disabled is 17.7 percent with seeing, 22.4% with hearing, 8% with speech, 13.9% with movement, 5.2% are mental retardation, 3.7% with mental illness, 18.4% with other disability and 10.8% with multiple disabilities.

Table 62: Percentage of Disabled persons to Total Population

	Male	Female	Persons
Assam	1.6	1.5	1.5
India	2.4	2.0	2.2

Source: Census2011, O/Registrar General of India

Table 63: Percentageoffemalesbytypeofdisabilityamongdisabledfemales-Census2011

	In seeing	In Hearing	In Speech	In Movement	Mental Retardation	Mental Illness	Any Other	Multiple Disability
Assam	17.7	22.4	8.0	13.9	5.2	3.7	18.4	10.8
India	**22.6**	**16.8**	**7.4**	**13.3**	**6.8**	**3.5**	**19.6**	**10.1**

Source: Census2011, O/Registrar General of India

3.9 Health

As per NHFS 4, the Infant Mortality Rate is 48 to 1000 live births, while the national figure is 37 (NHFS 4, Sample Registration System). Assam has the highest rate of maternal mortality (300), followed by Uttar Pradesh. Kamrup (metro) district reportedly has the second highest MMR (April 2016-Mar 2017) in the state. Home births are still prevalent in the state, which prevents access to comprehensive healthcare for both the mother and the child. Only 22.4% of births were recorded as institutional delivery, whereas 77.5% were recorded as home births in 2005-06 (India Human Development Report, 2011).Despite various preventive, protective and promotive measures taken after the recommendation of the Bhore Committee in 1942-43 on the Public Health System and subsequent launching of various schemes, Infant Mortality Rate, Maternal Mortality Rate, Birth and Death Rate in the state still remains significantly high.

3.10 Human Development Index (HDI)/ Gender Development Index (GDI)/Gender Inequality Index (GII)

The HDR (2011) places Assam in the 16thposition, out of the 23 states considered, and 26thamong the 35 states compared to GDI. For GII, Assam falls in 28thposition out of 35 states, much lower than its neighbouring states of Manipur, Meghalaya, Mizoram and Nagaland.

4. AIRBMP – Primary Gender Data

Primary gender data is collected through interviews with the PIUs and consultations with the women in the project area. The consulted women who formed about 40% of the total participants included representatives of flood shelter committees, women-headed households, women farmers and entrepreneurs, and SHG members.

Table 19: Summary of Consultations for New and Augmented Flood Shelters (Component 3)

Date	Location	No. of participants	No of Women Participants
28th Feb 2021	Borbeel	24	-
28th Feb 2021	Bhurburi 1	25	-
29th Feb 2021	Bhurburi 2	21	-
30th Feb 2021	Dihingholla	24	-
30th Feb 2021	Deorigaon Notunbolai	41	-
10th Feb 2022	530 No Barbillabalak LP School	12	05

Date	Location	No. of participants	No of Women Participants
	(Khankarpara village)		
	107 No Radhakuchi LP school (Radhakuchi Village)	15	06
	Sundaridiya High School (Sundaridiya Village)	16	10
	Patbausi High School (Patbausi Village)	19	12
11th Feb 2022	1835 Paschim SidhuniGhunapara LP school, (Sidhuni)	12	05
	Dhakua High Madrassa, (Dhakua Village)	11	03
	Banbaria ME Madrassa (Banbariavillage)	14	04
29th March 2022	NaharkatiaPuronikaibartaGaon, Dibrugarh	15	09
	BhekureSapori, Sivasagar	15	10
30th March 2022	Nam temera, Golaghat	18	10
	Bohikhuwa, Golaghat	16	09
	Goroimari, Golaghat	11	08
	Bartika, Golaghat	14	07
11th April 2022	530 No Barbillabalak LP School (Khankarpara village)	15	05
	Banbaria ME Madrassa (Banbariavillage)	17	05
20th April 2022	Dinjoy School, Dibrugarh	13	09
	Balijan South LPS, Dibrugarh	12	08
	Balijan Bengali Village, Dibrugarh	15	06
21st April 2022	No.1TingraiVillageunderNaharkatia RC	17	08
	NaharkatiaPuraniKaibartaGaon, Dibrugarh	19	10
22nd April 2022	Nam Temera, Golaghat	11	05
	Goroimari, Golaghat	16	08
21st June 2022	Barpeta relief camp visit to 2 schools	16	06
22nd June 2022	Bhalukaguri village, Morigaon	18	07

Table 20: Consultations with Stakeholders during ESIA – River Works (Component 2)			
Category of Stakeholders	Date	Location	No. of participants (M/F)
Project Affected	27-Jan-22	Dibrugarh	79 (M-48/F-31)
	28-Jan-22	Tinsukia	68 (M-41/F-27)
	10-Jan-22	Baksa	54 (M-32/F-22)
	11-Jan-22	Barpeta	96 (M-58/F-38)
AssociatedDepartments (District & Block	29-Jan-22	Dibrugarh & Tinsukia	25 (M-18/F-7)
	12-Jan-22	Baksa&Barpeta	32 (M-29/F-3)

Table 20: Consultations with Stakeholders during ESIA – River Works (Component 2)			
Category of Stakeholders	Date	Location	No. of participants (M/F)
Administration, Gaon Panchayat, Panchayat & Rural Development, Revenue and Disaster Management, Forest & Environment, PWD)			
Disadvantage/ vulnerable (including women, differently abled, elderly)	29-Jan-22	Dibrugarh	88 (M-13/F-75)
	10-Jan-22	Baksa	96 (M-8/F-88)
	11-Jan-22	Barpeta	79 (M-9/F-70)

Table 21: Consultations with Stakeholders during Screening & Scoping – River Works (Component 2)			
Category of Stakeholders	Date	Location	No. of participants (M/F)
Project Affected	13-Dec-21	Dibrugarh	59 (M-36/F-23)
	14-Dec-21	Tinsukia	40 (M-30/F-10)
	15-Dec-21	Baksa	52 (M-34/F-18)
	16-Dec-21	Barpeta	65 (M-45/F-26)
Associated Departments (District & Block Administration, Gaon Panchayat, Panchayat & Rural Development, Revenue and Disaster Management, Forest & Environment, PWD)	20-Dec-21	Dibrugarh & Tinsukia	40 (M-32/F-8)
	22-Dec-21	Baksa&Barpeta	35 (M-29/F-6)
Disadvantage/ vulnerable (including women, differently abled, elderly)	27-Dec-21	Dibrugarh	85 (M-8/F-77)
	29-Dec-21	Baksa	96 (M-6/F-90)
	30-Dec-21	Barpeta	105 (M-11/F-94)

A survey based on the Equal Aqua HR questionnaire was administered to a sample set of employees in FREMAA, WRD (Phase-I project districts) and ASDMA to understand specific issues at the workplace from July to August 2021.

Table 22: Details of Survey participants			
PMU/ PIU	Participants		
	Male	Female	Total
FREMAA	17	7	24
WRD	6	18	24
ASDMA	12	5	17
Total	35	30	65

The gender gaps which were found through the interviews and consultations are presented for each project component below.

4.1 Institutional Strengthening of WRD, FREMAA and ASDMA (Component 1) – Gender Equity in Workplace

A survey based on the Equal Aqua HR questionnaire was administered to a sample set of employees in FREMAA, WRD (Phase-I project districts) and ASDMA to understand specific issues at the workplace from July to August 2021. The percentage of female employees stands at 20 percent in FREMAA, 15 percent in WRD (Phase-I project districts), and 17 percent in ASDMA. While the Assam Women (Reservation of Vacancies in Services and Posts) Act, 2005 calls for 30 percent reservation for women, this is not observed in practice. Based on the findings revealed by the survey, the survey recommendations include: related to HR policy, (i) gender balanced committee for recruitment should be formulated and the committee should review the recruitment to be gender neutral; (ii) a gender policy (minimum 30 percent of female employee) should be targeted; (iii) commute should be considered to be safe and free for females (travel policy); (iv) work-life balance should be improved reflecting a female's role of family and this could extend to male employees; (v) child care should be facilitated or compensated; (vi) venue and time of technical and managerial trainings and mentorship programs should be female friendly and safe for female employees to participate; and
(vii) recruitment policy should include the third gender. Recommendations related to occupational health and safety are: (i) medical insurance for women; and (ii) toilet facilities should be safe for women with sanitary pad vendor locks for privacy, access to water and soap, and a covered trash bin provided in the toilets. Lastly, recommendations to mainstream gender issues in the project area are: (i) workshops should be designed to facilitate women's participation; (ii) gender focal points within each agency should be introduced to deal with gender; (iii) more assessments and studies should be carried out for gender to be mainstreamed better; and (iv) GRM should have a gender-specific scope.

4.2 Water Resources Management (Component 2) – Women's Participation in Project Planning

Differentiated impact of disasters: Global studies have shown that catastrophic events such as flooding and river erosion tend to negatively affect women more than men, particularly in low- income households. Women-headed households, especially older and pregnant women and those from poor/vulnerable sections, face more significant difficulties due to displacement during floods impacting their health. They also face challenges in accessing flood warnings and taking timely steps for evacuation. Studies also indicate that girls tend to drop out of school following flooding events more than boys, as girls are traditionally required in many societies to take care of their siblings.

Participation in planning and decision-making for investments in Water Resources Management: There is a need to engage with the communities and enhance the participation of directly affected people in planning and implementation of water resources management. At the community level, committees are generally dominated by men. Consequently, women's participation in planning and decision-making at the community level is comparatively lower than men. During the project consultations for ESMF and ESIAs, the women-participation was about 40%. The concerns expressed during these consultations were reflected in the ESMF and ESIAs. For the past projects or without the project, though consultations were conducted (with an average female participation of about 30%), the outcomes were not recorded/ evaluated. Generally, the low participation rates are due to non-female friendly environment, venue, time, lack of awareness, etc. among others.

4.3 Disaster Risk Management (Component 3) – Women's Membership in Community Committees

Flood shelters: Existing flood shelters in Assam are typically school buildings temporarily turned into shelters during flooding events and lack features that allow women to use these shelters safely and comfortably. For example, they are not equipped with separate bathrooms, nursing spaces, kitchens, sanitary kits with menstrual products, etc. This hurts women's health, privacy and dignity and places them at a greater risk of gender-based violence. Poorly designed and equipped flood shelters also make women reluctant to turn to these shelters during flooding events, increasing the risk to their lives and livelihoods. GoA's guidelines on Relief Camp Management recognize these needs and mandate the provision of separate rooms for women and children. However, implementation of these guidelines varies across districts; there is substantial room for improvement in the design of these shelters and the composition and adequacy of relief provisions.

Climate Resilient Village (CRV): Citizen-centric of the system of governance and active citizen engagement in the functioning of the government are critical to the quality of governance. Revenue administration and management of land resources are no exception to it. Acknowledging the importance of citizen engagement in bringing about efficiency and transparency in the functioning of Revenue & Disaster Management Department and conservation of precious land resources and disaster management, it has been decided to constitute Village Land Conservation and Disaster Management Committee (VLCDMC) in every revenue village of the State. The committee will take active participation in the activities to be undertaken under CRV.
The main objectives of the committee:

1. To keep vigil on the land resources of the village and mobilise public opinion against any unauthorised encroachment thereon or any activity harmful to their existence and report to the circle officer of the revenue circle.
2. To assist in and monitor the preparation and updation of village land bank (A Dagwise Record of all types of Government Land in the village).
3. To assist in and monitor the preparation and updation of Village Knowledge bank (A systematic record of the critical land and natural resources of the village)
4. To assist in and monitor the preparation and updatation of Village Master Plan for Disaster Management.
5. To undertake awareness generation activities on the importance of conservation of land resources.
6. To assist in preparation of plan of action for the conservation and development of Village Grazing Reserves (VGR) and Professional Grazing Reserves (PGR).
7. To assist in and monitor the implementation of Village Master Plan for Disaster Management.

In times of emergency/crisis at the community level, it has been observed that dedicated response team will not be able to reach the incident site on time and henceforth, there is a need for trained man-power and equipment's to mobilize immediately to the incident site. Due to absence of dedicated teams, it is difficult for the Circle Officer/responding agencies to co-ordinate response. At the time of any disaster, it is essential to minimize the time for response. Therefore need of a team that is constituted in every Revenue circle of Assam equipped with basic equipment and resources torespond to an emergency are identified. These teams will work under the immediate disposition of the committee and help in immediate response in any kind of natural or man-made disaster.

In currently established VLCDMCs in various villages in Assam, out of 10 active members, 4 are mandatorily female (i.e., 40% of members should be women). However, in some villages, this percentage has not been achieved yet. Hence there is scope to enhance women's participation and leadership in these committees. There is also greater scope for enhancing women's capacity-building activities and their participation in community activities in villages. VLCDMC is a government notified committee and the members of the committee will be required to build their capacity as per the new challenges and development in the risk management.

5. Proposed Gender Actions

Based on the primary and secondary gender data described in the above sections, the following gender actions are proposed under each project component.

5.1 Institutional Strengthening of WRD, FREMAA and ASDMA (Component 1) – Gender Equity in the Workplace

The following actions to address gender equity in the workplace will be implemented under the Project.

(i) To increase career development opportunities for female employees, equal access to technical and managerial training, women-focused capacity-building programs.

Keeping in view the institutional mechanism in ASDMA and the notified committees that are already been operational and functional on field to overcome the challenges of disaster emergencies. It will primarily help to empower female employees to manage such challenging situations more skillfully if there is a provision for tentative budget allocation in place. Availability of budget to participate in women run professional networks[6] will providesuch opportunities to female employees.

(ii) To raise gender awareness, campaigns will be designed and carried out, recognizing it may require changing workplace culture

(iii) To reduce the gender gaps and promote better gender equity among employees, an HR Manual for each of FREMAA, WRD, and ASDMA incorporating gender-friendly/ sensitive policies will be developed.

Till now there is no existence of Gender friendly HR manual in ASDMA. However, internal discussion for inclusive policy formation is under process and a preliminary draft is also under discussion which may be incorporated later during amendments.

(iv) To support the above issues and prepare a roadmap to fully fill the Program goals, a gender work flow among focal points in PMU and PIUs for implementing GAP/ensuring GBV & SEA mitigation measures will be designated and implemented. The Focal Point from each institution will work to bring greater focus into gender mainstreaming and incorporating gender into project activities to achieve the objectives of Gender Acton Plan.

5.2 Water Resources Management (Component 2) – Women's Participation in Project Planning

A well-designed awareness-raising campaign will be implemented in places accessible by women at the community level to help sensitize civil society and enhance women's participation in planning all activities related to Water Resources Management. The Global Water Partnership advocates and promotes advancing gender mainstreaming in water resources management[7]. The World Resources

[6]For example, Women's International Network on Disaster Risk Reduction (WIN DRR) of which goal is to empower women to attain leadership and enhance their role in decision-making in disaster risk reduction in Asia-Pacific.
[7]https://www.gwp.org/globalassets/global/activities/act-on-sdg6/advancing-towards-gender-maintreaming-in-wrm---report.pdf

Institute also advocates women participation for better water management[8]. The World Bank too promotes women participation in water resources management[9]. The SEP provides the details on tools, methods and timelines of engagement to promptly facilitate decision-making and create an atmosphere that actively involves women, vulnerable and disadvantaged communities, and other stakeholders.

The trained citizens and females will participate in interactive Integrated Flood Risk Management (IFRM) planning and implementation workshops. The design of a series of events may include: (i) state-wide information dissemination through mass and social media channels as well asnewspapers and paper posters on notice boards for those who do not have digital devices; (ii) safe access to venues and comfortable setting of the venues for females; (iii) suitable time of the events for female roles in a family; (iv) monitoring and follow-up program operational; and (v) support by a female coordinator. Women will be trained to be trainers for participating IFRM planning and decision-making process to help other women's involvement. Education and research entities will beinvolved to help women and girls be more empowered in IFRM planning, IFRM decision-making process, and related technologies and skills, which may foster future WRM-DRM or IFRM experts.

5.3 Disaster Risk Management (Component 3) – Women's Membership in Community Committees

Flood Shelters: Flood shelters will introduce female-friendly arrangements with a design that is sensitive to the needs of women. The design will provision separate rooms for women and children, addressing their nutritional needs and medical care for pregnant and lactating women. The plan will ensure privacy, reduce the risk of gender-based violence, and ensure segregated and dedicated sanitation facilities with relief provisions such as sanitary napkins at no cost. Relief materials currently include sanitary pads, soap and hand sanitizer. Financial Assistance of Rs.2500 per family is provided towards clothing and Rs.2500 per family is provided towards utensils. In addition to these the Project will introduce Dignity Kits. GoA to implement the Flood Shelter Management Committee guidelines (applicable for both new shelters and school cum shelters), which will recognize active women's participation in the committee formation and operation. These flood shelters will be managed by the village committees. Under AIRBMP, women's involvement and active participation in these committees will be prioritized. ASDMA officers and shelter management committees with a 30 percent representation of women will be trained to ensure a female-friendly and gender-inclusiveenvironment while the shelters are in use.

Measures will be taken for improving GBV-readiness as part of flood-response management, through awareness campaigns on GBV/SEA, grievance redressal/ referral mechanism, early warning and shelter management. Distribution of gender sensitive IEC materials including booklets with details on shelter services, grievance redressal/ referral mechanism, contact details of ICs and Service Providers to create awareness among girls and women. Awareness program like community meetings, mock drills, and street theatre will be conducted on services and safety issues of shelter for women and girls to feel safe to go to the shelter during flood.

Early Warning and Dissemination System: The Project will focus on women-headed households and low-income families who could have more difficulties getting a new technology-based warning to take timely actions and get timely evacuation support. A list of such people will be updated every pre-monsoon season. The women's task force in each village will be trained to identify and prepare

[8] https://www.wri.org/insights/women-are-secret-weapon-better-water-management
[9] https://www.worldbank.org/en/news/feature/2021/01/20/promoting-womens-participation-in-water-resource-management-in-central-asia

for women needing special assistance to get early warning and evacuation. The female team members of the above mentioned Women Task Force who will be trained will coordinate with the women's task force to prepare and support women who need assistance to get evacuated.

Climate Resilient Villages: Women-only task forces with five members will be constituted to provide inputs into the Village Disaster Mitigation Plan (VDMP) process, and to plan and design CRV and relevant actions to reflect women's needs and gender perspectives. Further Mandatory 40% (4 out of 10 active members) inclusion of the women members in the VLCDMC as recommended by GoA will be prioritized in every CRV. The VLCEDMC will guide the formulation of the VDMP. 50% of women's participation will be mandatory in any Participatory Rural Appraisal (PRA) exercises for CRV activities such as risk assessments, planning for resilient housing design and identification of other mitigation options. A series of capacity training for the committees and members will be provided with a specific emphasis on enhancing the capacities of more vulnerable female groups. The committees will be trained to identify women's roles in planning, managing and maintaining CRVs.

A socio-technical support consulting firm, engaged by ASDMA, will facilitate community-based actions. The consultant will be encouraged to have significant female representation in their team composition, which will be able to interact and influence the female community in a particular village more efficiently. The female representatives in the agency are expected to support women- headed households, single senior women, girls in low-income families, and female flood shelter users.

The Socio technical support consulting firm's primary function is to conduct socio- technical survey and assessment in the selected villages in consultation with the VLCDMC and other stakeholders. The surveyed information and data will be compiled and integrated with the GIS technology for further accuracy and needs assessment. The Socio Technical Agency (STA) will not support activity related to CQRT sub component.

Circle Quick Response Teams. To further decentralize the disaster response function and ensure a localized and timely incident response, ASDMA is working to establish "Circle Quick Response Teams" (CQRTs). Each CQRT comprises 16 members who can mount an immediate response to disasters in their locality. Under Phase 1, ASDMA will train and equip 52 CQRTs across 11 districts, including storage facilities for the equipment to be used during disaster events. Equipments such as emergency kits and these kits will be kept in the storage facilities under safe custody at circle level. It is recommended that 30% of women will be engaged in each CQRT. The CQRTs are the emergency service providers during emergencies.

5.4 Monitoring

A summary of the proposed gender actions and monitoring indicators is given in the following table.

Table 64: Monitoring Progress of Gender Action Plan

SN	Potential GAP	Action	Indicator
1	Mainstreaming needs of women in the workplace in FREMAA, WRD and ASDMA	i. Gender sensitivity training ii. HR Manuals reflecting gender policies for FREMAA; Draft gender policy and HR Manual for ASDMA iii. Career development	i. At least 75% of staff complete gender sensitivity training ii. HR Manual approved in FREMAA; HR Manual drafted in ASDMA iii. At least 50% of all female employees receive career

SN	Potential GAP	Action	Indicator
		training programs for women in FREMAA, WRD, and ASDMA with gender friendly training environment iv. Gender Focal Points support	development training iv. Gender Focal Points designated
2.2	Low women's participation in consultations and meetings in river works planning activities	i. IFRM planning process starts with Stakeholder Engagement and Capacity Building Plans that includes a program to specifically target women	i. At least 50% of consultation participants are women
3.1	Needs of women not mainstreamed in floodshelter operations	i. At least 30% women in the Flood Shelter Management Committees	i. At least 75% of the Committees have 30% female members
3.3	During flood emergencies, the needs of women victims may not be well managed	i. At least 30% women in the CQRTs ii. Gender sensitivity in the CQRT training program	i. At least 75% of the CQRTs have 30% female members ii. Gender sensitivity in standard CQRT training
3.4	Women in VLCDMC may not fully participate in the CRV decision making	i. Women only task forces to inform VLCDMC ii. At least 40% of VLCDMC are women	i. At least 75% of villages have women only task forces ii. At least 75% of VLCDMC have 40% female members

Annex6: Screening Formats
Environmental Screening Format

Assam Integrated River Basin Management Project (AIRBMP)

A. Identification (Sub Project location/s, ESS1):

Sl. No.	Date of Screening	Details
1.	Package No./Package ID	
2.	Location	
3.	Sub Project Name	
4.	Sub Project Type	Anti-Erosion /Embankment)/ Flood Shelter/ Others (Specify)
5.	GPS Coordinates Starting	X: Y:
	Ending	X: Y:
6.	Sub Project Details in brief	

B. General Information

Project Details		
S.No	**Components**	**Details**
1.	Details of each Activities proposed (main components including construction activities)	
2.	Location of the sub project Site & Site Survey No:/s (with ownership)	
3.	Current Land use (Provide information for the sites involved in the project), any historic land use (related to heritage, or contamination)	
4.	Reason for selecting the proposed site	
5.	Alternative Sites considered	
6.	Details of Alternative sites during site visit	
7.	Connectivity (By road/ rail/ waterways)	
8.	Approach Road	
9.	Dredging (of water bodies) Activities	

C. Proposed Resource Use (ESS3)

Resource Use				
S.No	**Proposed Resources**	**Area/ Quantity**	**Unit**	**Details**

(i).	Land Area proposed to be used: Location wise (in acre/ sq km / sq m) a. Actual construction			
	b. Temporary use for camp area, storage, haul road, etc.			
(ii).	Estimated energy consumption for the projec activities – Source wise			
(iii).	Estimated usage of water quantity for the project: Ground Water and Surface water?			

D. Baseline Environmental Conditions (ESS1)

S.No	Environmental Aspects	Yes	No	Details
1.	Is the project site located on or adjacent to any of the following (Provide information for all sites and alignment of the project components/subcomponents, associated activities)			Distance in Km
i)	Habitat Types- Modified, natural or Critical Habitat			If Yes, Mention name and Distance Km
ii)	Critically Vulnerable, Eco- sensitive Areas			If Yes, Mention name and Distance Km
iii)	Cultural Heritage site, Protected monuments			If Yes, Mention name and Distance Km
iv)	Natural Forests / Protected Areas Is the sub project in an eco- sensitive or adjoining an eco-sensitive area? If Yes, provide details.			If Yes, Mention name and Distance Km
v)	Any other Wetlands/ other important area?			If Yes, Mention name and Distance Km
vi)	Any Natural Habitat areas, areas with natural features?			If Yes, Mention name and Distance Km
vii)	Any other Sensitive Environmental Components?			If Yes, Mention name and Distance Km
viii)	Any Residences, schools, hospitals, sensitive receptors?			If Yes, Mention name and Distance Km
ix)	Any culturally – socially important paths, areas/religious occupancies, burial grounds, tourist or pilgrim congregation areas, borders, etc.?			If Yes, Mention name and Distance Km
x)	Any Drinking water source, upstream and downstream uses of rivers, etc.?			If Yes, Mention name and Distance Km
xi)	Any Low-lying areas prone to flooding Influence?			
xii)	Any areas affected by other disasters?			
2.	Is the site in Critical / Over Exploited condition?			
3.	Is the area disaster-prone? If yes; list all disaster zone categories applicable			
4.	Describe the soil and vegetation on site			
5.	Is the site area and condition suitable for proposed development?			

6.	Describe existing pollution or degradation in the site(s)			
7.	Any existing 'Associated Facilities' within 1km radius of the project? If yes, please furnish the details			
8.	Does the area have any existing component leading to GHGs			
9.	Does the Area have any component leading to climate change?			
10.	Any other remarks on baseline condition?			

E. Anticipated Environmental Impacts: Impacts on Land, Geology and Soils (ESS1)

S.No	Impacts	Yes/ May create	No	Details
1.	Will the proposed project cause the following on Land / Soil:			
i)	Impact on Surrounding Environmental Conditions including Occupation on Low lying lands/flood plains			
ii)	Substantial removal of Top Soil (mention area in sq.m)			
iii)	Any degradation of land / eco-systems expected due to the project?			
iv)	Loss or impacts on Cultural/heritage properties (ESS8)			
v)	Does the project activity involve cutting and filling/ blasting etc.?			
vi)	Will the project cause physical changes in the project area (e.g., changes to the topography) due to earth filling, excavation, earthwork or any other activity?			
vii)	Will the project involve any quarrying?			
viii)	**Does the project involve any land reclamation?** If yes, please provide the following details ✓ Activity for which land to be reclaimed Area of land to be reclaimed (Hectares)			
ix)	Will the project / any of its components contaminate or pollute the Land?			
x)	Will the project contribute to any long- term significant adverse (negative), large scale, irreversible, sensitive impact at a regional scale or area broader than the project sites?			

F. Impacts on Water Environment (ESS3)

S.No	Impacts	Yes/ May Create	No	Details
1.	Will the subproject or its components cause any of the following impact on Water sources (Quantity or Quality):			
i)	Will the activities proposed at the site(s) impact water quality (surface or underground) and water resource availability and use? Will this sub-project involve the dredging of water bodies, canals, etc.			
ii)	Impacts on Water Resources			

iii)	Pollution of Water bodies/ground water nearby or downstream			
iv)	Will the project affect the River /cannel flow pattern, stream pattern or any other irrigation canal?			
v)	Will the project result in stagnation of water flow or pondage or weed growth			
vi)	**In case the approach road passes through a flood plain of a river following details are required:** ✓ Detailed micro-drainage ✓ Flood passages Flood periodicity in the area			

G. Impacts on Biodiversity and Host Communities (ESS6.

S.No	Environmental Impacts	Yes/ May Create	No	Details
1	Will the subproject or its components cause any of the following impacts on Biodiversity or on the neighborhood?			
i)	Does the site preparation require cutting of trees? If yes, please furnish the following details: ✓ How many trees are to be cut? ✓ Species of the above trees Are there any protected/endangered species? If yes, provide details			
ii)	Will the project result in Health & Safety Risks in the neighborhood including the release of toxic gases, accident risks			
iii)	Potential risk of habitat fragmentation due to the clearing activities? (e.g., Hindrance to the local biodiversity likes disturbing the migratory path of animals/ birds, etc.)			
iv)	Potential Noise and Light Pollution or disturbance to surrounding habitats/communities			
v)	Potential disruption to common property, accessibility, traffic disruptions, conflicts or disruption to the local community within the subproject area?			
vi)	Does the proposed project site involve any breeding or nesting ground? If yes, provide the following details -Name of the Aquatic Organism -Type of Habitat - Period of the year in which the activity take place			

H. Impacts due to Storage and Wastes: Pollution and Hazards (ESS3 and ESS4)

	Type	Yes	No	Details
1	Will the subproject or its components cause any impact due to storage of materials, wastes or pollution			

	due to releases during various project activities			
i)	Will the project use or store dangerous substances (e.g., large quantities of hazardous chemicals/ materials like Chlorine, Diesel, Petroleum products; any other?			
ii)	Will the project produce solid or liquid wastes; including construction/demolition wastes (including dredging, de-weeding wastes, muck/silt, dust); polluted liquids?			
iii)	Will the project cause or increase air pollution or odor nuisance?			
iv)	Will the project generate or increase noise levels which will impact surrounding biodiversity or communities?			
v)	Will the project generate or increase visual blight or light pollution?			
vi)	Will the project cause water pollution? (of waterbodies/ groundwater)?			
vii)	Will the project involve dangerous construction activities which may be a safety concern to workers/ host communities			
viii	Is there a potential for release of toxic gases or accident risks (e.g., potential fire outbreaks)			
2	Describe any other features of the project that could influence the ambient environment			
3	Were the probable environmental impacts discussed with stakeholders?			

I. Suggested Environmental Enhancement Measures

	Enhancement Measures	Yes	No	Details
1	Has the subproject design considered the following enhancement measures?			
i)	Energy conservation measures/energy recovery optionsincorporatedinsubproject design			
ii)	Considered waste minimization or waste reuse/recycle options			
iii)	Rainwater harvesting, water recycling and other water resource enhancement measures			
iv)	Considerations for extreme events, drought, flood, other natural disasters			
vi)	NOC for water withdrawal from surface water source			
vii)	Mining Permit (for dredging)			
viii	NOC for transportation and storage of diesel, oil and lubricants, etc.			
ix)	NOC for establishment of labour camp			
x)	Others (Mention)			

This Screening sheet must be completed for each of the proposed subproject and forwarded to the Environment Specialist in PMU along with the following enclosures.
Enclosures: Provide maps with the geographical location of the project; and an appropriately-scaled mapclearly showing the project area and project sites with land use, existing buildings, infrastructure, vegetation, adjacent land use, utility lines, access roads and any planned construction, and any other information to describe the project, locations and possible impact as required.

Project Risk Categorization and Need for Safeguards Instruments, Oversight

Project Category	**□ Low □ Moderate □ Substantial □ High**
Key Reasons	
Safeguards Instruments Required	**□ *Detailed* ESIA and ESMP** **□ *ESA*** **□ *RAP*** **□ *Site-specific* ESMP**

Status	***Agency / Official***	***Name, Signature with Date and Seal***
Prepared by	Environmental Consultant	

Checked and Categorized as (low, moderate, substantial, high) by	Environmental Specialist	
	PMU	
Reviewed & accepted by	Executive Officer (Non-Technical)	
	PMU	

Social Screening Format

Social Screening Form

Assam Integrated River Basin Management Project (AIRBMP)

A. Identification

Sl. No.	Components	Details
1.	Date of Screening	
2.	Package No./Package ID	
3.	Location	
4.	Sub Project Name	
5.	Sub Project Type	Anti-Erosion (Embankment)/ Flood Shelter/ Others (Specify)
6.	GPS Coordinates Starting	X: Y:
	Ending	X: Y:
7.	Sub Project Details in brief	

B. Land Use, Resettlement, and/or Land Acquisition

S.No	Components	Yes	No	Details
1.	Is the project location in scheduled area			
2.	Is the project location comprising scheduled tribes?			
3.	Does the project involve acquisition of private land?			
4.	Does this private land belong to tribal (individual or group)			
5.	Will there be alienation of any type of Government land?			
6.	Clearance of encroachment from Government/ community owned Land?			
7.	What is the current land use of these identified land parcels/area			
8.	What is the existing land uses around the projectarea (e.g., community facilities, agriculture, tourism, private property) will be affected?			
9.	Clearance of squatters/encroachers from Government/ community owned Land?			
10.	Land requirement for the sub-project (in ha)			
10.1	Private			
10.2	Government			
10.3	Community/village			
10.4	Forest			
10.5	Others any			
11.	Number of structures, both authorized and/or unauthorized to be acquired/ cleared?			
11.1	Total Affected			
11.2	Title Holders			
11.3	Non-titleholders (Encroacher)			
11.4	Non-titleholders (Squatter)			
11.5	People losing livelihoods/ access due to loss of Govt. Lands to Project			
12.	Will the project result in the permanent or temporary loss of the following?			

12.1	Crops?			
12.2	Fruit trees? Specify with types (for screening type is enough)			
12.3	Petty Shops			
12.4	Vegetable/Fish/Meat vending			
12.5	Cycle repair shop			
12.6	Garage			
12.7	Tea stalls			
12.8	Grazing land			
12.9	Loss of access to forest produce (NTFP)			
12.10	Any others – specify			
13.	Nature of structures that require to be removed			
13.1	Pucca			
13.2	Semi pucca			
13.3	Kutcha			
14.	Estimated number of households to be displaced?			
15.	Will the proposed sub-Project activity result in loss of direct livelihood/ employment? To fishermen or boat operators etc.			
16.	Will the proposed Project activity result in loss of crops/trees which is not Government property?			
17.	Does the proposed activity result in loss of social forest on which nearby residents/local population are dependent for fuel wood/grazing etc.?			
18.	Village common properties to be alienated Pastureland (acres) Acquisition / burial ground and others specify? (Type and quantity)			
18.1	Pastureland (acres)			
18.2	Burial ground			
18.3	Temple land			
18.4	School/Anganwadi land			
18.5	Any Other (specify)			
19.	Historical heritage site(s) require excavation near the project site?			
20.	Archaeological heritage site(s) require excavation near the project site?			
21.	Cultural heritage site(s) require excavation near the project site?			
22.	Graves or sacred locations require excavations near the project site?			
23.	Is the project likely to impose any restriction of access to resources (e.g., temporary or permanent restriction of access to public water source, access to school)			
24.	Does the sub-project have any existing tribal grievance mechanism that is functioning?			
25.	Are there are disputes relating to land or other ownership, etc. or legacy issues (e.g., past land claimed as government land)			
26.	Is there any other conflict in the area or risk (between different groups)			

27.	Are there any disadvantaged groups or individuals (disabled persons or communities having lands eroded every year and being forced to migrate). If so, list them			
28.	Is the project location near school or other medical facilities			
29.	Is there any perceived threat or danger or risk of SEA/SH to female (children, ladies) due to in- migration of workers. If so, which are these hotspots			
30.	Will the project result in construction workers or other people moving into or having access to the area(for a long-time period and in large numbers compared to permanent residents)?			
31.	Is the project likely to provide local employment opportunities, including employment opportunities for women?			
32.	Is the project being planned with sufficient attention to local poverty alleviation objectives?			
33.	Is the project being designed with sufficient local participation (including the participation of women) in the planning, design, and implementation process?			
34.	What types of workers are expected to be involved unskilled skilled, semi-skilled. In total how many workers?			
35.	Will there by community workers who provide community labor for the sub-project with or without payment?			
36.	Are financial compensation measures expected to be needed?			
37.	What are the existing government programs in the area towards flood relief? What does relief measures contain in terms of actions, materials (food packets, mosquito nets)			

C. Welfare, Employment, and Gender

1.	Are there are any SHGs operational in the area			
2.	If so, what area of activities that SHGs involve in			
3.	Are there are any NGOs operational in the area			
4.	If so, what area of activities that NGOs involve in			
5.	Does the project area already have community volunteers/boat operators who have contributed to relief operations			
6.	If in Scheduled Area, what form of consultations are required to be carried out as per the legal requirement e.g., obtaining consent from Gram Sabha as per PESA provisions			
7.	If so, what are the conditions e.g., quorum, notice for meeting, presence of special members, etc.			

D. Beneficiaries

1.	Population proposed to be benefitted by the proposed project	Approx. no.:	
2.	No. of Females proposed to be benefitted by the proposed project	Approx. no.:	
3.	Vulnerable households /population to be benefitted	Approx. no.:	
4.	No. of Families to be benefitted	Approx. no.:	
5.	What is the current mode of information dissemination in the area with respect to flood, relief		
6.	How do the communities want to be engaged by the project • Consultations regularly • Advertisements • Over phone/email • Through village level workers Through Gaon burah		
7.	What is the level of frequency of such meetings/consultations desired by the community		
8.	What is the type of information that they are desiring or are likely to request		
9.	Who are the stakeholders normally involved in flood relief works (e.g., Gaon Bura, block administration, Asha workers)		

This Screening sheet must be completed for each of the proposed subproject by respective social team and forwarded to the Social Specialist in PMU along with the following enclosures.
(**Enclosures**: Land details for the project sites, location, survey numbers, extent available and required, land use classification, current use of the site, land ownership, alienation /acquisition status, as required along witha certificate giving availability of sites required for the project by the borrower.)

Will any preliminary consultations be held? If so, add what consultations were conducted?

Add details regarding what information about the project was conveyed?
Were females and disadvantaged groups consulted?
Provide some details at least. based on the preliminary survey and consultations who are the various stakeholders categorized by: i) Affected persons; ii) other interested persons and iii) disadvantaged and vulnerable groups.

Project Categorisation and Need for Safeguards Instruments, Oversight

Project Category	**□ Low □ Moderate □ Substantial □ High**
Key Reasons	
Safeguards Instruments Required	**□ *Detailed* ESIA and ESMP** **□ *ESA*** **□ *RAP***

Risk related to ESS2: Labour	□ ***Low, Moderate, Substantial or High***
ESS3: Resource Efficiency and Pollution Prevention	***Low, Moderate, Substantial or High***
ESS4: Community Health and Safety	□ ***Low, Moderate, Substantial or High***
ESS5: Land	□ ***Low, Moderate, Substantial or High***
ESS6: Biodiversity	□ ***Low, Moderate, Substantial or High***
ESS7: Tribals	□ ***Low, Moderate, Substantial or High***
ESS8: Cultural Heritage	□ ***Low, Moderate, Substantial or High***
ESS10; Stakeholder Engagement	□ ***Low, Moderate, Substantial or High***
GBV/SEAH	□ ***Low, Moderate, Substantial or High***
Occupational Health and Safety to Labour/Community	□ ***Low, Moderate, Substantial or High***
Schedule Area requirements	□ ***Requirement of Gram Sabha resolution*** ***Yes*** ***No***

Status	***Agency / Official***	***Name, Signature with Date and Seal***
Prepared by	Social Consultant	
Checked and Categorized as (low, moderate, substantial, high) by	Social Safeguards Specialist	
	PIU – ASDMA PIU WRD PMU – FREMAA	
Reviewed & accepted by	Deputy CEO	
	PMU	

Annex 7: ESMP – WRD Works – Assam Water Center Annex

1. Introduction

Given below are the Standard Environmental and Social Management Plan for the bid documents to be issued by WRD PIU, to the Contractors during bidding. This Standard ESMP is to be issued to the bidders and this will form a part of the contract documents. The successful Contractor will follow this Standard ESMP and develops a Contractor's Environmental and Social Management Plan (CESMP) after duly assessing the design, construction methods, machinery, plant, etc. Once the CESMP is prepared, the same will be submitted to PIU for approval. PMU will submit this CESMP to the Bank for review and approval before according its approval to the Contractor.

2. Standard Environmental and Social Management Plan

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
	ESS 1 and Overall E&S Related Aspects				
1	Design of Adequate water and sanitation facilities and Handing Over of as-built drawings to WRD	Lack of adequate facilities in the building	• The proposed buildings should be designed with adequate water supply and sanitation facilities. All the facilities should be designed with special attention to disabled people. • Design of building facilities to ensure water and energy-efficiency fixtures • The Contractor will prepare as-built drawings of the building and make these available to the WRD. The Contractor will hand over all equipment manufacturers' original user manuals, drawings, warranties, asset registers, etc., to WRD.	Contractor	PIU
2	Consent/ Permit/ Approval/ Compliance	Non-compliance to various Environmental/ social/ regulatory requirements pertaining to construction activities could lead to legal implications for WRD.	• All the Contractors need to obtain permissions for all construction activities, such as for establishing and operating concrete batching plants/ Workers Camps, PUCs, Labour licenses, surface water/ groundwater withdrawal permits, tree cutting permissions, etc.	Contractor	PIU
3	Contractor's ESMP (CESMP) Preparation and Implementation	Inadequate preparation and implementation of CESMP by the Contractor can leave environmental and social issues unattended	• Contract-specific CESMP should be prepared before civil/ construction work commences and approved by PIU and Bank. • The CESMP should take into account all the aspects given in this ESMP and include any site-specific, design-specific and construction-specific issues as well. • The contractor should deploy required number of Environmental, Social, Health and Safety (ESHS) staff on the site before the work starts. • The CESMP should have proper procedures for training of contractor's personnel, CESMP monitoring and reporting (externally & internally).	Contractor	PIU

S.No.	Environmental/ Social	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
			• CESMP shall be part of the contract document, once it is approved by PIU. • It is understood that the cost of implementing the CESMP is included in the contract.		
4	Joint Field Verification	All impacts related to the sub-project	The PMTC and the Contractor will carry out joint field verification of the CESMP. The efficacy of the mitigation measures suggested in the CESMP will be checked.	Contractor	PIU
5	Monitoring Environmental Conditions	Impacts due to poor implementation and monitoring	The contractor will undertake seasonal monitoring of air, water, and noise and soil quality through an approved testing agency. The parameters to be monitored, frequency and duration of monitoring, as well as the locations to be monitored, will be as per the Monitoring Plan prepared.	Contractor	PIU
	ESS2 – Related Aspects				
6	Labour Requirements	Impacts due to influx of labour, child labour, grievances, GBV, contagious diseases, Covid-19, etc.	The contractor will use unskilled labour drawn from local communities to avoid any additional stress on the existing facilities (medical services, power, water supply, etc.) Planning of labour camps, if required, needs to be done to ensure adequate water supply, sanitation and drainage etc., in conformity with the Labour Laws. No firewood is to be used for cooking in labour camps. Follow the LMP for all the employment, GRM, etc. related aspects.	Contractor	PIU
7	Infrastructure provisions at construction camps	Impact related to improper and unhygienic labour camps and management of wastes	The Contractor, during the progress of work will provide, erect and maintain necessary (temporary) living accommodation and ancillary facilities for labour to standards and scales approved by the PMTC. These facilities shall be provided within the precincts of every workplace, water flush latrines and urinals in an accessible place, and the accommodation, separately for each for gender, as per standards set by the Building and other Construction Workers (regulation of Employment and Conditions of Service) Act, 1996. If women are employed, separate latrines and urinals, screened from those for men (and marked in the vernacular) shall be provided. There shall be adequate supply of water, close to latrines and urinals. All temporary accommodation must be constructed and maintained in such a fashion that uncontaminated water is available for drinking, cooking and washing. The sewage system for the camp must be designed, built and operated so that no health hazard occurs and no pollution to the air, ground or adjacent watercourses takes place. Compliance with the relevant legislation must be strictly adhered to. Garbage bins must be provided in the camp shall be regularly emptied and the garbage disposed of in a hygienic manner. Construction camps are to be sited at least 1000m away, or as permitted by PMTC, from the nearest habitation and adequate health care is to be provided for the work force.	Contractor	PIU

S.No.	Environmental/ Social	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
8	Precautionary/Safety Measures During Construction	Impacts due to unsafe working conditions	All relevant provisions of the Factories Act, 1948 and the Building and other Construction Workers (regulation of Employment and Conditions of Service) Act, 1996 will be adhered to. Adequate safety measures for workers during handling of materials at site will be taken up. The contractor has to comply with all regulations regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, trenches and safe means of entry and egress.	Contractor	PIU
9	Confirming statutory regulations	Impacts on unsafe acts, use of untrained workers and improper emergency procedures.	The contractor will take all necessary means to ensure that all works and all associated operations are carried out in conformity with regulations. All workers employed will be provided with protective footwear and other PPE as specified. Noise levels from all vehicles and equipment used for surfacing will conform to standards as specified. Construction activities involving equipments with highnoise levels will be restricted to the daytime. Transport of materials for construction will be as specified. The contractor will provide for all safety measures during construction as per regulations in force.	Contractor	PIU
10	Safety practices during construction	Impacts of unsafe practices and untrained workers	The Contractor is required to comply with all the precautions required for the safety of the workers as per the International Labour Organisation (ILO) Convention No. 62 as far as those are applicable to each contract. The contractor will supply all necessary safety appliances such as safety goggles, helmets, masks, shoes, gloves, jackets, etc., to the workers and staff. The contractor has to comply with all regulation regarding, working platforms, excavations, trenches and safe means of access and egress.	Contractor	PIU
11	Risk of accidents	Impacts on safety and health	In order to guarantee construction safety, efficient lighting and safety signs shall be installed during construction and adequate regulations shall be adopted and implemented.	Contractor	PIU
12	Precautionary measures and remedial measures	Impacts on unsafe acts, use of untrained workers and improper emergency procedures.	The contractor will take all necessary measures/ precautions to ensure that the execution of works and all associated operations are carried out in conformity with statutory and regulatory environmental requirements. The contractor will plan and provide for remedial measures to be implemented in event of occurrence of emergencies such as spillage of oil or chemicals. The contractor will provide the PIU with a statement of measures that he intends to implement in event of such an emergency, which will include a statement of how he intends to adequately train personnel to implement such measures. Adequate safety measures for workers during handling of materials at site will be taken up. The contractor will take every precaution to reduce the level of dust along construction sites by frequent application of water as per regulations. Noise levels	Contractor	PIU

S.No.	Environmental/ Social	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
			from all vehicles and equipment used for construction will conform to standards as specified. Construction activities involving equipments with high noise levels will be restricted to the daytime. Transport of materials for construction will be as specified. The contractor will provide for all safety measures during construction as per regulations in force.		
	ESS3 – Related Aspects				
13	Feasibility and Resource Requirements	Impacts on natural resources	The PMTC will inspect the site and designs before start of any bidding process and advice on the adequacy and modification required to the designs.	PIU	PIU
14	Material sourcing (sand, borrow material and stone material) - Quarries	Impacts on water, soil, air and noise.	Procurement of construction material only from permitted sites and licensed / authorized quarries. Farm land and forest belts shall not be used for material sourcing or borrow sites. Arable land shall not be selected as borrow sites as much as possible. If excavation has to be done in arable land, top soil layer (30 cm) shall be saved and returned after construction work is completed, so as to minimize impacts. The Contractor will identify materials from existing licensed quarries with the suitable materials for construction. Apart from approval of the quality of the quarry materials, the PMTC will verify the legal status of the quarry operations. The quarry operations will be undertaken within the rules and regulations in force.	Contractor	PIU
15	Stripping, stocking and preservation of top soil	Construction	The topsoil from borrow areas, areas of cutting and areas to be permanently covered will be stripped to a specified depth of 150mm and stored in stockpiles. At least 10% of the temporarily acquired area will be earmarked for storing topsoil. The stockpile will be designed such that the slope does not exceed 1:2 (vertical to horizontal), and the height of the pile is to be restricted to 2m. Stockpiles will not be surcharged or otherwise loaded and multiple handling will be kept to a minimum to ensure that no compaction will occur. The stockpiles will be covered with gunny bags or tarpaulin. It will be ensured by the contractor that the topsoil will not be unnecessarily trafficked either before stripping or when in stockpiles. Such stockpiled topsoil will be returned to cover the disturbed area and cut slopes. The management of topsoil shall be reported regularly to the PMTC.	Contractor	PIU
16	Earth work Excavations	Impacts on water, soil, air and noise.	Ensure unobstructed natural drainage through proper drainage channels/structures. Dispose surplus excavated earth at identified sites. Ensure minimum hindrance to normal local activities and business. Avoid damage to	Contractor	PIU

S.No.	Environmental/ Social	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
			permanent structures. All excavations will be done in such a manner that the suitable materials available from excavation are satisfactorily utilized as decided upon beforehand. The excavations shall conform to the lines, grades, side slopes and levels shown in the drawings or as directed by the PMTC. While planning or executing excavation the contractor shall take all adequate precautions against soil erosion, water pollution etc. and take appropriate drainage measures to keep the site free of water, through use of mulches, grasses, slope drains and other devices. The contractor shall take adequate protective measures to see that excavation operations do not affect or damage adjoining structures and water bodies. For safety precautions guidance may be taken from IS: 3764.		
17	Compaction of soil	Impacts on water, soil, air and drainage.	To minimize soil compaction construction vehicle, machinery and equipment will move or be stationed in designated area as applicable. The haul roads for construction materials should be routed to avoid agricultural areas.	Contractor	PIU
18	Contamination of soil	Impacts on water, soil, air and drainage.	Vehicle/machinery and equipment operation, maintenance and refuelling will be carried out in such a fashion that spillage of fuels and lubricants does not contaminate the ground. Oil interceptors will be provided for vehicle parking, wash down and refuelling areas within the construction camps. Fuel storage will be in proper bunded areas. All spills and collected petroleum products will be disposed off in accordance with MoEF and APCB guidelines. Fuel storage and refilling areas will be located at least 1000m from rivers and irrigation ponds or as directed by the Client. In all fuel storage and refuelling areas, if located on agricultural land or areas supporting vegetation, the topsoil will be stripped, stockpiled and returned after cessation of such storage and refuelling activities.	Contractor	PIU
19	Water	Impacts on water, soil, air and noise.	The Contractor will be responsible for arranging adequate supply of water for the entire construction period. The contractor shall consult the local people before finalizing the locations. The contractor will preferentially source all water requirements from surface water bodies. The contractor will be allowed to pump only from the surface water bodies. Boring of any tube wells will be prohibited. Any groundwater to be extracted requires permission from Department of Mines and Geology. The contractor will minimize wastage of water during construction.	Contractor	PMTC PIU
20	Drainage requirements at construction sites	Impacts on water, soil, and drainage.	In addition to the design requirements, the contractor will take all desired measures as directed by the PMTC such measures to prevent temporary or permanent flooding of the site or any adjacent area.	Contractor	PIU

S.No.	Environmental/ Social	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
21	Silting, Contamination of Water Bodies	Impacts on water, soil, air and drainage.	Silt fencing will be provided around stockpiles at the construction sites close to water bodies. The fencing needs to be provided prior to the commencement of earthworks and continue till the stabilization of the embankment slopes, on the particular sub-section of the sub-project. Construction materials containing fine particles will be stored in an enclosure such that sediment-laden water does not drain into nearby watercourses. All discharge standards promulgated under Environmental Protection Act, 1986, will be adhered to. All liquid wastes generated from the site will be disposed off as acceptable to the PMTC.	Contractor	PIU
22	Procurement of Plant and Equipment (such as Diesel Generators, Concrete Mixing Plant, etc.)	Inadequate implementation of CESMP by Contractor	• The Contractor should follow all stipulated regulation for pollution control as suggested in ESMF and as per any other legal requirements. • No installation by the Contractor will be allowed to establish/ operate till all the required legal clearances are obtained from the competent authorities. • All plant and equipment should conform to the latest noise and emission standards. • PUC certificates for all vehicles and machinery shall be made available for verification whenever required.	Contractor	PIU
23	Crushers, Batching Plants, etc.	Impacts on water, soil, air and noise.	Specifications of batching plants (existing or new) will comply with the requirements of the relevant national and APCB requirements. Batching plants will be sited sufficiently away from habitations, agricultural operations or industrial establishments. Such plants will be located at least 1000m away from the nearest habitation, preferably in the downwind direction.	Contractor	PIU
24	Other Construction Vehicles, Equipment and Machinery	Impacts on water, soil, air and noise.	The discharge standards promulgated under the Environment Protection Act, 1986 will be strictly adhered to. All vehicles, equipment and machinery to be procured for construction will conform to the relevant Bureau of Indian Standard (BIS) norms. Noise limits for construction equipment to be procured such ascompactors, rollers, front loaders, concrete mixers, cranes (moveable), vibrators and saws will not exceed 75 dB (A), measured at one meter from the edge of the equipment in free field, as specified in the Environment (Protection) Rules, 1986.	Contractor	PIU
25	Operation of construction equipment and vehicles	Impacts on water, soil, air and noise.	All vehicles and equipment used for construction will be fitted with exhaust silencers. During routine servicing operations, the effectiveness of exhaust silencers will be checked and if found to be defective will be replaced. Noise limits for construction equipment used in this project (measured at one meter from the edge of the equipment in free field) such as compactors, rollers, front loaders, concrete mixers, cranes (moveable), vibrators and saws will not exceed 75 dB(A), as specified in the Environment (Protection) Rules, 1986	Contractor	PIU

S.No.	Environmental/ Social	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
			Notwithstanding any other conditions of contract, noise level from any item of plant(s) must comply with the relevant legislation for levels of noise emission. The contractor will ensure that the AAQ concentrations at these construction sites are within the acceptable limits of industrial uses in case of batching plants and crushers and residential uses around construction camps. Dust screening vegetation will be planted where required. Monitoring of the exhaust gases and noise levels will be carried out by the agency identified for Environmental Monitoring for the project.		
26	Generation of Debris	Management of debris and waste from construction activities	Debris generated due to the dismantling of the existing structures shall be suitably reused in the proposed construction, subject to the suitability of the material and the approval by PMTC. The contractor shall suitably dispose off unutilized debris material; either through filling up of borrows areas created for the project or at pre-designated dump locations, subject to the approval of the PMTC. Debris generated from pile driving or other construction activities shall be disposed such that it does not flow into the surface water bodies or form mud puddles in the area. Dumping sites shall be identified by the contractor as per regulations in force. The identified locations will be reported to the PMTC and got approved.	Contractor	PIU
27	Debris disposal site identification	Impacts on land use change, drainage pattern, leaching of disposed waste, contamination of water and soil, etc.	Sites for temporary storage and disposal of debris refuse to be identified. These disposal sites shall be finalized such that they are not located within any designated forest or other eco-sensitive areas, do not impact natural drainage courses and no endangered / rare flora is impacted by such disposal. Pre- designated sites for disposal by contractors could be used with prior permission from PIU, after an assessment of site by PMTC.	Contractor	PIU
28	Construction wastes disposal	Impacts on water, soil, air and noise.	Location of disposal sites will be finalized prior to completion of the earthworks on any particular sub-project. The Client shall approve these disposal sites conforming to the following (a) These are not located within designated forest areas. (b) The dumping does not impact natural drainage courses (c) No endangered/rare flora is impacted by such dumping. (d) Settlements are located at least 1.0km away from the site. (e) Not located 1 Km within any mangrove vegetation/ecologically sensitive areas.	Contractor	PMTC PIU
29	Transporting Construction Materials	Impacts of dust, air and noise.	All vehicles delivering materials to the site will be covered to avoid spillage of materials. All existing highways and roads used by vehicles of the contractor, or any of the sub -contractor or suppliers of materials or plant and similarly roads which are part of the works will be kept clean and clear of all dust/mud or other extraneous materials dropped by such vehicles. The unloading of materials at construction sites close to settlements will be restricted to daytime only.	Contractor	PIU

S.No.	Environmental/ Social	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
30	Material Handling at Site	Impacts on water, soil, air and noise.	All workers employed on mixing concrete material, cement, lime mortars, concrete etc., will be provided with protective footwear and protective goggles. Workers, who are engaged in welding works, would be provided with welder's protective eye-shields. Workers engaged in stone breaking activities will be provided with protective goggles and clothing and will be seated at sufficiently safe intervals. The use of any herbicide or other toxic chemical will be strictly in accordance with the manufacturer's instructions. The PMTC will be given at least 6 working day's notice of the proposed use of any herbicide or toxic chemical. A register of all herbicides and other toxic chemicals delivered to the site will be kept and maintained up to date by the Contractor. The register will include the trade name, physical properties and characteristics, chemical ingredients, health and safety hazard information, safe handling and storage procedures, and emergency and first aid procedures for the product. No person below the age of 18 years will be employed on the work of painting with products containing lead in any form. No paint containing lead or lead products will be used. Paints with low VOCs will be used. Face masks will be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scrapped.	Contractor	PIU
31	Clearing of Construction of Camps & Restoration	Impacts on Air, Water, Soil and Noise, and debris and waste management.	Contractor to prepare site restoration plans for approval by the PMTC. The plan is to be implemented by the contractor prior to demobilization. On completion of the works, all temporary structures will be cleared away, all rubbish burnt, excreta or other disposal pits or trenches filled in and effectively sealed off andthe site left clean and tidy, at the Contractor's expense, to the entire satisfaction of the Client. Residual topsoil will be distributed on adjoining/proximate barren/rocky areas as identified by the Client in a layer of thickness of 75mm - 150mm.	Contractor	PIU
	ESS4 – Related Aspects				
32	Gender Issues	• Gender related data, benefits to female community members, awareness on gender, reduction in GBV, etc.	• Each of the sub-project reports will have gender disaggregated data. • The PIU will ensure that all contractors will endeavour employing women workers. All contractors maintain labour registers to record worker data.	Contractor	PIU

S.No.	Environmental/ Social	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
33	Social disruptions	Impacts due to inconvenience, nuisance, grievances, etc.	Minimise interruptions to utility services through proper planning and scheduling of activities and inter-departmental co-ordination. Construction of temporary road/access and diversion of traffic.	Contractor	PIU
34	Aesthetic impairment	Impacts of visually unpleasant working conditions	Aesthetic enhancement through proper housekeeping of construction sites. Disposal of construction wastes at the approved disposal sites. Immediate closure of the trenches after pipe laying/ completion of work. Complete construction activity by removing all temporary structures, restoring the sub-project and surrounding areas as near as possible to the pre-construction condition.	Contractor	PIU
35	Dust contamination at construction sites and along the roads	Impacts due to dust	Unpaved haul roads near/passing through residential and commercial areas to be watered thrice a day. Trucks carrying construction material to be adequately covered. All earthwork will be protected in a manner acceptable to the Client to minimise generation of dust. The contractor will take every precaution to reduce the level of dust along construction sites involving earthworks, by frequent application of water.	Contractor	PIU
36	Mitigation Measures for Noise Sensitive Receptors	Noise related impacts on sensitive receptors	Noisy construction operations in residential and sensitive areas (hospitals, schools and religious places) should be restricted between 7.30 a.m. to 6.00 p.m. Preventive maintenance of construction equipment, and vehicles would be done to meet emission standards and to keep them with low noise. Provision of ear plugs to operators of heavy machinery and workers in near vicinity. During night, material transport should be uniformly distributed to minimize noise impacts.	Contractor	PIU
	ESS5 – Related Aspects				
	ESS6 – Related Aspects				
39	Site clearance	Impacts on biodiversity, loss of top soil, etc.	Site clearance will be done only in the area required for the sub-project. Top soil will be preserved and reused for plantations.	Contractor	PIU
40	Tree Cutting	Impacts on biodiversity, loss of top soil, etc.	Trees will generally not be removed unless they are a safety hazard. Removal of trees shall be done only after the permissions / approvals are obtained. Disposal of cut trees is to be done immediately to ensure that the cut trees do not obstruct movement and become safety hazard.	Contractor	PIU
41	Tree plantation	Impacts on biodiversity	Trees felled will be replaced as per the compensatory afforestation criteria in accordance with the Forest (Conservation) Act, 1980. Two trees will be planted for every tree lost in locations to be identified with support from the PIU.	Contractor	PIU
	ESS8 – Related Aspects				

S.No.	Environmental/ Social	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
43	Cultural relics / Chance finds	Impacts on cultural and religious sites	If fossils, coins, articles of value or antiquity, structures, and their remains of geologic or archaeological interest are found, local government shall be immediately informed of such discovery and excavation shall be stopped until identification of cultural relics by the authorized institution and clearance is given for proceeding with work. All the above discovered on site shall be the property of the Government, and shall be dealt with as per provisions of the relevant legislation. The contractor shall take reasonable precaution to prevent his workmen or any other persons from removing and damaging any such article or thing. He shall, immediately upon discovery thereof and before removal acquaint the Client of such discovery and carry out the Client's instructions for dealing with the same, waiting which all work shall be stopped. The Client shall seek direction from the Archaeological Society of India (ASI) before instructing the Contractor to recommence work on the site.	Contractor	PIU
44	Orientation of implementing agency and contractors	Impacts due untrained/ ill trained workers.	The PMTC shall organize orientation sessions during all stages of the project. The orientation session shall involve all staff of client and field level implementation staff of Contractor and all consultants.	PMTC	PIU PMU

3. Environmental Monitoring Plan

S. No.	Environmental Attributes	Monitoring Parameters	Frequency of Monitoring	Sampling Locations	Implementation Responsibility	Monitoring Responsibility
1	Ambient Air Quality	Measurement of PM_{10},$PM_{2.5}$,SO_x,NO_x, CO	Baseline Every Quarter	Within the site (1 sample at every work location)	Contractor	PIU
2	Ambient Noise Quality	Measurement of Noise Pressure Level in dB(A)	Every Month	Within the site (1 sample at every work location)	Contractor	PIU
3	Soil Quality	Physico-chemical parameters monitored for baseline data collection viz., pH, SAR, Water holding capacity, Conductivity, Organic Carbon, NPK, etc.	Baseline Every Six months	Within the site (1 sample at every work location)	Contractor	PIU
4	Water Resources	Physico-chemical parameters monitored for Surface and Groundwater's baseline data collection (IS10500parameters) Water meter readings to be maintained on daily basis	Baseline Every Six months	A. Groundwater Within the site (1 sample at every work location)	Contractor	PIU

5	Waste	Waste inventory for both hazardous and non- hazardous waste, Waste Labelling, storage and disposal records Visual inspection for pilling/ leakages in the waste storage area	Weekly	Workers Camps Storage Areas/ Yards	Contractor	PIU
6	Ecological	Visual inspection of the site area for death or injury of any higher faunal species due to electrocaution, habitat disturbances due to project activities. Inspection of site area for any spillage of waste materials and possibility of their mixing into natural water resources.	Weekly	Within the site In the project influence area	Contractor	PIU

The attributes to be tested only when the screening/ assessment identifies them as being impacted.

4. Social, Health and Safety Monitoring Plan

S. No.	Social Attributes	Monitoring Parameters/ Source of Information	Frequency of Monitoring	Sampling Locations (as applicable)	Implementation Responsibility	Monitoring Responsibility
1	Health and Safety Risks	• Sanitation status of Onsite, Workers Camps and Office buildings • Potability water as per BIS drinking water standards 10500:2012 • Usage of adequate PPEs • Adequate Health and Safety Training to workers • Fire Safety measures on site • Incident/ Accident Records • Permit to Work Records • Labour Records • Vehicle Log Books • Covid-19 SoP	Weekly	Onsite work locations Workers Camps Office Buildings	Contractor	PIU

5. Compliance with ESMP

The Project has prepared Environmental and Social Management Framework (ESMF) and this Standard Environmental and Social Management Plan. The Contractors needs to follow and comply with the provisions of this ESMF (including the LMP, etc.) and this ESMP, which are developed to mitigate the risks and impacts identified during impact assessment, and prepare a Contractor's Environmental and Social Management Plan (CESMP) for each contract awarded. Penalty clauses for not complying with ESMP requirements proposed in the project are presented below:

The Contractor shall implement all mitigation/ management measures. Any lapse in implementing the same will attract the penalty as detailed below:

- All Non-Compliances in obtaining clearances/ permissions under statutory requirements and violations of any regulations with regard to eco-sensitive areas shall be treated as a major lapse
- Any complaints of public, within the scope of the Contractor, formally registered with the PIU communicated to the Contractor, which are not properly addressed within the time period intimated by the PIU shall be treated as a major lapse.
- Non-conformity to any of the mitigation/ management measures stipulated in the ESMP/ CESMP shall be considered as a minor lapse.
- On observing any such lapses, PIU shall issue a notice to the Contractor, to rectify the same.
- Any minor lapse for which notice was issued and not rectified, first and second reminders shall be given after ten days from the original notice date and first reminder date respectively. Any minor lapse, which is not rectified, shall be treated as a major lapse from the date of issuing the second reminder.
- If a major lapse is not rectified upon receiving the notice, PIU shall invoke deduction in the subsequent interim payment.
- For any non-compliance with regard to major lapses, 10% of the interim payment will be withheld, subject to a maximum amount 5% of the contract value.
- If the lapses are not rectified within one month or as specified by the PIU, the amount withheld will be forfeited subject to a maximum of 1% of the contract value.

Annex 8: ESMP – ASDMA – Flood Shelters

1. Introduction

Given below are the Standard Environmental and Social Management Plan for the bid documents to be issued by ASDMA PIU, to the Contractors during bidding. This Standard ESMP is to be issued to the bidders, and this will form a part of the contract documents. The successful Contractor will follow this Standard ESMP and develops a Contractor's Environmental and Social Management Plan (CESMP) after duly assessing the design, construction methods, machinery, plant, etc. Once the CESMP is prepared, the same will be submitted to PIU for approval. PMU will submit this CESMP to the Bank for review and approval before according its approval to the Contractor. Design Management and Supervision Consultant (DMSC) and PIUs will be responsible for supervising the ESMP Implementation.

2. Standard Environmental and Social Management Plan

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
	ESS 1 and Overall E&S Related Aspects				
1	Design of adequate facilities in the flood shelters	Lack of adequate management of shelter facilities, such as water supply, toilets, waste and wastewater management, universal access, etc.	The proposed buildings should be designed with an adequate water supply and toilet facilities. All the facilities should be designed with special attention to disabled and elderly people. Design of building facilities to ensure water and energy-efficiency fixtures Design of wastewater treatment through septic tanks.	DMSC	PIU
2	Consent/ Permit/ Approval/ Compliance	Non-compliance to various Environmental/ social/ regulatory requirements pertaining to construction activities could lead to legal implications for ASDMA.	• All the Contractors need to obtain permissions for all construction activities, such as for establishing and operating concrete batching plants/ Workers Camps, PUCs, Labour licenses, surface water/ groundwater withdrawal permits, tree cutting permissions, etc.	Contractor	DMSC PIU
3	Contractor's ESMP (CESMP) Preparation and Implementation	Inadequate preparation and implementation of CESMP by Contractor can leave environmental and social issues	• Contract specific CESMP should be prepared before civil/ construction work commences and approved by PIU and Bank. • The CESMP should take into account all the aspects given in this ESMP and include any site-specific, design-specific and construction-specific issues as well. • The contractor should deploy the required number of Environmental, Social, Health and Safety (ESHS) staff on the site before the work starts.	Contractor	DMSC PIU

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
		unattended	• The CESMP should have proper procedures for training contractor's personnel, CESMP monitoring and reporting (externally & internally). • CESMP shall be part of the contract document once it is approved by PIU. • It is understood that the cost of implementing the CESMP is included in the contract.		
4	Joint Field Verification	All impacts related to the sub-project	The DMSC and the Contractor will carry out joint field verification of the CESMP. The efficacy of the mitigation measures suggested in the CESMP will be checked.	DMSC with contractor	PIU
5	Monitoring Environmental Conditions	Impacts due to poor implementation and monitoring	The contractor will undertake seasonal monitoring of air, water, and noise and soil quality through an approved testing agency. The parameters to be monitored, frequency and duration of monitoring, as well as the locations to be monitored, will be as per the Monitoring Plan prepared.	Contractor	DMSC PIU
6	Orientation of implementing agency and contractors	Impacts due to untrained/ ill-trained workers.	The DMSC and PMTC shall organize orientation sessions during all stages of the project. The orientation session shall involve all staff of client and field level implementation staff of the Contractor and all consultants.	DMSC	PIU
7	Consultations with communities	Impacts due to Inadequate participation and ill informed communities	The PIUs along with their local staff will conduct consultations with communities as specified in the SEP.	PIU	PMU
	ESS2 – Related Aspects				
8	Labour Requirements	Impacts due to influx of labour, child labour, grievances, GBV, contagious diseases, Covid-19, etc.	The contractor will use unskilled labour drawn from local communities to avoid any additional stress on the existing facilities (medical services, power, water supply, etc.) Planning of labour camps, if required, needs to be done to ensure adequate water supply, sanitation and drainage etc., in conformity with the Labour Laws. No firewood is to be used for cooking in labour camps.	Contractor	PIU
9	Infrastructure provisions at construction camps	Impact related to improper and unhygienic labour camps and management of wastes	The Contractor, during the progress of work will provide, erect and maintain necessary (temporary) living accommodation and ancillary facilities for labour to standards and scales approved by the DMSC. These facilities shall be provided within the precincts of every workplace, water flush latrines and urinals in an accessible place, and the accommodation, separately for each for gender, as per standards set by the Building and other Construction Workers (regulation of Employment and Conditions of Service) Act, 1996. If women are employed, separate latrines and urinals, screened from those for men (and marked in the vernacular) shall be provided. There shall be an adequate supply of	Contractor	DMSC PIU

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
			water, close to latrines and urinals. All temporary accommodation must be constructed and maintained in such a fashion that uncontaminated water is available for drinking, cooking and washing. The sewage system for the camp must be designed, built and operated so that no health hazard occurs and no pollution to the air, ground or adjacent watercourses takes place. Compliance with the relevant legislation must be strictly adhered to. Garbage bins must be provided in the camp shall be regularly emptied and the garbage disposed of in a hygienic manner. Construction camps are to be sited at least 1000m away, or as permitted by DMSC, from the nearest habitation and adequate health care is to be provided for the work force.		
10	Precautionary/Safety Measures During Construction	Impacts due to unsafe working conditions	All relevant provisions of the Factories Act, 1948 and the Building and other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 will be adhered to. Adequate safety measures for workers during handling of materials at site will be taken up. The contractor has to comply with all regulations regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, trenches and safe means of entry and egress.	Contractor	DMSC PIU
11	Confirming to statutory regulations	Impacts on unsafe acts, use of untrained workers and improper emergency procedures.	The contractor will take all necessary means to ensure that all works and all associated operations are carried out in conformity with regulations. All workers employed will be provided with protective footwear and other PPE as specified. Noise levels from all vehicles and equipment used for surfacing will conform to standards as specified. Construction activities involving equipments with highnoise levels will be restricted to the daytime. Transport of materials for construction will be as specified. The contractor will provide for all safety measures during construction as per regulations in force.	Contractor	DMSC PIU
12	Safety practices during construction	Impacts of unsafe practices and untrained workers	The Contractor is required to comply with all the precautions as required for the safety of the workers as per the International Labour Organisation (ILO) Convention No. 62 as far as those are applicable to each contract. The contractor will supply all necessary safety appliances such as safety goggles, helmets, masks, shoes, gloves, jackets, etc., to the workers and staff. The contractor has to comply with all regulation regarding, working platforms, excavations, trenches and safe means of access and egress.	Contractor	DMSC PIU
13	Risk of accidents	Impacts on safety and health	In order to guarantee construction safety, efficient lighting and safety signs shall be installed during construction and adequate regulations shall be adopted and implemented.	Contractor	DMSC PIU

	ESS3 – Related Aspects				
14	Material sourcing (sand, borrow material and stone material) - Quarries	Impacts on water, soil, air and noise.	Procurement of construction material only from permitted sites and licensed / authorized quarries. Farm land and forest belts shall not be used for material sourcing or borrow sites. Arable land shall not be selected as borrow sites as much as possible. If excavation has to be done in arable land, top soil layer (30 cm) shall be saved and returned after construction work is completed, so as to minimize impacts. The Contractor will identify materials from existing licensed quarries with the suitable materials for construction. Apart from approval of the quality of the quarry materials, the DMSC will verify the legal status of the quarry operations. The quarry operations will be undertaken within the rules and regulations in force.	Contractor	DMSC PIU
15	Site clearance	Impacts on biodiversity, loss of top soil, etc.	Site clearance will be done only in the area required for the sub-project. Top soil will be preserved and reused for plantations.	Contractor	DMSC PIU
16	Stripping, stocking and preservation of top soil	Construction	The topsoil from borrow areas, areas of cutting and areas to be permanently covered will be stripped to a specified depth of 150mm and stored in stockpiles. At least 10% of the temporarily acquired area will be earmarked for storing topsoil. The stockpile will be designed such that the slope does not exceed 1:2 (vertical to horizontal), and the height of the pile is to be restricted to 2m. Stockpiles will not be surcharged or otherwise loaded and multiple handling will be kept to a minimum to ensure that no compaction will occur. The stockpiles will be covered with gunny bags or tarpaulin. It will be ensured by the contractor that the topsoil will not be unnecessarily trafficked either before stripping or when in stockpiles. Such stockpiled topsoil will be returned to cover the disturbed area and cut slopes. The management of topsoil shall be reported regularly to the DMSC.	Contractor	PMTC PIU
17	Earth work Excavations	Impacts on water, soil, air and noise.	Ensure unobstructed natural drainage through proper drainage channels/structures. Dispose surplus excavated earth at identified sites. Ensure minimum hindrance to normal local activities and business. Avoid damage to permanent structures. All excavations will be done in such a manner that the suitable materials available from excavation are satisfactorily utilized as decided upon beforehand. The excavations shall conform to the lines, grades, side slopes and levels shown in the drawings or as directed by the DMSC. While planning or executing excavation the contractor shall take all adequate	Contractor	DMSC PIU

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
			precautions against soil erosion, water pollution etc. and take appropriate drainage measures to keep the site free of water, through use of mulches, grasses, slope drains and other devices. The contractor shall take adequate protective measures to see that excavation operations do not affect or damage adjoining structures and water bodies. For safety precautions guidance may be taken from IS: 3764.		
18	Earth filling	Impacts on water, soil, air and noise.	Embankment and other fill areas, unless otherwise permitted by the DMSC, be constructed evenly over their full width and the contractor will control and direct movement of construction vehicles and machinery over them.	Contractor	DMSC PIU
19	Contamination of soil	Impacts on water, soil, air and drainage.	Vehicle/machinery and equipment operation, maintenance and refuelling will be carried out in such a fashion that spillage of fuels and lubricants does not contaminate the ground. Oil interceptors will be provided for vehicle parking, wash down and refuelling areas within the construction camps. Fuel storage will be in proper bunded areas. All spills and collected petroleum products will be disposed off in accordance with MoEF and APCB guidelines. Fuel storage and refilling areas will be located at least 1000m from rivers and irrigation ponds or as directed by the Client. In all fuel storage and refuelling areas, if located on agricultural land or areas supporting vegetation, the topsoil will be stripped, stockpiled and returned after cessation of such storage and refuelling activities.	Contractor	DMSC PIU
20	Compaction of soil	Impacts on water, soil, air and drainage.	To minimize soil compaction construction vehicle, machinery and equipment will move or be stationed in designated area as applicable. The haul roads for construction materials should be routed to avoid agricultural areas.	Contractor	DMSC PIU
21	Water	Impacts on water, soil, air and noise.	The Contractor will be responsible for arranging adequate supply of water for the entire construction period. The contractor shall consult the local people before finalizing the locations. The contractor will preferentially source all water requirements from surface water bodies. The contractor will be allowed to pump only from the surface water bodies. Boring of any tube wells will be prohibited. Any groundwater to be extracted requires permission from Department of Mines and Geology. The contractor will minimize wastage of water during construction.	Contractor	DMSC PIU
22	Silting, Contamination of Water bodies	Impacts on water, soil, air and drainage.	Silt fencing will be provided around stockpiles at the construction sites close to water bodies. The fencing needs to be provided prior to commencement of earthworks and continue till the stabilization of the embankment slopes, on the particular sub-section of the sub-project. Construction materials containing fine	Contractor	DMSC PIU

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
			particles will be stored in an enclosure such that sediment-laden water does not drain into nearby watercourses. All discharge standards promulgated under Environmental Protection Act, 1986, will be adhered to. All liquid wastes generated from the site will be disposed off as acceptable to the DMSC.		
23	Drainage requirements at construction sites	Impacts on water, soil, and drainage.	In addition to the design requirements, the contractor will take all desired measures as directed by the DMSC such measures to prevent temporary or permanent flooding of the site or any adjacent area.	Contractor	DMSC PIU
24	Debris disposal site identification	Impacts on land use change, drainage pattern, leaching of disposed waste, contamination of water and soil, etc.	Sites for temporary storage and disposal of debris refuse to be identified. These disposal sites shall be finalized such that they are not located within any designated forest or other eco-sensitive areas, does not impact natural drainage courses and no endangered / rare flora is impacted by such disposal. Pre-designated sites for disposal by contractors could be used with prior permission from PIU, after an assessment of site by DMSC.	Contractor	DMSC PIU
25	Establishment of Crushers, Batching Plants, etc.	Impacts on water, soil, air and noise.	Specifications of batching plants (existing or new) will comply with the requirements of the relevant national and APCB requirements. Batching plants will be sited sufficiently away from habitations, agricultural operations or industrial establishments. Such plants will be located at least 1000m away from the nearest habitation, preferably in the downwind direction.	Contractor	DMSC PIU
26	Procurement of Plant and Equipment (such as Diesel Generators, Concrete Mixing Plant, etc.)	Inadequate implementation of CESMP by Contractor	• The Contractor should follow all stipulated regulation for pollution control as suggested in ESMF and as per any other legal requirements. • No installation by the Contractor will be allowed to establish/ operate till all the required legal clearances are obtained from the competent authorities. • All plant and equipment should conform to the latest noise and emission standards. • PUC certificates for all vehicles and machinery shall be made available for verification whenever required.	Contractor	DMSC PIU
27	Other Construction Vehicles, Equipment and Machinery	Impacts on water, soil, air and noise.	The discharge standards promulgated under the Environment Protection Act, 1986 will be strictly adhered to. All vehicles, equipment and machinery to be procured for construction will conform to the relevant Bureau of Indian Standard (BIS) norms. Noise limits for construction equipment to be procured such as compactors, rollers, front loaders, concrete mixers, cranes (moveable), vibrators and saws will not exceed 75 dB (A), measured at one meter from the edge of the equipment in free field, as specified in the Environment (Protection) Rules, 1986.	Contractor	DMSC PIU

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
28	Operation of construction equipment and vehicles	Impacts on water, soil, air and noise.	All vehicles and equipment used for construction will be fitted with exhaust silencers. During routine servicing operations, the effectiveness of exhaust silencers will be checked and if found to be defective will be replaced. Noise limits for construction equipment used in this project (measured at one meter from the edge of the equipment in free field) such as compactors, rollers, front loaders, concrete mixers, cranes (moveable), vibrators and saws will not exceed 75 dB(A), as specified in the Environment (Protection) Rules, 1986 Notwithstanding any other conditions of contract, noise level from any item of plant(s) must comply with the relevant legislation for levels of noise emission. The contractor will ensure that the AAQ concentrations at these construction sites are within the acceptable limits of industrial uses in case of batching plants and crushers and residential uses around construction camps. Dust screening vegetation will be planted where required. Monitoring of the exhaust gases and noise levels will be carried out by the agency identified for Environmental Monitoring for the project.	Contractor	DMSC PIU
29	Generation of Debris	Management of debris and waste from construction activities	Debris generated due to the dismantling of the existing structures shall be suitably reused in the proposed construction, subject to the suitability of the material and the approval by DMSC. The contractor shall suitably dispose off unutilized debris material; either through filling up of borrows areas created for the project or at pre-designated dump locations, subject to the approval of the PMTC. Debris generated from pile driving or other construction activities shall be disposed such that it does not flow into the surface water bodies or form mud puddles in the area. Dumping sites shall be identified by the contractor as per regulations in force. The identified locations will be reported to the PMTC and got approved.	Contractor	DMSC PIU
30	Construction wastes disposal	Impacts on water, soil, air and noise.	Location of disposal sites will be finalized prior to completion of the earthworks on any particular sub-project. The Client shall approve these disposal sites conforming to the following (a) These are not located within designated forest areas. (b) The dumping does not impact natural drainage courses (c) No endangered/rare flora is impacted by such dumping. (d) Settlements are located at least 1.0km away from the site. (e) Not located 1 Km within any mangrove vegetation/ecologically sensitive areas.	Contractor	PIU
31	Transporting Construction Materials	Impacts of dust, air and noise.	All vehicles delivering materials to the site will be covered to avoid spillage of materials. All existing highways and roads used by vehicles of the contractor, or any of the sub -contractor or suppliers of materials or plant and similarly roads which are part of the works will be kept clean and clear of all dust/mud or other extraneous materials dropped by such vehicles. The unloading of materials at construction sites close to settlements will be restricted to	Contractor	DMSC PIU

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
			daytime only.		
32	Material Handling at Site	Impacts on water, soil, air and noise.	All workers employed on mixing concrete material, cement, lime mortars, concrete etc., will be provided with protective footwear and protective goggles. Workers, who are engaged in welding works, would be provided with welder's protective eye-shields. Workers engaged in stone breaking activities will be provided with protective goggles and clothing and will be seated at sufficiently safe intervals. The use of any herbicide or other toxic chemical will be strictly in accordance with the manufacturer's instructions. The DMSC will be given at least 6 working day's notice of the proposed use of any herbicide or toxic chemical. A register of all herbicides and other toxic chemicals delivered to the site will be kept and maintained up to date by the Contractor. The register will include the trade name, physical properties and characteristics, chemical ingredients, health and safety hazard information, safe handling and storage procedures, and emergency and first aid procedures for the product. No person below the age of 18 years will be employed on the work of painting with products containing lead in any form. No paint containing lead or lead products will be used. Paints with low VOCs will be used. Face masks will be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scrapped.	Contractor	DMSC PIU
	ESS4 – Related Aspects				
33	Gender Issues	• Gender related data, benefits to female community members, awareness on gender, reduction in GBV, etc.	• Each of the sub-project reports will have gender disaggregated data. • The PIU will ensure that all contractors will endeavour employing women workers. All contractors maintain labour registers to record worker data. • The GAP will be implemented by PIU	Contractor	DMSC PIU
34	Dust contamination at construction sites and along the roads	Impacts due to dust	Unpaved haul roads near/passing through residential and commercial areas to be watered thrice a day. Trucks carrying construction material to be adequately covered. All earthwork will be protected in a manner acceptable to the Client to minimise generation of dust. The contractor will take every precaution to reduce the level of dust along construction sites involving earthworks, by frequent application of water.	Contractor	DMSC PIU

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
35	Precautionary measures and remedial measures	Impacts on unsafe acts, use of untrained workers and improper emergency procedures.	The contractor will take all necessary measures/ precautions to ensure that the execution of works and all associated operations are carried out in conformity with statutory and regulatory environmental requirements. The contractor will plan and provide for remedial measures to be implemented in event of occurrence of emergencies such as spillage of oil or chemicals. The contractor will provide the DMSC with a statement of measures that he intends to implement in event of such an emergency, which will include a statement of how he intends to adequately train personnel to implement such measures. Adequate safety measures for workers during handling of materials at site will be taken up. The contractor will take every precaution to reduce the level of dust along construction sites by frequent application of water as per regulations. Noise levels from all vehicles and equipment used for construction will conform to standards as specified. Construction activities involving equipments with high noise levels will be restricted to the daytime. Transport of materials for construction will be asspecified. The contractor will provide for all safety measures during construction as per regulations in force.	Contractor	DMSC PIU
36	Mitigation Measures for Noise Sensitive Receptors	Noise related impacts at sensitive receptors	Noisy construction operations in residential and sensitive areas (hospitals, schools and religious places) should be restricted between 7.30 a.m. to 6.00 p.m. Preventive maintenance of construction equipment and vehicles would be done to meet emission standards and to keep them with low noise. Provision of ear plugs to operators of heavy machinery and workers in near vicinity. During night, material transport should be uniformly distributed to minimize noise impacts.	Contractor	DMSC PIU
37	Social disruptions	Impacts due to inconvenience, nuisance, grievances, etc.	Minimise interruptions to utility services through proper planning and scheduling of activities and inter-departmental co-ordination. Construction of temporary road/access and diversion of traffic.	Contractor	DMSC PIU
38	Aesthetic impairment	Impacts of visually unpleasant working conditions	Aesthetic enhancement through proper housekeeping of construction sites. Disposal of construction wastes at the approved disposal sites. Immediate closure of the trenches after pipe laying/ completion of work. Complete construction activity by removing all temporary structures, restoring the sub-project and surrounding areas as near as possible to the pre-construction condition.	Contractor	DMSC PIU
39	Clearing of Construction of Camps & Restoration	Impacts on Air, Water, Soil and Noise, and debris	Contractor to prepare site restoration plans for approval by the DMSC. The plan is to be implemented by the contractor prior to demobilization. On completion of the works, all temporary structures will be cleared away, all rubbish burnt,	Contractor	DMSC PIU

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
		and waste management.	excreta or other disposal pits or trenches filled in and effectively sealed off andthe site left clean and tidy, at the Contractor's expense, to the entire satisfaction of the Client. Residual topsoil will be distributed on adjoining/proximate barren/rocky areas as identified by the Client in a layer of thickness of 75mm - 150mm.		
	ESS5 – Related Aspects				
	ESS6 – Related Aspects				
40	Biodiversity and Ecosystem Services	• Impacts arising from land-clearance, land leveling/ grading, installation of fencing/ compound and laying of internal access roads. • Degradation and fragmentation of existing natural scrub area. • Loss of or loss of access to fodder services for the local community.	• Enable or facilitate the conservation of the leftover scrub land, to the extent possible. • Conservation of the natural topography and drainage in and around the sub-Project Site • Minimization of number, length and width of internal access roads • Plantation of diverse native vegetation to compensate for that lost to unavoidable land-clearance at the sub-Project Site • Conservation of traditional land-use and natural habitat in and around sub-project	Contractor	DMSC PIU
41	Tree Cutting	Impacts on biodiversity, loss of top soil, etc.	Trees will generally not be removed unless they are a safety hazard. Removal of trees shall be done only after the permissions / approvals are obtained. Disposal of cut trees is to be done immediately to ensure that the cut trees do not obstruct movement and become safety hazard.	Contractor	DMSC PIU
42	Tree plantation	Impacts on biodiversity	Trees felled will be replaced as per the compensatory afforestation criteria in accordance with the Forest (Conservation) Act, 1980. Two trees will be planted for every tree lost in locations to be identified with support from the PIU.	Contractor	DMSC PIU
43	Handling of Natural Habitats, Biodiversity Issues and flora/fauna found in project sites	Impacts on flora and fauna	The Contractor shall train the workers to handle any accidental finds of important species of flora and/or flora and on the procedures to be followed to intimate the Forest Department, and client. No hunting will be done by the contractor's workers.	Contractor	DMSC PIU

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
	ESS7 – Related Aspects				
44	Awareness sessions with Tribal's	Impacts due to ill informed communities	The PIU with its district level staff will conduct awareness sessions about the project to the tribal's in the target communities and provide information on the Project, ESMF, IPPF, SEP, RPF, etc. and on opportunities for participation, etc.	PIU, DMSA	PMU
45	Consultation with Tribal's	Impacts due to inadequate participation of communities	The PIU with its district level staff will conduct consultations with the tribal's during the project cycle on an ongoing basis and seek their participation.	PIU, DMSA	PMU
46	FPIC with Tribal's	Impacts due to inadequate participation of communities	As per present information there are no adverse impacts on the tribal's. Hence, FPIC is not triggered. However, in case of any adverse impacts on Tribal consultations using FPIC will need to be conducted.	PIU, DMSA	PMU
	ESS8 – Related Aspects				
47	Impact on archeologically important sites	• Unrest among the community due to dislocation of any structure or thingof cultural belief	• No land will be acquired, hence no loss of land. • No restrictions on exercising customary rights and accessing resources, as these shelters will be built on government land free of encumbrances • No archeological site or historically/ culturally important sites within the sub-project area. If any such site is near the construction, then the PIU needs to get required permissions from the archeological department or change site.	Contractor/ PIU	DMSC
48	Protection of Religious Structures and Shrines	Impacts due damage to religious and cultural assets	All necessary and adequate care shall be taken to minimize impact on cultural properties (which includes cultural sites and remains, places of worship including temples, mosques, churches and shrines, etc., graveyards, monuments and any other important structures as identified during design and all properties/sites/remains notified under the Ancient Sites and Remains Act). No work shall spillover to these properties, premises and precincts. Access to such properties from the road shall be maintained clear and clean.	Contractor	DMSC PIU
49	Cultural relics / Chance finds	Impacts on cultural and religious sites	If fossils, coins, articles of value or antiquity, structures, and their remains of geologic or archaeological interest are found, local government shall be immediately informed of such discovery and excavation shall be stopped until identification of cultural relics by the authorized institution and clearance is given for proceeding with work. All the above discovered on site shall be the property of the Government, and shall be dealt with as per provisions of the relevant legislation. The contractor shall take reasonable precaution to prevent his workmen or any	Contractor	DMSC PIU

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
			other persons from removing and damaging any such article or thing. He shall, immediately upon discovery thereof and before removal acquaint the Client of such discovery and carry out the Client's instructions for dealing with the same, waiting which all work shall be stopped. The Client shall seek direction from the Archaeological Society of India (ASI) before instructing the Contractor to recommence work on the site.		

3. Environmental Monitoring Plan

S. No.	Environmental Attributes	Monitoring Parameters	Frequency of Monitoring	Sampling Locations	Implementation Responsibility	Monitoring Responsibility
1	Ambient Air Quality	Measurement of PM_{10}, $PM_{2.5}$, SO_x, NO_x, CO	Baseline and every quarter	Within the site (1 sample at every work location)	Contractor	DMSC PMTC
2	Ambient Noise Quality	Measurement of Noise Pressure Level in dB(A)	Every Month	Within the site (1 sample at every work location) Near receptor villages (1 sample from each receptor village)	Contractor	DMSC PMTC
3	Soil Quality	Physico-chemical parameters monitored for baseline data collection viz., pH, SAR, Water holding capacity, Conductivity, Organic Carbon, NPK, etc.	Baseline and Every Six months	Within the site (1 sample at every work location) Near receptor villages (1 sample from each receptor village)	Contractor	DMSC PMTC
4	Water Resources	Physico-chemical parameters monitored for Surface and Groundwater's baseline data collection (IS 10500 parameters) Water meter readings to be maintained on daily basis	Baseline and Every Six months	B. Groundwater Within the site (1 sample at every work location) Near receptor villages (1 sample from each receptor village) C. Surface Water At the existing surface water sources	Contractor	DMSC PMTC
5	Waste	Waste inventory for both hazardous and non-hazardous waste, Waste Labelling, storage and disposal records Visual inspection for spilling/ leakages in the waste storage area	Weekly	Workers Camps Storage Areas/ Yards	Contractor	DMSC PMTC
6	Ecological	Visual inspection of the site area for death or injury of any	Weekly	Within the site	Contractor	DMSC

		higher faunal species due to electrocution, habitat disturbances due to project activities. Inspection of site area for any spillage of waste materials and possibility of their mixing into natural water resources.		In the project influence area		PMTC

The attributes to be tested only when the screening/ assessment identifies them as being impacted.

4. Social, Health and Safety Monitoring Plan

S. No.	Social Attributes	Monitoring Parameters/ Source of Information	Frequency of Monitoring	Sampling Locations (as applicable)	Implementation Responsibility	Monitoring Responsibility
1	Health and Safety Risks	• Sanitation status of Onsite, Workers Camps and Office buildings • Potability water as per BIS drinking water standards 10500:2012 • Usage of adequate PPEs • Adequate Health and Safety Training to workers • Fire Safety measures on site • Incident/ Accident Records • Permit to Work Records • Labour Records • Vehicle Log Books • Covid-19 SoP	Weekly	Onsite work locations Workers Camps Office Buildings	Contractor	DMSC PMTC

5. Compliance with Generic ESMP

The Project has prepared Environmental and Social Management Framework (ESMF) and this Standard Environmental and Social Management Plan. The Contractors needs to follow and comply with the provisions of this ESMF (including the LMP, etc.) and this ESMP, which are developed to mitigate the risks and impacts identified during impact assessment, and prepare a Contractor's Environmental and Social Management Plan (CESMP) for each contract awarded. Penalty clauses for not complying with ESMP requirements proposed in the project are presented below:

The Contractor shall implement all mitigation/ management measures. Any lapse in implementing the same will attract the penalty as detailed below:

- All Non-Compliances in obtaining clearances/ permissions under statutory requirements and violations of any regulations with regard to eco-sensitive areas shall be treated as a major lapse
- Any complaints of public, within the scope of the Contractor, formally registered with the PIU/ PMTC/ DMSC communicated to the Contractor, which are not properly addressed within the time period intimated by the PIU/ PMTC/ DMSC shall be treated as a major lapse.
- Non-conformity to any of the mitigation/ management measures stipulated in the ESMP/ CESMP shall be considered as a minor lapse.
- On observing any such lapses, PIU/ DMSC shall issue a notice to the Contractor, to rectify the same.
- Any minor lapse for which notice was issued and not rectified, first and second reminders shall be given after ten days from the original notice date and first reminder date respectively. Any minor lapse, which is not rectified, shall be treated as a major lapse from the date of issuing the second reminder.
- If a major lapse is not rectified upon receiving the notice, PIU/ DMSC shall invoke deduction in the subsequent interim payment.
- For any non-compliance with regard to major lapses, 10% of the interim payment will be withheld, subject to a maximum amount 5% of the contract value.
- If the lapses are not rectified within one month or as specified by the PIU/PMTC/ DMSC, the amount withheld will be forfeited subject to maximum of 1% of contract value.

Annex 9: ESMP – ASDMA – Augmentation and Retrofitting of Existing Schools as Flood Shelters

1. Introduction

For the Augmentation of Schools to Flood Shelters for the bid documents to be issued by ASDMA PIU, to the Contractors during bidding, the Standard ESMP given under Annex 9: Flood Shelters need to be customized, with the addition of the mitigation measures given below: This Standard ESMP isto be issued to the bidders and this will form a part of the contract documents. The successful Contractor will follow this Standard ESMP and develops a Contractor's Environmental and Social Management Plan (CESMP) after duly assessing the design, construction methods, machinery, plant, etc. Once the CESMP is prepared, the same will be submitted to PIU for approval. PMU will submit this CESMP to the Bank for review and approval before according its approval to the Contractor. All the other measures remain same.

2. Standard Environmental and Social Management Plan – Additions

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
1	Environmental and Social Feasibility of the Augmentation proposal	Adequacy of school Structural Safety Augmentation requirements Feasibility of augmentation Environmental and Social risks and impacts	• After the school is selected for augmentation and before the bidding procedure starts, the DMSC (Design management and supervision consultancy)/ Consultant to be placed at ASDMA will inspect the existing school and prepare a detailed report on the a) adequacy of the schools as flood shelter, b) structural stability of the school for augmentation, c) augmentations and additions required, d) feasibility of converging the school into flood shelter, e) environmental and social risks and impacts involved in augmenting the school into flood shelter, etc. This report will be shared with PMU and Bank for review. • PIU will proceed with the augmentation only if the school is certified fit for augmentation by the DMSC.	DMSC	PIU
2	Asbestos containing materials, if used for the school	Removal and disposal of asbestos containing materials	• The contractor needs to engage an Asbestos certified sub-contractor for handling the Asbestos containing materials for removal, handling, transportation and disposal. • The contractor along with the said sub-contractor needs to submit a proposal for the removal, handling, transportation and disposal of the Asbestos containing materials to the PMTC/PIU and obtain PMTC's approval before commencement of work on Asbestos containing materials. • After the said sub-contractor's works the contractor needs to submit a report about the removal, handling, transportation and disposal of the Asbestos containing material to the PMTC/PIU.	Contractor	PMTC PIU DMSC
3	Safety of Staff, teachers, students and parents	Unauthorized entry can cause health and safety issues.	• Once the augmentation proposal is taken up and contract awarded, the PIU has to fix a date for handing over the school premises to the contractor for augmentation. • All the staff, teachers, students and parents should be informed in writing that the school will be closed for the entire duration of construction to avoid health and safety, GBV and trafficking impacts. • During augmentation, the school should be closed and no one, including all the staff, teachers, students and parents should be allowed into the premises during construction. Only the construction workers working with the contractors should be allowed into the premises. The premises should be completely barricaded from entry for others. • School Management committee (SMC) will be facilitated by the PIU to make alternative arrangements for running the school, so that the students will not lose study days and there is	PIU SMC	PIU PMU

S.No.	Environmental/ Social Regulatory Aspects	Impacts	Enhancement/ Mitigation/ Management Measures	Responsibility	
				Implementation	Monitoring
			no loss of academic year.		

Annex 10: GBV/SEA Risk Mitigation Framework

1. Understanding GBV & SEA

Gender-based violence (GBV) is violence directed against a person on the basis of gender. It constitutes a breach of the fundamental right to life, liberty, security, dignity, equality between women and men, non-discrimination, and physical and mental integrity that, non-discrimination, and physical and mental integrity. Sexual Exploitation and Abuse (SEA) is a form of GBV, defined as any actual or attempted abuse of a 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. Acts of SEA may involve actual or threatened violence or inducements such as protection, food, shelter, or the like, in exchange for sex.

2. The Context

Global Context: Violence against women and children takes many forms, including sexual, physical, emotional and economic abuse. It occurs in the home and on the streets and in times of peace and in conflict and crisis. Recent estimates by the World Health Organization indicate that 35 percent, or one in three women worldwide, have experienced some form of physical or sexual assault. GBV is an expression of gender inequality that prevents women and their families from escaping poverty drains public resources and impedes human development and economic productivity.

National Context: Women and girls in India today continue to experience multiple forms of violence, across multiple intersections, including of religion, caste, class, abilities and sexual orientation. In India, the global data on gender violence is complemented by the recently concluded NFHS-4 data (2015-2016) at the national level which shows that 30 percent of women have experienced physical violence since age 15, and 6 percent have ever experienced sexual violence in their lifetime. 33 percent of ever-married women have experienced physical, sexual, or emotional spousal violence. Despite this, only 14 percent of women who have experienced physical or sexual violence by anyone have sought help to stop the violence.

State Context: There are increasing instances of domestic violence, sexual assault/ harassment and even robbery in the state. As per NCRB 2016, Assam has reported the highest crime rate under Section 498A, "Cruelty by Husband or His Relatives" (58.7%).Women also report feeling unsafe in public spaces, further reducing their mobility. As per the study conducted by the Centre for Urban Equity, women in Guwahati listed general harassment by co-passengers, drivers or conductors (47%), eve-teasing (10%), and stalking (7%) as major constraints to the use of public transportation.

Assam is also a major source and transit point for human trafficking in India. As per the NCRB report of 2015, Assam (1,494 cases) accounted for 21.7% of all cases relating to human trafficking recorded across the country. Of the 3,087 cases under procuration of minor girls (Sec. 366A IPC), Assam accounted for 1,303 cases, with the highest crime rate (11.0) in the country (increased by 52.8% as compared to the previous year).

Table 1.Statistical Data of Project Districts:

*Project Districts	*Female Population	*Female Literacy (%)	*Sex Ratio	**Female work participation rate	**Female unemployment rate
Dibrugarh	80042	68.99	932	14.8	42.4
Sivasagar	38394	79.81	901	11.2	33.0

Golaghat	66131	71.09	953	11.1	37.7
Majuli	10738	70.62	961	*NA*	*NA*
Biswanath	43465	57.48	964	*NA*	*NA*
Barpeta	141052	58.06	959	8.9	23.8
Baksa	60374	61.27	942	6.0	48.4
Lakhimpur	76723	70.67	939	11.1	37.9
Tinsukia	89049	61.73	907	17.7	27.4

**Source: Statistical Handbook: Assam 2021*

***Source: Assam Human Development Report, 2014*

3. GBV in Major Infrastructure Projects

Large infrastructure projects often involve major civil works that require labour force and associated goods and services that cannot be fully met by local supply. In such cases, workers are often brought in from outside the project area.

Major civil works, which include construction, maintenance and/or upgrading of infrastructure, can exacerbate the risk of GBV in both public and private spaces by a range of perpetrators in a number of ways, for example:

1. Projects create changes in the communities in which they operate and can cause shifts in power dynamics between community members and within households. Male jealousy, a key driver of GBV, can be triggered by labour influx on a project when workers are believed to be interacting with community women. Hence, abusive behaviour can occur not only between project-related staff and those living in and around the project site, but also within the homes of those affected by the project.
2. Construction workers are predominantly younger males. Those who are away from home on the construction job are typically separated from their family and their normal sphere of social control. This can result is inappropriate behaviour, such as sexual harassment of women and girls and illicit sexual relations with minors from the local community.
3. When land redistribution occurs—for example due to resettlement for civil works—women may be extremely vulnerable to GBV. This is particularly true in countries where the legal systems preclude women from holding land titles.
4. Projects with a large influx of workers may increase the demand for sex work—even increase the risk for trafficking of women for the purposes of sex work—or the risk of forced early marriage in a community where marriage to an employed man is seen as the best livelihood strategy for an adolescent girl. Furthermore, higher wages for workers in a community can lead to an increase in transactional sex. The risk of incidents of sex between laborers and minors, even when it is not transactional, can also increase.
5. Women and girls' job opportunities are limited due to a lack of appropriate transportation options. When creating job opportunities for women within projects, teams should be aware that traveling to and from work in some settings can force women and girls to use unsafe, poorly lit commuter routes, or unsafe public transport. Increased risk of violence is experienced when women are confronted with traveling long distances to access work opportunities or forced to travel at night.
6. Increased interactions between the incoming workforce and the local community may result in increasing rates of communicable diseases, including sexually transmitted diseases and HIV/AIDS.

4. Legal and Policy Environment for Women's Safety

International Instruments: The international legal and policy framework establishes standards for action by countries to meet their legal obligations and policy commitments to address violence against women. Some of the key International instruments6 for the protection of women include:

- **United Nations General Assembly, Convention on the Elimination of All Forms of Discrimination against Women (CEDAW):** Under CEDAW, States ensure through competent national tribunals and other public institutions the effective protection of women against any act of discrimination and refrain from engaging in any practice of discrimination against women and to ensure that public authorities and institutions shall act in conformity with this obligation.

- **Fourth World Conference on Women, Beijing Declaration and Platform for *Action:*** The Platform for Action states that 'women may be vulnerable to violence perpetrated by persons in positions of authority in both conflict and non-conflict situations. Training of all officials in humanitarian and human rights law and the punishment of the perpetrators of violent acts against women would help to ensure that such violence does not take place at the hands of the public officials in whom women should be able to place trust, including police and prison officials and the security forces' (Para. 121).

- **United Nations General Assembly, Resolution 52/86 on Crime Prevention and Criminal Justice Measures to Eliminate Violence Against Women**

- **World Bank's Guidance note on Management of Labour Influx, 2016.** The document Provides guidelines to address issues and risks arising from influx of migrant labour leading to gender-based violence, forced labour etc.

National Instruments

- India has signed and ratified **Convention on Elimination of Discrimination against Women (CEDAW).** Since then, the national policy for Women 2016 and other policies and amendments on acts has been reflecting the principles highlighted in the related international conventions. The goal of this Policy is to bring about the advancement, development and empowerment of women.

- **The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013,** aims to prevent and provide redressal of complaints of sexual harassment. One of the main provisions in this act is that it calls for constituting an Internal Complaints Committee at each office or branch with 10 or more employees/workers.

One Stop Centres

Ministry of Women and Child Development (MWCD) has formulated a Centrally Sponsored Scheme for setting up One Stop Centres, a sub-scheme under the umbrella scheme for National Mission for Empowerment of Women including Indira Gandhi Mattritav Sahyaog Yojana. In line with the national guidelines, these Centres are established across the state to provide integrated support and assistance under one roof to women affected by violence, both in private and public spaces. These One Stop Centres are functional in the project districts[10] namely - Baksa, Barpeta, Biswanath, Dibrugarh, Golaghat, Lakhimpur, Majuli, Sivasagar and Tinsukia. This Sexual Harassment electronic

[10] https://wcd.nic.in/sites/default/files/OSC%20Directory_0.pdf

Box[11] (SHe-Box) is an effort of MWCD, GoI to provide a single window access to every woman, irrespective of her work status, whether working in organised or unorganised, private or public sector, to facilitate the registration of complaint related to sexual harassment. Any woman facing sexual harassment at workplace can register their complaint through this portal. Once a complaint is submitted to the 'SHe-Box', it will be directly sent to the concerned authority having jurisdiction to take action into the matter.

World Bank Good Practice Note

The World Bank Good Practice Note (GPN) provides a comprehensive understanding of the nature and kinds of GBV. The GPN establishes an approach to identifying risks of GBV, in particular sexual exploitation and abuse and sexual harassment that can emerge in major infrastructure projects with civil works contracts. The GPN builds on World Bank experience and good international industry practices, including those of other development partners.

The GPN is guided by several key principles reflected in the 2017 GBV Task Force Report:

1) **Be survivor-centered**: Approach considerations related to GBV prevention, mitigation and response through a survivor-centered lens, protecting the confidentiality of survivors, recognizing them as principle decision-makers in their own care and treating them with agency, dignity and respect for their needs and wishes.
2) **Emphasize prevention**: Adopt risk-based approaches that aim to identify key risks of GBV and to undertake measures to prevent or minimize harm.
3) **Build on existing local knowledge***:* Engage community partners—local leaders, civil society organizations, and gender and child advocates— as resources for knowledge on local level risks, effective protective factors and mechanisms for support throughout the project cycle.
4) **Be evidenced-based***:* Build on existing global research and knowledge on how to address GBV effectively.
5) **Be adaptable**: Operational guidance presented in this note provides the foundation for an effective GBV risk management approach; adapt and adjust mitigation measures to respond to the unique drivers and context in any given setting.
6) **Enable continuous monitoring and learning**: Ensure operations integrate mechanisms for regular monitoring and feedback to track effectiveness and to build internal knowledge of what works to prevent, mitigate and respond to GBV.

The GPN outlines the three Steps that need to be undertaken during project preparation and implementation as described below.

1. **Identify and assess** the risks of GBV during social assessments and include measures for their mitigation in project design. Ideally, this is done during project preparation, with the understanding that GBV risk assessment is a continuous process and should take place throughout the project life cycle as GBV can occur at any moment.
2. **Address** the risks during project implementation by identifying and implementing appropriate GBV risk mitigation and monitoring measures – that are commensurate to the risk level, on an ongoing basis
3. **Respond** to any identified GBV incidents, whether related to the project or not, ensuring that effective monitoring and evaluation mechanisms are in place to report on such incidents and to monitor follow up.

[11] http://www.shebox.nic.in/user/about_shebox

5. Assessment of GBV Risks

Existing reports and research materials at national and state level were reviewed for the assessment of area of impact and GBV risks. Consultation with the community was undertaken along with field visits to the proposed project sites as reported in the earlier sections.
The assessment of GBV risks vis-à-vis the area of impact is shown in the table below.
Table 2: GBV and risk assessment

SN	Area of Impact	Risk Assessment
1	Community women and girls in close vicinity to the project sites	▪ Increased interaction between the staff/workers and the communities can cause inappropriate behaviour, such as sexual harassment of women and girls and illicit sexual relations with minors from the local community. ▪ It may also increase rates of communicable diseases, including sexually transmitted diseases and HIV/AIDS. ▪ The movement of transport vehicles through the residential areas in the villages and towns could make the public places (like markets, schools, playgrounds, access roads etc.) unsafe for women, adolescent girls and children.
2	Women staff/ workers at work sites	▪ Cultural insensitivity towards women and the stigma associated with GBV, make women silent and skeptical about an unbiased redressal. ▪ Lack of adequate and safe means of commuting to the project site and back. The risks are augmented significantly if travel is required at night. ▪ There is lack of awareness of compliance to the existing acts and legal provisions. Women staff is often not aware ofthe redressal mechanism (even within the organization). ▪ Absence of separate toilets for women at sites. ▪ Adequate lighting in the work sites.
3	Labour Camps	Negligence and non-compliance to national labour laws with regards to safety and security provisions for women labourers can increase risk of GBV. The absence of the following requirements can augment the situation. ▪ Adequate provisions for the separate bathing area and toilets. ▪ Separate accommodation for women workers. ▪ Appropriate area breastfeeding and a crèche. ▪ Adequate lighting in the labour camps and the toilets. ▪ Display information on the redressal mechanism and contact details of the concerned personnel for registering of complaints. ▪ The suggested actions to mitigate the risk of GBV-SEAH in the LMP are to be implemented by contractors

With reference to the World Bank's SEA/SH Risk Assessment Tool, the risk score is calculated on a scale of 0 to 25: projects that score 0-12.25 are considered "Low" risk; 12.5-16 "Moderate" risk; 16.25-18 a "Substantial" risk, and 18-25 "High" risk. Based on the internal risk assessment tool, the GBV risk rating for the project is considered Moderate.

6. Summary of Consultations with employees of FREMAA, WRD & ASDMA

Consultations were carried out with the employees of FREMAA, WRD & ASDMA to understand the existing policies and provisions with respect to gender equity at their respective workplaces.

With reference to the requirements as per the 'Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013', it was found that FREMAA, WRD and ASDMA had constituted their Internal Committee (IC) at their headquarters. ASDMA and WRD have establishments at district/ division levels, hence there is scope to constitute ICs at these levels as well as mandated under the Act. The Committees at FREMAA and WRD are functional; however no cases have been reported till date. The Committee at ASDMA is reportedly defunct as of date and is presumed to be reconstituted soon.

As per the Assam Women (Reservation of Vacancies in Services and Posts) Act, 2005, reservation for women is 30%. It was observed that FREMAA has 20% and ASDMA has 17% women employees. An assessment of employees engaged in the project divisions of WRD showed about 15% of women staff. All 3 (three) organisations have reported to the availability of separate toilets/ sanitation facilities for men and women. The toilets used by women employees are provided with safe locks, disposable bins, adequate lighting and hand-washing facilities. Further, women employees recommended for ensuring availability of running water in the toilets, covered disposable bins and provision of a sanitary pad vending machine.

FREMAA, ASDMA and WRD are categorised under 'Emergency & Essential Services' as per the SOP for COVID-19, Govt. of Assam demanding employees to travel to and from work during curfew/ lockdown periods. Thus women employees have to travel at late hours of the day or during difficult times like lockdowns and curfews where even public transport is minimal and sporadic. It was thus recommended to have a policy prioritising the safety of its women employees that provided them with an official vehicle on priority to and from office at difficult hours with proper security free of cost.

7. GBV Action Framework

The steps and measures of the GBV Action Framework are summarized in the table below:
Table 4: GBV action framework

S.No	Key Actions	By when	Responsibility
1	Screening of GBV risk levels along with risk tier score (L/M/S/H)		
2	Include GBV/ SEA requirements in Bid-documents and also the requirement for a CoC which addresses SEA	Preparation	ASDMA WRD
3	Popularise and communicate about the Internal Committee (IC) as per provisions contained in Section 4 of the Sexual Harassment of Women at Workplace (Prevention, Prohibition & Redressal) Act 2013 along with ToR of the Committee at head-quarters as well as division/ district offices. To address complaints related to GBV/ SEA, the implementing agencies are mandated to constitute IC, at headquarters as well as division / district level. PMU, FREMAA has notified the IC along with an approved ToR for the Committee. Further, GBV Service providers will be identified at State and District level and linkages	Preparation	FREMAA ASDMA WRD

	will be formalized with the implementing agencies through signing of MoUs to support in case referral, redressal and awareness on GBV/ SEA. The ICs of the PIU-WRD and PIU-ASDMA will thus be responsible for addressing complaints related to GBV/ SEA. These committees will be notified. Additionally, information on Sexual Harassment electronic Box (SHe-Box) an online portal by MWCD, GoI will be provided. If any GBV/ SEA/ SH related grievances are received by the GRCs, the same will be forwarded to the respective ICs.		
4	Gender Focal Points will be designated in the PMU and PIUs who will be responsible for the implementation of GAP and GBV/SEA Risk Mitigation.	Preparation	FREMAA ASDMA WRD
5	Map GBV Service Providers (for case referral and redressal of complaints, awareness on SEA/ SH of stakeholders); Formalise linkage with Service Provider by signing of MoU Develop GBV/ SEA Prevention and Response Action Plan GBV Service Providers will be mapped and workshops will be held with them at state and district level. Linkages will be formalised with Service Providers by way of MoU as mentioned under the GBV Action Framework.	Preparation Implementation	FREMAA ASDMA WRD Service Provider
6	Train project personnel on GBV/ SEA/ SH/ VAC and redressal / referral mechanism/including GRM personnel. Training of project personnel on GBV/ SEA and grievance redressal/ referral mechanism, including GRM committee members and personnel will be undertaken. Awareness programs and FGDs will be conducted with STs, SCs, OBCs communities on SEA/SH and grievance redressal/ referral mechanism.	Implementation	FREMAA Service Provider
7	Inform and consult those affected by the project, of the SEA/SH risks and project activities	All phases	FREMAA ASDMA WRD
8	Develop IEC materials for awareness on GBV risks and measures to mitigate or respond including information on SHe-Box Online Complaint Management System http://www.shebox.nic.in/	Implementation	FREMAA Contractor
9	Address SEA/ SH issues in regular meetings to keep the local communities and other stakeholders informed about project activities	All phases	FREMAA ASDMA WRD
10	Expand the scope of GRM to address GBV cases; also popularise SHe-Box Online Complaint Management System http://www.shebox.nic.in/	All phases	FREMAA ASDMA WRD
11	Ensure Codes of Conduct (CoC) are clearly understood and signed by Contractors/ staff/ officials; Train staff/ officials on CoC	Implementation	FREMAA ASDMA WRD Contractor
12	Implement appropriate project-level activities such as: ▪ Separate, safe and easily accessible facilities for women and men in the place of work and the labour camps. (e.g. toilets should be located in separate areas, well-lit) ▪ Display signs that the project site is an area where SEA/SH is prohibited.	Implementation	FREMAA ASDMA WRD Contractor

13	Ensure funding is available at FREMAA for engaging GBV Service Providers (included in ESMP)	Preparation	FREMAA
14	Report in the quarterly progress report and review during ISM	All phases	FREMAA ASDMA WRD Contractor