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Ministry of Fisheries and Livestock, Bangladesh
Department of Fisheries



**Bangladesh Sustainable Coastal and Marine Fisheries
Project (BSCMFP)**



ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

JANUARY 2018

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List of Acronyms

ADB	Asian Development Bank
BBS	Bangladesh Bureau of Statistics
BDT	Bangladeshi Taka
BFDC	Bangladesh Fisheries Development Corporation
BFFEA	Bangladesh Frozen Food Exporter's Association
BFRI	Bangladesh Fisheries Research Institute
BMP's	Best Management Practices
BN	Bangladesh Navy
BOD	Biological Oxygen Demand
BP	Bank Procedures
BRE	Brahmaputra Right-bank Embankment
BSCMFP	Bangladesh Sustainable Coastal and Marine Fisheries Project
BSM	Brahmaputra system model
BWDB	Bangladesh Water Development Board
CBO	Community Based Organization
CC	Climate Change
CDD	Community Driven Demand
CEAP	Construction Environmental Action Plan
CEP	Coastal Embankment Project
CG	Coast Guard
CHT	Chittagong Hill Tract
CIIA	Cumulative and Induced Impact Assessment
CNGO	Coordinating Non-Governmental Organization
COD	Chemical Oxygen Demand
CPR	Common Property Resources
CPUE	Catch Per Unit Effort
CSC	Construction supervision consultants
DAE	Department of Agriculture Extension
DLS	Department of Livestock Services
DoE	Department of Environment
DoF	Department of Fisheries
DPCC	District Project Coordination Committee
E&S	Environment and Safeguard
EA	Environmental Assessment
ECA	Environmental Conservation Act
ECC	Environmental Clearance Certificate
ECOP's	Environmental Code of Practices
ECR	Environment Conservation Rules
EEZ	Exclusive Economic Zone
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environmental Management Plan
ERP	Emergency Response Plan
ES	Environmental Screening

ESA	Environmental and Social Assessment
ESMF	Environment and Social Management Framework
ESMP	Environmental and Social Management Plan
ESMU	Environment and Social Management Unit
ESR	Environmental Screening Report
ETP	Effluent Treatment Plant
EU	European Union
FAA	Flood affected area
FAO	Food and Agriculture Organization
FAP	Flood Action Plan
FGD	Focus Group Discussion
FVG	Fishers' Village Group
FRSS	Fisheries Resource Survey System
GAP's	Good Aquaculture Practices
GDP	Gross Domestic Product
GHAB	Galda Hatchery Association of Bangladesh
GMB	Ganges, Brahmaputra and Meghna
GoB	Government of Bangladesh
GRM	Grievance Redress Mechanism
ha	Hectare
HH	House Hold
IA	Information Access
IBRD	International Bank of Reconstruction and Development
ID	Identity
IEE	Initial Environmental Examination
IFC	International Finance Corporation
ITLOS	International Tribunal for Law of the Sea
IUU	Illegal, Unreported and Unregulated
IWM	Integrated Water Management
JCC	Joint Coordination Centre
L.O.A	Length Over All
M	Motorized
M&E	Monitoring and Evaluation
MCS	Monitoring, Control and Surveillance
MFSCP	Marine Fisheries Surveillance Check-Post
MMO	Marine Mercantile Office
MoD	Ministry of Defence
MoFA	Ministry of Foreign Affairs
MoFL	Ministry of Fisheries and Livestock
MoHA	Ministry of Home Affairs
MoU	Memorandum of Understanding
MSY	Maximum Sustainable Yield
MT	Metric Tonne
NATP	National Agricultural Technology Project
NGO	Non Government Organization
NM	Non Motorized
NM	Nautical Mile

OP	Operational Policy
PA	Protective Area
PAD	Project Appraisal Document
PAP's	Project Affected Persons
PDO	Project Development Objective
PMU	Project Management Office
R&D	Research and Development
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
SA	Social Assessment
SEA	Strategic Environmental Assessment
SEMVPP	Small and Ethnic Minorities, Vulnerable Peoples Plan
SHAB	Shrimp Hatchery Association of Bangladesh
SIA	Social Impact Assessment
SMF	Social Management Framework
SMP	Social Management Plan
TAC	Total Allowable Catch
TBD	To Be Determined
TDP	Tribal People Development Plan
TIG	Technical Implementation Group
TMSS	Thengamara Mohila Sabuj Shangha
ToC	Table of Contents
ToR	Terms of Reference
TPDR	Technical Publication Deficiency Report
TPP	Tribal People Planning
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Conference on Law of the Sea
UPCC	Upazila Project Coordination Committee
USD	United States Dollar
WB	World Bank
WBG	World Bank Group

Executive Summary

Overview of the BSCMFP

The 'Bangladesh Sustainable Coastal and Marine Fisheries Project (BSCMFP)' is a two-phased proposed investment by the Government of Bangladesh (GoB) to be implemented by the Department of Fisheries (DoF) in the coastal and marine fisheries area of the Bangladesh. The project aims to increase coastal and marine fisheries' contribution to the economy, poverty reduction, and environmental stability through improving management of coastal and marine fisheries and aquaculture and fishing communities' access to alternative livelihoods activities. The BSCMFP will encompass two (2) phases, with a preliminary budget envelope of around US\$ 256 million for Phase I. Phase II will be considered and its budget envelopes defined based on successful implementation of the reform project put in place under Phase I.

Proposed Program Objective: The goal of the proposed Bangladesh Sustainable Coastal and Marine Fisheries Project (BSCMFP) is to increase coastal and marine fisheries' contribution to the economy, poverty reduction, and environmental stability.

Implementation period: Phase I: Institutional and policy reform, capacity development, and piloting (5 years) with the objective to build GoB and stakeholder capacity to implement a shared approach for using fishery and mariculture resources sustainably, equitably, and more profitably.

Phase II: Scaling up successful pilots to improve coastal communities and fishers' livelihoods, while addressing sector infrastructure needs and expanding sustainable private sector participation with the objective to provide for higher value capture from domestic and export-oriented fisheries and mariculture. Phase II is further envisioned to be developed and implemented with a significant IFC participation.

Project area: Project will cover 705 unions under 75 upazilas covering 16 coastal districts.

Program cost: The cost of Phase I is estimated to be about US\$ 256 million. In addition of this project cost, an estimated cost for implementing EMP is given in Chapter 6.

Environmental and Social Management Framework (ESMF):

The project will take up certain rural infrastructure works as well as certain livelihoods interventions in the target communities. Though there will be no new private land acquisition, there is a possibility that these interventions might induce adverse and unintended social impacts. The number, type and locations of sub-component interventions will be decided over the project implementation stage. Beneficiary groups and sites for any small infrastructures will be known in the implementation level and therefore, social issues and impacts could not be identified and specified for mitigation at the preparation stage. DoF will screen sites for project interventions and identify the target group beneficiaries at the implementation level for preparation and implementation of any social action plans. Hence, there is a need for procedural guidance for social preparation and management. DoF has therefore, prepared Environmental and Social Management Framework (ESMF) as a constituent part for guidance in the implementation stage.

The rationale for developing the framework is based on the consideration that all the project sub-component specific environmental and social issues and impacts that have been foreseen by the project may not be precisely the reality. Therefore, detailed site investigations will be carried out as part of identifying specific project activities and related designs at the selected locations to ascertain the precise nature of the environmental and social impacts. Therefore, the ESMF will provide the necessary background for environmental and social considerations, a checklist of potential issues of the project activities to be considered and built into the design of the project so that socially sustainable implementation can take place.

While this ESMF document has been prepared to identify the potentially negative impacts of the Phase I of BSCMFP, the specific objectives are to:

- integrate the environmental and social concerns into the identification, design and implementation of all project interventions in order to ensure that those are environmentally sustainable and socially feasible;
- ensure all relevant environmental and social issues are mainstreamed into the design and implementation of the project and also in the subsequent phases of the BSCMFP;
- consider in an integrated manner the potential environmental and social risks, benefits and impacts of the program and identify measures to avoid, minimize and manage risks and impacts while enhancing benefits;
- ensure compliance with national and World Bank requirements. The ESMF presents potential impacts of the BSCMFP, mitigation, enhancement, contingency and compensation measures, environmental and social management and monitoring plan, and institutional framework including inter-agency cooperation for implementing ESMP. The ESMF will facilitate compliance with the Government of Bangladesh's policies, acts and rules as well as with the World Bank's environmental safeguard policies, and
- guide conducting the detailed ESA/ IEE/ EISAs of the later phases of the BSCMFP as appropriate to the project components/sub-components.

ESMP Preparation Approach

The present ESMF has been prepared following the standard methodology consisting of the steps listed below:

- Review of the program details and meeting/discussions with the DoF team
- Review of the policy and regulatory requirements
- Reconnaissance field visits by DoF team and initial scoping and screening to determine the key environmental and social parameters and aspects that are likely to be impacted by the program activities
- Collecting and analysis of baseline environmental and social data with the help of secondary literature review and field data collection by DoF team
- Consultations with the stakeholders including beneficiary/ affected communities and developing the consultation process
- An initial assessment of the potential and likely impacts of the program activities
- Prepare an outline environmental and social management plan
- Compilation of the present ESMF.

Project Beneficiaries

The project will provide a holistic response to a set of dynamic issues that poor, vulnerable coastal fishing communities face. It will result in benefits to households and individual members, especially the most disadvantaged (i.e., female-headed households, widows, the poorest, and the elderly) of those communities. The project target groups of beneficiaries are the fishers and poor and extremely poor fisheries-dependent households in 16 coastal districts. Attention will be paid for enabling women's participation in planning and decision-making processes, and increasing their access to alternative livelihoods. The project will also directly benefit the implementing agency (DoF), and all government authorities (DoF, Bangladesh Coast Guard, Bangladesh Navy, Chittagong Port Authority, Bangladesh Police, MMO, and Bangladesh Customs that will use the monitoring, control and surveillance (MCS) systems in the coastal and marine fisheries sector.

Draft outline of BSCMFP Phase I is as follows:

The project will support GoB in designing, establishing, and effectively operating fisheries management systems for sustainable utilization of coastal and marine fishery resources. Project financing will be provided for fisheries governance and management systems, infrastructure, and other value-chain investments aimed at increasing the sector's productivity. The BSCMFP Phase I will focus on bringing fisheries policies, regulations, and management capacity up to a level needed to enable stock recovery and opening the space for responsible private-sector investments in the sector.

COMPONENT 1: Enabling sustainable fisheries sector investments and growth (IDA US\$ 48.0 million)

Component 1 is aligned with the targets of PDO indicators 1 and 2. It also supports the GoB commitment to sustainably developed the country's enlarged EEZ¹ through (a) more effective management of coastal fisheries with responsibilities shared between DoF and artisanal fishing communities and (b) improved sector transparency, integrity, and accountability. The component aims to strengthen enabling environment for infrastructure improvements and technology investments through support to policy and institutional development, research, and measures for strengthening the MCS, improving safety of life at sea, and enabling effective fisheries management. Specifically, funding will be provided for policy and regulations development, stock assessments, analysis for defying sustainable fishing levels, preparation of management plans, training, design and implementation of control and monitoring system and procurement and installation of equipment, and infrastructure for DoF and other national fisheries research institutions. In addition to strengthening artisanal fishermen safety of life at sea in the face of growing climate variability, the component will also integrate and promote climate and disaster risk reduction into the sector policies, plans and management tools and regulations supported by the project. Activities are grouped in three sub-components supporting the DoF with regulatory, institutional, and financial frameworks and incentive mechanisms for increased sector growth.

COMPONENT 2: Improving Infrastructure and Production Practices (IDA US\$ 123.2 million).

This component is aligned with the targets of PDO indicator 3 and aims to support closing basic infrastructure and technical capacity gaps to promote integrated value chain development and compliance to standards. The component will support measures for improving genetic quality, biosecurity, and disease control in shrimp hatcheries that are expected to significantly reduce coastal aquaculture exposure to devastating disease outbreaks and production crashes, while generating productivity increases of up to 20 per cent and reducing the taking of juvenile fish as a by-product to the harvest of wild shrimp seed. Infrastructure support will be implemented to incentivize private sector investments, where feasible, and will be phased-in in conjunction with the progress of sector management reforms supported by the project in order to avoid generating additional overfishing pressure by increasing the sector's value. In capture fisheries, the initial efforts will focus on the semi-industrial and motorized artisanal fleet and will be extended to the industrial fleet in sync with the progress of management reforms. All infrastructure investments will be subject to detailed disaster and climate risk screening. Where feasible, the project will promote green infrastructure technologies for seafood production that also support broader ecosystem services and improve coastal defenses, such as mangrove rehabilitation, sea grass, and oyster beds. Importantly, the design of coastal infrastructure will aim to optimize adaptation benefits and avoid maladaptation, including linking fish habitat restoration to nature-based coastal protection solutions and ensuring climate-resilient value chain infrastructure development. Technical services for design

¹ See 'B. Sectoral and Institutional Context' section of the PAD

and supervision and works will also be financed under this component. Component 2 includes the three sub-components.

COMPONENT 3: Community Empowerment and Livelihoods (IDA US\$ 52 million)

This component is aligned with the targets of PDO indicator 4. The component uses a CDD approach and a package of investment and financial support aiming to strengthen community fisheries management and transform livelihoods in poor fishing communities to reduce dependence on fishing. Phase I project pilot activities will focus on up to 450 villages, including up to 100 Model fisher villages (MFVs), which, if successful, will be scaled up in Phase-II project. A household approach will enable gender-equitable distribution of resources to enhance coping capabilities for both men and women. Ultimately, transformations promoted by the project will be critical not only to achieve poverty reduction in fishing communities, but also to reduce fishing effort and destructive fishing practices, and thereby enable more sustainable fisheries management. Activities for livelihood diversification and/or managed retreat for improving the climate resilience of target coastal fisher communities will be further screened to minimize climate and disaster risks to direct flooding, connectivity disruption, salinity regime changes that reduce likelihood of engaging in aquaculture as an alternative to fishing, etc. The activities of component 3 are structured in two sub-components to be co-implemented by SDF (an autonomous organization) in collaboration with DoF. Project funds will be allocated for technical assistance and services, direct costs, small grants, savings groups, and small loans to promote co-management of near-shore coastal fisheries resource.

COMPONENT 4: Project Management and Monitoring (IDA US\$ 16.8million)

This component will provide funds for establishment and operation of project management, monitoring and evaluation structure within the DoF that is also integrated within the institutional capacity assistance under Component 1. Specifically, project financing will be directed for the operation of PMU staff and consultants hired as experts on a needs basis; retaining general consultants to manage day-to-day project implementation while strengthening DoF's capacity for the initial three years of the project; establishment and operation of financial management and procurement management systems acceptable to the World Bank; PMU's recurrent costs; implementation of communication plans and activities related to Access to Information (AI); implementation of governance and accountability and financial management actions and third-party audits; implementation of the project's environmental and social management framework (ESMF); monitoring and evaluation (M&E); stakeholder coordination; and special evaluation studies.

Project Implementation Arrangement (Phase I)

Implementation of Phase I project is designed to address the complexity of the project by tapping in technical expertise from the DoF, other agencies and organizations. The DoF will be the implementation agency for the project and house the Project Management Unit (PMU) responsible for day-to-day implementation. A Technical Implementation Group (TIG), consisting of DoF technical staff, will provide technical guidance on a case by case basis to DoF's front-line offices and outside executing partners at the district and sub-district (upazila) levels, and overseeing technical implementation quality. MoFL will establish a Project Steering Committee (PSC), chaired by the Secretary and including representation from the Ministries of Finance, Economy, Agriculture and Maritime² to provide policy guidance and facilitate inter-ministerial collaboration on reform agenda. DoF's substantial experience with citizen engagement will be supported by an Advisory Committee (AC) to facilitate stakeholder outreach. The PMU will operate based on a Project Operations Manual (POM) approved by the PSC and the Bank. Project Components 1 and 2 will be implemented directly

² NOTE: Exact PSC structure and modalities to be confirmed at appraisal

by the DoF through the PMU using the agreed implementation provisions spelled out in the POM. Component 3 will be implemented with the support of the Social Development Fund (SDF) as a co-implementing agency.

Policy and Regulatory Review

The key national policies, strategies, and plans relevant to environmental management are:

- Bangladesh Environmental Conservation Act (ECA), 1995
- Bangladesh Environmental Conservation Act (ECA), (Amendments) 2010
- Bangladesh Environmental Conservation Rules (ECR), 1997
- Bangladesh Environment Court Act, 2010
- Relevant National Policies, Strategies and Plans in Bangladesh
- National Environmental Policy, 1992
- National Environmental Management Action Plan, 1995
- National Water Policy, 1999
- National Water Management Plan, 2001 (Approved in 2004)
- National Agriculture Policy, 1999
- National Land Use Policy, MoL 2001
- National Fisheries Policy, 1998
- Protection and Conservation of Fish Act (1950)
- East Bengal Protection and Fish Conservation Act (1950) and Amendments
- Protection and Conservation of Fish Rules (1985)
- Marine Fisheries Ordinance, 1983
- National Livestock Development Policy, 2007
- Private Forest Policy, 1994
- National Policy for Safe Water Supply and Sanitation, 1998
- National Adaptation Program of Action (NAPA), 2005
- Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2009
- Bangladesh Wildlife (Protection and Preservation) Act 2012
- Bangladesh Wildlife (Preservation) Order (1973) and Act (1974)
- Forestry Acts
- Forest Act 1927 (Amendment 2000)
- Private Forest Act (PFA), 1959
- Embankment and Drainage Act, 1952
- Bangladesh Water Act, 2013
- Bangladesh Labour Act, 2006
- Bangladesh National Building Code, 2006

International Treaties Signed by the GoB:

Bangladesh has signed most international treaties, conventions and protocols on environment, pollution control, biodiversity conservation and climate change, including the Ramsar Convention, the Bonn Convention on migratory birds, the Rio de Janeiro Convention on biodiversity conservation, and the Kyoto protocol on climate change. An overview of the relevant international treaties signed by GoB is shown in Table 3.2.

Implication of GoB Policies, Acts and Rules on BSCMFP:

The legislations relevant for environmental assessment for BSCMFP are the Environmental Conservation Act 1995 (ECA'95) and the Environmental Conservation Rules 1997 (ECR'97).

As per ECR'97, most the components/sub-components and associated activities of BSCMFP are likely to fall under **Green Category** as has no significant impact on the environment, but some of the project activities viz.

- desilting and re-habilitation of existing canals of shrimp farms,
- repairing of water regulating structures to improve water quality and circulation,
- improve coastal defense (where feasible) by mangrove rehabilitation and artificial sea grass and oyster beds,
- infrastructure improvement for capture and culture fisheries, i.e.
 - improvement of landing sites, depots, collection centers,
 - road and reliable electricity infrastructures at the connecting to the landing sites, depots, collection centers,
 - renovation and upgradation of post-harvest service center,
 - small-scale fish packing facilities, transport boxes (plastic, polystyrene),
 - rehabilitation and construction of capture fisheries landing sites including Chittagong wholesale market landing sites, two semi-industrial fishery landing sites in each of the southeast, central and western coastal regions,
 - improvement of fish market facilities including access roads, drainage, etc.,
 - electrification of shrimp farms for facilitating pond aeration,
 - construction of chill stores to store iced fish at cool temperatures,
- support to physical infrastructure of JCC (Joint Coordination Center),
- basic community infrastructures in around 450 villages across 14 districts viz. small roads, tube wells, sheds, offices for FVGs, etc.

likely to have negative environmental impacts on air, soil, water and natural setting such as water bodies, vegetation, wildlife and fishes, demands IEE and if required, EIA. Overall, the proposed project is targeting to intervene a wide range of environmental elements covering a vast area of coastal and marine environment, with construction of higher quantity of small scale infrastructures and re-excavation of canals fallen under the schedule of 'Orange-A or B Category'. Therefore, BSCMFP falls under the '**Orange A' Category**. It is suggested that the project should conduct IEE at the initial stage and based on which recommendation, detail EIA should be carried out in components/activities which require to do so. However, according to the project planning, the activities those need EIA will be implemented at different periods and hence, multiple EIAs will be required clustering the similar activities prior to the actual intervention start.

It is the responsibility of the DoF to conduct IEE and EIA of the project activities, the responsibility to review IEE and EIA for the purpose of issuing Environmental Clearance Certificate rests on the DoE. The Department of Environment (DoE), the technical arm of the Ministry of Environment and Forest (MoEF) is the regulatory body and the enforcement agency of all environmental related activities. Like all other projects, this project also needs to meet the requirement of the DoE. The procedures for "Orange B" Category include submission of:

- An Initial Environmental Examination (IEE), and
- An Environmental Impact Assessment (EIA), if prescribed by DoE, and
- An Environmental Management Plan (EMP)

Environment clearance has to be obtained by the respective implementing agency or project proponent (private sector) from DoE. The environmental clearance procedure for Orange-B Category projects can be summarized as follows:

Application to DoE→Obtaining Site Clearance→Applying for Environmental Clearance→Obtaining Environmental Clearance→Clearance Subject to Annual Renewal.

World Bank's Environmental Safeguard Policies:

- The proposed BSCMFP has been classified as **Category B**, as the potential impacts are limited and largely mitigable and reversible. However, since some of the activities deemed to require further assessment for better understanding. Therefore, IEEs and EIAs are recommended to be carried out for those activities in each BSCMFP phase, in accordance with **OP 4.01**.
- Social Policies, Laws and Regulations of GoB are:
- Constitutional Provision
- The Acquisition and Requisition of Immovable Property Act 2017
- Constitutional Rights of the Small Ethnic Communities
- The Chittagong Hill Tracts Regulation 1900
- The Chittagong Hill–Tracts (Land Acquisition) Regulation, 1958
- The CHT Regional Council Act, 1998
- The Labor Act, 2006

World Bank's Social Safeguards Operational Policies

- The operational policies (OP) and Bank procedures (BP) of the World Bank includes guidelines on involuntary resettlement (OP/BP 4.12) and that on the indigenous peoples (OP/BP 4.10) for management of social safeguards issues associated with investments with financing from the World Bank. These operational policies have been reviewed with respect to relevant national laws and constitutional provisions to identify additional measures to comply with Bank policies.

Applicable WB Policies:

- The BSCMFP is classified as a **Category B** project, due to the complexity of environmental issues associated with program activities involving civil works by reconstruction and rehabilitation of the canals to facilitate coastal aquaculture, construction of buildings, landing stations, markets, connecting roads, improvement of mariculture in suitable sites, providing various alternative livelihoods, changing in governance have environmental impacts. There may be localized and restorable insignificant impacts on the natural habitats during the implementation period.
- The environment assessment (OP/BP 4.01), natural habitats (OP/BP 4.04), pest management (OP/BP 4.09), involuntary resettlement (OP/BP 4.12) and Indigenous Peoples (OP 4.10) have been triggered for the proposed operation.
- Although no direct impacts on physical cultural resources are expected, screening mechanism incorporated into the IEE/ EIA process will identify places and or objects of archeological, paleontological, historical, religious, or unique natural values. Physical cultural resources (OP/BP 4.11) are considered in the environmental framework preparation. The status of the environmental safeguard policies of the World Bank is provided below in Table 3.3 (this will be reviewed during the EIAs of the BSCMFP).

Description of the baseline environment of the project area has been given in Chapter 4, explaining the prevailing physical, biological and socio-economic conditions. A detail baseline survey will be done during the detail EIA study.

General Principle of the BSCMP for Environmental and Social Management Framework:

Due to the nature of some of the proposed activities under BSCMFP program and potential environmental and social impacts, the project falls under 'Orange A or B' category according to ECR, 1997 and also falls under 'Category B' as per the World Bank Operation Policy 4.01, which requires proper IEE, EIA and implementation of environmental and social management plan. Therefore, the ESMF is prepared based on the following principles that can lead the planning and implementation of the project activities in Phase I of the BSCMFP.

- The Project Director of BSCMFP, DoF is responsible for the compliance with national policies, regulations and World Bank Operational Policies and Guidelines, as mentioned in this ESMF report. The ESMF will serve as the basis for ensuring the compliance for Phase I of BSCMFP.
- DoF is responsible for obtaining environmental clearance from DoE, local government agencies and World Bank as required.
- IEE, EISA and ESMP need to be prepared for activities as determined by DoE.
- Planning and design of the any additional activities should ensure minimal cumulative impacts.
- Environmentally Sensitive areas, cultural sites, restricted or disputed lands should be taken care of with appropriate mitigation or compensation measures during implementation.
- Participation of stakeholders (especially local community) should be ensured by DoF in planning, implementation and monitoring of each sub-components and associated activities.
- DoF will ensure appropriate institutional set up for implementing environmental and social management plan and inter-agency coordination.
- Contractors to be engaged for construction, canal re-excavation and research vessel operation under the program will ensure provision of First Aid Kit at camp site with proper drinking water and sanitation facilities. Worker's/crew's health and safety measures shall be ensured and use of personal protective equipment shall be at place.
- DoF will ensure safety provision has been provided for the resettlement sites (if any).
- DoF will undertake public disclosure about the project interventions and potential impacts, Environmental Assessment and Management Processes of BSCMFP:
- The environment consulting firm independent from the PMU/main consulting firm will perform the environmental screening. The environmental consultant will start the task during the preparation stage of Phase I.
- Environment consultant will update the Baseline condition, IEE and the ToR for EIA for Phase I of BSCMFP.
- DoF will share the IEE report and the EIA ToR with DoE and DoE for Clearance.
- DoF will conduct multiple EIAs considering different activities those are have similarity and likely to have same environmental impacts at different points of project length, hence multiple EIAs should be carried out prior to the similar cluster activities.
- PMU will review and clear screening and environmental assessment reports made by EIA consultant.
- DoF will conduct verification of some screening and assessment.
- Main consultant/PMU will ensure that environmental considerations are given sufficient attention, weight and influence over selection of construction sites, re-excavation of canals, and improvement of infrastructures in both capture and aquaculture.
- Bid documents will be prepared by the PMU/main consultant and EMP implementation should be done by Contractor.
- BSCMFP Program works will be supervised by PMU/main consultant and DoF.

- All the activities of BSCMFP will follow existing Environmental Code of Practices (ECOP) prepared under EMF.
- The project will ensure that environmental impact assessment addresses all potential environmental direct and indirect impacts of the project and program throughout its life: pre-project, during project and operation stages and mitigation measures have been taken for it.
- Environmental Screening process, Environmental Assessment Process i.e. IEE and EIA are also discussed in detail in Chapter 5.
- **Social Assessment and Management Process**
- Social screening, Social Impact Assessment (SIA), Stakeholders participation, Gender Analysis procedures are described in later sections of Chapter 5.

Impact Assessment:

The overall impact assessment of the proposed project to be implemented reveals that most of the adverse impacts could be minimized or eliminated by adopting standard mitigation measures; there is also scope to enhance some of the beneficial impacts to be generated from the proposed project.

The potential impacts of the program on the key environmental parameters that have been identified as part of the ESMF are listed in Table 5.4 and 5.5. Also, given in the table is the significance of each impact based upon the criteria defined in Section 5.5 and Tables 5.1 to 5.3. In the subsequent sections, these impacts are discussed and guidelines included for the EMF of the BSCMFP.

EIA studies should modify and further detail out this analysis as applicable, based on professional judgment and public consultations. A preliminary categorization of the project components/sub-components based on their environmental assessment requirement is given in Table 6.5. During additional phase, EIA should also incorporate into their impact assessment a review of monitoring results from the Phase I, and adjust this preliminary impact identification as appropriate based on the findings.

A. Significant Environmental Impact Related to Project Siting***Land Cover and Land Use Changes:***

Construction of different infrastructures may change existing land use and land cover at the local level. Although, most of the proposed infrastructures are relatively small in nature, but their quantity is significantly high and will be spread over 450 villages across 14 districts.

Loss of natural vegetation and trees/ mangroves

Siting of proposed infrastructures require no cutting of trees and removal of natural vegetation, if any that could be very insignificant.

Loss of aquatic habitat

Loss of aquatic habitats could happen due to siting of proposed infrastructures, specially the construction of small access roads, sheds, fish markets, FVG offices, landing sites, etc.

Loss of coastal/ marine habitats

Siting of promoted mariculture area would have negative impacts on surrounding coastal and marine habitats by replacing natural setting through artificial infrastructure. It may alter the natural habitat of coastal birds by altering their staging and feeding ground if not properly designed and implemented.

Drainage congestion and water logging

Proposed construction activities can cause drainage congestion and water logging at the local area, if not properly considered the local drainage of runoff.

B. Environmental Impacts during Project Implementation

Air Pollution

Construction of connecting roads and buildings, canal re-excavation and repairing of sluice gates may generate emissions from excavation equipment, other machinery and construction traffic. The emissions may also include greenhouse gases (GHGs) from engine fuel combustion (exhaust emissions) and evaporation and leaks from vehicles (fugitive emissions) and emissions from asphalt works. The emissions from construction activities will deteriorate the ambient air quality and affect the public health. The dense populated areas and crowded market places (bazaars) are particularly vulnerable to these impacts. In addition, dust generated from the above activities will also have impacts on crops and livestock.

Noise Pollution

Noise will be produced by vehicular movement, excavation machinery, concrete mixing, and other construction activities. The schools, religious places and crowded market areas are particularly vulnerable to the increased noise levels.

Water Pollution

During the construction phase, re-excavation and repairing of sluice gates can potentially cause some localized increase in water turbidity. However, this increase in turbidity is not likely to have any significant impact on overall water quality and the aquatic fauna primarily because of its temporary and localized nature. The construction camps and other site facilities such as offices and warehouses will also generate considerable quantities of waste effluents. Other possible causes of land or water contamination include accidental leakage or spillage of fuels, oils, and other chemicals, and waste effluents released from construction sites. These effluents can potentially contaminate the drinking water sources of the area and can also be harmful for the natural vegetation, cultivation fields, water bodies, and aquatic flora and fauna.

Soil Contamination

Much like water pollution discussed above, soils in the construction area and nearby lands that are used for agriculture will be prone to pollution from the construction activities, construction yards, worker's camps and other construction areas. Fuel and hazardous material storage sites and their handling are also the potential sources for soil and water pollution. Improper siting, storage and handling of fuels, lubricants, chemicals and hazardous materials, and potential spills from these will severely impact the soil and water quality and also cause safety and health hazards.

Generation of Solid Waste and Hazardous Waste

Solid waste generated during the construction phase will include excess construction material such as sand and soil, faulty/damaged parts, metal scraps, cardboard boxes and containers, and cotton swaths from workshops, and domestic solid waste from construction offices and camps. In addition to the above, small quantities of hazardous waste will also be generated mainly from the vehicle maintenance activities (liquid fuels; lubricants, hydraulic oils; chemicals, such as anti-freeze; contaminated soil; spillage control materials used to absorb oil and chemical spillages; machine/engine filter cartridges; oily rags, spent filters, contaminated soil, and others). It is imperative that such waste is responsibly disposed to avoid adverse environmental, human health and aesthetic impacts. Inappropriate disposal of these wastes can lead to soil and water contamination as well as health hazards for the local communities, livestock, and aquatic as well as terrestrial fauna.

Impacts on aquatic habitat

Sand extraction from the ponds and other wetlands, re-excavation of canals, repairing of sluice gates and construction of mariculture farms may potentially disturb the aquatic habitat by increasing the water turbidity (siting impacts of these activities have already been discussed earlier in the Chapter). Some sensitive and important habitats exist in the coastal chars for wintering birds and some of the river coastal water area for fish and dolphins. However, construction activities are not likely to have any direct impact on terrestrial or aquatic wildlife or their habitat since no sensitive ecological hot spots have been identified at the EMF stage. However, any accidental leakage, spillage of contaminants, or dumping of solid waste/debris on land or in water bodies can potentially affect these habitats. During construction of mariculture and oyster and sea grass beds-related boat traffic, there is a potential risk of collisions with fish and other aquatic species. This can cause injuries and even fatalities to these species.

Site Clearance and Restoration

After the completion of the construction activities, the left-over construction material, debris, spoils, scraps and other wastes from workshops, and camp sites can potentially create hindrance and encumbrance for the local communities in addition to blocking natural drainage and or irrigation channels.

Occupational Health and Safety

Generally, the construction activities will involve small to medium scale excavation, operations of construction machinery and vehicular traffic. These activities may pose health and safety hazards to the workers at site during use of hazardous substances, lifting and handling of heavy equipment, operating machinery and electrical equipment, working near water or at height and more. The program will need fuels, oils, and asphalt during the construction phase. Inappropriate handling or accidental spillage/leakage of these substances can potentially lead to safety and health hazards for the construction workers as well as the local community.

C. Environmental Impacts during Post Project operational Period***Potential Changes in Water Courses (Canal)***

The potential re-excavation of canals/other water courses may include stabilization and deepening of the channel. These changes are mostly positive in nature, likely to take place over a long period of time and need to be regularly monitored. Canal re-excavation will only induce localized bed changes.

Loss of Ecological Connectivity

Construction of access roads and other infrastructures may disconnect local wetland connectivity's that would have potential negative impact on fish and other aquatic species life-cycle. That would also have potential impact of other aquatic and terrestrial wildlife, demands detail baseline survey.

Impact on marine habitat

Improvement of coastal defense (where feasible) by mangrove rehabilitation and artificial sea grass and oyster beds and promoting mariculture in potential coastal area may alter surrounding marine habitats. However, mangrove rehabilitation, sea grass and oyster beds will have positive impact once they are sustained in the area. But mariculture may cause water pollution and alter the beach ecosystem due to the artificial infrastructures. It may cause loss of staging and feeding ground of coastal birds.

Loss of Vegetation

Infrastructures those will be constructed under the proposed project would be the sites of human access, which may lead to loss of more vegetation (herbs, shrubs and trees) at the surroundings due to human footprint.

Generation of Solid Waste

Solid waste will be generated from markets, landing sites, packaging units and also during regular operation and maintenance activities of the constructed infrastructures. Hazardous waste will also be generated from access road maintenance. This waste if not appropriately disposed has a potential to contaminate soil and water resources, thus negatively affecting communities as well as natural habitat.

Air Pollution

Emissions from local road traffic along the markets, landing sites and other infrastructures may affect the ambient air quality. Road traffic will be increased due to construction of these infrastructures at the project area.

Noise Generation

During operation, noise levels along the access roads, markets, landing sites, depots, collection center and FVG offices will be increased due to the higher traffic volume and mass people gathering. Traffic noise will be a significant nuisance to the sensitive receptors such as schools and religious places located very close to the roads and also to the children and aged persons.

Water Pollution

Generally paved road increases the amount of impermeable surface area, which increases the rate of surface water runoff. Increased storm water flow rates can lead to stream erosion and flooding downstream; cause soil erosion, channel modification and siltation of streams. During the operation phase, some localized increase in turbidity may take place during any maintenance works of the constructed sites. Similarly, the maintenance works can also generate a limited quantity of waste effluents.

Changes in Land Use Pattern

Markets, landing sites, depots, access roads, mangrove plantation, oyster/sea grass beds and mariculture (at suitable sites) may change local land use pattern upon getting popularity during the operation period, which will replace existing use such as agriculture and vegetation in terrestrial area and natural aquatic system/beach ecosystem at the marine area.

The overall impact assessment of the proposed project to be implemented reveals that most of the adverse impacts could be minimized or eliminated by adopting standard mitigation measures; there is also scope to enhance some of the beneficial impacts to be generated from the proposed project.

Environmental Management Plan (EMP):

- Chapter 7 presents the outline environmental management plan (EMP) of the BSCMFP. A more detailed version of EMP must be included in the EIA of the BSCMFP Phase I; the EIAs of subsequent phases will also include a similarly detailed version of EMP. The framework of EMP includes:
 - Inclusion of Relevant Components of EMP in Contract Documents
 - Institutional Arrangements of the project (Figure 7.1)
 - Mitigation Measures
 - Environmental Codes of Practices (ECoPs)
 - Format of Mitigation and Compliance Monitoring Plan
 - Site Specific Management Plans, etc.
 - Potential Key Social Impacts

- When the sites for specific activities are identified and if, according to the substantive social effects are anticipated a brief SIA (based on PRA techniques) will be undertaken to identify project beneficiaries, particularly focusing on poor, impacted people and other relevant stakeholders. The SIAs will utilize a well-planned and all-inclusive communication and consultation strategy and include a baseline survey covering the prevailing status of income, employment, education, age, skills and other socio-economic aspects along with cultural and community aspects in the areas. The assessment will feed into the individual RPs created for each location and will be incorporated, along with consultation feedback from those identified in the PAP census and all other relevant stakeholders, in the development of mitigation measures, especially livelihood strategies. The project should develop a guideline for SIA specific to the intervention site.
- Involuntary Resettlement Impacts
- The project will not take any private land through involuntary acquisition and avoid any physical displacement of residents for activities under the project. All works will be carried out within the existing available lands. The project will not finance excavation of new ponds but support rehabilitation of the existing ones only. Nevertheless, there is small likelihood that using existing available lands for small infrastructures construction may involve displacement of formal and informal private users. For all these reasons, and largely as a precautionary measure.
- Impacts on Small Ethnic Communities
- Small Ethnic Communities (SECs) present in the project area can be characterized as indigenous peoples in view of their unique characteristics including language, culture, occupation, and traditions. These communities are amongst the poorest in the Project areas. Most of the SECs are rural while some are urban. A very few families have been able to make a good progress in terms of social and economic status with higher education and diverse employment. Other than fishing, agriculture and agriculture labor constitute the mainstay of livelihoods for majority of SECs living in the target intervention areas. Tribal peoples are present in all 16 coastal districts of the project.
- Livelihood Impacts

While effort will be exerted for livelihood improvement of the fishers' and fisheries-dependent communities, yet some of the project activities may have reversible and mitigable impacts on them. Therefore, the project incorporated a livelihood transformation program (LTP) for fisheries co-management and transformation of livelihoods of the poor and vulnerable fishers and fisheries dependent households. The probable impact on income and livelihood is minor since project will try to avoid acquisition of land and involuntary displacement of people. The major aim is to improve livelihood of the poor fisher's community of the coastal area with the capacity to better manage local resources and expand their participation in more exclusive and sustainable development.

- Categories of social risks and impacts associated with the project

The project activities may induce adverse impact on livelihoods of the fishers and fisheries dependent households of varying degrees. Following basic categories of impacts or issues may take place under this project, especially for fish catch control for replenishing fisheries resources in the coastal areas including the Bay and the sea area.

- Loss of access or limited access to the usual fishing areas;
- Loss of source of livelihood;
- Loss of private or community based fishing areas or similar facilities;
- Loss of network; and vulnerability to local power elites
- Environmental Management Plan (EMP):

The basic objective of the EMP is to manage adverse impacts of program interventions in a way that minimizes the possible adverse impact on the environment and people of the program influence area. The specific objectives of the EMP are to:

- Identify the mitigation measures during EMF and EIA; and facilitate implementation of those during implementation of BSCMFP;
- Maximize and sustain potential program benefits and control negative impacts;
- Draw responsibilities for program proponent, contractors, consultants, and other members of the program team for the environmental and social management of the program;
- Define a monitoring mechanism and identify monitoring parameters in order to:
 - Ensure the complete implementation of all mitigation measures,
 - Ensure the effectiveness of the mitigation measures,
 - Maintain essential ecological process, preserving biodiversity and where possible restoring degraded natural resources and habitats; and
 - Assess environmental training requirements for different stakeholders at various levels.
- Organogram of the Environmental and Social Management is furnished in Figure 6.1.

Environmental Codes of Practice (ECoPs)

- The environmental codes of practice (ECoPs) are generic, non-site-specific guidelines. The ECoPs consist of environmental management guidelines and practices to be followed by the contractors/implementation organizations for sustainable management of all environmental issues. The contractor will be required to follow them and also use them to prepare site-specific management plans. Details of the ECoPs listed below are in Annex F.

Overview of Impacts and Mitigating Measures:

- An overview of all impacts identified in ESMF and mitigating measures, including responsibilities and monitoring requirements, is given in Table 6.4.

Social Management Plan (SMP)

Management of social risks and impacts associated with the project interventions relating enabling sustainable coastal and marines fisheries sector development through fisheries stock regulation, creation of investment climate, small infrastructure development, fisheries value chain and food safety development, productivity improvement, community co-management and livelihood transformation. The project will not acquire private land for infrastructure construction, rather use existing available lands, and potentials for involuntary displacement is bare minimum. The project approach will be to engage targeted beneficiaries inclusive of their location, age, gender, disability, ethnic identity, poverty and any other exclusion excuses.

The Social Management Plan (SMP) provides guidance to the DoF, SDF and any Contractor on the social development requirements during implementation of the Project and applies to all Project activities and construction sites.

Consultation and Participation Plan

Objectives and Methodology. The objectives of consultation and participation are to inform, consult, engage, collaborate and empower the communities and other local stakeholders at all levels of project cycle. Consultation and community participation will be undertaken to achieve the following specific objectives at identification, planning, design, implementation and evaluation stages:

- Identification – to sensitize the community about the project objectives, its components and their role and identify inclusive ground needs;

- Planning – to ensure transparency of the planning process, reflect community expectations in project design, acceptable work schedule and procedures; ensure identification of adverse impacts and measures to mitigate them;
- Implementation – to ensure that benefit accrues to the targeted beneficiaries inclusive of all groups including the very poor and vulnerable groups and activities designed and implemented at a standard satisfactory to the communities.
- Review and evaluation – to evaluate the beneficiary satisfaction and outcomes of the project activities for intended benefits to targeted group beneficiaries.

Gender Action Plan

A gender action plan has been proposed for the project for review and updating by the DoF and SDF before implementation based on social screening, social impacts assessment and designing the activities for implementation. The draft gender action plan has been proposed.

Grievance Redress Mechanism

The BSCMFP program will establish a grievance redress mechanism (GRM) for addressing grievances and complaints received from the program -affected persons due to environmental issues. Grievance Redress Mechanism (GRM) is a valuable tool which will allow affected people to voice concerns regarding environmental and social impacts for BSCMFP's activities. DoF would ensure that grievance redress procedures are in place and would monitor those procedures to ensure that grievances are handled properly. The DoF office will establish a procedure to answer sub-program -related queries and address complaints, disputes, and grievances about any aspect of the sub-program, including disagreements regarding the assessment and mitigation of environmental and social impacts. Details of the institutional arrangements and procedures are discussed in following sections.

Monitoring Program

- As one of the key elements of the EMP, a three-tier monitoring program is proposed comprising compliance monitoring, effects monitoring, and external monitoring. The main purpose of this monitoring program is to ensure that the various tasks detailed in the EMP particularly the mitigation measures are implemented in an effective manner, and also to evaluate program impacts on the key environment and social parameters. Various types of EMP monitoring are discussed, including: Compliance Monitoring, Effects Monitoring during Project Implementation, Third Party Monitoring and Performance Indicators

Capacity Building

- Capacity building for effective implementation of the environmental and social safeguard requirements is a key element of the EMP. Capacity building for environmental and social safeguard management will need to be carried out at all tiers of the program, including DoF, Env. Desk, CSC, and contractors.

Documentation

- The PMU with assistance from CSC/ PMC and contractors will produce the following environmental reporting documentation: Environmental Monitoring Reports and Program Completion Environmental Monitoring Report.

EMP Implementation Cost

- Cost estimates will need to be prepared for all the mitigation and monitoring measures to be proposed in the specific EIA in accordance with the EMF. The cost estimates for some of the mitigation measures to be identified in the EMP will be part of civil works contract. Some of suggestive activities from EIA will be implemented through hiring consultants/institutes.

- The Development Project Proposal (DPP)/Technical Assistance Project Proposal (TAPP) of DoF/ MoFL/ GoB for the proposed program should reflect the EMP activities with budget for successful environmental management of the program.
- Total US\$ 2.4 million is estimated for implementation of EMP which is embedded in the proposed total project budget US\$ 256 million. Detail EMP cost is proposed in Table 6.9.

Stakeholder Consultations and Disclosure

- Field surveys, consultations with different stake holders, focus group discussions (FGDs) that were carry out to develop this Environmental Management Framework (EMF) of BSCMFP, are not enough considering the project area and dimension of the stakeholders. Extensive field visits are required at the EIA stage to overcome this shortcoming and conduct extensive discussions with the relevant stakeholders throughout the program sites to discuss components, sub-components, activities, potential positive and negative impacts and measures taken to mitigate those impacts. It is also required to record the views of each of the respondents of the consultations, irrespective of gender, profession, religion, and age groups. The ToR of the EIA should be described in the public meetings during the initial stage of the EIA in all the sites of the proposed project. Findings of the EIA will also be presented in local language going back to the same stakeholders while the draft is ready to submit for DoE clearance. Consultation meetings are necessary to identify issues and problems to enable DoF to include corrective measures and to identify lessons and opportunities to enhance program implementation mechanism.

In order to prepare an Environmental and Social Management Framework (ESMF) of the BSCMFP, 12 FGD sessions were organized in the 07 (seven) coastal districts involving project beneficiaries viz: fishers/fish farmers, fish traders, Department of Fisheries (DoF) field level officer/staffs, local Union Parishad representatives to orient the activities of the project. Both male and female stakeholders were consulted through these meetings. Additionally, teachers, businessmen, village leaders, and local government members, farmers, and fishermen were consulted individually. Female heads of the households were also interviewed. List of consultation meetings and FGDs carried out in different districts is given in Table 8.1; venue and participant details are presented in Table 8.2. Figures 8.1 to 8.6 present some photographs of the consultation meetings and FGDs. List of attendee of all the FGDs so far carried out is given in the Annex D.

Framework for Future Stakeholder Consultations

Consultations with the key stakeholders will need to be carried out throughout the program life. These will include consultations and liaison with communities and other stakeholders during the project implementation and also extensive consultations with the grass-root as well as institutional stakeholders during the EIA study. The framework for the future consultations is presented in Table 7.3.

Access to Information

- A national workshop will be held at Dhaka to present the detailed project including safeguard aspects of BSCMFP to the key stakeholders. In addition, stakeholders' meetings will be held at all selected upazilas to disclose the ToR and results of the EIA. Representative of implementing authority, the study team, and the government officials from different departments, representatives from NGOs, local communities of different occupation, journalist, and local elite/civil society may attend the workshops.
- The information on program interventions and the findings of environmental assessment would also be disclosed through newspapers and electronic media (e.g. internet, TV, radio, etc.). The report would be disclosed in Bengali language.

- Summary of the EIA and EMF report along with EMP will be translated into Bengali language and disseminated locally. The full report (in English) and the summary (in Bengali) will also be uploaded in the website of DoF and World Bank. Hard copy of the EIA and EMF will also be available at DoF District and Upazila offices of program area.

Chapter 1: Introduction

1.1 Background

The 'Bangladesh Sustainable Coastal and Marine Fisheries Project (BSCMFP)' is a two-phased proposed investment by the Government of Bangladesh (GoB) to be implemented by the Department of Fisheries (DoF) in the coastal and marine fisheries area of Bangladesh. The project aims to increase coastal and marine fisheries' contribution to the economy, poverty reduction, and environmental stability through improving management of coastal and marine fisheries and aquaculture and fishing communities' access to alternative livelihoods activities. The BSCMFP will encompass two (2) phases, with a preliminary budget envelope of around US\$ 256 million for Phase I. Phase II will be considered and its budget envelopes defined based on successful implementation of the reform program put in place under Phase I. The duration of the proposed Phase I will be Five (5) years. As the project formulation is underway, it is not conceivable to have all detail activities under different components at this stage. The exact location and activities will be known only in the implementation stage, when detailed design will be available. Hence, Environmental and Social Management Framework (ESMF) are necessary to identify preliminary environmental and social issues need to be considered at the later stages of the project approval and execution as a constituent part for management of social issues including risks and impacts following national legal and regulatory framework and the World Bank (WB) policy on social development and safeguards. This ESMF has been prepared for the BSCMFP to guide identification and management of environmental and social issues to come at the implementation level.

1.2 Project Overview

The GoB through the Department of Fisheries (DoF) is preparing the 'Bangladesh Sustainable Coastal and Marine Fisheries Project (BSCMFP)' a comprehensive, multi-year program to improve the management and economic performance of the country's coastal and marine fisheries sub-sector (both capture and culture), and enhancing the livelihoods of the coastal fisher and fishing communities. Department of Fisheries (DoF) under the Ministry of Fisheries and Livestock (MoFL) is executing preparation of the Project for the proposed investment using financing from the International Development Association (IDA) of the World Bank Group (the Bank).

A Series of Project (SOP) is best suited to support the Bank engagement, on a wide range of fisheries issues within longer time horizon, will be applied by the Bank. SOP offers opportunities for sequencing and scaling project interventions to address immediate and longer-term challenges while augmenting the wealth generated from one of Bangladesh's most important sources of natural capital. Likewise, SOP will allow for expanding the sector's governance foundation through strong citizen engagement, which improves sustainability and can lead to generation of significant economic value from fisheries resources and economic benefits distribution. Hence, the economic potential of coastal and marine fisheries to contribute to poverty reduction in coastal communities is immense. Inputs for the definition of Phase II investments will be drawn on the outputs of Phase I activities.

At the point of transition between SOP Phase I and Phase II, a set of milestones will determine the readiness to launch scaling-up of sector investments. Examples include completing large fishing vessel registration and fishermen IDs; deploying functional monitoring, control and surveillance (MSC) system with 100 percent industrial vessel and 50 percent artisanal vessel coverage; updating the National Fisheries Sector Policy; and adopting regulations on co-management and preparing fishery plans in at least 30 communities. The follow-up phase would be realized by bringing to scale the successes of Phase I and closing infrastructure and technology gaps. Phase I project would be

financed by a US\$ 256 million Investment Project Financing (IPF), using a mixture of standard investment and Disbursement-Linked Indicators (DLIs) to support project implementation.

The project will support GoB in designing, establishing, and effectively operating fisheries management systems for sustainable utilization of coastal and marine fishery resources. Project financing will be provided for fisheries governance and management systems, infrastructure, and other value-chain investments aimed at increasing the sector's productivity. The BSCMFP Phase I project will focus on bringing fisheries policies, regulations, and management capacity up to a level needed to enable stock recovery and opening the space for responsible private-sector investments in the sector.

Proposed Program Objective: The goal of the proposed BSCMFP is to increase coastal and marine fisheries' contribution to the economy, poverty reduction, and environmental stability.

Implementation period: The BSCMFP will encompass two (2) phases, with a preliminary budget envelope of approximately US\$ 256 million for Phase I. Phase II will be considered and its budget envelopes defined based on successful implementation of the reform project put in place under Phase I as follows:

Phase I: Institutional and policy reform, capacity development, and piloting (5 years) with the objective to build GoB and stakeholder capacity to implement a shared approach for using fishery and mariculture resources sustainably, equitably, and more profitably.

Phase II: Scaling-up successful pilots to improve coastal communities and fishers' livelihoods, while addressing sector infrastructure needs and expanding sustainable private sector participation with the objective to provide for higher value capture from domestic and export-oriented fisheries and mariculture. Phase II is further envisioned to be developed and implemented with a significant International Finance Corporation (IFC) participation.

Program Cost: The cost of Phase I is estimated to be about US\$ 256 million. The details of estimated project cost of BSCMFP-I is shown in Table 2.1.

Table 1.1: Cost Estimate of BSCMFP-I

Project Cost by Component and Sub-component		Total million US\$	IBRD or IDA Financing	Counterpart Financing
Component 1: Enabling Sustainable fisheries sector investments and growth		55.00	48.00	7.00
1.1.	Stock assessment and development of national fishery management plans			
1.2.	Enabling environment for investments in sustainable fisheries			
1.3.	MCS development for IUU reduction			
Component 2: Improving Infrastructure and Production Practices		129.20	123.2	6.00
2.1.	Infrastructure improvements for capture and culture fisheries			
2.2.	Value chain and food safety			
2.3	Boosting coastal aquaculture productivity			
Component 3: Community Empowerment and Livelihoods		53.50	52.00	1.50
3.1.	Fishing community institutions and alternative livelihood development			
3.2.	Business development and market linkages for alternative livelihoods			
Component 4: Project Management and Monitoring		18.80	16.80	2.00
Total Project Cost (US\$)		256.50		

1.3 Environmental and Social Management Framework

1.3.1 Rationale for ESMF

The project will take up certain rural infrastructure works as well as certain livelihoods interventions in the target communities. Though there will be no new private land acquisition, there is a possibility that these interventions might induce unintended social impacts. The number, type and locations of sub-component interventions will be decided over the project implementation stage. Beneficiary groups and sites for any small infrastructures will be known in the implementation level and therefore, social issues and impacts could not be identified and specified for mitigation at the preparation stage. DoF will screen sites for project interventions and identify the target group beneficiaries at the implementation level for preparation and implementation of any social action plans. Hence, there is a need for procedural guidance for social preparation and management. DoF has therefore prepared the Environmental and Social Management Framework (ESMF) as a constituent part for guidance in the implementation stage.

The rationale for developing the framework is based on the consideration that all the project sub-component specific environmental and social issues and impacts that have been foreseen by the project may not be precisely the reality. Therefore, detailed site investigations will be carried out as part of identifying specific project activities and related designs at the selected locations to ascertain the precise nature of the environmental and social impacts. Therefore, the ESMF will provide the necessary background for environmental and social considerations, a checklist of potential issues of the project activities to be considered and built into the design of the project so that environmentally and socially sustainable implementation can take place.

In doing so, the ESMF takes into account the relevant legislation, policies, and strategies on marine and coastal fisheries. The suggested guidelines and procedures of the ESMF would adhere to the due diligence principles, especially it will ensure compliance with the World Bank's environmental and social safeguard policies and the relevant provisions under the related policies of GoB, and associated rules, regulations and procedures (including marine and coastal fisheries).

This ESMF will also serve as the guideline for the staff designated by the implementing agencies - the DoF to oversee and monitor the social safeguards compliance of the project components coming under their implementation responsibility. Therefore, this ESMF would be used as the template and guideline to ensure diligent environmental and social compliance of the planning and implementation of the activities envisaged under the BSCMF project. However, all processes described in the ESMF can be adjusted based on implementation experience. The ESMF will be a living document and will be reviewed and updated periodically as needed.

1.3.2 Objectives of the ESMF

The operational policy OP 4.01 of the World Bank requires Environmental and Social Assessment (ESA) of project proposed to help ensure that the projects are environmentally and socially sound and sustainable. The proposed interventions of BSCMF can potentially have significant impacts on the natural environment and the people living in that area. Conducting a proper environmental assessment and preparing an environmental management plan is essential to address the potentially negative impacts of the program. While this ESMF document has been prepared to identify the potentially negative impacts of the Phase I of BSCMF, the specific objectives are to:

- integrate the environmental and social concerns into the identification, design and implementation of all project interventions in order to ensure that those are environmentally sustainable and socially feasible;
- ensure all relevant environmental and social issues are mainstreamed into the design and implementation of the project and also in the subsequent phases of the BSCMF;

- consider in an integrated manner the potential environmental and social risks, benefits and impacts of the program and identify measures to avoid, minimize and manage risks and impacts while enhancing benefits;
- ensure compliance with national and World Bank requirements. The ESMF presents potential impacts of the BSCMFP, mitigation, enhancement, contingency and compensation measures, environmental and social management and monitoring plan, and institutional framework including inter-agency cooperation for implementing ESMP. The ESMF will facilitate compliance with the GoB's policies, acts and rules as well as with the World Bank's environmental safeguard policies, and
- guide conducting the detailed ESA/ IEE/ EISAs of the later phases of the BSCMFP as appropriate to the project components/sub-components.

1.3.3 Environmental and Social Due Diligence Principles

The GoB represented through the DoF and the associate implementing partner agency, the Social Development Foundation (SDF, an autonomous organization) are required to comply with the World Bank's environmental and social guidelines in identification, design and implementation of interventions under the proposed project. These guidelines provide for establishing environmental and social review process to ensure that the project undertaken with IDA finance is environmentally and socially sustainable, designed to operate in compliance with applicable regulatory requirements in the country, and as required by the policy guidelines of the World Bank, are not likely to cause a significant environmental, health, or safety hazards or to aggravate social impacts and risks to stakeholders.

The principles of safeguards due diligence and management by the DoF, the executing agency (EA) on behalf of GoB be the following:

- DoF and its associate implementing agency, the SDF will review the process of identification, design and implementation activities under the project following national laws and regulatory framework and in compliance with the World Bank environmental and social safeguards operational policies.
- On review of national legislations regarding World Bank safeguards policy objectives and requirements, if it appears that there are major gaps, then the World Bank policy requirements will prevail and complied with.
- Project interventions will be identified, designed and implemented with engagement of the beneficiaries and communities inclusive of location, gender, social groups and ethnic identity and active consultation and participation process will be adopted and implemented.
- A locally appropriate grievance redress mechanism (GRM) will be designed and established for ensuring citizen participation, transparency and accountability.

1.3.4 ESMP Preparation Approach

The present ESMF has been prepared following the standard methodology consisting of the steps listed below:

- Review of the program details and meeting/ discussions with the DoF team
- Review of the policy and regulatory requirements
- Reconnaissance field visits by DoF team and initial scoping and screening to determine the key environmental and social parameters and aspects that are likely to be impacted by the program activities
- Collecting and analysis of baseline environmental and social data with the help of secondary literature review and field data collection by DoF team
- Consultations with the stakeholders including beneficiary/ affected communities and developing the consultation process

- An initial assessment of the potential and likely impacts of the program activities
- Prepare an outline of environmental and social management plan
- Compilation of the present ESMF.

The methodology for the preparation of the ESMF is presented in Figure 1.3.

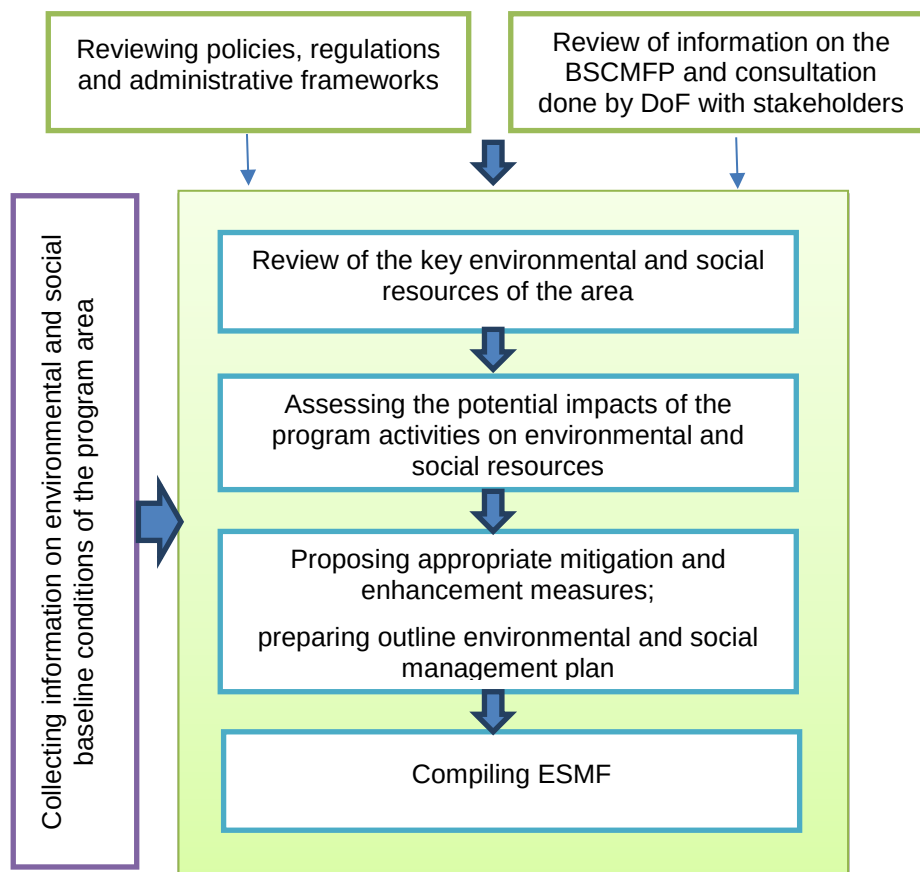


Figure 1.1: ESMF Preparation Approach.

1.3.5 ESMF Components and Structures

Chapter 2 presents a simplified description of the program, its various components and other salient information relevant for environmental and social assessment. Chapter 3 reviews the prevailing WB policies and national regulatory requirements relevant to environmental and social assessment. Description of the baseline environmental and social conditions is presented in Chapter 4. Environmental and Social management steps to be followed during the program and also screening, assessment and prediction of potentially negative environmental and social impacts have been discussed under Chapter 5. Chapter 6 presents the outline of the environmental and social management plan (ESMP) and as well as the appropriate mitigation measures to address these negative impacts. Finally, Chapter 7 describes the consultations that have been carried out with the stakeholders and also the requirements of similar consultations to be carried out while conducting the IEE/ EIAs/ SIAs.

1.3.6 Composition of Study Team

The ESMF study team was led by Mr. Mohammad Shahad Mahabub Chowdhury, Team Leader, and a DoF team of 5 members namely Dr. Zillur Rahman, District Fisheries Officer, Rangpur; Mr. Md Kamruzzaman Hossain, Chief Fisheries Extension Officer, Iftekhharul Alam, Senior Upazila Fisheries Officer, Fakirhat, Ayesha Siddiqa, Assistant Director, and Shafaet Alam, Deputy Assistant Director,

DoF. The DoF team collected baseline information and collated the findings of the stakeholder consultations assisted by DoF field officials.

Chapter 2: Project Description

2.1 Project Context

Potential role of Coastal and Marine fisheries in the food and livelihood security: Bangladesh has a unique geography, situated on the Bay of Bengal (BoB) and forming one of the largest deltas in the world with a dense network of tributaries of the Ganges, Brahmaputra and Meghna (GBM) Rivers. Due to the combined forces of waves, tides, and river water and sediment flows, the GBM tidal delta plain is particularly diverse and dynamic with one of the richest in aquatic resources. Bangladesh's fisheries sector includes three main sub-sectors: aquaculture (55.93% of total production), inland capture fisheries (27.79%), and marine and coastal capture fisheries (16.28%).

Coastal zone is very important bearings in Bangladesh since coastal population is around one-fourth of the total population, with poor livelihood groups forming about three-fourths of the coastal population. Water plays a vital role in sustainability of economic and social development in the region. The coastal zone has diverse livelihood activities that are vulnerable to water related natural hazards, and also affected by man-made hazards. Bangladesh is located at the head of the BoB, and the country has a coastline of approximately 710 km. Bangladesh has an area of 147,570 sq.km. with one third of the country belonging to the coastal zone (Ministry of Water Resources, 2005). The population of coastal zone is approximately 35 million.

Exploration, exploitation and management of living and non-living resources of the BoB have potential to substantially contribute to the economy of Bangladesh. Particularly after the recent decision of the International Tribunal for Law of the Sea (ITLOS) regarding the Bangladesh-Myanmar maritime boundary, 2012 and the decision of the Arbitral Tribunal of the UNCLOS on India-Bangladesh maritime boundary, 2014 established sovereign rights on more than 118,813 km² area of territorial sea and 200 nautical miles (NM) of Exclusive Economic Zone (EEZ) and all kinds of living and non-living resources under the continental shelf up to 354 NM from the Chittagong coast (MoFA, 2014). Currently, 32,440 km², starting from the coastline to 40 m depth, in the Bay, are open to around 67,669 unlicensed fishing boats, of which about 51% are non-motorized boats (Shamsuzzaman, Xiangmin, Ming & Tania, 2017). In Bangladeshi marine waters, fish resources are extracted in three tiers: (1) up to 40 m in depth from the coastline where normal fishing boats operate; (2) from 40 m to 200 m in depth where mid-water trawlers operate; and (3) from 200 m in depth to the end of the EEZ where longliner trawlers run (Islam et al., 2017). There are only 242 trawlers that are allowed for fishing in those regions by the government (MoFA, 2014).

Economy of the Coastal and Marine fisheries sector: In 2014, Bangladesh crossed the threshold to become a low-middle income country (LMIC), and per capita income reached US\$ 1,190 in 2015. Bangladesh's remarkable development achievements notwithstanding, high levels of poverty and population density remain pressing development challenges, particularly, in coastal areas and in the context of climate change. Given the context of increasing population pressure on land, the GoB has recognized that the expansion of coastal and marine fisheries, both capture and culture, can offer an important pathway to sustainable economic development and future poverty reduction opportunities for Bangladesh.

The fisheries sector is taking an increasingly major role in this performance, accounting for nearly a quarter of the agricultural GDP and emerging as a major growth driver in the last two decades as compared to the livestock or the still-dominant crops sectors. The fisheries sector also plays an important role in the food supply, food security, and livelihood security of the country's millions of fishers and other stakeholders. At the same time, poverty among coastal inhabitants remains among the highest in the country. Fisheries sector's total value is estimated as US\$ 3.6 billion in 2014-15. As

of 2014, the country's inland capture fisheries and aquaculture sectors ranked 4th and 5th in the world, respectively.

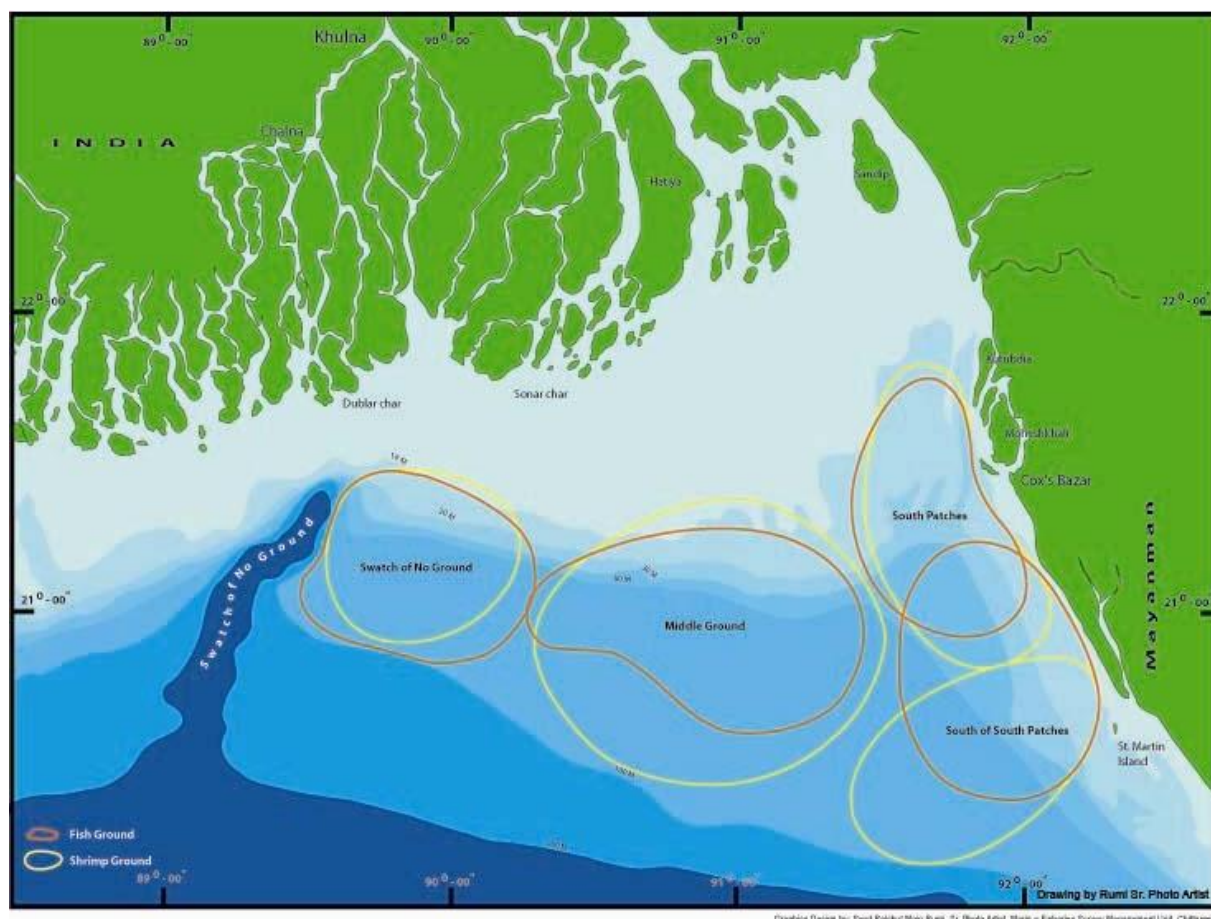


Figure 2.1: Major Fish and Shrimp grounds in Bay of Bengal

Fish provides 60% of all animal protein consumed in Bangladesh. Fisheries and aquaculture also play a major role in employment: about 17 million people (11% of the total population) are associated with the fisheries sector, with 5 million people involved in marine fisheries. With inland aquaculture accounting for nearly 80 percent of total aquaculture production, Bangladesh (in part as a result of WBG support over two decades to develop this sector) is well established as one of the world's leading inland fisheries producers overall, delivering over 3 million tons of fish in 2014-15 (two-thirds from inland aquaculture), an increase of 1 million tons (67%) over the past decade alone. Meanwhile, the country's total marine fish production for the same period was around 0.6 million tons (US\$ 515 million, first sale value), taken mainly from near shore areas <40 m depth (Fig. 2.1) and far less than the 6 million tons harvested by Bangladesh's neighbors in the BoB.

Historically, captured marine fisheries have received less national or development partner's attention and, while basic functions of data collection and regulating trawler operations are carried out, in practice there have been little tangible progress with fisheries management outside of the Bangladesh's iconic *Hilsa* fishery. Both small- and large-scale fishing operations are linked to Bangladesh's national and international trade in seafood (US\$ 599.4 million in 2014-15), operated through a complex system of merchants and middle-men that often comes at a cost to the producer.

Existing management weakness in the Coastal and Marine fisheries sector: The fisheries and aquaculture of Bangladesh plays an important role in the food supply, food security, and livelihood security of the country's millions of fishers and other stakeholders. Although having lot of opportunities and prospects the fishers in the coastal region do not get proper return due to lack of management in those areas. As a result, the poverty level of coastal fishers is also higher in the

country. The overpopulation pressure on land is a threat for Bangladesh to meet the challenges of 21st century which helped the GoB to think about the expansion of coastal and marine fisheries, both capture and culture. This can offer an important pathway to sustainable economic development and future poverty reduction opportunities for Bangladesh.

Thinking sustainable development of fisheries sector to increase GDP can act as a major growth driver to meet the sustainable development goals (SDGs). The challenges are to gradually bring the small-scale sector under co-management arrangements with the long-term aim to control inputs and to reserve resources. The main government policies are geared to expanding the scope and diversification of the coastal and marine fisheries sector in a sustainable manner through a better integration and access of local fishers; providing training and financial assistance to fishers; improved research to better manage marine fisheries resources and livelihood diversification through mariculture; and monitor and control the EEZ under the full control of the GoB as the fishery industry is the main source to support livelihood of the fishing communities.

Threats of the Coastal and Marine fishery sector development: Like other delta environments, Bangladesh is a known hotspot for natural disasters, increasingly attributed to climate change. The degradation of ecosystem and drastic change in ecological balance caused by climatic change has become a sudden and alarming threat for fisheries sector of Bangladesh. The country's 160 million inhabitants live on nearly 148,000 km² of land, resulting in population density of about 1,100 per km² in 2015. Livelihoods in the coastal zone are quite varied and influenced by socio-economic and physical environment of the coastal area. Small farmer, artisan fisher, rural wage labor and urban wage labor are the four major livelihood groups that together form about 73% of coastal population, while small farmer alone form approximately 50%. Small farmers and artisan fishers together form approximately 69% of coastal population.

Environmental issues are more prominent for the small farmers and artisan fishers that are involved in primary production activities. Directly linked to the environmental issues are storm surge induced flood, water logging, reduction of upstream flow, increased salinity, pest infestation, crop damage, resource degradation, deterioration of soil fertility etc. Issues related to water are mostly perceived by respondents as those are directly increasing the vulnerability of small farmers. Particularly storm surge flood, water logging/ drainage congestion, sand deposition and soil salinity became the major physical hindrance to farming system and production, and are also found as the major causes of sudden crop loss.

Climate change and its implications provide major challenges for the country, which, in the worst-case scenario threatens even the very existence of the country through sea level rise. More immediate impacts would be felt through climate variability and extreme weather events on coastal zone, fisheries, tourism, freshwater, agriculture, infrastructure and livelihoods. Environmental vulnerability and fragility was highlighted by Cyclones occurred in 1970, 1991, 2007 and 2009. Cyclone Sidr in 2007 was a nation-wide disaster which caused severe damage to the physical infrastructure of central coastal area, especially to those in plantation and aquaculture sectors. Total damages were estimated to be around US\$ 1 billion, remarkable percentages of GDP, not reflecting the indirect cost of environmental damage including substantial soil erosion and salinization of aquifers on many affected areas. Fishery sector in Bangladesh is most affected by above challenges and requires concert steps for its sustainable development in the country. The limits on land availability and quality – particularly in the face of increasing soil salinity and other climate-related threats – is one reason the country is looking toward coastal and marine opportunities for new sources of sustainable growth, particularly given their successful pattern of economic growth and poverty reduction. The marine fisheries functions as a resource of last resort while the near-shore resources are heavily exploited.

Challenges and Opportunities of coastal and marine fisheries sector development and way to overcome: The GoB recognizes the potential for the country to increase the value of its coastal and

marine fisheries through more sustainable management and in doing so, improve the lives of poor, coastal inhabitants. Several key sector-wide challenges necessitate government interventions and investments to enable responsible private-sector-driven growth. These include (i) the absence of an effective regulatory framework for managing coastal and marine fisheries; (ii) limitations in the basic public infrastructure necessary to enable private sector investment; and (iii) limitations in both public and private sector capacity for improved fisheries management and optimal productivity. To overcome these challenges and enable private sector investment, Bangladesh can learn from both regional and global experience and good practices for investing in marine capture fisheries governance reforms. Global experience highlights the need to first establish a core public sector governance framework, including an agreed sector vision, coherent policy, and enabling legal framework, to enable the design, piloting, and implementation of sustainable fisheries management systems supported by adequate institutional capacity building. The latter entails first and foremost building the DoF capacity to implement an effective management and MCS system to address the de-facto uncontrolled, open access system for the artisanal fleet while improving the sustainability and performance of the industrial fleet. Broader public sector reforms, in particular to support fishers to diversify their livelihoods in conjunction with the introduction of a functioning MCS, are necessary to incentivize sustainable fisheries management without negatively affecting livelihoods in the short-term and to provide the foundation for responsible private sector finance and investment in the long-term. In addition, enacting community-based approaches can address challenges faced by artisanal fishers and support those most disadvantaged, including the rural, coastal poor and women. Initiatives for expanding community access and management rights in inland fisheries could be replicated and scaled-up in the coastal fisheries to better address user conflicts and Illegal, Unreported, and Unregulated (IUU) fishing and improve their overall governance.

2.2 Project Development Objectives (PDO)

PDO level objective is to improve management of coastal and marine fisheries and aquaculture and fishing communities' access to alternative livelihoods activities. BSCMFP aims to develop an enabling institutional and policy environment for sustainable marine and coastal fisheries management and enhanced economic growth from export-oriented fisheries and mariculture, while also piloting alternative (sustainable) livelihood activities to support fishing communities during the transition from de-facto open access to managed fisheries. Setting the foundation for future sector growth, it will build the capacity of government fisheries and research institutions and pilot innovative approaches for improved management of coastal fisheries, including through co-management and alternative livelihoods. The project will focus on bringing fisheries policies, regulations, and management capacity up to a level needed to enable stock recovery and opening the space for responsible private sector investments in the sector.

Program level indicators (end of 12-year period): I. Share of coastal belt fisheries of overall fisheries contribution to GDP (per cent, disaggregated per level of effort); II. Value to volume ratio of export from capture coastal belt fisheries (number); III. Production per ha in coastal belt culture fisheries (ton) (disaggregated by shrimp, others); IV. Poverty in coastal belt fishing communities over national poverty level (percent vs numbers); V. Jobs (fte) in fish processing over jobs (fte) in targeted coastal fisheries (number); and VI. Annual landings per unit of capacity in coastal belt fisheries (kg).

Proposed PDO-level results indicators (Phase I, end of 6-year period): i. Fisheries management plans implemented (**number**) [corporate results indicator]; ii. Share of artisanal and industrial vessels in targeted coastal belt fisheries under MCS (per cent) (disaggregated by registered and non-registered); iii. Share of landed catch and aquaculture production in targeted coastal belt fisheries in safe handling (**according to defined criteria**); iv. Share of targeted coastal belt fishing communities with access to project-promoted livelihood activities outside of fishing (**percent, disaggregated by gender**); v. Aquaculture farmers with access to productivity boosting packages (**percent,**

disaggregated by gender); vi. Share of targeted beneficiaries that express satisfaction with project interventions (**percent, disaggregate by gender, youth**) (livelihood aspects, management).

2.3 Project Beneficiaries

The project will provide a holistic response to a set of dynamic issues that poor, vulnerable coastal fishing communities face. It will result in benefits to households and individual members, especially the most disadvantaged (i.e., female-headed households, widows, the poorest, and the elderly) of those communities.

The project target groups of beneficiaries are the fishers and poor and extremely poor fisheries-dependent households in 16 coastal districts [at pre-appraisal to finalize number and measurement of poverty count]. The project will support the establishment and empowerment of community co-management associations to make decisions on fisheries management and support the fisheries-dependent poor to adopt supplementary and alternative livelihoods. The Component 3 is tailored to the beneficiaries within the villages – poor and extremely poor households -- being the primary target of project interventions, and selected by using a “Participatory Identification of the Poor.” Definition of poor beneficiaries will be through a process that enables the villagers to self-identify poor and extreme poor based on observable and objective household assets (e.g., house construction material, livestock ownership) and characteristics (e.g. female-headed, livelihood, and food consumption patterns).

Attention will be paid for enabling women’s participation in planning and decision-making processes, and increasing their access to alternative livelihoods. These are also areas where gender gaps are the most glaring. Women and children will also benefit from the support for the consumption, production, processing, and marketing of high nutrient- and protein-rich small fish. Additional benefits will accrue to fishers and the GoB from more productive and better performing institutions and, over time, better services and effective co-management in the fishery sector. The project will also directly benefit the implementing agency (DoF), and all government authorities (DoF, Bangladesh Coast Guard, Bangladesh Navy, Chittagong Port Authority, Bangladesh Police, MMO, and Bangladesh Customs) that will use the MCS systems in the coastal and marine fisheries sector.

2.4 Components

The BSCMFP Phase I components will support GoB in designing, establishing, and effectively operating fisheries management systems for sustainable utilization of coastal and marine fishery resources. Project financing will be provided for fisheries governance and management systems, infrastructure, and other value-chain investments aimed at improving the sector’s resource base and increasing its productivity. The project will focus on bringing fisheries policies, regulations, and management capacity up to a level needed to enable stock recovery and opening the space for responsible private-sector investments in the sector. Phase I project has four components as outlined below. It is further expected that Phase II will maintain the same 4-component structure but will significantly shift the focus and resource allocation towards scaling-up components 2 and 3.

COMPONENT 1: Enabling sustainable fisheries sector investments and growth (IDA US\$ 48.0 million)

Component 1 is aligned with the targets of PDO indicators 1 and 2. It also supports the GoB commitment to sustainably develop the country’s enlarged EEZ³ through (a) more effective management of coastal fisheries with responsibilities shared between DoF and artisanal fishing communities and (b) improved sector transparency, integrity, and accountability. The component aims to strengthen the enabling environment for infrastructure improvements and technology investments through support to policy and institutional development, research, and measures for

³ See ‘B. Sectoral and Institutional Context’ section of the PAD

strengthening the MCS, improving safety of life at sea, and enabling effective fisheries management. Specifically, funding will be provided for policy and regulations development, stock assessments, analysis for defying sustainable fishing levels, preparation of management plans, training, design and implementation of control and monitoring system and procurement and installation of equipment, and infrastructure for DoF and other national fisheries research institutions. In addition to strengthening artisanal fishermen safety of life at sea in the face of growing climate variability, the component will also integrate and promote climate and disaster risk reduction into the sector policies, plans and management tools and regulations supported by the project. Activities are grouped in three sub-components supporting the DoF with regulatory, institutional, and financial frameworks and incentive mechanisms for increased sector growth:

Sub-component 1.1: Stock Assessment and Development of National Fishery Management Plans (IDA US\$ 10.6 million) will support DoF to establish the data and analytical foundations for evidence-based fisheries management that utilizes updated stock data and analysis for optimizing fisheries production, including by better monitoring, analyzing, and adapting to on-going climate change impacts on the country's fisheries, for example, through monitoring of commercial species distribution and adjustment of fishing effort.

The sub-component will support DoF for: (i) *carrying stock survey and assessment* for shrimp, demersal, and pelagic stocks; (ii) *strengthening the catch monitoring systems* for both industrial and artisanal fisheries, and (iii) preparation of *national fisheries management plans*. For (i) and (ii) funds will be provided for knowledge exchange, capacity development and training, fishery surveys and stock assessments, and electronic equipment upgrades for R/V MeenShandhani. Support for the catch and effort monitoring systems will cover on-board observers for industrial and semi-industrial vessels; catch measurement at both industrial and artisanal landing sites; and stock and catch data management. Funding will also be provided for design, supply and installation of equipment and recruitment of Extension Agents for catch monitoring data collection and calibration of existing monitoring system. For (iii) the project will provide technical assistance for updating and participatory preparation of national fisheries management plans (zonal and/or species-based). Plan development and implementation will be carried out based on the 'precautionary principle', in conjunction with stock assessments and in consultation with the key stakeholders. Development of fisheries management plans will enable DoF to inform the nation's fisheries policies and regulations based on scientific evidence to address existing gaps in fleet control, MCS, legal enforcement, co-management, and conflict resolution among stakeholders in the sector. Technical assistance will be provided for services for preparation of the management plans, capacity training for expanding DoF's expert base, community outreach and stakeholder engagement.

Sub-component 1.2: Enabling investments in sustainable fisheries (IDA US\$ 15.4 million) will support DoF in: (i) *strengthening the fishery policies, regulatory framework; and institutional capacity*; (ii) *measures for reducing investment risks due to regulatory and enforcement gaps*; and (iii) *implementation of awareness-raising programs*. Activities under this sub-component will be carried out in consultation with different fishers' and boat-owners' associations (industrial and artisanal) and relevant government entities, such as the Bangladesh Coast Guard, Bangladesh Navy, Bangladesh Police, Chittagong Port Authority and Customs, and other stakeholders. Inter-institutional coordination will be critical for the development of rules to implement the new Bangladesh Marine Fisheries Act, currently under legislative review. Institutional and regulatory capacity-building by the project will address existing gaps to enable improvements in: (a) vessel registration and fleet capacity management; (b) licensing management system; (c) stock monitoring; (d) MCS, including joint coordination (e.g. information-sharing and division of responsibilities) with other government entities; (e) co-management by small-scale fishers' associations; and (f) enforcement and conflict resolution among different fishers (e.g., to address illegal trawler entry into coastal waters). Technical assistance will be provided for the establishment of a legal team in

DoF and for specialized training for judges and court staffs on the new legislation, on marine fisheries management and mariculture, co-management, international fisheries negotiations, and licensing and enforcement. Funding will be directed for targeted *awareness-raising and behavioral change programs* on fisheries control issues for effective law enforcement and prosecution, to be carried out in parallel with the institutional capacity development. In parallel DoF capacity for citizen engagement and conflict resolution will be strengthened, including the establishment of a functional grievances redress mechanism (GRM) for artisanal and industrial fishers. Finally, this sub-component will assist improving the DoF presence and operational mobility in the coastal area for more effective monitoring and enforcement by establishing and equipping a network of coastal fisheries monitoring posts.

Sub-component 1.3: MCS development for IUU Reduction (IDA US\$ 22 million) will support: (i) *expansion and strengthening of fisher's boats registration*; and (ii) *development and deployment of information systems for MCS*. DoF will receive project support for expansion of current fishers' ID card system and improved vessel registration and licensing. Monitoring and reporting is currently being conducted by the DoF and other government entities on industrial and artisanal fleet regarding sizes of catch, location of vessels, gears, and other aspects. Support will be provided for linking a fishing craft database to a GIS platform to produce visual reports on the locations of vessels by size and gears used. The Fishers' ID Card database will be similarly geo-referenced to show locations of artisanal fishermen. Project supported measures will further help improve the coordination and effectiveness of the registration responsibilities currently split between DoF and MMO.

A *Joint Coordination Center (JCC)*, coordinated by the DoF and connecting other relevant marine and coastal authorities, will be established to coordinate domestic vessel monitoring, patrolling, and information-sharing for improved reporting, search and rescue, and enforcement. The project will support the design, purchase and installation of physical and communications infrastructure, provision of licenses, and technical assistance and services for capacity development and training, as well as development of protocols and guidance manuals for information-sharing and division of responsibilities among DoF and the other JCC agencies. Project funds for (ii) above, will be further directed for design, deployment and training for the *integrated MCS coverage* for improving safety of life at sea and effective fisheries management. This will allow upgrading and providing 100% coverage to the industrial fleet's Vessel Monitoring System (VMS), including software, hardware, and transponders, and will introduce Automatic Identification System (AIS)⁴ or compatible units for the artisanal fleet. The AIS, in particular, is expected to significantly improve search and rescue capabilities, which are becoming critical for hundreds of thousands of artisanal fishermen as increased climate variability and change lead to more and more extreme weather events in the BoB. The project will further support integration of the AIS and VMS with the Fishers' ID and vessel databases, as well as with the land-based catch monitoring system supported under sub-component 1.1 above. Funding will also be directed for technical assistance for MCS training to respective authorities; training for fishers' and boat-owners' associations on MCS information technologies.

Sub-Component and list of associated activities at a glance:

1.1. STOCK ASSESSMENT AND DEVELOPMENT OF NATIONAL FISHERY MANAGEMENT PLANS

1.1.1 Building National Fisheries Stock Assessment Functions

- A. Strengthening DoF stock assessment unit and survey management**
 - Staff knowledge exchange and training
 - Quality assurance and capacity development for stock assessment and surveys

⁴ In addition to its primary safety of life at sea functions, AIS can allow vessels' compliance in the fisheries management zones to be monitored at low cost and with fewer staff.

- Training capacity development for stock assessment and surveys
- Survey equipment
- Stock assessment unit facility upgrade

B. Stock Surveys

- Electronic equipment upgrades for R/V MeenShandhani
- Annual Surveys (R/V MeenShandhani)
- Periodic echo-sounder surveys x 2

1.1.2 Strengthening of catch monitoring systems

- Catch and Effort Monitoring System (for stock assessment purposes: design, supply and installation)
- "Extension Agent Recruitment": Catch and Effort Monitoring and data collection

1.1.3 Preparation and update of Fisheries Management Plans

- Fisheries management plans/ annual management plans
- Expert advisory/ technical and legal
- Consultations and stakeholder engagement
- Fishery management for highly migratory stocks spanning areas within and beyond national jurisdictions

1.2. ENABLING INVESTMENTS IN SUSTAINABLE FISHERIES

1.2.1. Strengthening fishery policies, legal and regulatory framework

- Consultation with fishers' and boat-owners' associations (industrial and artisanal) and relevant government entities

1.2.2. Measures for reducing investment risks due to regulatory and enforcement gaps

- Consultation with the Ministry of Law, Justice and Parliamentary Affairs; Law and Justice Division
- Establish a legal team and training for prosecution of fishing cases
- Specialized training for judges and court staff in the Law and Justice Division of the Ministry of Law, Justice and Parliamentary Affairs on the new legislation; Training on marine fisheries management and mariculture, co-management, international fisheries negotiations, and licensing and enforcement.
- Awareness-raising and behavior change programs
- DoF's capacity for conflict resolution strengthened and a functional grievances redress mechanism established for both artisanal and industrial fishers.

1.2.3. implementation of awareness-raising programs

1.3. MCS DEVELOPMENT FOR IUU REDUCTION

1.3.1. Expansion and strengthening of fisher's boat registration

- Initial baseline registration and licensing campaign
- ID database update and designing and maintenance system
- Deployment of ID-card registration system (upgrade/ design and Bank card), licensing and training for capacity development to monitor

1.3.2. Development and deployment of information systems for MCS

- MCS system and Joint Coordination Center (JCC) design, equipment and training
- JCC infrastructure
- MCS system operation training
- Industrial Vessel VMS upgrade and deployment: system software, hardware, and transponders
- AIS master and additional user licenses

- AIS units, installation, and training
- On-board observer program for industrial vessels

COMPONENT 2: Improving Infrastructure and Production Practices (IDA US\$ 123.2 million).

This component is aligned with the targets of PDO indicator 3 and aims to support closing basic infrastructure and technical capacity gaps to promote integrated value-chain development and compliance to standards. The component will support measures for improving genetic quality, biosecurity, and disease control in shrimp hatcheries that are expected to significantly reduce coastal aquaculture exposure to devastating disease outbreaks and production crashes, while generating productivity increases of up to 20 percent and reducing the taking of juvenile fish as a by-product to the harvest of wild shrimp seed. Infrastructure support will be implemented to incentivize private sector investments, where feasible, and will be phased-in in conjunction with the progress of sector management reforms supported by the project in order to avoid generating additional overfishing pressure by increasing the sector's value. In capture fisheries, the initial efforts will focus on the semi-industrial and motorized artisanal fleet and will be extended to the industrial fleet in sync with the progress of management reforms. All infrastructure investments will be subject to detailed disaster and climate risk screening. Where feasible, the project will promote green infrastructure technologies for seafood production that also support broader ecosystem services and improve coastal defenses, such as mangrove rehabilitation, sea grass, and oyster beds. Importantly, the design of coastal infrastructure will aim to optimize adaptation benefits and avoid maladaptation, including by linking fish habitat restoration to nature-based coastal protection solutions and ensuring climate-resilient value chain infrastructure development. Technical services for design and supervision and works will also be financed under this component. Component 2 includes the following sub-components:

Sub-component 2.1: Infrastructure Improvements for Capture and Culture Fisheries (IDA US\$ 86.2 million) will focus on providing support for: (i) inputs for *prioritization of productive infrastructure improvements*, and (ii) *infrastructure for increased productivity*. Specifically, under (i) funds will be provided for stakeholder consultations and analyses to identify options for improving existing harvest-to-retailer chains in capture and culture fisheries, including for increasing women's economic opportunities, and promotion of investors' dialogue at international and local investment forums. The sub-component will also design and test access-to-finance facility and capitalization scheme for fishers and aquaculture smallholders — including with a gender dimension; communication and awareness campaign — with the objective of deploying it at scale as enabling data availability, sector management, infrastructure, and absorption capacity pre-conditions start materializing.

Under item (ii) the sub-component will pilot and finance *infrastructure improvements*, including engineering services for design and supervision and the construction of industrial as well as up to 16 small-scale artisanal landing clusters (capture) with post-harvest facilities in each of the southeast, central, and western coastal regions. Assistance will be provided for improving post-harvest quality and value-added, including ice and cold-storage facilities⁵ constructed at different cluster sites as demonstration investments, to be further scaled-up at other locations in the central and western coastal regions in BSCMFP Phase II.

This sub-component will further support aquaculture cluster development and cluster farming productivity increase targeting up to 600 new clusters, including deployment of Extension Agents for clusters-producer mobilization and technical assistance for business/ infrastructure plans

⁵ Chill stores hold product at 0-4°C, with fish normally stored in ice in plastic bins. Cold stores hold product at below -18°C, with fish normally wrapped in plastic inside cardboard cartons. Cold stores should not be used to freeze products – blast, plate or IQF freezers should be used for this purpose.

development. Funds will be made available on competitive basis for targeted cluster support for increased productivity and for increasing the post-harvest value added for up to 200 graduating clusters to implement their business plans. In parallel, the sub-component will support works for canal desilting and rehabilitation for restoring selected canals supporting the shrimp aquaculture in the Southwest coastal belt, as well as consulting services for salinization mapping, hydrological survey and canal rehabilitation design for scaling-up these investments in Phase-II in order to increase survival and growth rates and improve the intensification of aquaculture production throughout the coast. As an incentive for expansion of aquaculture cluster production, the sub-component will also support improved access to basic utilities, aiming to overcome one of the major obstacles to increase the aquaculture yields per unit area due to the limited availability of 3-phase electricity for pond aeration, estimated to include potential increases in farm incomes by up to 25 percent in the short term.

Sub-component 2.2: Value chain and food safety (IDA US\$ 10.2 million) will focus on capacity measures for increasing post-harvest value of catch and compliance with food safety standards, including adoption of good aquaculture practices (GAP) that are critical to sustaining the value of capital infrastructure improvements. Project support will be provided for: (i) seafood safety and competitiveness; (ii) research and innovation, and (iii) boosting coastal aquaculture productivity.

Under item (i) technical assistance and services will be provided to bridge the regulatory capacity and skills gap. Project funds will be provided for seafood safety needs assessment, for example, through a hazard analysis and critical control points for processing plants (HACCP); training in food safety (for factory workers and industrial trawlers and large mechanized boats); a sensitization and promotion campaign for seafood safety consumer awareness; GoB staff international and domestic food safety inspection training; support for seafood safety policy implementation including a food safety pilot for Domestic Markets (Sampling and Analysis). In parallel, the sub-component will finance the introduction of a robust e-traceability system in line with current US and EU import requirements, including system design and equipment.

Learning opportunities will be provided through a ‘training of trainers’ (ToT) model on best-practices for the enforcement of handling and safety regulations. The model will help train fishers as well as port and landing site and market operators in best practices for fish handling and food safety. Concurrently, a longer-term capacity solution will be sought in partnership with the Marine Fisheries Academy (MFA) and major Bangladesh universities. Training support will be extended to cover a range of practices and topics critical to maintain post-harvest quality and food safety.

Activities under item (ii) will provide support for expanding Bangladesh’s marine science and technology capacity by strengthening the government-academia-industry interface. The project will support the preparation of comprehensive marine spatial plan to allow for scaling-up of mariculture in Bangladesh and help initiate targeted mariculture research in partnership with BFRI. The sub-component will facilitate partnerships on R&D through the National Skills Development Council and other capacity development institutions and universities for delivery of vocational training programs on topics such as aquaculture, fishing, post-harvest practices (including food safety and quality), marketing, environmental safeguards, and social and business skills of direct relevance to the long-term development of the fisheries and aquaculture sectors.

Sub-component 2.3: Boosting Coastal Aquaculture Productivity (IDA US\$ 26.8 million) will (i) leverage private sector initiative to pilot and commercialize mariculture in Bangladesh and for boosting export earnings from aquaculture, and (ii) support strengthening DoF capacity to monitor and sanction biosecurity compliance.

Specifically, the sub-component will establish a DoF-managed *challenge grant facility* with two dedicated windows for mariculture (including cage culture) piloting and commercialization, and one

dedicated grant window for mobilizing private sector solutions to address the poor growth performance and disease burden attributable to wild brood stock sold currently used by a large portion of the aquaculture farmers. The grant facility will leverage private sector finance targeting the implementation of a discrete set of climate-smart aquaculture investments to improve biosecurity and increase productivity, while also reducing juvenile fish mortality in the coastal zone. The mariculture windows will support applied mariculture research, technology innovation, market studies, and production piloting, while aquaculture one will focus on piloting domestic mud crab and fin-fish hatcheries and on the commercialization of Specific Pathogen Free (SPF) shrimp/ prawn hatcheries/ multiplication facilities enhancement, targeting the introduction of up to 10 new SPF hatcheries in the country. This pilot work in mariculture, hatchery technology, and disease control will inform adaptation to the on-going sea level rise and salinity regimes change, for subsequent scaling-up in Phase-II.

The sub-compact will also support the construction and equipment of dedicated SPF brood stock facility as well as *quarantine and food security laboratories* for shrimp and fish products. In conjunction with *safety and value-chain* enhancement measures under sub-component 2.2 above, this will strengthen the government regulatory and oversight capacity in monitoring and control of infectious crustacean diseases. Investments will target: a) upgrading of lab facilities for polymerase chain reaction (PCR) and other relevant testing; b) training of laboratory and field staff in sampling protocols and handling; c) establishing a routine inspection and monitoring system; d) establishing an early warning system (EWS) for disease outbreaks; and e) establishing a functioning private hatchery certification program.

2.1. INFRASTRUCTURE IMPROVEMENTS FOR CAPTURE AND CULTURE FISHERIES

2.1.1. Prioritize productive infrastructure investments

- Priority Setting/ Locations
- Improving value chain performance
- Improving producer and processor access to finance
- International and Local Investment Promotion: Campaign and Investor's Roundtable
- International and Local Investment Promotion: Communication and awareness campaign
- Aquaculture Investment Promotion Unit

2.1.2. Infrastructure for increased productivity

- CAPTURE: Public Sector Infrastructure support for capture value chain improvements
- Comp 2 General engineering design and supervision
- CULTURE: Cluster development -- "Extension Agent recruitment" (600 clusters- producer mobilization and business/ infrastructure plans development)
- CULTURE: Cluster Farming Productivity Increase: public infrastructure support (cluster business plan implementation for up to 200 graduating cluster)
- CULTURE: Cluster Farming Productivity Increase: production inputs and post-harvest value added (cluster business plan implementation for up to 200 graduating cluster)
- Salinization mapping, Hydrological survey and canal rehabilitation scale-up design for Phase-II

2.2. VALUE CHAIN AND FOOD SAFETY

2.2.1. Seafood Safety and competitiveness

- Seafood safety Needs Assessment-- HACCP --- hazard analysis and critical control points for PROCESSING plants
- Training in Food Safety (factory workers and industrial trawlers and large mechanized boats) unit measure batches

- Seafood Safety Consumer Awareness: Sensitization and Promotion
- Govt. staff International Training (food safety inspection)
- Govt. staff national training 700 (x3 trainings)
- Seafood safety policy implementation
- Food Safety Pilot for Domestic Markets (Sampling and Analysis)
- e-Traceability/ IT system design and equipment deployment

2.2.2. Research and Innovation

- Targeted Mariculture and Commercialization research, BFRI
- Marine Spatial Planning (for Mariculture)

2.3. BOOSTING COASTAL AQUACULTURE PRODUCTIVITY

- Policy Reform: Importation of SPF BTS
- SPF Brood Stock (multiplier) Facility Upgrade
- Hatchery Enhancement and Mariculture Research and Commercialization Grant facility
- Hatchery Certification System Design
- Disease diagnostic Laboratory Upgrades (farmer level)
- Hatchery Certification and Testing System Operation.

COMPONENT 3: Community Empowerment and Livelihoods (IDA US\$ 52 million)

This component is aligned with the targets of PDO indicator 4. The component uses a CDD approach and a package of investment and financial support aiming to strengthen community fisheries management and transform livelihoods in poor fishing communities to reduce dependence on fishing. Phase I project pilot activities will focus on up to 450 villages, including up to 100 Model fishing villages (MFVs), which, if successful, will be scaled up in Phase-II project. A household approach will enable gender-equitable distribution of resources to enhance coping capabilities for both men and women. Ultimately, transformations promoted by the project will be critical not only to achieve poverty reduction in fishing communities, but also to reduce fishing effort and destructive fishing practices, and thereby enable more sustainable fisheries management. Activities for livelihood diversification and/or managed retreat for improving the climate resilience of target coastal fisher communities will be further screened to minimize climate and disaster risk, including to direct flooding, connectivity disruption, salinity regime changes that reduce likelihood of engaging in aquaculture as an alternative to fishing, etc. The activities of component 3 are structured in two subcomponents to be co-implemented by SDF in collaboration with DoF. Project funds will be allocated for technical assistance and services, direct costs, small grants, savings groups, and small loans to promote co-management of near-shore coastal fisheries resources.⁶

Sub-component 3.1 Fishing Community Institutions and Alternative Livelihoods Development (IDA US\$ 32 million) will support (i) fishing communities to establish community institutions and strengthen their capacity; (ii) capacity training for communities on fisheries management, nutrition, climate and disaster risk reduction, and livelihood diversification; (iii) designation and development of up to 100 model fisher villages (MFV); and (iv) piloting of fisheries co-management and community enforcement.

Under item (i) project funds will support to up to 400 fishing communities with establishing and building the capacity of village institutions, including *Fishing Village Groups (FVGs)* and FVG sub-committees to manage the day-to-day affairs of the FVG and a revolving *Institution Development*

⁶ Co-management activities under Component 3 will initially focus on social mobilization of poor fishers, including training to build their awareness of fisheries management and regulations. Once the enabling regulatory environment and an artisanal MCS system (Component 1) are in place, then additional co-management activities, such as boat and gear buy-backs can be implemented without the risk that owners will use the buy-back funds to purchase more boats/gear. Completing the legal reforms to recognize resource-management rights of fishing communities early on into the project implementation will be critical to provide communities with an incentive to participate in fisheries monitoring and enforcement.

Window, (IDW) loan fund for fishers' livelihoods. Poor communities will benefit from project financial support for transition from capture fishing to alternative livelihoods and for practicing more sustainable and legal fishing. Funds will be allocated as (a) one-time grants (OTG) to the poorest and most vulnerable fisher households to allow them to purchase key household livelihood assets and reduce their dependency to outside moneylenders; (b) community savings groups for fishing households with priority given to women's savings groups to ensure that both women and men equally benefit from livelihood support, and (c) credit and loan funds through the *Livelihood Finance Window* (LFW) – a revolving fund to support fisher households in adopting either livelihoods outside capture fishing or sustainable capture fishing practices using legal and non-destructive technologies.

Technical assistance for training and development of core skills necessary for village institutions and community members during the transition process out of fisheries will be delivered through extension agents and qualified trainers to inform community members on a variety of topics essential for improving community fisheries, livelihoods, and health as well as enhancing fisheries' resilience to climate change and natural disasters. *Awareness-raising* and behavioral change interventions will promote the adoption of improved dietary practices during critical stages of the life cycle, including pregnancy, breastfeeding, early childhood, and adolescence, when nutrition plays a formative role in determining health and developmental outcomes. These interventions will increase households' knowledge of nutritional needs and locally available nutrient-rich foods/supplements

Under item (iii) funds will be provided for up to 100 prototype MFVs to be established as a foundation for participatory community-led fisheries co-management. Fisheries Co-Management Committees (FCMCs) with members from several adjacent villages will be supported to work with DoF in the preparation and implementation of *fisheries co-management plans* (see component 1). FCMC members will prioritize the project support by completing participatory mapping of fisheries resources in the area as an input for preparation of the fisheries co-management plans. In conjunction, the communities will identify, procure, build and manage the MFV community infrastructure and/or productive activities for transformation of livelihoods to be financed through grants to FVGs that are drawn from a *Community Infrastructure Support Window* (CISW). In order to inform a gender-equitable and sustainable growth, the support for the preparation of the plans will include technical assistance for (a) collection of gender-disaggregated sector data, (b) filling knowledge gaps crucial to understanding the constraints and opportunities that women and men face in fisheries and mariculture value chains, and (c) skills assessment to identify vocational and training needs to meet the future growth needs of the sector.

Sub-component 3.2 Business Development and Market Linkages for Alternative Livelihoods (IDA US\$ 20 million) will focus on (i) building/ strengthening producer organizations in fishing communities; (ii) facilitation of market linkages with producers in fishing communities; (iii) large scale vocational training; and (iv) providing opportunities for youth in fishing households to access wage employment. The sub-component will also support a framework for scaling up co-management and livelihoods (under Phase-II).

The sub-component will provide direct support to fisher households, targeting youth in particular, to transit out of fishing through a holistic package of business development, and financial support, and facilitated access to job-related training and employment resources in- and outside of their home villages. Activities will be anchored in the capacity of community institutions and will therefore start in year two or three of the project. These activities aim to optimize the passive retreat out of fishing and improve the long-term sustainability and adaptive capacity of fishing communities. FVG members will benefit from project support to establish producer groups and acquire skills to enhance their ability to obtain competitive prices for their inputs and products. The sub-component will target entrepreneurs whose financing needs exceed the capacity of the LDF loans and will

support them to access affordable finance from outside financial institutions. Vocational training and skills development will be provided to fisher households, targeting youth in FVG member households to start their own businesses. Vocational training will be also extended outside of the pilot communities, reaching to fishers who migrate for work on the semi-industrial (artisanal) fleet. To do so the project will enhance the partnerships with private firms and associations with vocational training institutions and skills development/ job creation initiatives.

3.1. FISHING COMMUNITY INSTITUTIONS AND ALTERNATIVE LIVELIHOOD DEVELOPMENT

3.1.1. Fishing Communities to establish community Institutions and strengthen their capacity

- Establish and organize cluster offices at the field
- Conduct participatory identification of the poor fisher households
- Livelihood needs assessment for poor and extreme poor fisher households
- Mobilization and training of Fisheries Community Groups (FCGs)
- OTG to poorest and most vulnerable
- Establish community savings groups

3.1.2. Capacity training for communities on fisheries management, nutrition, climate and disaster risk reduction, and livelihood diversification

3.1.3. Designation and development of up to 100 model fisher villages (MFV)s

- Community participatory infrastructure needs assessment, procurement plan, operation and maintenance plan
- Communities procure, build, and manage their infrastructure investments
- Establish Livelihood Finance Window (LFW) as a revolving loan fund
- Support to communities to prepare Business plans

3.1.4 Piloting of fisheries co-management and community enforcement

3.2. BUSINESS DEVELOPMENT AND MARKET LINKAGES FOR ALTERNATIVE LIVELIHOODS

3.2.1. Build and strengthen producer organizations in fishing communities

3.2.2. Facilitation of market linkages with producers in fishing communities

3.2.3. Providing opportunities for youth in fishing households to access wage employment

- Training and skills development to help unemployed/underemployed youth in fisher households
- Counseling to youth in fishing households and their families to prevent school drop-outs and facilitate the transition out of fishing.
- Vocational training and skills development/job creation initiatives.
- Framework for scaling up co-management and livelihoods (under Phase-II)

COMPONENT 4: Project Management and Monitoring (IDA US\$ 16.8million)

This component will provide funds for establishment and operation of project management, monitoring and evaluation structure within the DoF that is also integrated within the institutional capacity assistance under Component 1. Specifically, project financing will be directed for the operation of PMU staff and consultants hired as experts on a needs basis; retaining general consultant to manage day-to-day project implementation while strengthening DoF capacity for the initial three years of the project; establishment and operation of financial management and procurement management systems acceptable to the World Bank; PMU recurrent costs; implementation of communication plans and activities related to Access to Information (AI); implementation of governance and accountability and financial management actions and third-party audits; implementation of the project's environment and social management framework (ESMF); monitoring and evaluation (M&E); stakeholder coordination; and special evaluation studies.

2.5 Broader Project Locations

The location map of the BSCMFP is shown in Figure 2.2.

Project will cover 705 unions under 75 upazilas covering 16 coastal districts. A list of project geographical coverage areas is furnished in the Annex E.

Program area selection criteria: The upazilas have been selected on the basis of following criteria:

- High potential for increasing production and productivity through improvement of existing farm practices;
- High scope for intensification and diversification through dissemination of available knowledge and technologies;
- High potential for high value shrimp/ finfish production;
- Wide scope for improvement of livelihoods of small and marginal farmers/ fishers along the vulnerable coastal areas of Bangladesh;
- Highly responsive coastal community eager to find and adopt better options to improve livelihoods and alleviate poverty and malnutrition;
- Reasonably less developed area due to inadequate development initiatives with very limited resources;
- Ecologically constrained (saline intrusion, drought, natural hazards) areas with high potential to adopt climate smart technologies; and
- Economically depressed areas with less access to public resources and financial institutions.

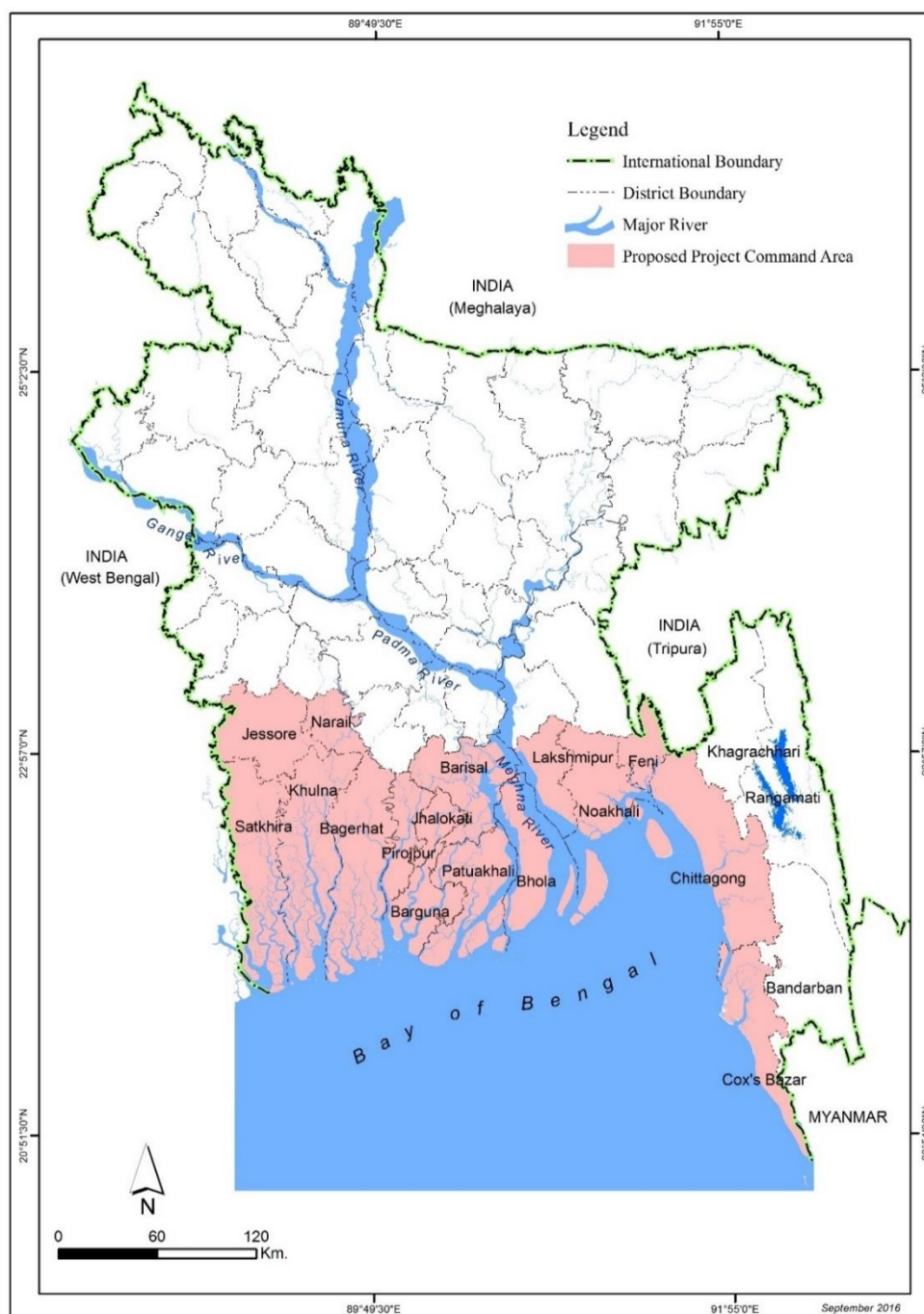


Figure 2.2: Location Map of BSCMFP Program.

2.6 Project Implementation Arrangement (Phase I)

Implementation of Phase I project is designed to address the complexity of the project by tapping in technical expertise from the DoF, other agencies and organizations. The DoF will be the implementation agency for the project and house the Project Management Unit (PMU) responsible for day-to-day implementation. A Technical Implementation Group (TIG), consisting of DoF technical staff, will provide technical guidance on a case by case basis to DoF's front-line offices and outside executing partners at the district and sub-district (upazila) levels, and overseeing technical implementation quality. The overall goal of establishing a TIG is to ensure technical quality, consistency in approaches, and knowledge exchange. Despite DoF's substantial experience it faces limitations in terms of staff capacity, especially in coastal districts, as most technical staff are inland fisheries and aquaculture specialists. To enhance and contribute to DoF's capacity, the project, as

necessary, will engage technical specialists of international caliber with extensive experience in marine fisheries.

MoFL will establish a Project Steering Committee (PSC), chaired by the Secretary and including representation from the Ministries of Finance, Economy, Agriculture and Maritime⁷ to provide policy guidance and facilitate inter-ministerial collaboration on reform agenda. The establishment of PSC will be done by the MoFL. The PMU will operate within the staffing plan and budget limits determined by annual plans approved at the PSC level. A system for M&E of project results will be established at the outset of the project implementation, which will produce semi-annual reports on project implementation and funds utilization.

Led by a DoF-appointed PMU Project Director and Deputy Project Director, the PMU's core operational staff will include a Project Manager; Financial Manager; an Accountant; 6 Technical Coordinators (TCs) with qualification and experience to support the implementation of components 1, 2 and 3; 2 procurement specialists; and 2 technical assistants. The PMU Project Director will report to the DG of DoF. Based on the recommendations of the project's fiduciary assessments, and mindful of DoF's lack of recent experience managing World Bank project financing, the DoF will further engage the services of a Project Management Consultancy for a 3-year duration, to both support DoF/PMU project implementation and reporting functions and provide on-the-job training and capacity implementation to DoF/ PMU staff. The PMU staffing plan will be approved by MoFL and DoF and will be part of the Project Operations Manual (POM) approval.

DoF's substantial experience with citizen engagement will be supported by an Advisory Committee (AC) to facilitate stakeholder outreach. Due to the highly technical nature of the marine capture fisheries sector reform, the AC, with representatives from government, private sector, academia, and civil society, will be established by the MoFL to facilitate citizen engagement and inform governance, development trends, and technical issues.

The PMU will operate based on a POM approved by the PSC and the Bank. The POM be updated as necessary during mid-term implementation review. POM will include an indicative implementation plan guiding the sequence of project activities and investments to augment project development impact and ensure there are no capacity bottlenecks. The POM will include details on institutional and implementation responsibilities, technical aspects of all components and activities, implementation guidance related to measuring results, monitoring and evaluation, financing and FM aspects, supervision and reporting provisions, applicable procurement rules and plans, and AI and governance provisions related to the project. Documents related to environmental and social safeguards and legal agreements will be annexed to POM.

Project Components 1 and 2 will be implemented directly by DoF through the PMU using the agreed implementation provisions spelled out in the POM. Component 3 will be implemented with the support of the SDF as a co-implementing agency. SDF is an autonomous GoB agency specialized in CDD projects. A Memorandum of Understanding (MoU) between DoF and SDF will establish the project implementation responsibilities while execution modalities will be detailed in a Manual of Operations (MO) adopted by the DoF and SDF specifically for Component 3.

SDF will carry out participatory and inclusive education and community development activities, as well as grassroots awareness building to ensure project interventions are deployed and accepted by a large group of stakeholders. The MoU will be approved by MoF and MoFL. MoU will build on existing manuals, including those produced for SIPP/ NJLIP to ensure accountability, transparency, and alignment with specific oversight responsibilities, as specifically related to Component 3 of the BSCMFP Phase I, in coordination with DoF and the rest of the project. Operational aspects to be covered include organization of work, coordination and oversight, eligibility criteria for financing

⁷ NOTE: Exact PSC structure and modalities to be confirmed at appraisal

alternative livelihood activities, fiduciary responsibilities, reporting requirements, financing modalities, flow of funds, audit arrangements, and screening for social and environmental impacts [to be completed during appraisal]. The MO will further provide the standard terms and legal templates of financing agreements with the project's beneficiaries for core types of CDD support for alternative livelihoods (e.g., community grants and credits) for all types of eligible livelihood activities.

DoF will provide overall progress reports, including procurement and financial management, to PSC every six months. A mid-term project implementation report in year 3 will be prepared by DoF at the request of the Bank to take stock of implementation progress, gaps, and results based on the agreed results monitoring framework. The mid-term review will advise on readiness for the second phase of the program and will include proposals for immediate and/ or longer-term remedy of issues (including modifications of the focus of the second phase), as needed. DoF will carry out a functional review to identify and address the areas where building adequate administrative and technical capacity of DoF staff is expressly required, both at central and district-levels, to enable effective fisheries management implementation and enforcement.

Table 2.1: A summary schedule for all components is shown below.

Component/Sub-Component/Activity	Duration Month (years)	Implementation Schedule				
		Y1	Y2	Y3	Y4	Y5
Component 1: Enabling sustainable fisheries sector investments and growth						
1.1. STOCK ASSESSMENT AND DEVELOPMENT OF NATIONAL FISHERY MANAGEMENT PLANS						
1.1.1 Building National Fisheries Stock Assessment Functions						
A. Strengthening DoF stock assessment unit and survey management						
DoF staff knowledge exchange and training	24					
Quality assurance and capacity development for stock assessment and surveys	36					
Training capacity development for stock assessment and surveys	36					
DoF survey equipment	24					
Stock assessment unit facility upgrade	24					
B. Stock Surveys						
electronic equipment upgrades for R/V MeenShandhani						
Annual Surveys (R/V MeenShandhani)	2rs					
Periodic echo-sounder surveys x2	2 yrs					
1.1.2. Strengthening of catch monitoring systems						
Catch and Effort Monitoring System (for stock assessment purposes: design, supply and installation)	24					
1.1.3. Preparation and update of Fisheries Management Plans						
Fisheries management plans / annual management plans	36					
Expert advisory / tech and legal	50					
Consultations and stakeholder engagement	5 yrs					
Fishery management for highly migratory stocks spanning areas within and beyond national jurisdictions	4 yrs					
1.2. ENABLING INVESTMENTS IN SUSTAINABLE FISHERIES						
1.2.1. Strengthening fishery policies, legal and regulatory framework	2 yrs					
Consultation with fishers' and boat-owners' associations (industrial and artisanal) and relevant government entities	2 yrs					
1.2.2. Measures for reducing investment risks due to regulatory and enforcement gaps						
Consultation with the Ministry of Law, Justice and Parliamentary	18					

Component/Sub-Component/Activity	Duration Month (years)	Implementation Schedule				
		Y1	Y2	Y3	Y4	Y5
Affairs; Law and Justice Division						
Establish a legal team and training for prosecution of fishing cases	48mm					
Specialized training for judges and court staff in the Law and Justice Division of the Ministry of Law, Justice and Parliamentary Affairs on the new legislation; Training on marine fisheries management and mariculture, co-management, international fisheries negotiations, and licensing and enforcement.	4 yrs					
Awareness-raising and behavior change programs	5 yrs					
DoF's capacity for conflict resolution strengthened and a functional grievances redress mechanism established for both artisanal and industrial fishermen	5 yrs					
1.3. MCS for IUU REDUCTION						
1.3.1. Expansion and strengthening of fisher's and boat registration:						
Initial baseline registration and licensing campaign; ID database update and designing and maintenance system	3 yrs					
Deployment of ID-card registration system (upgrade/design and Bank card?), licensing and training for capacity development to monitor	5 yrs					
1.3.2. Development and deployment of information systems for MCS						
MCS system and Joint Coordination Center (JCC) design, equipment and training	18					
JCC infrastructure	18					
MCS system operation training	4 yrs					
Industrial Vessel VMS upgrade and deployment: system software; hardware; and transponders	24					
AIS master and additional user licenses	5 yrs					
AIS units, installation, and training	36					
On-board observer program for industrial vessels	24					

Component/Sub-Component/Activity	Duration Month (years)	Implementation Schedule				
		Y1	Y2	Y3	Y4	Y5
Component 2: Improving Infrastructure and Production Practices						
2.1 INFRASTRUCTURE IMPROVEMENTS FOR CAPTURE AND CULTURE FISHERIES						
2.1.1. Prioritize Productive Infrastructure Investments						
Priority Setting/Locations	2 yrs					
Improving value chain performance	16					
Improving producer and processor access to finance	30					
International and Local Investment Promotion Campaign and Investor's Roundtable	12					
International and Local Investment Promotions -- communication and awareness campaign	15					
Aquaculture Investment Promotion Unit	5 yrs					
2.1.2. Infrastructure for increased productivity						
CAPTURE: Public Sector Infrastructure support for capture value chain improvements	5 yrs					
Comp 2 General engineering design and supervision	5 yrs					
CULTURE: Cluster development -- "Extension Agent Recruitment"(600 clusters producer mobilization and business/infrastructure plans development)	2 yrs					

Component/Sub-Component/Activity	Duration Month (years)	Implementation Schedule				
		Y1	Y2	Y3	Y4	Y5
CULTURE: Cluster Farming Productivity Increase: public infrastructure support (cluster business plan implementation for up to 200 graduating cluster)	4 yrs					
CULTURE: Cluster Farming Productivity Increase: production inputs and post-harvest value added (cluster business plan implementation for up to 200 graduating cluster)	4 yrs					
Salinization mapping, Hydrological survey and canal rehabilitation scale-up design for Phase-II	3 yrs					
2.2 VALUE CHAIN AND FOOD SAFETY T						
2.2.1 Seafood Safety and competitiveness						
Seafood safety Needs Assessment-- HACCP --- hazard analysis and critical control points for PROCESSING plants	1 yr					
Training in Food Safety (factory workers and industrial trawlers and large mechanized boats) unit measure batches	900 days					
Seafood Safety Consumer Awareness: Sensitization and Promotion	5 yrs					
Govt. Staff International Training (food safety inspection)	3 yrs					
Gove staff national training 700 (x3 trainings)	3 yrs					
Seafood safety policy implementation	3 yrs					
Food Safety Pilot for Domestic Markets (Sampling and Analysis)	3 yrs					
e-Traceability/IT system design and equipment deployment	5 yrs					
2.2.2 Research and Innovation						
Targeted Mariculture and Commercialization research BFRI	5 yrs					
Marine Spatial Planning (for Mariculture)	3 yrs					
2.2.3 BOOSTING COASTAL AQUACULTURE PRODUCTIVITY						
Policy Reform: Importation of SPF/R	1 yr					
SPF Brood Stock (multiplier) Facility Upgrade	3 yrs					
Hatchery Enhancement and Mariculture Research and Commercialization Grant facility	5yrs					
Hatchery Certification System Design	3 yrs					
Disease diagnostic Laboratory Upgrades (farmer level)	3 yrs					
Hatchery Certification and testing system Operation	5 yrs					

Component/Sub-Component/Activity	Duration Month (years)	Implementation Schedule				
		Y1	Y2	Y3	Y4	Y5
Component 3: Community Empowerment and Livelihoods						
3.1. Fishing cCommunity Institutions and Alternative Livelihoods Development						
3.1.1. Development and Strengthening of Fishing Community Institutions						
Establish and organize cluster offices at the field	12					
Conduct participatory identification of the poor fisher households.	18					
Livelihood needs assessment for poor and extreme poor fisher households	24					
Mobilization and training of Fisheries Community Groups (FCGs)	36					
OTG to poorest and most vulnerable	36					
Establish community savings groups	24					
3.1.2. Training on fisheries management, nutrition, climate change, and agriculture	36					
3.1.3. Support to model fishers' villages for fisheries co-management plans	48					

Component/Sub-Component/Activity	Duration Month (years)	Implementation Schedule				
		Y1	Y2	Y3	Y4	Y5
3.1.4. Model fishers' village and alternative livelihoods						
Community participatory infrastructure needs assessment, procurement plan, operation and maintenance plan	24					
Communities procure, build, and manage their infrastructure investments	48					
Establish Livelihood Finance Window (LFW) as a revolving loan fund	72					
Support to communities to prepare Business plans	36					
3.2 Business Development and Market Linkages for Alternative Livelihoods						
3.2.1. Build and strengthen producer organizations in fishing communities	24					
3.2.2. Facilitate market linkages with producers in fishing communities	36					
3.2.3. Provide opportunities for youth in fishing households to access wage employment						
Training and skills development to help unemployed/underemployed youth in fisher households	48					
Counseling to youth in fishing households and their families to prevent school drop-outs and facilitate the transition out of fishing.	60					
Vocational training and skills development/job creation initiatives.	36					
Framework for scaling-up co-management and livelihoods (under Phase-II)	8					

Chapter 3: Environmental and Social Management Requirements

This Chapter presents a review of the national policy, legal, and regulatory framework relevant to the environmental and social aspects of the Program. Also, reviewed in the Chapter are the WB environmental and social safeguard policies.

3.1 Review of Environmental Policy and Regulatory Framework

3.1.1 National Environmental Law

The key national policies, strategies, and plans relevant to environmental management are briefly discussed below.

Bangladesh Environmental Conservation Act (ECA), 1995

The Environmental Conservation Act (ECA) of 1995 is the main legislative framework relating to environmental protection in Bangladesh. This umbrella Act includes laws for conservation of the environment, improvement of environmental standards, and control and mitigation of environmental pollution. This Act has empowered the DoE, and its Director General to take measures as he considers necessary which includes conducting inquiries, preventing probable accidents, advising the Government, coordinating with other authorities or agencies, and collecting and publishing information about any environmental issue. According to this act (Section 12), no industrial unit or project shall be established or undertaken without obtaining, in a manner prescribed by the accompanying Rules, an Environmental Clearance Certificate (ECC) from the Director General of DoE.

Bangladesh Environmental Conservation Act (ECA), (Amendments) 2010

The ECA 1995 was amended in 2010, which provided clarification of defining wetlands as well as Ecologically Critical Areas and included many important environmental concerns such as conservation of wetlands, hill cutting, ship breaking, and hazardous waste disposal. This amendment empowered the government to enforce more penalties than before. Moreover, affected persons were given provision for putting objections or taking legal actions against the polluters or any entity creating nuisance to affected person.

Bangladesh Environmental Conservation Rules (ECR), 1997

The Environment Conservation Rules, 1997 were issued by the GoB in exercise of the power conferred under the Environment Conservation Act (Section 20), 1995. Under these Rules, the following aspects, among others, are covered:

- Declaration of ecologically critical areas
- Classification of industries and projects into four categories
- Procedures for issuing the Environmental Clearance Certificate
- Determination of environmental standards

The Rule 3 defines the factors to be considered in declaring an area 'ecologically critical area' (ECA) as per Section 5 of ECA95. It empowers the Government to declare an area 'ECA', if it is satisfied that the ecosystem of the area has reached or is threatened to reach a critical state or condition due to environmental degradation. The Government is also empowered to specify which of the operations or processes shall not be carried out or shall not be initiated in the ECA.

The Rule 7 classifies industrial units and projects into four categories depending on environmental impact and location for the purpose of issuance of ECC. These categories are: Green, Orange A, Orange B, and Red.

All existing industrial units and projects and proposed industrial units and projects, that are considered to be low polluting are categorized under "Green" and shall be granted Environmental Clearance. For proposed industrial units and projects falling in the Orange-A, Orange-B and Red Categories, firstly a site clearance certificate and thereafter an environmental clearance certificate will be required. A detailed description of these four categories of industries has been given in Schedule-1 of ECR'97. Apart from general requirement, for every Red category proposed industrial unit or project, the application must be accompanied with feasibility report, Initial Environmental Examination (IEE), Environmental Impact Assessment (EIA) based on approved ToR by DoE, Environmental Management Plan (EMP).

The ECR'97 describes the procedures for obtaining ECC from the DoE for different types of proposed units or projects. Any person or organization wishing to establish an industrial unit or project should obtain ECC from the Director General. The application for such certificate must be in the prescribed form together with the prescribed fees laid down in Schedule 13, through the deposit of a Treasury Challan in favor of the Director General. The fees for clearance certificates have been revised in 2010. Rule 8 prescribes the duration of validity of such certificate (three years for green category and one year for other categories) and compulsory requirement for renewal of certificate at least 30 days before expiry of its validity.

Bangladesh Environment Court Act, 2010

Bangladesh Environment Court Act, 2010 has been enacted to resolve the disputes and establishing justice over environmental and social damage raised due to any development activities. This act allows government to take necessary legal action against any parties who creates environmental hazards/ damage to environmentally sensitive areas as well as human society. According to this act, government can take legal actions if any environmental problem occurs due to BSCMPF interventions.

3.1.2 Relevant National Policies, Strategies and Plans in Bangladesh

National Environmental Policy, 1992

The National Environment Policy (NEP) is one of the key policy documents of the Government. The policy addresses 15 sectors in all, in addition to providing directives on the legal framework and institutional arrangements. Marine environment is one of the key sectors covered in this policy. Regarding fisheries resource sector, the policy seeks to:

- ensure conservation of fisheries and livestock, mangrove forest and others ecosystems and prevention of activities that diminish the wetlands and natural habitats for fishes are the basic objectives in this sector;
- ensure that coastal and marine ecosystems are identified as potential areas for intervention, where all internal and external polluting activities should be stopped. Fishing in coastal and marine environment within regeneration limits is recommended;
- keep the rivers, canals, ponds, lakes, haors, baors and all other water bodies and water resources free from pollution;
- ensure sustainable, long-term, environmentally sound and scientific exploitation and management of the fisheries resources;
- ensure environmentally sound utilization of all fisheries resources;

- ensure that water development activities and canal networks for aquaculture do not create adverse environmental impact;
- ensure that all steps are taken for construction of embankments, dredging of rivers, digging of canals, etc, be environmentally sound at local, zonal and national levels;
- ensure mitigation measures of adverse environmental impact of completed water resources development projects; and
- conduct EIA before undertaking projects for fisheries resources development and management, as appropriate level.

National Environmental Management Action Plan, 1995

The National Environment Management Action Plan (NEMAP, 1995) identifies the main national environmental issues, including those related to the fisheries sector. The main fisheries related national concerns include environmental degradation of water bodies, increased water pollution, shortage of aquaculture water and drainage congestion; various specific regional concerns are also identified.

National Water Policy, 1999

Endorsed by the GoB in 1999, the National Water Policy (NWP) aims to provide guidance to the major players in water sector for ensuring optimal development and management of water. According to the policy, all agencies and departments entrusted with water resource management responsibilities (regulation, planning, construction, operation, and maintenance) are required to enhance environmental amenities and ensure that environmental resources are protected and restored in executing their tasks.

The policy has several clauses related to water resource development projects for ensuring environmental protection. Some of the relevant clauses are:

- Clause 4.5b: Planning and feasibility studies of all projects will follow the Guidelines for Project Assessment, the Guidelines for People's Participation (GPP), the Guidelines for EIA, and all other instructions that may be issued from time to time by the Government.
- Clause 4.9b: Measures will be taken to minimize disruption to the natural aquatic environment in streams and water channels.
- Clause 4.9e: Water development plans will not interrupt fish movement and will make adequate provisions in control structures for allowing fish migration and breeding.
- Clause 4.10a: Water development projects should cause minimal disruption to navigation and, where necessary, adequate mitigation measures should be taken.
- Clause 4.12a: Give full consideration to environmental protection, restoration and enhancement measures consistent with National Environmental Management Action Plan (NEMAP) and the National Water Management Plan (NWMP).
- Clause 4.12b: Adhere to a formal environment impact assessment (EIA) process, as set out in EIA guidelines and manuals for water sector projects, in each water resources development project or rehabilitation program of size and scope specified by the Government from time to time.
- Clause 4.13b: Only those water related projects will be taken up for execution that will not interfere with aquatic characteristics of those water bodies.

National Water Management Plan, 2001 (Approved in 2004)

The National Water Management Plan (NWMP) 2001, approved by the National Water Resources Council in 2004, envisions to establish an integrated development, management and use of water resources in Bangladesh over a period of 25 years. Water Resources Planning Organization (WARPO) has been assigned to monitor the national water management plan. The major programs in the Plan have been organized under eight sub-sectoral clusters: i) Institutional Development, ii) Enabling Environment, iii) Main River, iv) Towns and Rural Areas, v) Major Cities; vi) Disaster Management; vii) Agriculture and Water Management, and viii) Environment and Aquatic Resources. Each cluster comprises of a number of individual programs, and a total of 84 sub-sectoral programs have been identified and presented in the investment portfolio.

National Agriculture Policy, 1999

The overall objective of the National Agriculture Policy is to make the nation self-sufficient in food through increasing production of all crops including cereals and ensure a dependable food security system for all. The policy particularly stresses on research on the development of improved varieties and technologies for cultivation in water-logged and salinity affected areas. The policy also recognizes that adequate measures should be taken to reduce water-logging, salinity and provide irrigation facilities for crop production.

National Land Use Policy, 2001

The National Land Use Policy (NLUP), enacted in 2001, aims at managing land use effectively to support trends in accelerated urbanization, industrialization and diversification of development activities. The NLUP urges that increasing the land area of the country may be not possible through artificial land reclamation process, which is cost effective only in the long run. Therefore, land use planning should be based on the existing and available land resources. The policy suggests establishing land data banks where, among others, information on accreted riverine and coastal chars will be maintained. Among the 28 policy statements of NLUP, the following are relevant to BSCMFP:

- forests declared by the Ministry of Environment and Forests (MoEF) will remain as forest lands;
- re-classification of forest lands will be prevented.

The BSCMFP will be designed in accordance with this Strategy and will comply with the above listed requirements.

National Fisheries Policy, 1998

The National Fisheries Policy (NFP), 1998 recognizes that fish production has declined due to environmental imbalances, adverse environmental impact and improper implementation of fish culture and management programs. The policy particularly focuses on aquaculture and marine fisheries development.

The policy suggests following actions:

- Enhancement of the fisheries production;
- Poverty alleviation through creating self-employment and improvement of socio-economic conditions of the fishers;
- Fulfill the demand for animal protein;
- Achieve economic growth through earning foreign currency by exporting fish and fisheries products;
- Chemicals harmful to the environment will not be used in fish shrimp farms;
- Environment friendly fish shrimp culture technology will be used;

- Expand fisheries areas and integrate rice, fish and shrimp cultivation;
- Control measures will be taken against activities that have a negative impact on fisheries resources and vice-versa; and
- Laws will be formulated to ban the disposal of any untreated industrial effluents into the water bodies.

The Protection and Conservation of Fish Act (1950)

This Act provides power to the government to: make and apply rules to protect fisheries; prohibit or regulate erection and use of fixed engines; and construction of temporary or permanent weirs, dams, bunds, embankments and other structures. The Act prohibits: destruction of fish by explosives, guns, and bows in inland or coastal areas; destruction of fish by poisoning, pollution, or effluents. The Act prescribes the seasons during which fishing is allowed, prohibits fishing during spawning periods, and specifies officials having authority to detect breaches of this Act.

East Bengal Protection and Fish Conservation Act (1950) and Amendments

The East-Bengal Protection and Fish Conservation Act (1950), as amended by the Protection and Conservation of Fish (Amendment) Ordinance (1982) and the Protection and Conservation of Fish (Amendment) Act (1995), provides for the protection and conservation of fish in inland waters of Bangladesh. These instruments define a relatively non-specific framework that simply provides a means for Government to introduce rules to protect inland waters not in private ownership. Among other things, they sanction rulemaking regarding destruction of, or any attempt to destroy, fish by poisoning of water or depletion of fisheries by pollution, industrial effluent, or otherwise.

Protection and Conservation of Fish Rules (1985)

These Rules are in line with the overall objectives of the Fisheries Act and its amendments. Section 5 of the Rules states that, “No person shall destroy or make any attempt to destroy any fish by explosives, gun, bow and arrow in inland waters or within coastal waters”. Section 6 states, “No person shall destroy or make any attempt to destroy any fish by poisoning of water or the depletion of fisheries by pollution, by trade effluents or otherwise in inland waters.

National Livestock Development Policy, 2007

The National Livestock Development Policy (NLDP) has been prepared to address the key challenges and opportunity for a comprehensive sustainable development of the livestock sub-sector by creating an enabling policy framework. As livestock is one of the key assets in livelihoods of the program area, and protection of livestock from floods should be emphasized along with security of human life. The proposed BSCMFP interventions will contribute to the safety of livestock and thus increase livestock productivity in the program area as source of alternative livelihood.

Marine Fisheries Ordinance, 1983

An Ordinance to make provisions for the management, conservation and development of marine fisheries of Bangladesh and to deal with certain matters connected there with. The Marine Fisheries Ordinance, 1983 deals with the matters relating to marine fisheries exploitation, including monitoring the operation of fishing vessels. The rules, as amended in 1993, provide for licensing and monitoring of artisanal mechanized fishing boats under the Ordinance. The officers of the marine wing of DoF has been empowered to check size or take any other actions required for surveillance and enforcement of the rules of the Ordinance. No MPA was established under this ordinance.

However, a Marine Reserve (698 km² area) was declared so far by the DoF in 2000 in the middle ground of the BoB. The fisheries law can also be amended for establishing MPA in Bangladesh.

Private Forest Policy, 1994

The policy suggested for extended effort to bring about 20% of the country's land under the afforestation programs of the government and private sector by year 2015 by accelerating the pace of the program through the coordinated efforts of the government and NGOs and active participation of the people in order to achieve self-reliance in forest products and maintenance of ecological balance. The policy viewed equitable distribution of benefits among the people, especially those whose livelihood depend on trees and forests; and people's participation in afforestation programs and incorporation of people's opinions and suggestions in the planning and decision-making process. The people centered objectives of the policy are: creation of rural employment opportunities and expansion of forest-based rural development sectors; and prevention of illegal occupation of forest lands and other forest offences through people's participation. The policy statements envisage: massive afforestation on marginal public lands through partnerships with local people and NGOs; afforestation of denuded/ encroached reserved forests with an agro-forestry model through participation of people and NGOs; giving ownership of a certain amount of land to the tribal people through forest settlement processes; strengthening of the Forest Department; strengthening of educational, training and research facilities; and amendment of laws, rules and regulations relating to the forestry sector and if necessary, promulgation of new laws and rules. Thus, over time the policy has shifted somewhat from total state control to a management regime involving local communities in specific categories of forests. Because of limited amount of forest land, the policy underscores for effective measures for afforestation in rural areas, in the newly accreted chars, and in the denuded Unclassed State Forest areas of Chittagong Hill Tracts and northern zone of the country including the Barind tract. The policy also encourages the private sector participation in afforestation.

National Policy for Safe Water Supply and Sanitation, 1998

The National Drinking Water Supply and Sanitation Policy (1998) goal is accessibility to all of water and sanitation services within the shortest possible time at a price that is affordable to all. The Policy will be achieved through strategies formulated at various levels in consultation with the Ministry of Planning. Policy objectives are (i) to improve the standard of public health and (ii) to ensure an improved environment. Policies for rural and urban areas are presented separately as they differ in institutional aspects, content, and magnitude.

National Adaptation Program of Action (NAPA), 2005

In 2005, the MoEF, GoB has prepared the National Adaptation Program of Action(NAPA) for Bangladesh, as a response to the decision of the Seventh Session of the Conference of the Parties (COP 7) of the United Nations Framework Convention on Climate Change (UNFCCC). The basic approach to NAPA preparation was along with the sustainable development goals (SDGs) and objectives of the country where it has recognized the necessity of addressing climate change and environmental issues and natural resource management. The NAPA is the beginning of a long journey to address adverse impacts of climate change including variability and extreme events and to promote sustainable development of the country. There are 15 adaptation strategies suggested to address adverse effects of climate change.

Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2009

The GoB has prepared the Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2009. The BCCSAP is built on six pillars:

- i. **Food security, social protection and health** to ensure that the poorest and most vulnerable in society, including women and children, are protected from climate change and that all

programs focus on the needs of this group for food security, safe housing, employment and access to basic services, including health.

- ii. **Comprehensive disaster management** to further strengthen the country's already proven disaster management systems to deal with increasingly frequent and severe natural calamities.
- iii. **Infrastructure** to ensure that existing assets (e.g., coastal and river embankments) are well maintained and fit for purpose and that urgently needed infrastructures (cyclone shelters and urban drainage) is put in place to deal with the likely impacts of climate change.
- iv. **Research and Knowledge management** to predict that the likely scale and timing of climate change impacts on different sectors of economy and socio-economic groups; to underpin future investment strategies; and to ensure that Bangladesh is networked into the latest global thinking on climate change.
- v. **Mitigation and low carbon development** to evolve low carbon development options and implement these as the country's economy grows over the coming decades.
- vi. **Capacity building and Institutional strengthening** to enhance the capacity government ministries, civil society and private sector to meet the challenge of climate change.

3.1.3 Other Relevant Acts, Laws and Rules

Bangladesh Wildlife (Protection and Preservation) Act 2012

The Act protects 1,307 species of plants and animals, including 32 species of amphibians, 154 species of reptiles, 113 species of mammals, 52 species of fishes, 32 species of corals, 137 species of mollusks, 22 species of crustaceans, 24 species of insects, six species of rodents, 41 species of plants and 13 species of orchids. Of these, eight amphibians, 58 reptiles, 41 birds, and 40 mammal species are listed as endangered in the IUCN Red Data Book (2000). The Act mandates:

- one to three years imprisonment, a fine of BDT 50,000 to 200,000, or both, for wildlife poaching, capturing, trapping, and trading, and for the purchase of wild animals, parts of wild animals, trophies, meat or other products without license.
- The Act mandates two to seven years imprisonment and BDT 100,000 to 1 million fine or both, for killing an elephant or tiger; and 12 years plus BDT 1.5 million for repeating offenders.
- Five years imprisonment and BDT 200,000 fine for killing a cheetah, clouded cheetah, gibbon, sambar deer, crocodile, gaviel, whale, and dolphin.
- Two years imprisonment and BDT 200,000 fine for killing a wild bird or migratory bird.
- Empowers the Government to create an eco-park, safari park, botanical garden, or breeding ground on any state-owned forest land, land or water-body.
- Two years imprisonment for farming, woodcutting, burning, and construction on such reserves.

Bangladesh Wildlife (Preservation) Order (1973) and Act (1974)

The Bangladesh Wildlife Preservation (Amendment) Act 1974 regulates the hunting, killing, capture, trade and export of wild life and wild life products. It designates a list of protected species and game animals. It empowers the Government to declare areas as game reserves, wildlife sanctuaries, and national parks to protect the country's wildlife and provides the following legal definitions:

- Game reserve is defined as an area declared by Government wherein the capture of wild animals is unlawful, to protect wildlife and increase the population of important species;

- National park is defined as an area declared by Government comprising a comparatively large area of outstanding scenic and natural beauty with the primary objective of protection and preservation of scenery, flora, and fauna in their natural state, to which access for public recreation and education, and for scientific research, may be allowed;
- Wildlife sanctuary is defined as an area declared by Government that is closed to hunting, shooting, or trapping of wild animals as an undisturbed breeding ground, primarily for the purpose of protecting all natural resources, including wildlife vegetation, soil, and water.

The Act allows Government to relax any or all specified prohibitions for scientific purposes, for aesthetic enjoyment, or betterment of scenery.

Forestry Acts

Systematic management of forests started in the 1860s after the establishment of a Forest Department in the Province of Bengal. To regulate activities within forests, rules and regulations have been formulated, amended, modified and improved upon over the years. These rules and regulations are formulated on the basis of long-existing acts and policies.

Forest legislation in Bangladesh dates back to 1865, when the first Indian Forest Act was enacted. It provided for protection of tree, prevention of fires, prohibition of cultivation, and grazing in forest areas. Until a comprehensive Indian Forest Act was formulated in 1927, several acts and amendments covering forest administration in British India were enacted and were as follows: (a) Government Forest Act, 1865; (b) Forest Act, 1890; (c) Amending Act, 1891; (d) Indian Forest (Amendment) Act, 1901; (e) Indian Forest (Amendment) Act, 1911; (f) Repealing and Amending Act, 1914; (g) Indian Forest Amendment Act, 1918; and (h) Devolution Act, 1920.

The Forest Act of 1927, as amended with its related rules and regulations, is still the basic law governing forests in Bangladesh. The emphasis of the Act is on the protection of reserved forest. Some important features of the Act are: (i) Under the purview of the Forest Act, all rights or claims over forest lands have been settled at the time of the reservation. The Act prohibits the grant of any new rights of any kind to individuals or communities; (ii) Any activity within the forest reserves is prohibited, unless permitted by the Forest Department; (iii) Most of the violations may result in court cases where the minimum fine is Taka 2,000 and/or two month's rigorous imprisonment; and (iv) The Act empowers the Forest Department to regulate the use of water-courses within the Reserve Forests.

Forest Act 1927 (Amendment 2000)

The Forest Act of 1927 as amended in 1989 has its roots in Indian Forest Act, 1878. The Forest Act grants the government several basic powers, largely for conservation and protection of government forests, and limited powers for private forests. The 1927 version of the act was amended in 1989 for extending authority over "any [Government-owned] land suitable for afforestation".

Forest Department is the main agency to implement the provisions of the Forest Act. The Act, however, does not specify any sort of institutional structure for the forest or other land holding agencies. It also does not set out any specific policy direction for managing the forests.

Most of the forest lands under the management of forest department are areas declared to be reserved and protected forests under this act. The act empowers the government to regulate the felling, extraction, and transport of forest produce in the country.

Private Forest Act (PFA), 1959

The Private Forest Act of 1959 allows the Government to take over management of improperly managed private forest lands, any private lands that can be afforested, and any land lying fallow for more than three years. The Private Forest Ordinance was originally enacted in 1945, as the Bengal Private Forest Act, and was re-enacted by the Bangladesh (then East Pakistan) in 1949 before being

issued as an Act in 1959. These government managed lands under this act are called "vested forests". The Forest Department manages approximately 8,500 ha in the country as "vested forests". This area is relatively small, but the area historically affected by this law is much larger.

PFA, 1959 empowers the government to require management plans for private forests and to assume control of private forests as vested forests. Government has broad powers to write rules regarding use and protection of vested forests, and apply rules to "controlled forests," which include all private forests subject to any requirement of the Act.

Embankment and Drainage Act, 1952

The East Bengal Act No. 1, 1953 has been adapted by the People Republic of Bangladesh, by the Bangladesh Order (adaptation of Existing Laws), 1972 (President's Order No. 48 of 1972). The Act consolidates the laws relating to embankments and drainage providing provision for the construction, maintenance, management, removal and control of embankments and water courses for the better drainage of lands and for their protection from floods, erosion or other damage by water.

Bangladesh Water Act, 2013

The recently published Water Act 2013 is based on the National Water Policy, and designed for integrated development, management, extraction, distribution, usage, protection and conservation of water resources in Bangladesh. In general, if one takes a critical look at the Act, the new law has provided the right framework for better management of water resources in the country.

As per this Act, all forms of water (e.g., surface water, ground water, sea water, rain water and atmospheric water) within the territory of Bangladesh belong to the government on behalf of the people. The private landowners will be able to use the surface water inside their property for all purposes in accordance with the Act. A worthwhile initiative is the requirement for permits/ licenses for large scale water withdrawal by individuals and organizations beyond domestic use. Without prior permission issued by the Executive Committee, no individuals or organizations will be allowed to extract, distribute, use, develop, protect, and conserve water resources, nor they will be allowed to build any structure that impede the natural flow of rivers and creeks. However, the maximum amount of surface water or groundwater that can be withdrawn by individuals or organizations is not mentioned in the Act. Setting up a priority order for water usage in an area where the water resources is in critical condition is also a significant step.

Bangladesh Labor Act, 2006

The Bangladesh Labor Act, 2006 provides the guidance of employer's extent of responsibility and workmen's extent of right to get compensation in case of injury by accident while working. Some of the relevant Sections are:

- Section 150: Employer's Liability for Compensation: (1) If personal injury is caused to a workman by accident arising out of and in the course of his employment, his employer shall be liable to pay compensation in accordance with the provisions of this Act; and (2) Provided that the employer shall not be so liable in respect of any injury which does not result in the total or partial disablement of the workman for a period exceeding three days; (b) in respect of any injury, not resulting in death or permanent total disablement, caused by an accident which is directly attributable to - (i) the workman having been at the time thereof under the influence of drink or drugs, or (ii) the willful disobedience of the workman to an order expressly given, or to a rule expressly framed, for the purpose of securing the safety of workmen, or (iii) the willful removal or disregard by the workman of any safety guard or other device which he knew to have been provided for the purpose of securing the safety of workmen.

- **Section 151: (1) Amount of Compensation:** Subject to the provisions of this Act, the amount of compensation shall be as follows, namely :- (a) where death results from the injury, an amount equal to fifty per cent of the monthly wages of the deceased workman multiplied by the relevant factor; or an amount of fifty thousand taka, whichever is more; (b) where permanent disablement results from the injury an amount equal to sixty per cent of the monthly wages of the injured workman multiplied by the relevant factor.

Bangladesh National Building Code, 2006

The Bangladesh National Building Code (BNBC) clearly sets out the constructional responsibilities according to which the relevant authority of a particular construction site shall adopt some precautionary measures to ensure the safety of the workmen. According to Section 1.2.1 of Chapter 1 of Part 7, “In a construction or demolition work, the terms of contract between the owner and the contractor and between a consultant and the owner shall be clearly defined and put in writing”. These however will not absolve the owner from any of his responsibilities under the various provisions of this Code and other applicable regulations and bye-laws. The terms of contract between the owner and the contractor will determine the responsibilities and liabilities of either party in the concerned matters, within the provisions of the relevant Acts and Codes (e.g. the Employers' Liability Act, 1938; the Factories Act 1965; the Fatal Accident Act, 1955 and Workmen's Compensation Act 1923). After the introduction of the Bangladesh Labor Act, 2006, these Acts have been repealed.

The BNBC also stipulates the general duties of the employer to the public as well as workers. According to this section, “All equipment and safeguards required for the construction work such as temporary stair, ladder, ramp, scaffold, hoist, run way, barricade, chute, lift shall be substantially constructed and erected so as not to create any unsafe situation for the workmen using them or the workmen and general public passing under, on or near them”.

The Code also clarifies the issue of safety of workmen during construction and with relation to this, set out the details about the different safety tools of specified standard. In relation with the health hazards of the workers during construction, this chapter describes the nature of the different health hazards that normally occur in the site during construction and at the same time specifies the specific measures to be taken to prevent such health hazards. According to this chapter, exhaust ventilation, use of protective devices, medical checkups etc. are the measures to be taken by the particular employer to ensure a healthy workplace for the workers.

To prevent workers falling from heights, the Code sets out the detailed requirements on the formation and use of scaffolding. According to Section 3.9.2 of the same chapter, “every temporary floor openings shall either have railing of at least 900 mm height or shall be constantly attended”. Every floor hole shall be guarded by either a railing with toe board or a hinged cover. Alternatively, the hole may be constantly attended or protected by a removable railing. Every stairway floor opening shall be guarded by railing at least 900 mm high on the exposed sides except at entrance to stairway. Every ladder way floor opening or platform shall be guarded by a guard railing with toe board except at entrance to opening. Every open sided floor or platform 1.2 meters or more above adjacent ground level shall be guarded by a railing on all open sides except where there is entrance to ramp, stairway or fixed ladder, the above precautions shall also be taken near the open edges of the floors and the roofs”.

Other Laws

There are a number of other laws and regulations applicable which are relevant for the BSCMFP. These are presented in the Table 3.1 below.

Table 3.1: Laws and Acts.

Act/Law/Ordinance	Brief Description	Responsible Agency
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Act/Law/Ordinance	Brief Description	Responsible Agency
The Vehicle Act (1927) and the Motor Vehicles Ordinance (1983)	Provides rules for exhaust emission, air and noise pollution and road and traffic safety	Road Authority
Rules for Removal of Wrecks and Obstructions in inland Navigable Water Ways (1973)	Rules for removal of wrecks and obstructions	IBWTA
The Water Supply and Sanitation Act (1996)	Regulates the management and control of water supply and sanitation in urban areas.	MoLG, RD&C
The Ground Water Management Ordinance (1985)	Describes the management of ground water resources and licensing of tube wells	Upazila Parishad
The Private Forests Ordinance (1959)	Deals with the conservation of private forests and afforestation of wastelands.	MoEF
The Antiquities Act (1968)	Describes the preservation of cultural heritage, historic monuments and protected sites	DoArch

3.1.4 International Treaties Signed by the GoB

Bangladesh has signed most international treaties, conventions and protocols on environment, pollution control, bio-diversity conservation and climate change, including the Ramsar Convention, the Bonn Convention on migratory birds, the Rio de Janeiro Convention on biodiversity conservation, and the Kyoto protocol on climate change. An overview of the relevant international treaties signed by GoB is shown in Table 3.2.

Table 3.2: Treaty or Convention and Responsible Agency

Treaty	Year	Brief Description/Relevance to the BSCMFP	Relevant Department
Protection of birds (Paris)	1950	Protection of birds in wild state; Broadly applicable for birds in and around the project influence area; mitigation measures included in EMP; address potential impacts on birds as well.	DoE/DoF
Ramsar Convention	1971	Protection of wetlands. Broadly applicable for wetlands in and around the project influence area; mitigation measures included in EMP; address potential impact on wetlands and associated resources as well.	DoE/DoF
Protocol on Waterfowl Habitat	1982	Amendment of Ramsar Convention to protect specific habitats for waterfowl. Broadly applicable for wetlands in and around the project influence area; mitigation measures included in EMP; address potential impacts on wetlands and associated ecological resources as well.	DoE/DoF
World Cultural and Natural Heritage (Paris)	1972	Protection of major cultural and natural monuments. Not applicable since no major cultural or natural monuments are known to exist in the project influence area. However Chance Find Procedures have been included in the EMP.	DoArch
CITES convention	1973	Ban and restrictions on international trades in endangered species of wild fauna and flora. Not directly relevant to the BSCMFP since the project does not involve in any international trade of endangered species of wild fauna and flora. General restrictions have however been included in the	DoE/DoF

Treaty	Year	Brief Description/Relevance to the BSCMFP	Relevant Department
		Environmental Code of Practice.	
Bonn Convention	1979	Conservation of migratory species of wild animals. Broadly applicable to the migratory birds in and around the project influence area. Project activities are not likely to have any significant impacts on these species; precautionary measures have nonetheless been included in EMP.	DoE/DoF
Prevention and Control of Occupational hazards	1974	Protect workers against occupational exposure to carcinogenic substances and agents. Broadly applicable to the construction and O&M activities under the project. Appropriate mitigation and protective measures have been included in the EMP.	MoH
Occupational hazards due to air pollution, noise & vibration (Geneva)	1977	Protect workers against occupational hazards in the working environment. Broadly applicable to the construction and O&M activities under the project. Appropriate mitigation and protective measures have been included in the EMP.	MoH
Occupational safety and health in working environment (Geneva)	1981	Prevent accidents and injury to health by minimizing hazards in the working environment. Broadly applicable to the construction and O&M activities under the project. Appropriate mitigation and protective measures have been included in the EMP.	MoH
Occupational Health services	1985	To promote a safe and healthy working environment. Broadly applicable to the construction and O&M activities under the project. Appropriate mitigation and protective measures have been included in the EMP.	MoH
Convention on oil pollution damage (Brussels)	1969	Civil liability on oil pollution damage from ships. Not applicable since no oil carrying cargos are involved in the proposed project.	DoE/MoS
Civil liability on transport of dangerous goods (Geneva)	1989	Safe methods for transport of dangerous goods by road, railway and inland vessels. Broadly applicable to transportation of substances such as fuels during the project construction phase. Appropriate mitigation measures are included in the EMP.	MoC
Safety in use of chemicals during work	1990	Occupational safety of use of chemicals in the work place. Broadly applicable to the construction and O&M activities under the project. Appropriate mitigation and protective measures have been included in the EMP.	DoE
Convention on oil pollution	1990	Legal framework and preparedness for control of oil pollution. Broadly applicable to the construction and O&M activities under the project. Appropriate mitigation and protective measures have been included in the EMP.	DoE/MoS
UN framework convention on climate change (Rio de Janeiro)	1992	Regulation of greenhouse gas (GHG) emissions. Broadly applicable to the construction and O&M activities under the project.	DoE

Treaty	Year	Brief Description/Relevance to the BSCMFP	Relevant Department
		Appropriate mitigation and protective measures have been included in the EMP to minimize emissions of GHGs.	
Convention on Biological Diversity (Rio de Janeiro)	1992	Conservation of biodiversity, sustainable use of its components and access to genetic resources. Broadly applicable to the construction and O&M activities under the project. Appropriate mitigation and protective measures have been included in the EMP for the conservation of biodiversity.	DoE
International Convention on Climate Changes (Kyoto Protocol)	1997	International treaty on climate change and emission of greenhouse gases. Broadly applicable to the construction and O&M activities under the project. Appropriate mitigation and protective measures have been included in the EMP to minimize emissions of GHGs.	DoE
International Tribunal for Laws of the Sea	1982 formation of the Convention, 2011 (ratified by GoB)	The United Nation Convention on the Law of the Sea (UNCLOS) of 1982 is a document, which has taken almost a decade for its completion. Unlike the past four UN Conventions on the Law of the Sea, this Convention is much broader in scope and governs use of the world's oceans, especially establishing ground rules for everything from navigation to deep-sea mining. The Law of the Sea Convention protects its members' navigation rights to the oceans. It establishes limits for marine boundaries and rules for extracting resources among states and preserving the health of the seas. And it sets up a way to resolve disputes about these issues. Bangladesh ratified the UNCLOS in 2001.	MoFA
Strategic Action Plan for Bay of Bengal	2012 endorsement; 2016 signed by MoFL/ MoEF of GoB	This Strategic Action Programme (SAP) is based on the Transboundary Diagnostic Analysis (TDA) which was endorsed in March 2012 by the eight countries of the Bay of Bengal Large Marine Ecosystem (BOBLME) project. The TDA draws on over ten years of studies, reviews and analyses. It identifies the main transboundary issues and their causes, and it reviews the driving forces at work in the BOBLME, such as the socio-economic, institutional, legal and administrative circumstances and the projected impact of climate change on the region. These forces all pose a range of constraints and challenges and have the potential to influence the success of actions implemented to address the main areas of concern. The SAP is a negotiated policy document that sets out a programme of actions which address the causes of the major fisheries, environmental and social and economic issues. The development of the SAP has been guided by the BOBLME Project Steering Committee which comprised senior-level government officers from the fisheries and environmental agencies in each country.	MoFL/ MoEF

Treaty	Year	Brief Description/Relevance to the BSCMFP	Relevant Department
		This SAP is the 2015 versions, expanded with the signatures of 16 government partner institutions, endorsing it for the implementation of the 2nd phase.	

3.1.5 Implication of GoB Policies, Acts and Rules on BSCMFP and their Classification

The legislations relevant for environmental assessment for BSCMFP are the Environmental Conservation Act 1995 (ECA'95) and the Environmental Conservation Rules 1997 (ECR'97).

As per ECR'97, most the components/sub-components and associated activities are likely to fall under Green Category as has no significant impact on the environment, but some of the project activities viz.

- desilting and re-habilitation of existing canals of shrimp farms,
- repairing of water regulating structures to improve water quality and circulation,
- infrastructure improvement for capture and culture fisheries, i.e.
 - improvement of landing sites, depots, collection centers,
 - road and reliable electricity infrastructures at the connecting to the landing sites, depots, collection centers,
 - rehabilitation/ building post-harvest service centre,
 - small-scale fish packing facilities, transport boxes (plastic, polystyrene),
 - construction of six capture fisheries landing sites including Chittagong wholesale market landing sites, two semi-industrial fishery landing sites in each of the southeast, central and western coastal regions,
 - improvement of fish market facilities including access roads, drainage, etc.,
 - electrification of shrimp firms for facilitating pond aeration,
 - construction of chill stores to store iced fish at cool temperatures,
- support to physical infrastructure of JCC (Joint Coordination Center),
- basic community infrastructures in around 450 villages across 14 districts viz. small roads, tube wells, sheds, offices for FVGs, etc.

likely to have negative environmental impacts on air, soil, water and natural setting such as water bodies, vegetation, wildlife and fishes, demands IEE and if required, EIA. Overall, the proposed project is targeting to intervene a wide range of environmental elements covering a vast area of coastal and marine environment, with rehabilitation/ construction of higher quantity of small-scale infrastructures and re-excavation of canals may fall under the schedule 'Orange-A' or very few in 'Orange-B Category' based on ECR '97 of DoE. It is suggested that the project should conduct IEE for specified activities at the initial stage and based on IEE's recommendation, EISA should be carried out for that activities, if requires. However, according to the project planning, the activities those need EIA will be implemented at different periods and hence, multiple EISAs will be required clustering the similar activities prior to the actual intervention start.

It is the responsibility of the DoF to conduct IEE and EISA of the project activities, the responsibility to review IEE and EIA for the purpose of issuing Environmental Clearance Certificate (ECC) rests on DoE. The DoE, the technical arm of the MoEF is the regulatory body and the enforcement agency of all environmental related activities. Like all other projects, this project also needs to meet the requirement of the DoE. The procedures for "Orange B" Category include submission of:

- An Initial Environmental Examination (IEE), and
- An Environmental Impact Assessment (EIA), if prescribed by DoE, and

- An Environmental Management Plan (EMP)

Environment clearance has to be obtained by the respective implementing agency or project proponent (private sector) from DoE. The environmental clearance procedure for Orange-B Category projects can be summarized as follows:

Application to DoE→Obtaining Site Clearance→Applying for Environmental Clearance→Obtaining Environmental Clearance→Clearance Subject to Annual Renewal.

Steps to be followed for obtaining ECC in connection with the construction/ reconstruction/ re-excavation of canals from DoE are outlined in Figure 3.1. Public participation or consultation is not a condition in the ECR '97 and or IEE/ EIA Guidelines, however, DoE prefers the proponent to engage in public participation and put conditions while providing site clearance or during the approval of the EIA ToR.

The proposed interventions of the BSCMFP will comply with all the policy directives of the National Environmental Policy, 1992 emphasizing reducing probable environmental impacts. The BSCMFP broadly contributes toward achieving the aims and objectives of the climate change adaptation strategies and will contribute towards achieving the objective of pillars of Bangladesh Climate Change Strategy & Action Plan, 2009, such as (i), (ii), (iii), (iv), and (vi). Most of the clauses of National Water Policy, 1999 will be applicable to the BSCMFP and its interventions are so planned that they would abide all those clauses. The BSCMFP is designed in accordance with the Strategy of National Land Use Policy, 2001 and will comply with the requirements.

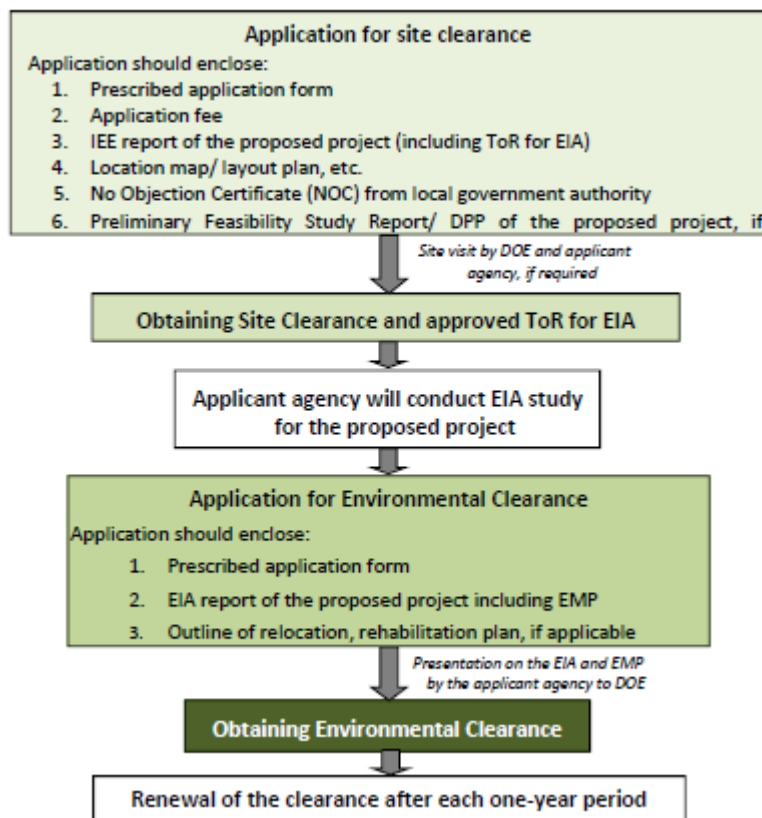


Figure 3.1: Process of obtaining Clearance certificate from DoE.

The proposed BSCMFP is expected to adhere to all sub-sectoral clauses of National Water Management Plan, 2001; expected to contribute to achieve the objectives of the National Environment Policy, 1992; National Environmental Management Action Plan, 1995; National

Agriculture Policy; National Adaptation Programme of Actions, 2005; and all existing Fisheries policies, strategies, Acts & Rules.

BSCMFP's all intervention activities are planned and will be implemented abiding Bangladesh Wildlife (Protection and Preservation) Act 2012; Bangladesh Wildlife (Preservation) Order & Act (1974); Forestry Acts & its amendments; Private Forest Act (PFA), 1959; Embankment and Drainage Act, 1952; Bangladesh Water Act, 2013; Bangladesh Labor Act, 2006; Bangladesh National Building Code, 2006.

3.1.6 World Bank's Environmental Safeguard Policies

- The World Bank has developed a number of Safeguard Policies to ensure that all possible impacts are considered and mitigation measures are spelled out prior to the implementation of any proposed project. These policies ensure that the quality of operations is uniform across different settings worldwide. If the decision is taken that a Safeguard Policy should be applied, mitigation measures and plans must be developed and in place before the implementation of a proposed project.
- The Bank requires environmental screening and classification for all investment projects (including ones financed by Trust Funds, Project Preparation Facilities and Guarantees) proposed for Bank financing, to help ensure that they are environmentally and socially sound and sustainable. Screening and classification take into account the natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, Indigenous Peoples); cultural property; and transboundary and global environmental aspects.
- The objectives of environmental screening and classification are: to evaluate the environmental risks associated with a proposed operation; to determine the depth and breadth of Environmental Assessment (EA); and to recommend an appropriate choice of EA instrument(s) suitable for a given project. The Bank recognizes that environmental screening and classification is not absolute and involves professional judgment on a case by case basis. When screening, careful consideration needs to be given to potential environmental impacts and risks associated with the proposed project. Judgment is exercised with reference to the policy expectations and guidance; real impacts on the ground; and established regional and Bank-wide precedence and good practice.

Environmental Assessment (OP/BP 4.01)

- The World Bank has developed a number of Safeguard Policies to ensure that all possible impacts are EA requirement. The World Bank requires environmental assessment (EA) of projects proposed for Bank support to ensure that they are environmentally sound and sustainable, and thus to improve decision making. The Bank Policy OP/BP 4.01 considers that EA is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed project. EA evaluates a project's potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation. EA takes into account the natural environment (air, water and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples and physical cultural resources); and transboundary and global environmental aspects. The Bank Policy also envisages that the borrower Government is responsible for carrying out the EA and the Bank advises the borrower on the Bank's EA requirements.

- The present ESMF has been prepared in compliance with this OP/BP.
- **EA classification.** The World Bank classifies the proposed project into one of the four categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts. These categories are defined below.
- **Category A:** A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.
- **Category B:** A proposed project is classified as Category B if its potential adverse environmental impacts on human populations or environmentally important areas--including wetlands, forests, grasslands, and other natural habitats--are less adverse than those of Category A projects.
- **Category C:** A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category C project.
- **Category FI:** A proposed project is classified as Category FI if it involves investment of Bank funds through a financial intermediary (FI), in sub-projects that may result in adverse environmental impacts.
- The proposed BSCMFP has been classified as **Category B**, as the potential impacts are limited and largely mitigable and reversible. However, since some of the activities deemed to require further assessment for better understanding. Therefore, IEEs and EIAs are recommended to be carried out for those activities in each BSCMFP phase, in accordance with **OP 4.01**.

Natural Habitats (OP 4.04)

- The Policy describes the conservation of natural habitats, like other measures that protect and enhance the environment, to be essential for long-term sustainable development. The Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats and their functions in its economic and sector work, project financing, and policy dialogue. The Bank also supports, and expects borrowers to apply a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development. The Bank promotes and supports natural habitat conservation and improved land use by financing projects designed to integrate into national and regional development of conservation of natural habitats and the maintenance of ecological functions. Furthermore, the Bank promotes the rehabilitation of degraded natural habitats. The Bank does not support projects that involve the significant conversion or degradation of critical natural habitats.
- The activities under the proposed program could potentially alter the natural habitat hence this policy is triggered. Habitat restoration and enhancement measures will be included in the program design to avoid, minimize, mitigate and or compensate any adverse impacts on the natural habitat.

Physical Cultural Resources (OP 4.11)

- The World Bank's general policy regarding cultural properties is to assist in their preservation, and to seek to avoid their elimination. The specific aspects of the Policy are given below.⁸
- The Bank normally declines to finance projects that will significantly damage non-replicable cultural property, and will assist only those projects that are sited or designed so as to prevent such damage.
- The Bank will assist in the protection and enhancement of cultural properties encountered in Bank-financed projects, rather than leaving that protection to chance. In some cases, the project is best relocated in order that sites and structures can be preserved, studied, and restored intact in situ. In other cases, structures can be relocated, preserved, studied, and restored on alternate sites. Often, scientific study, selective salvage, and museum preservation before destruction is all that is necessary. Most such projects should include the training and strengthening of institutions entrusted with safeguarding a nation's cultural patrimony. Such activities should be directly included in the scope of the project, rather than being postponed for some possible future action, and the costs are to be internalized in computing overall project costs.
- Deviations from this policy may be justified only where expected project benefits are great, and the loss of or damage to cultural property is judged by competent authorities to be unavoidable, minor, or otherwise acceptable. Specific details of the justification should be discussed in project documents.
- This policy pertains to any project in which the Bank is involved, irrespective of whether the Bank is itself financing the part of the project that may affect cultural property.
- The EIA to be carried out for the BSCMFP will include a similar, full assessment of any cultural heritage that may be affected, and appropriate mitigation measures will be identified in the detailed EMP as required. In addition, 'chance find' procedures will be included in the EMPs for all program phases.

Forests (OP/BP 4.36)

- This Policy recognizes the need to reduce deforestation and promote sustainable forest conservation and management in reducing poverty. The Bank believes that forests are very much essential for poverty reduction and sustainable development irrespective of their location in the world. The Bank assists borrowers with forest restoration activities that maintain or enhance biodiversity and ecosystem functionality. The Bank also assists borrowers with the establishment and sustainable management of environmentally appropriate, socially beneficial, and economically viable forest plantations to help meet growing demands for forest goods and services. The Bank does not finance projects that, in its opinion, would involve significant conversion or degradation of critical forest areas or related critical natural habitats. Furthermore, the Bank does not finance projects that contravene applicable international environmental agreements.
- This OP is not triggered at the EMF stage, as the impact of the proposed activities on vegetation/ forests (natural/ planted) is not definite, project will be located in non-forested area as defined by the policy, and likely to have no direct or indirect impact on forests.

Projects on International Waterways (OP 7.50)

- Projects on international waterways may affect the relations between the World Bank and its borrowers, and between riparian states. Therefore, the Bank attaches great importance

⁸ Excerpts from the OPN 11.03.WB Operational Manual. September 1986.

to the riparian making appropriate agreements or arrangements for the entire waterway, or parts thereof, and stands ready to assist in this regard. A borrower must notify other riparian of planned projects that could affect water quality or quantity, sufficiently far in advance to allow them to review the plans and raise any concerns or objections.

- This Policy is not triggered since the program will not cover geographical regions where trans-boundary waterways/ rivers exist.

Pest Management (OP/BP 4.09)

- Through this OP, the WB supports a strategy that promotes use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. All projects have to avoid using harmful pesticides as much as possible. However, if required pesticides can be used, but only as an element of an Integrated Pest Management Plan (IPMP) that emphasizes environmental and biological controls.
- The proposed program targets to sustainable increase in aquaculture and mariculture production, effective MCS in marine waters and also operation of small to medium scale construction sites, laboratories which are less likely to increase the usage of pesticides in large volume. Only the approved chemicals, medicines and fertilizers may be used in aquaculture and hatchery operations in compliance with the Fish Hatchery Acts, Fish Feed and Animal Feed Act, HACCP and guidelines of USFDA, EU, etc. and regularly be monitored through traceability protocols of the FIQC of the DoF. Hence this policy is triggered. A Pest Management Plan (PMP) is in preparation as part of the safeguard instruments.

Project Disputed Areas (OP 7.60)

- Projects in disputed areas may raise a number of delicate problems affecting relations not only between the Bank and its member countries, but also between the borrower and one or more neighboring countries. In order, not to prejudice the position of either the Bank or the countries concerned, any dispute over an area in which a proposed project is located is dealt with at the earliest possible stage.
- The Bank may proceed with a project in a disputed area if the governments concerned agree that, pending the settlement of the dispute, the project proposed for country A should go forward without prejudice to the claims of country B⁹.
- This OP is not triggered since no part of the program area is located in any disputed territory.

Safety of Dams (OP/BP 4.37)

- The Policy seeks to ensure that appropriate measures are taken and sufficient resources provided for the safety of dams when the WB finances. However, this OP is not relevant since the proposed program does not involve construction of dams.

WB Policy on Access to Information

- This BP deals with the World Bank policy on disclosure of information. It is a mandatory procedure to be followed by the borrower and Bank and supports public access to information on environmental and social aspects of projects.
- Once finalized, the EMF and Bengali translation of its executive summary will be disclosed to the public and will also be available on the official website of the DoF. EMF will also be sent to the WB InfoShop.

Environmental Health and Safety Guidelines

⁹ Excerpts from the OP 7.60.WB Operational Manual. November 1994.

- The Environment, Health, and Safety (EHS) Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities or project by existing technology at reasonable costs. These Guidelines will be applicable to the BSCMFP.

3.2 Review of Social Policies and Regulatory Framework

This section deals with the laws, regulations and policies, of GoB, and the World Bank, related to social issues. Only the laws, regulations and policies relevant to the project are discussed here. This section needs to be updated as when new laws, regulations and policies are made and enforced or the existing ones are revised.

3.2.1 Social Policies, Laws and Regulations of GoB

Constitutional Provisions: The fundamental rights under the Constitution indicate the general guidelines for a policy on resettlement/ rehabilitation of citizens adversely affected (whatever be the mechanism) due to any activity of the State. Article 40 of the constitution states categorically that every citizen has the right to practice any lawful occupation which implies that anything impeding such right (a) should not be done or (b) there should be supplementary measures to make recovery of the losses incurred by the citizen. Resettlement and rehabilitation of adversely affected people due to infrastructure projects very clearly falls within this requirement for supplementary measures. However, as per Article 42, sub-clause 2, no law with provision of compensation for acquisition of land can be challenged in a court on the ground that such compensation has been inadequate. However, under World Bank OP 4.12 Involuntary Resettlement, every affected person will have access to a project specific Grievance Redress Mechanism (GRM) for dispute resolution before the matter is moved to the courts. Complaints, the resolution process and the outcome will be reviewed by the project proponents as well as the Bank. Until the dispute is resolved the funds for the disputed asset must be held in an escrow account (top-up payments due from the project agency can be held until the project closes; the amount placed with the DC may be held for 10 years or more if necessary).

The Acquisition and Requisition of Immovable Property Act 2017. The principal legal instrument governing land acquisition in Bangladesh is the Acquisition and Requisition of Immovable Property Ordinance, 1982 (Ordinance II of 1982 with amendments upto 1994), which is recently replaced by the new law (Act 21 of 2017) and other land laws and administrative manuals relevant to land administration in Bangladesh. According to the Act and the formal Ordinance, whenever it appears to the GoB that any property in any locality is needed or is likely to be needed for any public purpose or in the public interest, the Government can acquire the land provided that no property used by the public for the purpose of religious worship, graveyard and cremation ground. The 1982 Ordinance/ Act 21 of 2017 requires that compensation be paid for (i) land and assets permanently acquired (including standing crops, trees, houses); and (ii) any other damages caused by such acquisition. The Deputy Commissioner (DC) determines (a) market value of acquired assets on the date of notice of acquisition (based on the registered value of similar property bought and/ or sold in the area over the preceding 12 months), and (b) 200% premium on the assessed value for land and 100% for non-land assets on the land due to compulsory acquisition. There are also provisions for payment of crop compensation to tenant cultivators.

The law specifies methods for calculation of market value of property based on recorded prices obtained from relevant Government departments such as Registrar (land), Public Works Department (structures), Department of Forest (trees), Department of Agriculture (crops) and Department of Fisheries (fish stock). Given that people devalue land during title transfer to minimize tax payment, compensation for land paid by DC including premium largely remains less than the actual market price.

The Ministry of Land (MoL) is authorized to deal with land acquisition. The MoL delegates some of its authority to the Commissioner at Divisional level and to the Deputy Commissioner at the District

level. The Deputy Commissioners (DCs) are empowered by the MoL to process land acquisition under the Ordinance and pay compensation to the legal owners of the acquired property. Khas (government owned land) lands should be acquired first when a project requires both khas and private land. If a project requires only khas land, the land will be transferred through an inter-ministerial meeting following the acquisition proposal submitted to DC or MoL as the case may be. The DC is empowered to acquire a maximum of 50 standard bigha (6.75 ha) of land without any litigation where the Divisional Commissioner is involved for approval. Acquisition of land more than 50 standard bigha is approved from the central land allocation committee (CLAC) headed by the chief executive of the GoB proposed by the MoL.

The land owner needs to establish ownership by producing record-of-rights in order to be eligible for compensation under the law. The record of rights prepared under 4.143 or 144 of the State Acquisition and Tenancy Act 1950 (revised 1994) are not always updated and as a result, legal land owners have faced difficulties trying to “prove” ownership. The affected person (AP) has also to produce rent receipt or receipt of land development tax, but this does not assist in some situations as a person is exempted from payment of rent if the area of land is less than 25 bighas (3.37 ha).

Constitutional Rights of the Small Ethnic Communities (SEC): The Constitution of Bangladesh does not mention the existence of the cultural and ethnic minorities in Bangladesh. The only protective provision for the ethnic minorities that the policy makers often refer to is Article 28 (4) which states that: Nothing shall prevent the state from making special provision in favour of women and children or for the advancement of any backward citizens. The above provision is an ambiguous one and it does not define who or what constitutes “backward”. However, the Government recognizes existence of “Small Ethnic Communities” (SECs) and the need for special attention and in general SECs are essentially viewed as backward, poor and socio-economically and culturally inferior. Towards this end a special program was initiated in 1996-97 by the Prime Minister’s Secretariat aimed at improving the socio-economic situation of the SECs of Bangladesh, resident outside the Chittagong Hill Tracts (CHT).

The Chittagong Hill Tracts Regulation 1900: The CHT Regulation, 1900 (Regulation I of 1900) is the regulatory framework for State sovereignty over the traditional rights of the SECs living in the CHTs region. They are governed through Revenue Circle Chiefs who are local revenue collectors vide an amalanama (authorization by the Government). The Deputy Commissioner and the Commissioner from the Central Government reserve the authority to settle land to the hill-men or non-hill residents or lease out land (non-transferable) for rubber plantation or establishing industries in the CHTs. The regulation provides the right to possessing cultivable land upto 5 acres by hill men or non-hill residents. The headman is responsible for the conservation of the resources of his mouza through exercising his authority to (i) prohibit the removal of forest produces by residents of respective mouzas other than for their domestic purposes or by non-residents for any purpose, (ii) exclude any area or areas in his mouzas from the jhuming (shifting cultivation), (iii) prevent new comers from cutting jhums in his mouza, and (iv) prevent a person from grazing cattle in his mouza.

The Chittagong Hill–Tracts (Land Acquisition) Regulation, 1958: Most of the land in CHT belongs to the Government either as reserve forest or as unclassified state forest. The CHT Regulation I of 1900 was the sole legal instrument for the governance and administration of the Hill Tracts. Under the regulation, the DC could resume land even though settlement of the same might have been given earlier. The rule prescribed payment of compensation for various interests as in the case of land acquisition. In order to expedite the acquisition of land in CHT, the Government made the CHTs (Land Acquisition) Regulation, 1958. This regulation has provision for payment of compensation for requisitioned property. The compensation may be fixed by agreement or by rules framed on this behalf.

The CHT Regional Council Act, 1998: The National Parliament of Bangladesh in 24 May 1998 passed the Peace Accord 1997 as the “CHTs Regional Council Act, 1998 (Act 12 of 1998)”. In addition to re-

establishing peace, the Accord recognized the ethnic people's right to land, culture, language, and religion. The Accord set out detailed provisions for strengthening the system of self-governance in the CHT, and redressing the most urgent land-related problems including resolution of land disputes by a commission on land, the transfer of authority for land administration to the hill district councils (HDCs), the cancellation of lease granted to non-residents during the conflict period, the distribution of land to ethnic or "SECs" villages, and the strengthening of customary land rights. Under this Act, no lands, hills and forests within the control and jurisdiction of the HDCs shall be acquired or transferred by the government without consultation and consent of the Regional Council. No law will be executed in the region which is not developed and enacted in consultation and agreement with the SECs peoples in CHT. A ministry on CHT Affairs was established by appointing a Minister from among the SECs (communities of hill districts). An Advisory Council from the CHT region assists this ministry.

The Labor Act, 2006: Compensation for death and injury. Section 99 of the Labor Act, 2006, read with the Compensation Act 2005, makes it compulsory for there to Group Insurance for establishments where there are more than 200 permanent workers. A worker is defined as:

"any person, including an apprentice, employed in any establishment or industry, either directly or through a contractor, to do any skilled, unskilled, manual, technical, trade, promotional or clerical work for hire or reward, whether the terms of his employment are expressed or implied, but does not include a person employed mainly in a managerial or administrative capacity."

The Labor Act allows workers to claim Tk. 1,00,000 and Tk. 1,25,000 for death and permanently total disablement at work respectively, or in other words, the same compensatory sums as set out in the Labor Act.

For compensating a worker who suffered injury or lost life, The DoF follows 2006 Labor Law. However, DoF has taken initiative for enacting a new policy/ law in this regard which is under process (2017).

3.2.2 Review of World Bank's Social Safeguards Operational Policies

The operational policies (OP) and Bank procedures (BP) of the World Bank includes guidelines on involuntary resettlement (OP/BP 4.12) and that on the indigenous peoples (OP/BP 4.10) for management of social safeguards issues associated with investments with financing from the World Bank. These operational policies have been reviewed with respect to relevant national laws and constitutional provisions to identify additional measures to comply with Bank policies.

Indigenous Peoples (OP 4.10). For purposes of this Policy, the term 'Indigenous Peoples' is used in a generic sense to refer to a distinct, vulnerable, social and cultural group possessing the following characteristics in varying degrees¹⁰:

- self-identification as members of a distinct indigenous cultural group and recognition of this identity by others;
- collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;
- customary cultural, economic, social, or political institutions that are separate from those of the dominant society and culture; and
- an indigenous language, often different from the official language of the country or region.

The OP defines the process to be followed if the project affects the indigenous people.

The BSCMFP area has indigenous communities residing in the program area of Teknaf, Cox's Bazar, Patuakhali, Satkhira, etc. and therefore, impacts on them are expected under the program.

¹⁰ Excerpts from the OP 4.10. WB Operational Manual. July 2005.

Therefore, this OP is triggered. A Small Ethnic Communities Development Framework (SECDF) has been prepared at the preparation stage, to provide guidance for the preparation and implementation of site specific Small Ethnic Communities Development Plans (SECDP) as and when required. The framework will be fully cognizant of local and cultural nuances associated with designing and proposing alternative livelihood measures, grievance redress processes and all other project interventions including community consultation and communication. This will be further reviewed through the detailed assessments to be carried out during program implementation for the subsequent stages.

Involuntary Resettlement (OP/BP 4.12). The WB's experience indicates that involuntary resettlement under development projects, if unmitigated, often gives rise to severe economic, social, and environmental risks; production systems are dismantled; people face impoverishment when their productive assets or income sources are lost; people are relocated to environments where their productive skills may be less applicable and the competition for resources greater; community institutions and social networks are weakened; kin groups are dispersed; and cultural identity, traditional authority, and the potential for mutual help are diminished or lost. This policy includes safeguards to address and mitigate these impoverishment risks.¹¹

The overall objectives of the Policy are given below:

- Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs.
- Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits.
- Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs.
- Displaced persons should be assisted in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.

Since the proposed BSCMFP will not involve land acquisition for any construction purposes and canal re-excavation, there is no possibility of displacement of people and resources. However, this OP/BP is triggered because, the project will restrict the existing resources harvest process and hence the current livelihood pattern of unregistered fishers will be changed. A Resettlement Action Plan (RAP) is under preparation for the project, under a separate cover, in accordance with this WB Policy.

3.3 Applicable WB Policies

- The BSCMFP is classified as a **Category B** project, due to the complexity of environmental issues associated with program activities involving civil works by reconstruction and rehabilitation of the canals to facilitate coastal aquaculture, construction of buildings, landing stations, markets, connecting roads, improvement of mariculture in suitable sites, providing various alternative livelihoods, changing in governance have environmental impacts. There may be localized and restorable insignificant impacts on the natural habitats during the implementation period.
- The environment assessment (OP/BP 4.01), natural habitats (OP/BP 4.04), pest management (OP/BP 4.09), involuntary resettlement (OP/BP 4.12) and Indigenous Peoples (OP 4.10) have been triggered for the proposed operation.
- Although no direct impacts on physical cultural resources are expected, screening mechanism incorporated into the IEE/ EIA process will identify places and or objects of

¹¹ Excerpts from WB OP 4.12. WB Operational Manual. December 2001.

archeological, paleontological, historical, religious, or unique natural values. Physical cultural resources (OP/BP 4.11) are considered in the environmental framework preparation. The status of the environmental safeguard policies of the World Bank is provided below in Table 3.3 (this will be reviewed during the EIAs of the BSCMFP).

Table 3.3: Triggering the World Bank Policies.

Operational Policy	Policy	Triggered	Comments
Environmental Assessment	OP/BP 4.01	Yes	The Program falls into Category B, EIAs will be carried out in accordance with the ESMF document.
Natural Habitats	OP/BP 4.04	Yes	The activities under the proposed program could potentially alter the natural habitat specially at the mangrove areas and also in the EEZ hence this policy is triggered. Habitat restoration and enhancement measures are suggested to include in the program design to avoid, minimize, mitigate and or compensate any adverse impacts on the natural habitat. This will be reviewed during initial stage of the program implementation, once more location-specific information for the proposed project activities is available.
Forests	OP/BP 4.36	No	This OP is not triggered at the ESMF stage, as the impact of the proposed activities on vegetation/ forests (natural/ planted) is not definite, project will be located in non-forested area as defined by the policy, and likely to have no direct or indirect impact on forests. However, this should be reviewed during preparation, once more location-specific information for the proposed project activities is available.
Pest Management	OP 4.09	Yes	The policy is triggered considering that the proposed program targets to increase extension services in aquaculture and mariculture production, and also operation of small to medium scale construction sites, laboratories which are likely to increase usage of pesticides and fertilizers. Specifically, processing facilities as well as feed storage areas may need to control pests as well utilizing pesticides or rodenticides. A separate Pest Management Plan (PMP) prescribed to prepare during EISA and once the project activities are delineated with quantification of use of chemicals and pesticides.
Physical Cultural Resources	OP/BP 4.11	No	Although no direct impacts on physical cultural resources are expected, screening mechanism incorporated into the IEE/ EISA process will identify places and or objects of archeological, paleontological, historical, religious, or unique natural values and appropriate mitigation measures will be identified in the detailed ESMP as required. In addition, 'chance find' procedures will be included in the ESMP.
Indigenous Peoples	OP/BP 4.10	Yes	The BSCMFP area has indigenous communities residing in the program area of Teknaf, Cox's Bazar, Patuakhali, Satkhira, etc. and therefore, impacts on them are expected under the program. Therefore, this OP is triggered. A Small and Ethnic Minorities, Vulnerable Peoples Plans (SEMVP) is suggested to prepare during the EISA, this will be further reviewed through the detailed assessments to be carried out during program implementation for the subsequent

Operational Policy	Policy	Triggered	Comments
			stages. The framework will be fully cognizant of local and cultural nuances associated with designing and proposing alternative livelihood measures, grievance redress processes and all other project interventions including community consultation and communication. This will be further reviewed through the detailed assessments to be carried out during program implementation for the subsequent stages.
Involuntary Resettlement	OP/BP 4.12	Yes	Although the project does not foresee any large-scale land acquisition, some small-scale infrastructure provision is expected. Hence OP 4.12 is triggered and a Resettlement Policy Framework (RPF) will be prepared to provide guidance for the preparation and implementation of site specific Resettlement Action Plans (RAP) during EIA/SIA. In addition, while OP 4.12 generally does not apply to marine resources, the project will require alternative livelihood development models to provide alternative and sustainable income sources which will be critical for the success of halting over-fishing and enforcing no-fishing periods. The SA will complement the main project component 2 and provide guidance on preparation of site specific SIAs associated with project interventions.
Projects on International Waterways	OP/BP 7.50	No	Projects on international waterways may affect the relations between the World Bank and its borrowers, and between riparian states. Therefore, the Bank attaches great importance to the riparian making appropriate agreements or arrangements for the entire waterway, or parts thereof, and stands ready to assist in this regard. A borrower must notify other riparian of planned projects that could affect water quality or quantity, sufficiently far in advance to allow them to review the plans and raise any concerns or objections. This Policy is not triggered since the program will not cover geographical regions where trans-boundary waterways/ rivers exist.
Projects in Disputed Areas	OP/BP 7.60	No	The project will not support activities in disputed areas. Bangladesh's two outstanding maritime delineation disputes with Myanmar and India were settled in favor of Bangladesh in 2012 and 2014, respectively, [the March 14, 2012 Bay of Bengal Maritime Boundary Arbitration Award (Bangladesh v. Myanmar), available at https://www.itlos.org/en/cases/list-of-cases/case-no-16/ and the July 7, 2014, Bay of Bengal Maritime Boundary Arbitration Award (Bangladesh v. India), available at https://www.pcacases.com/web/view/18]. Both cases are now closed, with the respective arbitration awards recognized by all parties involved. This OP is not triggered since no part of the program area is located in any disputed territory.

Operational Policy	Policy	Triggered	Comments
Safety of Dams	OP/BP 4.37	No	Not triggered since no dams are involved under the program.

3.4 National and WB Consultations and Disclosure Procedures

- The Bank reaffirms its recognition and endorsement of the fundamental importance of transparency and accountability to the development process. Accordingly, it is Bank's policy to be open about its activities and to welcome and seek out opportunities to explain its work to the widest possible audience. According to 'OP 4.01: Environmental Assessment' of World Bank, the following conditions applies to the BSCMFP.
- **Consultations.** For all Category A and B projects the borrower should consult the project-affected groups and local non-governmental organizations (NGOs) about the project's environmental aspects and takes their views into account. The borrower should initiate such consultations as early as possible. For Category B projects, the borrower should consult these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EIA are finalized; and (b) once a draft EIA report is prepared. In addition, the borrower should consult with such groups throughout project implementation as necessary to address EIA-related issues that affect them.
- **Disclosure.** For a Category B project, the borrower should provide relevant information on project interventions in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted. The borrower should provide a summary of the proposed project's objectives, description, and potential impacts for the initial consultation. For consultation after the draft EISA report is prepared, the borrower should provide a summary of the EISA's conclusions. In addition, for a Category B project, the borrower makes the draft EISA report available at a public place accessible to project-affected groups and local NGOs. The borrower also ensures that EISA reports for Category B sub-projects are made available in a public place accessible to affected groups and local NGOs. The document needs to be translated into Bengali. Public availability of the EISA report for Category B project in the borrowing country and official receipt by the Bank are prerequisites to Bank appraisal of these projects.

3.5 Gap Analysis of World Bank Requirements and National Laws

Infrastructure development and use of public and private lands for land-based developments are governed by institutional legal mandates and national laws of land acquisition and management. There are some gaps between existing land acquisition law of the country and WB Operation Policy on Involuntary Resettlement (OP 4.12) and on indigenous peoples (OP 4.10) in terms of identification of affected persons and compensation packages, and participation of community groups of diverse interests and vulnerabilities. Gaps between GoB LA law (new Act 21 of 2017) including policies related to SECs and WB OPs 4.12 & 4.10 and suggested gap filling measures are given in Table 3.4 below.

Table 3.4: Gaps between GoB laws and World Bank OP.

Sl. No	Gaps between WBG OP and GoB	Gap-filling measures/actions to be taken in this Project
A.	OP 4.12: Involuntary Resettlement	
1	Avoidance and minimization of project impacts.	The project designs should aim to minimize impacts and adjusted tracks and station design

Sl. No	Gaps between WBG OP and GoB	Gap-filling measures/actions to be taken in this Project
		further to reduce impacts.
2	Existing GoB laws recognize title owners only; informal settlers are not covered.	All affected persons irrespective of titles will need to be identified for compensation and assistance.
3	Existing laws and methods of assessments do not ensure full replacement costs.	Provisions will be adopted for additional top up payments to ensure replacement costs at current market price. Transaction cost will be built upon on current market price and no depreciation, tax or deductions will be applied.
4	Consultation with affected community not legally required.	Extensive consultations were carried out during the preparatory phase; similar consultations will continue during project implementation.
5	The affected land owners can object to the acquisition in the beginning but once hearing is done and settled, there is no scope of further complaint during the acquisition process.	There will be a provision of grievance redress mechanism (GRM) in the project to hear grievances and resolve them amicably to the satisfaction of the aggrieved persons.
5	No relocation assistance or support under the land acquisition law (Act 21 of 2017).	Affected households and businesses will be assisted for their relocation financially and institutionally from the project.
6	No support or program for income and livelihood restoration.	The project benefits will include income and livelihood restoration.
7	No provision for reconstruction of common property resources.	The project will reconstruct all religious, cultural and community structures, if affected by the project.
B.	OP 4.10: Indigenous Peoples	
1	Participation of small ethnic communities is limited through their representative authority in Chittagong Hill Tract area only	The project should ensure meaningful consultation (free, prior and informed) with small ethnic communities in the CHT as well as in other plain districts in the country
2	Existing GoB policy recognize the traditional communities in the country as small ethnic communities and backward population groups	Small ethnic communities with traditional culture and occupation with distinct culture and language are recognized as indigenous peoples for closer attention
3	Small ethnic communities are attended only when affected with their land	Small ethnic communities will be attended who are present in the project influence area either affected by or benefited from the project interventions.
4	Cultural appropriateness	The project design will be culturally appropriate and will not affect their language and traditional

Sl. No	Gaps between WBG OP and GoB	Gap-filling measures/actions to be taken in this Project
		practices.

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Chapter 4: Environment and Social Baseline Conditions

4.1 Description of Environmental Baseline

4.1.1 Physical Environment

Geographic and Topographic Characteristics

The physical geography of Bangladesh's coastal area is neither uniform nor static rather more diverse and dynamic. The project area comprises 16 districts and 75 upazilas (sub-districts). The entire project area can be broadly divided into three regions, such as, i. Southeastern beach areas (sub-districts of Cox's Bazar-Chittagong districts), ii. Central Meghna estuary areas (sub-districts of Noakhali, Feni, Laxmipur, Barisal, Jhalokathi, Bhola) and iii. Southwestern mangrove areas (sub-districts of Khulna, Bagerhat, Satkhira, Barguna, Pirojpur, Patuakhali, Jessore and Narail). A rising sea-level with global warming will overwhelm Bangladesh's coastal area contour and will thereby displace as many as 10–30 million people in the 21st century and the situation will be aggravated by high rates of land subsidence, a recent doubling of the rate of sea-level rise and rapid on-going rates of coastal erosion. Under natural conditions, such subsidence was counteracted by sedimentation from the rivers at high tide. The construction of embankments cut off this natural sediment accretion within polders.

Water Resources

Bangladesh is a riverine country having more than 230 rivers of 11,739 km length. The economic growth and development of Bangladesh has been highly influenced by water and its regional and seasonal availability and the quality of surface and ground water. The rivers are estimated to discharge 5.0 million cubic feet water per second at peak period (July-October). The contrast between high and low run-off is dramatic. During the lean months (March-April) the total run-off is only about 20,000 cubic feet per second. The sediment carried downstream by the river system has been estimated as 2.4 billion tons annually. Significant amount of lands are eroded by the water movement especially along unprotected river banks. The flooding brings enough silt and makes the soil fertile. The flooding deposits new soils and the ponds of the water left by the flooding can facilitate chemical reactions to produce a nitrogen fixing process in the soils where green algae is present.

About 69% of the area are irrigated by ground water and rest 31% from surface water. Water is of fundamental importance for ecology and the wider environment. Additionally, the vast water resources provide salt and fresh water habitat for the production and harvest of a wide variety of fish and aquatic products. Various types of fishes and shrimps are important food sources for both local consumption and for export. About 60% of the total protein need has been satisfied by fishes and contribution to foreign currency income as of 2015-16 is 1.97%.

Lack of safe drinking water has been identified as the number one issue in the daily life of the coastal population. Rural water supply is mainly dependent on tube wells that abstract groundwater. Groundwater-based water supply in coastal areas is affected by arsenic contamination, and this has become serious concern for drinking water supply. Extensive programs of identifying arsenic contaminated tubewell and raising public awareness of the possible dangers are going on. Use of pond in the homestead area as a source of domestic water supply was the tradition in rural areas. The National Policy for Safe Water Supply and Sanitation (Ministry of Local Government, 1998) recommends that, each and every village shall have one pond exclusively set aside for drinking water, which should be protected from contamination and surface run-off.

A total of 123 flood control polders involving 5,107 km of embankment have been constructed covering approximating 1.5 million ha of the coastal area under the Coastal Embankment Project (CEP). These polders prevent inundation of floodplain agricultural land by saline water during high tide. Because of reduced tidal prism, peak tidal velocity has reduced and siltation in the channels has aggravated. The polders have caused rise in channel bed which in turn has resulted drainage congestion. The rise in riverbed has resulted serious water logging in the adjacent area which has become a major environmental concern in the region. The continued water logging has caused serious damage to agriculture, forestry, fisheries, livestock and physical infrastructures and generated widespread discontent among the coastal people. Many people had to leave their ancestral homestead by abandoning traditional livelihood activities.

Climate – historic as well as projected (as per climate change scenarios)

Bangladesh has a sub-tropical monsoon climate characterized by wide seasonal variations in rainfall, moderately warm temperatures and high humidity. Three seasons are generally recognized: a hot and humid summer from March to June; a cool, rainy monsoon season from June to October; and a cool and dry winter from October to March. In general, maximum summer temperatures range between 32°C and 38°C. April is the warmest month in most parts of the country. January is the coldest month, when the average temperature for most of the country is around 10°C.

Winds are mostly from the north and northwest in the winter, blowing gently at one to three kilometers per hour in northern and central areas and three to six kilometers per hour near the coast. From March to May, violent thunderstorms, called northwesterners produce winds of up to 60 km per hour. During the intense storms of the early summer and late monsoon season, southerly winds of more than 160 km per hour cause waves to crest as high as 6 m in the BoB, which brings disastrous flooding to coastal areas.

Heavy rainfall is characteristic of Bangladesh and about 80% falls during the monsoon season. With the exception of the relatively dry western region of Rajshahi, where the annual rainfall is about 160 cm, most parts of the country receive at least 200 cm of rainfall per year. The region of Sylhet in northeastern Bangladesh receives the greatest average precipitation. Average daily humidity ranged from March lows of between 45 and 71% to July highs of between 84 and 92%, as per data taken at selected stations nationwide in 1986. During the hot months of April and May hot air rises over the Indian sub-continent, creating low-pressure areas into which cooler, moisture-bearing winds from the Indian Ocean rush. This is the southwest monsoon, commencing in June and usually lasting through September-mid October.

Annual monsoon flooding, due to precipitation within Bangladesh and run-off of flash floods from hilly areas of India, results in the loss of crops, human life, damage to property and communication systems, and a shortage of drinking water, which leads to the spread of disease. For example, in 1988 two-thirds of Bangladesh's 64 districts experienced extensive flood damage in the wake of unusually heavy rains that flooded the river systems. The floods of the northeast wetland in 2017 is the example of run-off of flash floods from hilly areas of India.

Salinity and Tidal Effect

The coastal area of Bangladesh is characterized by tides and salinity from the BoB. Salinity intrusion further inland due to a reduction of fresh water flow from upstream, sea level rise, salinization of groundwater and fluctuation of soil salinity are the major concern of the coastal area. The higher salinity levels have adverse impacts on agriculture, aquaculture, and domestic and industrial water use and temporal and spatial variation of salinity is likely to deteriorate further as a consequence of sea level rise.

Average salinity concentrations at the coast area are higher in the dry season (November-May) than in the monsoon (July-October), due to lack of freshwater flows from upstream. The salinity normally builds up from October to the late May, and it remains higher during the dry season, usually from

February to May. At the end of May, salinity level drops sharply due to upstream flows and rainfall (IWM, 2014). The salinity level in the south-eastern beach areas is generally higher than both the central Meghna estuary and southwestern mangrove area. The eastern part of southwestern region remains less saline as it receives freshwater flow from the Padma and lower Meghna River through Arial Khan, Bishkhali and Buriswar River. As a result, salinity levels in the region decrease from west to east as well as from south (the BoB) to north. If water salinity is higher than 1 ppt (parts per thousand), the water is not usable for domestic purposes though it is still favorable for crop and livestock agriculture unless salinity exceeds 2 ppt. Some freshwater aquaculture is still possible when the salinity is below 4 ppt. In the southeast water salinity remains higher than 10 ppt and in the southwest part water salinity remains higher than 4-5 ppt during the dry season which has favored brackish water shrimp/ mud crab farming, salt production and building up of shrimp hatcheries there.

The tide along Bangladesh coast originates from the Indian Ocean, travels through the deep BoB and arrives at Hiron point and Cox's Bazar at about the same time. These two points are at the heads of submarine canyons i.e. swatch of no ground and Burma trench. The ranges of the tides at the tip of these two canyons i.e. Hiron point and Cox's Bazar are about, 10 feet during the spring tides of the equinoxes. The tide in the Bangladesh coast is semi-diurnal with slight diurnal inequality. In the Passur, Bhairab and the Baleswar-Kocha rivers' funelling effect upstream of Khulna and Kaukhali respectively causes the strong tides in the southwest. The back-water effect of tide on the upland flow is felt even at the maximum flood up to Chandpur in the Meghna and Bardia in the Bhairab-Nabaganga.

Natural Hazard (Storm, cyclone)

The geographical setting and meteorological characteristics has made Bangladesh one of the most vulnerable countries of the world to different geo-hazards and hydro-metrological hazards. The major disasters concerned in the country are floods, cyclones, droughts, tidal surges, tornadoes, earthquakes, river erosion, fire, infrastructure collapse, high arsenic contents of ground water, water logging, water and soil salinity, epidemic, and various forms of pollution, etc. These events are termed as disasters when they adversely affect the entire environment, including human beings, livestock, crops, shelters and the resources essential for livelihoods.

Cyclone and storm-surges are common annual events in Bangladesh: The coastal regions of are subject to damaging cyclones almost every year. They generally occur in early summer (April-May) or late rainy season (October-November). Tropical cyclones are usually destructive and affect Bangladesh and its adjoining areas. The peculiar geography of Bangladesh brings not only the life-giving monsoon but also catastrophic cyclones, Nor'westers, tornadoes and floods. The BoB is an ideal breeding ground for tropical cyclones. Cyclones are usually formed in the deep seas and hence their study has been very difficult. It is only with the advent of the Space age that weather satellites have provided valuable information about them.

Tropical cyclone has a great impact on agriculture and rural infrastructures such as shelter, sanitation, drinking water, electricity supplies and transportation services. It causes huge damages not only to livelihoods but also to engineering structures like rural roads, dams, embankments, farm buildings and dairy houses, etc. In 2007, Bangladesh witnessed unprecedented tropical cyclone called as 'Sidr' which caused enormous disruptions, damages and remarkable number of death of peoples. It is observed that the return period of earlier destructive cyclones was 30-50 years, whereas recent ones are occurring by nearly eight years, signifying the increasing frequency of devastating cyclones. 'Sidr' was as strong as of the previous cyclones; however, the casualties in term of number of death of people were conspicuously lower than that of the former ones, indicating the increase of awareness of people, improvement of warning system of the weather broadcasting center and the countermeasures taken by the government of the country. Storm surge flood is an enormous threat to human lives and livestock in the coastal area. Multi-purpose shelters

are constructed to provide refuge to the exposed population during storm floods, and also intended for multi-purpose use as school and community center.

4.1.2 Biological Environment

Terrestrial Flora

Bangladesh is located in South Asia and can be located on a map using the geographic coordinates of 24°N, 90°E. Bangladesh is enriched with high plant diversity, since it lies in a transition of two mega-biodiversity hot spots, viz, Indo-Himalayan and Indo-Chinese. The tropical vegetation of Bangladesh differs in the inhabited and uninhabited areas. Inhabited areas have different types of fruits and vegetables by the homesteads. On the other hand, uninhabited areas include natural vegetation comprising of strand plant communities including a distinct association of trees and shrubs. In the coastal region, the world's largest single line mangrove forest features a diversified range of vegetation including Sundori, Bain, Gewa, Goran, Amur, Bali, Bhara, Bonjum, Dabur, Pasur, Sondal, Kankra, etc.

Wetland Ecosystems

Apart from fresh water flood plains there are salt water and coastal brackish water wetland, especially in the southwestern part. They cover an estimated area of 16.6 million hectares. Couple of wetland from Bangladesh are included in Ramsar site of significance although from southwest part only the mangrove swamp- Sundarbans qualify as Ramsar site which has an estimated area of 10,000 km² of which about 6,000 km² are in Bangladesh. Other wetlands of socioeconomic, environmental and ecological significance include St. Martin's island and Coral Reef and Naf estuary of Cox's Bazar etc (Haroon and Kibria, 2016; Kibria and Haroon 2016). In recent years, coastal wetlands face serious problems of salinity intrusion, habitat fragmentation, pollution, erosion and resource depletion due to both natural (climate change effect) and man-made (human economic activities) reasons.

Bangladesh's maritime boundary has recently been extended by 118,813 km² comprising of 12 nm of territorial sea and an EEZ extending up to 200 nm into the high seas. The main ecosystems of the coastal zone are: (a) Coral-associated Island, (b) Sandy beach, (c) Small islets, (d) Sand dunes, (e) Inter-tidal mudflats, (f) Grasslands, (g) Reed lands, and (h) Mangrove forest. Bangladesh coastal zone is well-connected with a vast network of estuaries of the GMB river systems.

Faunal and marine diversity

The coastal fauna of Bangladesh has a total 453 species of birds, 42 species of mammals, 35 reptiles and 8 amphibian species. A total of 301 species of mollusks and over 50 species of commercially important crustaceans and 76 species of fishes from estuarine have been recorded so far in the coastal zone. Among the endangered species are five mammals, 25 birds, 14 reptiles (one crocodile, eight turtles, four lizards and one snake) and two amphibians (frogs). The marine waters of Bangladesh also have 442 species of fishes and 36 species of marine shrimps. About 336 species of mollusks, covering 151 genera have been identified. In addition, 3 lobsters and 7 species of turtles and tortoises, 168 species of seaweeds, 3 sponges, 16 crabs, 3 lobsters, 10 frogs, 3 crocodiles, 24 snakes, 3 otters, 1 porcupine, 9 dolphins and 3 species of whale etc. are found in Bangladesh territorial water. Among the marine and migratory species of animals, 4 fishes, 5 reptiles, 6 birds, and 3 mammals are threatened.

The world's largest uninterrupted stretch of mangrove ecosystem, the Sundarban, has been declared World heritage site in 1997. Coral ecosystems are found only around the St. Martin Island. These ecosystems are not only biodiversity hotspots, but they also provide the ecological foundation for an important common property resource: the fisheries of the BoB. No systematic work on coastal and marine biodiversity of the BoB and the Bangladesh coast so far has been done. Most important mammals in Sundarbans are the flagship species Bengal Tiger (*Panthera tigris tigris*), for which the Sundarban is the largest remaining natural habitat, the Otter (*Lutra* species), Squirrels (*Collosciurus pygerythus*, *Funambalus pennati*), Wild Boar (*Suss crofa*), and in rivers and the sea are the hot spots

of Gangetic (*Platanista gangetica gangetica*), Indo-Pacific bottlenose (*Tursiops aduncus*), Indo-Pacific humpbacked (*Sousa chinensis*); Shushuko/ Irrawaddy (*Orcaella brevirostris*) dolphins (Haroon and Kibria 2016; Kibria and Haroon 2016). Some species such as the Giant Honey bee, Mud crab (*Scylla serrata/ olivacea*) and various shrimps are studied intensively, because of their relation with human livelihoods. It is well known that the number of insect species is high which holds probably for other groups as well. A total of 301 species of mollusks and over 50 species of commercially important crustaceans have been recorded so far in the coastal zone and the BoB. About 46 species of coastal wildlife are endangered with certainty and the actual number would be much more.

Protected areas

Bangladesh currently has 40 protected areas (PAs). Among the PAs, 6 were established before Bangladesh became party to the CBD, whereas the remaining were established after the signing of the Convention. A total of 21 PAs (7 National Parks, 12 Wildlife Sanctuaries, 1 Marine PA and 1 Special Biodiversity Conservation Area) have been declared by the government to conserve wildlife and their habitats since 2010, after the submission of the Fourth National Report to the CBD (Table 5). The total area of newly added 20 forests PA is 33,915.31 ha. All 38 forest PAs now cover about 10.55% of total forest area which is 1.8% of the total area of the country. The forest PAs are managed by Bangladesh Forest Department.

The two Marine Protected Areas (MPAs), one in 'Swatch of No-ground' of BoB, declared under Bangladesh Wildlife (Conservation and Security) Act, 2012 and another in 'Middle Ground and South Patches' of the BoB, declared under the Marine Fisheries Ordinance 1983 together comprise 243,600 ha (2436 km²) constituting 2.05% of the total marine area 11,881,300 ha (118,813 km²) of Bangladesh.

Table 4.1: List of National Protected areas (PAs) in the project area.

Sl. No.	National Protected Areas	Location	Area(ha)	Established
Wildlife Sanctuaries				
1.	CharKukri-Mukri	Bhola	40.00	19-12-1981
2.	Sundarban (East)	Bagerhat	31226.94	6-4-1996
3.	Sundarban (West)	Satkhira	71502.10	6-4-1996
4.	Sundarban (South)	Khulna	36970.45	6-4-1996
5.	Chunati Wildlife Sanctuary	Chittagong	7763.97	18-3-1986
6.	Fashiakhali Wildlife Sanctuary	Cox's Bazar	1302.43	11-4-2007
7.	Dudpukuria-Dhopachari Wildlife Sanctuary	Chittagong	4716.57	6-4-2010
8.	Hajarikhil Wildlife Sanctuary	Chittagong	1177.53	6-4-2010
9.	Teknaf Wildlife Sanctuary	Cox's Bazar	11615.00	24-03-2010
10.	Tengragiri Wildlife Sanctuary	Barguna	4048.58	24-10-2010
11.	Dudhmukhi Wildlife Sanctuary	Bagerhat	170.00	29-01-2012
12.	Chadpai Wildlife Sanctuary	Bagerhat	560.00	29-01-2012
13.	Dhangmari Wildlife Sanctuary	Bagerhat	340.00	29-01-2012
14.	Sonarchar Wildlife Sanctuary	Patuakhali	2026.48	24-12-2011
Marine Protected Area				
15.	Swatch of No-Ground	Bay of Bengal	173,800	27-10-2014
16.	Marine Reserve*	Bay of Bengal	69,800	2000

4.2 Description of Social and Economic Environment

4.2.1 Population demographics

Bangladesh is a highly populous country. The population scenario of the project area is almost same as the country i.e., highly populous. The proposed project includes 16 districts among which the most populous is Chittagong and the least populous is Barguna. The total population of the project area is 33.77 million (Table 4.2) of which male 16.74 million and female 17.03 million. Sex ratio in the project area is 1.6:1.7 (Male/ Female).

Table 4.2: Population of the project area.

Sl no	District	Population			Sex Ratio (M/F)
		Both Sex	Male	Female	
1	Bagerhat	1,476,090	740,138	735,952	100.6
2	Barguna	892,781	437,413	455,368	96.1
3	Barisal	2,324,310	1,137,210	1,187,100	95.8
4	Bhola	1,776,795	884,069	892,726	99
5	Chittagong	7,616,352	3,838,854	3,774,998	101.6
6	Cox's Bazar	2,289,990	1,169,604	1,120,386	104.4
7	Feni	1,437,371	694,128	743,243	93.4
8	Jessore	2,764,547	1,386,293	1,378,254	100.6
9	Jhalokati	682,669	329,147	353,522	93.1
10	Khulna	2,318,527	1,175,686	1,142,841	102.9
11	Lakshmipur	1,729,188	827,780	901,408	91.8
12	Narail	721,668	353,527	368,141	96
13	Noakhali	3,108,083	1,485,169	1,622,914	91.5
14	Patuakhali	1,535,854	753,441	782,413	96.3
15	Pirojpur	1,113,257	548,228	565,029	97
16	Satkhira	1,985,959	982,777	1,003,182	98
		33,773,441	16,743,464	17,027,477	101.7

Source: BBS, Population and Housing Census 2011.

4.2.2 Access to basic civic facilities

Education catalyzes socio-economic practice of human being and plays in eradication of poverty. Although quality is questioned, there is a gross improvement in the education sector in the country. New generation, irrespective of gender is making their academic choice following the market demand for various skills and technical knowledge. In the project area, the highest literacy rate (7+ years) is in Jhalokathi and the lowest is in Bhola district (Table 4.3).

Table 4.3: Literacy among Project Area Population

Sl no	District	Literacy Rate (7+ Years)
1	Bagerhat	58.98
2	Barguna	57.64
3	Barisal	61.24
4	Bhola	43.24
5	Chittagong	58.91
6	Cox's Bazar	39.29
7	Feni	59.63
8	Jessore	56.52
9	Jhalokati	66.68

Sl no	District	Literacy Rate (7+ Years)
10	Khulna	60.14
11	Lakshmipur	49.4
12	Narail	61.27
13	Noakhali	51.29
14	Patuakhali	54.07
15	Pirojpur	64.85
16	Satkhira	52.07

Source: BBS, Population and Housing Census 2011.

In terms of connectivity Chittagong district has the highest length of paved road and it is least in Barguna among the project districts. Narail District has no unpaved road (Table 4.4).

Table 4.4: Road conditions in the 16 districts of the project area, Bangladesh.

Sl no	District	Length of Paved Road in 2009 RHD (km)	Length of Unpaved Road in 2009 RHD (km)	Total Length of Road (Paved + Unpaved + not Surveyed) in 2009 RHD (km)	% Distribution of Household Electricity 2010
1	Bagerhat	298	38.47	396.86	49.71
2	Barguna	160	10.68	191.45	33.05
3	Barisal	244	10	366.88	58.11
4	Bhola	213	31.29	239.67	42.83
5	Chittagong	408	109.69	564.35	65.44
6	Cox's Bazar	363	95.68	539.45	38.51
7	Feni	286	9.47	295.9	71.36
8	Jessor	317	21.08	355.44	61.66
9	Jhalakathi	197	15.52	320.75	56.09
10	Khulna	338	28.27	384.77	67.05
11	Lakshmipur	284	22.64	306.41	38.66
12	Narail	145	0	153.14	57.07
13	Noakhali	322	48.84	371.74	66.37
14	Patuakhali	255	0.07	281.68	36.52
15	Pirojpur	196	0.17	292.42	49.05
16	Satkhira	193	49.57	252.7	48.22

4.2.3 Level of Income and Poverty

Poverty can be earmarked by income level of the households. The concept of absolute poverty is the minimum level of income that is needed for physical survival. The Household Income and Expenditure Survey (HIES) 2010 used the Cost of Basic Needs (CBN) method to measure poverty incidence in the country. The HIES 2010 have measured two types of poverty: moderate poverty and extreme poverty. Extreme poverty line is the minimum income to support basic foods and the moderate poverty line is the income to support basic food and non-food expenses.

Bangladesh, one of the poorest countries in the world, despite its impressive economic growth and consistent reduction in the rate of poverty, is still struggling with the poor and the extreme poor. There is an effort to combat poverty, both GoB and non-government organizations (NGOs) have been implementing a number of programs, such as, microfinance, vulnerable group development (VGD), and vulnerable group feeding (VGF), employment generation program, and other foods and cash transfers.

The following table shows the poverty rate in the project areas, which shows poverty is lowest in Chittagong and highest in Barisal (Table 4.5).

Table 4.5: Incidence of Poverty in Project Area.

Sl no	Districts	Poverty-rate-upper (%)
1	Bagerhat	42.8
2	Barguna	19
3	Barisal	54.8
4	Bhola	33.2
5	Chittagong	11.5
6	Cox's Bazar	32.7
7	Feni	25.9
8	Jessor	39
9	Jhalakathi	40.5
10	Khulna	38.8
11	Lakshmipur	31.2
12	Narail	20
13	Noakhali	9.6
14	Patuakhali	25.8
15	Pirojpur	44.1
16	Satkhira	46.3

Source: WFP/WB/BBS 2014

4.2.4 Small Ethnic Communities (SECs) in the Project Area

About 160 million of the national population in Bangladesh (144.04 million) belongs to the 45 different small ethnic groups officially recognized as tribes, minor races, ethnic sects and communities commonly known as tribal peoples. These peoples are concentrated in the north, and in the Chittagong Hill Tracts (CHT) in the south-east of the country commonly known as tribal peoples. However, tribal peoples are also scattered in small proportion all over Bangladesh. A total of 77,102 tribal peoples are living in the 16 project districts. Mostly of them reside in Chittagong and Cox's Bazar, while some in Patuakhali (Table 4.6).

Table 4.6: Tribal Population in the Project Area.

Sl no	District	Total tribal population	Male	Female
1	Cox's Bazar	14551	7045	7506
2	Jessore	17432	8779	8653
3	Khulna	2054	1022	1032
4	Narail	943	465	478
5	Satkhira	2615	1278	1337
6	Bagerhat	3327	1677	1650
7	Barguna	1143	565	578
8	Barisal	76	45	31
9	Bhola	57	28	29
10	Chittagong	32165	16329	15836
11	Feni	639	351	288
12	Jhalokati	57	28	29
13	Lakshmipur	244	131	113
14	Noakhali	347	201	146
15	Patuakhali	1399	707	692

Sl no	District	Total tribal population	Male	Female
16	Pirojpur	53	26	27
	Total =	77102	38677	38425

Source: BBS Population and Housing Census 2011.

4.2.5 Fishing and fish trade

A significant portion of population of Bangladesh earns a living from fishing and from services associated with water transportation, which is an essential element of the nation's economy. In Bangladesh, small-scale fisheries account for about 1.5 million fishers and 10 million more indirectly dependent on fisheries for their livelihood. Small-scale fisheries in the BoB contribute about 83% of the total marine fish production in Bangladesh. The species Hilsha (*Tenuolosa ilisha*) constitutes the largest single fishery in Bangladesh, contributing about 10.18% of the country's total fish production. It is estimated that about 2 million fishers and traders are directly and indirectly engaged in Hilsha fisheries. Most small-scale coastal fishers rely on these fisheries for their yearly income. The Hilsha fishery is seasonal with the peak season lasting for only about four months (July-October) of the year. During the other eight months, small-scale fishers mostly use set bag nets to catch other species, which are short-lived and small-sized (e.g. Sergestid, shrimp, *Acetes* spp.).

The BoB is one of the most disaster prone regions in the world. Cyclones and tropical storms are yearly phenomena and tidal activity is becoming increasingly turbulent making fishing operations risky and limited. Rough seas, as well as frequent cyclones often force coastal fishers to stay home or to abandon their incomplete fishing trips. Yet, due to very limited options for survival, many fishers defy warnings and continue fishing, which results in many fatalities every year. Thus, small-scale fishers are not only poor; they are also extremely vulnerable. Their communities are often isolated, usually located near their workplace on the beach or nearby khas land (government owned). This makes them predisposed to natural disasters. When disasters strike, families have to rebuild their lives and livelihoods from scratch. Limited finances make it difficult to restore homes and infrastructure. The loss of fishing gears, boats, livestock and other household assets can wipe out livelihoods. Moreover, the accompanying loss of paddy fields and other food source can worsen food insecurity along the coast, which often leads to health problems. The death of a household member capable of working can bring the whole family into extreme poverty and extended trauma.

The soil, water and climate of Bangladesh are very favorable for inland fisheries in both open and closed water. Therefore, most of the fish traded in domestic market are from inland capture. There are primarily three fish cultivation methods: capture, culture/ farming and marine.

Capture: This is a traditional method of catching fish in rivers, beels, haor and baor done by independent fishermen in small boats usually using simple gear like traps, gillnets, beach seines, purse seines, dip nets, cast nets and small long lines. Most of these catches are consumed locally either processed or fresh.

Culture: This is a method by means of which rural entrepreneurs scientifically farm fish in pond or closed water space. This is a more formal way of catching fish than capture.

Marine: This method includes catching fish in coastal areas with either mechanized or non-mechanized trawlers.

In the inland open water system, there are 260 native species, 13 exotic fish species and 20 species of shrimp. Most of the 260 species of freshwater fish and 20 species of freshwater prawns are greatly favored by consumers. Gangetic carps (rui, catla and mrigal), particularly from rivers or other water bodies, warrant the highest prices. Generally, consumers prefer bigger fish from rivers or open water bodies. These fish fetch higher prices in the market than cultured fishes from ponds. The coastal area supports a large artisanal and coastal fishery. As of 2015-16, Bangladesh has about 130 deep-sea fishing trawlers, 32,800 mechanized fishing boats, and 34,810 non-mechanized fishing

boats (Yearbook of Fisheries Statistics of Bangladesh, 2015-16). Consumption of marine fishes is predominantly confined to coastal communities in areas like Chittagong, CHT, Cox's Bazar, Noakhali and coastal islands.

Hygienic condition of wholesale market is very poor. At the market time these places become muddy so walking becomes very difficult. There is no drainage system and sanitation receives a low priority at all stages of marketing. For example, the cleaning and washing of fish and containers to carry fish are not common practice and fails to use chemicals (bleaching powder, chlorine etc) to sterilize surfaces which are used to hold fishes.

It is estimated that the primary producers scarcely receive or earn near about 30-40% of the selling price for their production. Depending upon the estimated cost of transportation, preservation, icing and money paid to moneylenders of the market, the fishers' or farmers' share of the prices differ a lot. Aratdar's profit per kg is Tk 10. They also charge about 2-3% commission of the sell price and 4% interest from producers who take credit from aratdars. The middleman's share is near about 40-45%, while the remaining 15-20% is spent for transportation, preservation and other charges of the sell price.

4.2.6 Fisher and fishing communities

The fisher community in the project area is very poor. Fisherman Registration Identity card project, DoF has registered the fisherman of Bangladesh. The total registered Fisherman of the project area is 719,693 among which 69,206 are male and 23,484 are female (Table 4.7).

Table 4.7: Registered fishers of the project area with segregated sex.

Sl no	District	Total registered fishermen	Female	Male
1	Barisal	75,654	504	75,150
2	Bagerhat	39,233	1,980	37,253
3	Barguna	44,998	1,657	43,341
4	Bhola	130,451	1,044	129,407
5	Chittagong	36,199	410	35,789
6	Cox's Bazar	47,834	959	46,875
7	Feni	39,986	617	39,369
8	Jessore	16,898	412	16,486
9	Jhalokathi	5,199	76	5,123
10	Khulna	45,634	3,133	42,501
11	Lakshmipur	49,440	407	49,033
12	Narail	7,081	95	6,986
13	Noakhali	39,986	617	39,369
14	Patuakhali	67,468	1,253	66,215
15	Pirojpur	24,278	500	23,778
16	Satkhira	49,354	9,820	39,534
Total =		719,693	23,484	696,209

Source: Fisherman Registration Identity card project, DoF (Find out tribal people in the project area with card).

As in many other rural communities, the rate of illiteracy in fishing communities is very high. Schools are in many cases inaccessible due to the poor condition of the roads and/or long distances. Other impediments for children to complete school include large families and the subsequent educational expenses and the necessity for the children to work to supplement the family income. Fishers' access to the formal credit market (i.e. banks) is extremely limited due to lack of collateral assets like landed property; therefore, they are dependent on informal credit mechanisms. The informal dadon (private money lending) system has been blamed for exploiting the fishers. Dadon is a transaction built upon an uneven lending contract (often verbal) between

the fisher and the lender. The dadon is considered to be an advance or loan for the fishing season and binds the fishers to the money lender. This means that regardless of the amount of money owed, the borrowers must give all the fish they catch to the dadondar (private money lender) who gives them the loan and they must accept the price that he determines (usually about 20%–40% than the market price or against a certain percentage of commission e.g. 5%–10% of sales revenue). If they try to bargain, the money lender will just reduce the price of the previous bid as a form of punishment. Thus, the dadondar becomes the de facto owner of the family's productive assets and fish catches. He will allow at least three fishing seasons for the loan defaulter to repay loans. If there is a failure, the dadondar may confiscate the fisher's productive assets like boats, nets, home or homestead land.

Poor representation of coastal communities in the power structure is another capability handicap. The small-scale fishers of the south-eastern coast of Bangladesh are for the most part not well organized. The existing traditional organization (samaj) is not effective enough to promote their interests, as they have poor representation in the local administrative structures. Many fishers reported that high installment and maintenance fees were impediments for joining cooperative organizations. Some fishers also blamed the dadondar who would not want them to have such an organization out of fear of losing control. Also, Bangladesh is well known for its non-government organization (NGO) activity, but comparatively few NGOs work with coastal fishers. One reason for limited NGO assistance is the geographical remoteness of fishing communities. Another reason is that fishers, due to uncertain incomes, have difficulties serving debt even on microcredit, an arrangement that has overall been very successful in supporting the poor in Bangladesh, particularly women.

As an open access fishery, there is no state-allocated legal ownership of the fishing area. However, small-scale fishers maintain socially organized, locally enforceable, and hereditary entitlements in the fishing area within their community. This system, known locally as Pata, has been used as a way to avoid chaos and conflict among fishers regarding access and use of fishing space. The pata is subdivided into smaller parts known as Faar. It is Faar that grants the fishing rights to each fisher, which is a practice that has been going on for generations. Even though this resource use right is transferable and can be sold for cash or in-kind, it is not legally endorsed by the law. Further, this fishing entitlement is facing difficulties due to pressure of the increased population, new entrants into the fishery as well as intrusion by industrial fishers.

Vulnerability and poverty both are closely linked but not exactly the same. When their assets are destroyed, small-scale fishers have to rebuild their lives, but entitlement and capability deprivation, the lack of support or alternative skills to fishing, keep them trapped in a resource dependency that lead them to increase the pressure on the marine ecosystem, often by using destructive gear or targeting protected species. New entrants into the fishery add to this problem. But small-scale fishers' vulnerability is also exacerbated by social mechanisms, such as underperforming institutions and lack of the security that ownership to land provides. Without a functioning health care and welfare system, the death or illness of a fisher/ fish farmer family member may be disastrous.

4.2.7 Fish trade and conventional dispute resolution method

There are disputes between fisherman and middleman. The middleman usually tries to buy from fisherman in lower price. Sometimes dispute arises between them. If such dispute arises, it is resolved by local Union Chairman and member. Again, there are dispute between dadondar and fishermen in some incidence. Fisherman usually borrows money from dadondars in a high rate of interest. For this reason, sometimes dispute arises between them which is resolved by local Union Chairman and member.

4.2.8 Local heritage and historical sites

The project has a significant religious site as well as a bio diverse area that has been listed by UNESCO as World Heritage Sites. Two tourist destinations, The Historic Mosque City of Bagerhat have been listed as cultural World Heritage Sites in Bangladesh and The Sundarbans is designated as a natural World Heritage Site in the country.

Historic Mosque City of Bagerhat

The Mosque City is in Bagerhat district in southern Bangladesh which is in Khulna Division. It was inscribed as a World Heritage Site in 1985. The city was founded by a Turkish-born Ulugh Khan Jahan in the 15th century and was built using bricks. Forbes categorizes the city as one out of the fifteen lost cities of the world. The city is a tourist destination, and some of its former structures include 360 mosques, mausoleums, roads, bridges and other public buildings constructed from baked bricks. However, the city was in ruins after the death of the founder Ulugh Khan. Bagerhat Museum located next to sixty-dome mosque contains pottery and ornamental bricks.

Sundarbans: The Abode of The Royal Bengal Tigers

The Sundarbans is a mangrove forest, which is approximately 140,000 ha on the delta of Ganges and Meghna rivers in the BoB. It was inscribed in 1987 as a natural world heritage site by UNESCO. It has unique features such as mudflats and tidal waterways. It has around 260 different species of birds, the Royal Bengal Tiger; the only family of cats that is almost extinct, and the famous Indian python. The Sundarbans biodiversity attract tourists around the world. They come to carry out scientific research as well as observe the diverse species of both plants and animals. Conservation efforts are implemented to keep the Sundarbans safe from illegal hunting and other human activities like agriculture. The government has passed a law to protect the ecosystem and maintain the biodiversity. Although the tourism sector is affected by impassable roads, several measures including investment in infrastructure are underway. Although there are protection efforts, the topography of the region and the hostile terrain and the international border makes it difficult to monitor and control poaching and woodcutting of the mangrove trees. The Sundarban Tiger Reserve is also facing numerous challenges in managing wandering Tigers, and reports of human-tiger conflicts are quite frequent. There are lots of local heritages in the project areas, such as house of Michel Madhusadan Datta in Jessore, Sultan Complex in Narail, KirtipashaJamidarbari in Jhalokathi, RakhainPalli in Taltoli and Kuakata, Shrine of BayzidBostami in Chittagong, war cemetery in Chittagong, GhandiAsrom in Noakhali, Chandranath Hindu Temple in Sitakundu, etc.

4.2.9 Gender Analysis

Women in Bangladesh are gradually coming forward in national development endeavors getting pace in social sector in terms of equity and empowerment. Despite credible successes in poverty reduction and gender equity, significant gender disparity still exists in income-poverty. First, there is the general incidence of extreme poverty for women headed, women- managed and women-supported households. Second, women workers earn considerably less than men workers. Third, lower average consumption for women is also evident from persistent gender inequality in severe malnutrition, mortality and morbidity. In Bangladesh 20–30% of households are headed by women, and 95% of these households are considered to fall below the poverty line. The women folks are continuously fighting against poverty and patriarchy, along with malnutrition, high maternal mortality rate, lack of access to resources, environmental degradation, lack of access to health, lack of paid employment, discriminatory wage rates, strict gender division of labor, and lack of scope to exercise political rights. Poor women suffer more than men and then better-off women in all those circumstances. They are also exposed to exploitation and gender-based violence, excluded from decision making and education and deprived of their right to adequate health and nutrition.

Women do not enjoy land and property rights, have lower levels of education than men, work in the informal sectors and experience restricted mobility. The continuing fragmentation of holdings is

leading to a loss of security for women from the family network and their normative entitlements to social support beyond the family are weakening. Thus, women are becoming more vulnerable to extreme poverty and destitution. Women's work possibilities outside the household have reduced as household asset base has been declined. Women's involvement in field wage labor is outweighed by technological displacement of paddy husking, rice milling and other work (Bridge, 1994). Despite state interventions for women empowerment and gender equality, women are lagging behind in case of education, employment and other social development sectors.

Gender relations in the project areas resemble the typical Bangladesh society in terms of empowerment and access to goods, service and resources. Compared to men, women are lagging by 4.7% in literacy achievements and they constitute 9.5% of the total employed population. In the traditional male dominant society, men have easy access to livelihood earnings. However, in recent days, women are being gradually regarded instrumental in family economy and decision-making. Women in the impact area villages in general have no access over leadership in village and also in their families. In recent years, some of the women got access to the local leadership and they are now members of Union Parishad and municipalities. Poor women have little control over family resources unless it is women headed or have access to micro-credit.

Many young girls work in readymade garments factories. Although women in fishers' households increasingly becoming active in income generation, they still suffer from discrimination in many ways. For instance, the wage paid to women in this area is usually much lower than what their male counterpart earns for doing the same job. Women are frequently cheated when selling fish products. Another problem is the dowry required when a daughter is married off. Girls are considered to be a liability and the number of daughters is perceived as an indicator of poverty.

The status of women in the 16 project districts under *Bangladesh Sustainable Coastal and Marine Fisheries Project* based on the above-mentioned first and the second indicators. It was found that women rights are respected in approximately 30% cases while lands are titled to women in about 12% cases in the villages under the catchment areas of the 16 project districts.

Chapter 5: Environmental and Social Management Framework

5.1 Environmental and Social Assessment and Management Processes

The project will use a structured approach to environmental and social management to allow the project development process, follow the hierarchy of avoidance, minimization, compensation/mitigation for negative impacts and enhancement of positive impacts where practically feasible and advantageous. Following sections describe what needs to be done at each stage of the overall project life – sub-component implementation, implementation of the project activities, and reporting on progress.

5.1.1 General Principle

Due to the nature of some of the proposed activities under BSCMFP program and potential environmental and social impacts, the project falls under ‘Orange A or B’ category according to ECR, 1997 and also falls under “Category B’ as per the World Bank Operation Policy 4.01, which requires proper IEE, EIA and implementation of environmental and social management plan. Therefore, the ESMF is prepared based on the following principles that can lead the planning and implementation of the project activities in Phase I of the BSCMFP.

- The Project Director of DoF is responsible for the compliance with national policies, regulations and World Bank Operational Policies and Guidelines, as mentioned in this ESMF report. The ESMF will serve as the basis for ensuring the compliance for Phase I of BSCMFP.
- DoF is responsible for obtaining environmental clearance from DoE, local government agencies and World Bank as required.
- IEE, EISA and ESMP need to be prepared for activities as determined by DoE.
- Planning and design of the any additional activities should ensure minimal cumulative impacts.
- Environmentally Sensitive areas, cultural sites, restricted or disputed lands should be taken care of with appropriate mitigation or compensation measures during implementation.
- Participation of stakeholders (especially local community) should be ensured by DoF in planning, implementation and monitoring of each sub-components and associated activities.
- DoF will ensure appropriate institutional set up for implementing environmental and social management plan and inter-agency coordination.
- Contractors to be engaged for construction, canal re-excavation and research vessel operation under the program will ensure provision of First Aid Kit at camp site with proper drinking water and sanitation facilities. Worker’s/ crew’s health and safety measures shall be ensured and use of personal protective equipment shall be at place.
- DoF will ensure safety provision has been provided for the resettlement sites (if any).
- DoF will undertake public disclosure about the project interventions and potential impacts.

5.2 Environmental Assessment and Management Process

- The environment consultant of the PMU/ main consulting firm will perform the environmental screening. The environmental consultant will start the task during the preparation stage of Phase I.

- Environment consultant will update the Baseline condition, IEE and the ToR for EIA for Phase I of BSCMFP.
- DoF will share the IEE report and the EIA ToR with DoE for Clearance.
- DoF will conduct EIAs in packages of different activities those have similarity and likely to have same environmental impacts at different points of project length, hence multiple EIAs should be carried out prior to the similar cluster activities.
- PMU will review and clear screening and environmental assessment reports made by Environmental consultant.
- DoF will conduct verification of some screening and assessment.
- Main consultant/ PMU will ensure that environmental considerations are given sufficient attention, weight and influence over selection of construction sites, re-excavation of canals, and improvement of infrastructures in both capture and aquaculture.
- Bid documents will be prepared by the PMU/ main consultant and EMP implementation should be done by Contractor.
- BSCMFP Program works will be supervised by PMU/ main consultant and DoF.
- All the activities of BSCMFP will follow existing Environmental Code of Practices (ECoP) prepared under EMF.
- The project will ensure that environmental impact assessment addresses all potential environmental direct and indirect impacts of the project and program throughout its life: pre-project, during project and operation stages and mitigation measures have been taken for it.

5.2.1 Environmental Screening

Environmental screening is essential to gather information on existing baseline status and to assess potential environmental impacts of the BSCMFP activities. Environmental screening identifies the consequence of the proposed project in broader sense based on similar project experiences, stakeholder's perceptions and expert judgment, without having very much detailed investigation. Critical issues are also identified through the screening which needs detailed investigation. Based on the extent of environmental impact obtained from the environmental screening, the decision for further environment impact assessment will be taken.

Environmental screening is usually carried out with the help of simple matrix that includes a set of check list to identify the baseline status and proposed potential impacts of the project intervention. Based on an extensive literature review and expert consultation, a screening matrix should be developed for BSCMFP –Phase I which will be attached to the Environmental Assessment report for the BSCMFP. Members of environmental assessment team will update and use this matrix for collecting information through site visit, interview/ consultation with stakeholders, focus group discussion in the project site at the later stages.

The screening matrix will help to decide whether the project activities can be implemented or not, and the level of Environmental Assessment required. During environmental screening, if it is found that the project may create major irreversible environmental damage or may violate an existing environmental rule or regulation, the sub-components/ activities will be rejected. For instance, any activities that may encroach into an ECA or a national/ global heritage site will be rejected. DoF must confirm the findings of the environmental screening carried out by the consultants. Moreover, alternative project activities/ methods and/ or operation will be considered and the environmental impact will be assessed to make the project more environment friendly.

5.2.2 Environmental Assessment

Initial Environmental Examination (IEE)

The IEE study will be conducted under BSCMFP. However, according to the project planning, the activities those need IEE will be implemented at different periods and hence, multiple IEEs will be required clustering the similar activities prior to the actual intervention start. The purpose of the IEE is three folds:

- (i) to obtain Clearance from DoE and obtaining decision from DoE whether the particular project activities need further assessment such as detail EIA or not;
- (ii) provide/ finalize the ToR for the EIA study, if required; and
- (iii) continue consultations with project stakeholders.

The Process of IEE is briefly outlined below:

Analysis of the Project Components: All the components of the BSCMFP, like construction works and resettlements, will be examined thoroughly which will in fact guide the development of checklist for reconnaissance survey.

Preparation of Checklist: A comprehensive checklist of potential environmental components likely to be impacted need to be prepared based on the guidelines of different agencies such as DoE and World Bank.

Initial Screening/ Survey: Not all the parameters selected in previous step may be significant for the project; hence the first activity will be to shorten this list to concentrate on significant effects. Data should be collected from all possible secondary sources, if available, and conduct an environmental reconnaissance with the relevant checklist in hand to identify and delineate the significant effects of the project and eliminate the others from further considerations. Public consultation will play an important role in initial screening.

Analysis of alternatives: Alternative site and technological design should be analyzed for the proposed project interventions considering environmental, social, and technological criteria.

Identification and Scaling of Impacts: All the potential short- and long-term environmental impacts should be identified. The impacts can be graded qualitatively (e.g. high, medium, low) in order to identify major impacts and relevant components. In addition, cumulative and residual impacts of the project interventions need to be clearly addressed.

Identification of Enhancement and Mitigating Measures: From literature survey and applying expert judgment and based on assessed impacts, a list of possible enhancement and mitigating measures for beneficial and adverse effects respectively should be prepared.

Preparation Environmental Management and Monitoring Plan: Environmental management plan for the proposed project should be prepared mentioning the impact mitigation/ enhancement measures with institutional responsibilities. Also, environmental monitoring plan should be prepared that will include monitoring parameters, frequency, method and responsible agencies.

Recommendations on the need of EIA study: The IEE study should recommend as to whether a full-scale EIA study is needed or not.

Preparation of ToR for EIA: Based on the IEE findings, a detailed ToR for subsequent EIA study should be prepared. The ToR will specially focus on the adverse impacts of high magnitude. Attention should also be given to cumulative and residual impacts.

Environmental Impact Assessment (EIA)

The purpose of EIA is to give the environment its due importance in the decision-making process by clearly evaluating the environmental consequences of the proposed study before action is taken. Early identification and characterization of critical environmental impacts allows the public and the

government to form a view about the environmental acceptability of a proposed development project and what conditions should apply to mitigate or minimize those risks and impacts.

However, according to the project planning, the activities those need EIA will be implemented at different periods and hence, multiple EIAs will be required clustering the similar activities prior to the actual intervention start. In the preparation phase, the EIA shall achieve the following objectives:

- To establish the environmental baseline in the study area, and to identify any significant environmental issue;
- To assess these impacts and provide for measures to address the adverse impacts by the provision of the requisite avoidance, mitigation and compensation measures;
- To integrate the environmental issues in the project planning and design;
- To develop appropriate management plans for implementing, monitoring and reporting of the environmental mitigation and enhancement measures suggested.

The impact assessment will be conducted using major stages as shown in the following diagram Figure 4.1:

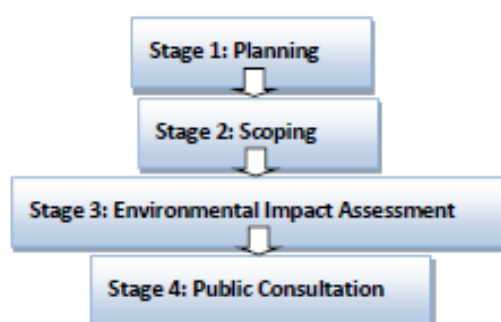


Figure 4.1: Diagram: Impact Assessment Process.

Stage 1: Planning

Soon after the commencement of project, based on desk study, reconnaissance survey and experience of earlier similar projects, detailed methodology and schedule should be prepared for the effective and timely execution of the Environmental Assessment.

Desk Study: To collect the secondary information and checking out the methodology for carrying out the EA study and fixing of responsibilities of the EA team members for preparing a complete, addressing all issues, Environmental Management Plan.

Reconnaissance survey: To collect the first-hand information about the project area and develop a perspective of the entire team and revise the methodology and work program.

Experience from Earlier Project:

- **Focus on the main issues:** It is important that the EA does not try to cover too many topics in too much detail. Effective scoping can save both time and money by focusing the EA studies on the key issues.
- **EA requires the formation of a multidisciplinary team and the leadership of a strong EA coordinator.** The range of effects considered in the EA requires the skills of technical experts to be employed on an assessment team, lead by a Team Leader. It is important to involve the right people (e.g., scientists, engineers, policymakers, government representatives, representatives of public interest groups and the local community) and agencies (e.g., the developer, the aid agency, regulatory authorities and politicians) in the EA process. Selection will be made through consultation at different stages.
- **Make maximum use of existing information before engaging expensive field studies.**

- **Determination of Project influence Area.** Based on reconnaissance survey and desk study and technical assessment, project influence area will be finalized.
- **Present clear and appropriate options for mitigation of impacts and for sound environmental management.** Mitigation is an integral part of impacts assessment. Application of appropriate mitigation can eliminate or reduce negative impacts, and improve the net overall environmental performance of a project. Hence public consent, practical viability will be considered in proposing the mitigation measures.
- **Post-EIA audits and monitoring programs are essential to ensuring that EA commitments are carried out and that future EA improve.** An effective monitoring plan will be proposed in consultation with the client and the World Bank. Proper budgeting will be ensured for smooth functioning of monitoring plan proposed.

Stage 2: Scoping

Scoping will identify which of the activities has a potential to interact with the environment. Scoping will be conducted early in the EA process so that a focus on the priority issues (i.e. those that have the greatest potential to affect the natural and/ or environment) can be established for the rest of the EA process. Necessary consultation with stakeholders will be made after scoping to incorporate any unattended issues. Key elements/ inputs to the scoping exercise will be as follows:

- Gathering and reviewing existing environmental data like atmosphere, climate, topography, congestion area, alternative requirement, land use pattern, hydrology and drainage pattern, major river and waterways, religious, cultural and archaeological sites and sensitive areas.
- Identifying project stakeholders; including PAPs, Government and no-ngovernment agencies (utilities), Bangladesh Water Development Board, Department of Fisheries, Agricultural Department, Department of Environment (DoE) etc.
- Assemble and review relevant legislative requirements, environmental standards and guidelines (national and international) associated with the proposed development as well as the World Bank's operational policies and standards.
- Gathering existing information sources and local knowledge;
- Informing stakeholders of the project and its objectives and get input on the EA;
- Identifying the key environmental concerns (community and scientific) related to a project and the relative importance of issues;
- Defining/ preparing the EA work program, including a plan for public and stakeholder involvement;
- Carrying out monitoring of natural environment including air, water, soil, noise etc.
- Defining the range of project alternatives to be considered.
- Obtaining agreement/ consensus on the methods and techniques to be used in EA studies and document preparation;
- Determining/ freezing the spatial and temporal boundaries for the EA studies.

The following issues will be addressed through scoping, but will not be limited to.

- To improve the quality of EA information by focusing scientific efforts and EA analysis on truly significant issues;
- To ensure environmental concerns identified and incorporated early in the project planning process, at the same time as cost and design factors are considered;
- Reducing the likelihood of overlooking important environmental issues;
- Thinning the chance of prolonged delays and conflicts later in the EA process by engaging stakeholders in a constructive participatory process early in the EA process.

Stage 3: Environmental Impact Assessment

After conducting IEE, if necessary, the EIA should be conducted, as per ToR for EIA suggested in IEE and cleared by DoE. The process of EIA study is briefly described below:

- **Analysis of the Project Components:** All the components of the BSCMFP and design specifications will be analyzed to get insight of the project activities. This will guide detail environmental baseline survey and particular investigations.
- **Data collection on Environmental and social baseline:** Environmental and social baseline condition of the proposed BSCMFP will be collected through field visits, surveys and intensive consultation with local people. Intensive consultation with the stakeholders should be carried out for updating the baseline condition to obtain their perceptions on the proposed activities and the possible impacts.
- **Major Field investigations:** At this stage, detailed field survey (social and environmental) will be carried out to obtain information on the possible impact of the interventions on the environmental parameter.
- **Assessment of Environmental Impacts:** The impacts of the proposed BSCMFP on the environmental components will be identified through consultation with experts and local community. The impacts will be analyzed and graded qualitatively (e.g. high, medium, low) in order to identify the major impacts. The future-without-project (FWOP) condition will be generated through trend analysis using information collected. The future-with-project (FWIP) condition will be predicted using professional judgment of the multi-disciplinary team members based on information collected. Difference between the two (FWIP-FWOP) conditions will be taken as impact of the proposed interventions. The impact will also be monitored. Moreover, cumulative impacts of the project inside or outside the project area will be analyzed. Possible mitigation measures for alternatives of the project will be identified in this stage. For true impacts prediction following questionnaire will be attempted to answer:
 - How will a particular project activity give rise to an impact?
 - How likely is it that an impact will occur?
 - What will be the consequence of each impact?
 - What will be the spatial and temporal extent of each impact?
- **Evaluation of impacts:** Impact assessed on different parameters will be evaluated for both positive (+) and negative (-) impacts considering magnitude, immediacy, reversibility and sustainability. Phase I EIA studies will be used to understand the impact assessment for subsequent phases.
- **Preparation of environmental management plan:** The EMP will be prepared suggesting mitigation measures for minimizing the effect of the negative impacts, compensation measures for the negative impacts which cannot be mitigated, enhancement measures for increasing the benefits of the positive impacts, emergency plan for taking care of natural hazards and accidental events. An environmental monitoring plan will also be suggested in the EMP. Each component of the EMP will be divided into pre-project, during project, post-project and operation and maintenance phases. Responsibilities of the institutions in the implementation of the EMP will be suggested to ensure efficient utilization of all the parties involved. The EMP should also include institutional capacity assessment and capacity building plan.
- **EIA Report Preparation:** All the findings would be presented in the EIA reports as per ToR. A preliminary ToR for EIA is given in Annex A. Annex B is an indicative guideline on preparing EIA report. A stand alone guideline on EMP is attached in Annex C.

- **Environmental Assessment and Management for Resettlement Sites:** Environmental assessment and management principles and requirements described above will be equally applicable for the construction of the resettlement sites (if any). A generic guideline to conduct EIA of resettlement site/s will be prepared during the detail EIA, if necessary.

Stage 4: Public Consultation

“Public consultation” refers to the process by which the concerns of local affected persons and others who have plausible stake in the environmental impacts of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. All Category ‘B’ projects or activities shall undertake public consultation. The key points of public consultation are given below:

Stakeholder Consultation at all Stages of Project

- Identification of primary and secondary stakeholders.
 - Primary stakeholders include people having direct impact.
 - Secondary stakeholders include village representatives, women’s group, voluntary organizations, NGOs, field level officers and staff, other government officials.
- Structured Consultation
 - Consultation at Village Level
 - Consultation at Upazila and District Level
 - Consultation at Divisional level
- Consultation at Village Level
 - Along with preliminary inventory and survey information dissemination will be done along the bank and the affected villages included in the project influence area canvassing about the project. Date and venue for detailed consultation will be fixed.
 - Pictorial method (Pamphlet) will be adopted to explain proposed improvements and possible environmental impact in the concerned villages.
 - Public consensus would try to be arrived for and mitigation proposed.
 - Public suggestion and graveness will be addressed at appropriate level.
- Consultation at Upazila and District Level
 - Consultation with officers of Department of Agricultural Extension, Forest Department, Soil Resources Department Institute, Department of Public Health Engineering (DPHE), etc.
 - Consultation with the local elected representatives and other stakeholders.
- Consultation at Divisional level
 - Consultation with DoE office, Divisional Commissioner Office, etc. for good governance, and smooth implementation of project activities etc.

After completion of the public consultation, the environmental concerns will be addressed and appropriate changes will be made in the draft EIA and EMP. The final EIA report, so prepared, shall be submitted by the client to the concerned authority for appraisal.

5.3 Social Assessment and Management Process

5.3.1 Social Screening

Social screening is essential to gather information on existing baseline status and to assess potential social risks and of the BSCMFP activities. Social screening identifies the consequence of the proposed project in broader sense based on similar project experiences, stakeholder's perceptions and expert judgment, without having very much detailed investigation. Critical issues are also identified through the screening which needs detailed investigation. Based on the extent of social risks and impacts estimated from the social screening, the decision for further social impact assessment will be taken.

Social screening is usually carried out with the help of simple checklist to tentatively identify the baseline status and proposed potential impacts of the project interventions. A sample screening form has been attached at Annex-G, which will be further developed at the implementation stage. Members of social assessment team will update and use this checklist for collecting information through site visit, interview/ consultation with stakeholders, focus group discussion in the project site at the later stages.

- Results from social screening will help to decide whether the project activities can be implemented or not, and the level of social assessment required. During social screening, if following conditions are found, the activity at that site will be dropped.
- Activity requiring land acquisition or population displacement that cannot be compensated for or resettled;
- Activity affecting mosques, temples, graveyards and cremation grounds, and other places/ objects of religious, cultural and historical significance;
- Activity threatening cultural tradition and way of life of tribal peoples; severely restrict their access to common property resources and livelihood activities;
- Activity with objections from communities on social and environmental issues that cannot be resolved through design alternatives.

In addition to the planning level social screening for exclusion factors, an activity will be dropped from investment at implementation level, if any social and environmental grievances raised from the community cannot be resolved to the satisfaction of the aggrieved persons or community groups.

5.3.2 Scoping for Social Impact Assessment (SIA)

Scoping will identify which of the activities has the potentials of social risks and impacts requiring assessment with the scale and severity. Scoping will be done following the social screening and community consultation so that a focus on the priority issues can be established for the rest of the social assessment process. Necessary consultation with stakeholders will be made after scoping to incorporate any unattended issues. Key elements/ inputs to the scoping exercise will be as follows:

- Gathering and reviewing existing social data like community mix, their occupational profile, interests, market opportunity, marketing mechanism, vulnerability and vulnerable community and groups, alternative livelihoods, land holding, religious, cultural and archaeological sites and sensitive areas.
- Identifying project stakeholders including any persons and community groups particularly impacted by the project activities.
- Assemble and review relevant legislative and policy requirements associated with the proposed activities as well as the World Bank operational policies and standards.
- Gathering existing information sources and local knowledge;

- Informing stakeholders of the project and its objectives and get input on the social assessment;
- Identifying the key social risks and impacts associated with the project activity and the relative importance of issues;
- Preparing the social assessment work program, including a plan for community consultation and participation;
- Defining the range of project alternatives and measures for avoiding and minimizing social risks and impacts.
- Obtaining agreement/ consensus on the methods and techniques to be used in social assessment and document preparation.

5.3.3 Social Impact Assessment (SIA)

When the sites for specific activities are identified and if, social screening identifies substantive social effects, a brief SIA (based on PRA techniques) will be undertaken to identify project beneficiaries, particularly focusing on poor, impacted people and other relevant stakeholders. The SIAs will utilize a well-planned and all-inclusive communication and consultation strategy and include a baseline survey covering the prevailing status of income, employment, education, age, skills and other socio-economic aspects along with cultural and community aspects in the areas. The assessment will feed into the individual Resettlement Plans prepared for each site and will be incorporated, along with consultation feedback from those identified in the PAP census and all other relevant stakeholders, in the development of mitigation measures, especially livelihood strategies. The project should develop a guideline for SIA specific to the intervention site – a generic guidelines set is provided below.

Procedure to be followed for SIA. DoF will undertake a survey for identification of the persons and their families likely to be affected by the project. Every survey shall contain the following information of, the project affected families:

- Members of families who are residing, practicing any trade, occupation or vocation in the project affected area;
- Project Affected Families who are likely to lose their immovable assets, commercial establishment, agricultural land, employment or are alienated wholly or substantially from the main source of their trade occupation or vocation.
- Families belonging to indigenous categories
- Vulnerable persons
- Families that are landless (not having homestead land, agriculture land or ether homestead or agriculture land) and are below poverty line, but residing in the affected area
- Losing access to private property or common property resources

DoF on completion of the assessment will disseminate the results among the affected community. Based on the assessment, project will prepare an action plan to mitigate or minimize the adverse impacts as identified during the survey. The draft mitigation plan in form of resettlement action plan (RAP) will be again disseminated among the affected individuals/ community. The feedback received from the affected groups will be incorporated to the extent possible before finalization of the RAPs.

When SIA identifies SECs with distinct characteristics different with the mainstream population of the country, a special approach will be followed as per the Bank OP 4.10 on indigenous peoples. A free, prior and informed consultation approach will be followed for meaningful consultation with the SECs and identification of their priorities for additional measures for maximizing project benefits to them. Measures will be taken to avoid any adverse social effected to these communities and a small

ethnic community development plan (SECDP) will be prepared for following implementation of the project activities in areas inhabited by small ethnic communities.

Details of the procedures of SIA and preparation of RAP has been discussed in the RPF and those for preparation of SECDP in the SECDF presented in stand-alone volumes.

5.3.4 Community Engagement and Stakeholders Participation

The project will ensure the engagement of target communities through continued consultations for planning and full community management of implementation and monitoring of sub-project activities. Consultations will be held at regular intervals with target communities. In general, the following consultations will be carried out during the project cycle.

- Socio-economic survey for preparing the baseline of the fishing households
- Identification of land for small infrastructure.
- Investigate vulnerability and nutritional status.
- Implementation of the IEC/ Communication plan for awareness creation about project activities.
- Identifying livelihood support programs.

To keep the momentum of engagement, activity specific consultations and a quarterly overall consultation will be held with all community groups.

Stakeholder participation: The project recognizes that fishing communities are primary and key stakeholders of the project. Hence, project will ensure that these stakeholders are consulted on issues and they participate in all the sub-project activities including planning and implementation. The project will address the legitimate concerns of community members and provide opportunities and avenues for consultation and their participation. In order to provide a sense of ownership and ensure sustainability, the community members would be a part of the decision-making process. The project has a commitment for community participation in each of the sub-projects taken up.

Stakeholder Mapping: Through the formal and informal consultation, following stakeholder mapping has been done, identifying their interests concerned with the project activities.

Table 5.1: Stakeholders, interest and impacts

Stakeholder Category	Interests	Potential/ Probable impacts
Primary stakeholders		
Project affected people	Access to the facility, Project entitlement, Time-bound delivery of benefits, enhanced quality of life	(+/-)
Beneficiaries	Access to the facility, Project entitlement, Time-bound delivery of benefits, enhanced quality of life	(+/-)
Secondary stakeholders		
Ministry of Livestock and Fisheries, Department of Fisheries, Fish traders and money lenders and investors, local government bodies	Project implementation, contracting; project management, Monitoring and evaluation	(+/-)
NGOs, CSOs, Research institutes	Development, Community participation, and Community welfare	(+/-)

This is a tentative mapping is likely to change during the project implementation. Each of these stakeholders will be part of the consultation process and their views will be incorporated in to the

project design. The key stakeholders can be grouped into two categories viz., primary and secondary. Their respective roles are presented below:

Primary Stakeholders. Project Affected Persons (PAPs) have the following roles:

- Participate in public meetings and identify alternatives to avoid or minimise displacement
- Assist project in developing and choosing alternative options for relocation and income generation.
- Participate in surveys.
- Provide inputs to entitlement provisions, thus assisting in preparation of the resettlement action plan
- Participate in grievance redress as members of grievance redress cells (GRC)
- Decide on relocation and management of common properties
- Labour and other inputs in the project
- Members of implementation committee
- Beneficiaries have the following roles:
 - Assist project in planning IGA in the villages.
 - Provide inputs to IGA selection
 - Assist in identification and design inputs for IG (income generation) schemes
 - Manage common property
 - Participate in local committees.
- Secondary Stakeholders. Project has the following roles:
 - Establish separate cell for social development
 - Design and approval of resettlement plan
 - Coordinate with implementing agency / line departments.
 - Participate with partner agency in verification survey of PAPs and categorisation of PAPs
 - Participate in consultations with PAPs and beneficiaries
 - Coordinate with local community in identifying land for relocation of common property resources
 - Coordinate with revenue department for facilitating disbursement of compensation and resettlement and rehabilitation assistances
 - Monitoring of physical and financial progress
 - Participate in training programmes for income restoration.

5.3.5 Gender Analysis Procedures and Guidelines

BSCMFP would address gender issues through approaches that are participatory and responsive to the needs of the poor, particularly when it involves management of fisheries resources. The participation of beneficiaries and focus on poverty reduction are two other key outcomes that the BSCMFP would ensure for its effectiveness and sustainability. To this end, BSCMFP would address the constraints on women's participation through implementation and monitoring of the project activities. The project would also focus on the linkage between gender and poverty, by identifying, for example, households headed by females and those households with special needs. The project

will carry out gender analysis as part of social assessment to identify and address gender issues in the project cycle. Gender analysis would be an integral part of the initial social assessment at the screening stage itself. The findings and recommendations from the gender analysis during activity implementation must be discussed thoroughly to determine the need for further action. The gender checklist given below will be followed to identify and address gender issues.

Gender Checklist

- Review available information (e.g., statistics, gender analysis, documents of previous projects) in the intervention site and the socioeconomic profile of the target population.
- Review the relevant legal (e.g., inheritance law), policy and institutional framework (e.g., current administrative system) and their gender implications.
- Conduct gender analysis as part of overall Social Assessment.
- Draw up gender-disaggregated socioeconomic and cultural profiles and identify the constraints, and needs of the target population.
- Determine by gender income level and sources; expenditure patterns and decision making; incidence of domestic violence; food allocation and nutrition level within households, literacy and school enrollment ratios, school dropout ratio, child labor, etc.
- Determine how do men and women differ in their access to and control of assets, properties, employment opportunities, and credit?
- What factors affect the level of men's and women's participation? What are the incentives and constraints?
- Define ways in which men and women beneficiaries and other stakeholders, especially poor women can participate in the project.
- Map out the target areas. Which are the most disadvantaged areas in terms of access to services and poverty level?
- Draw up a socioeconomic profile of key stakeholder groups in the target population and disaggregate data by gender.
- Assess men's and women's capacity to participate in development efforts and initiatives and the factors affecting that capacity.
- Assess the potential gender-differentiated impact of the project and options to maximize benefits and minimize adverse effects.
- Identify government agencies and nongovernment organizations (NGOs), community-based organizations (CBOs), and women's groups that can be used during project implementation. Assess their capacity.
- Review the gender related policies and laws, as necessary. Identify information gaps related to the above issues.
- Involve men and women in livelihood related project interventions and other activity design.
- Which modes of participation do men and women favor (e.g., decision making in planning, cash contribution, labor contribution, training, financial management, organizational management)?
- Do men and women perceive positive and negative impacts of the project differently? Are the benefits likely to be distributed equitably?
- What is the current level of women's representation in other community decision-making bodies?

- Are there local organizations (e.g., local governments, national NGOs, CBOs, mass organizations) that address women's constraints and needs? How can the project link up with them?
- What mechanisms can be used to ensure women's active participation in project activities?
- What organizations can be used to mobilize and train women in the project activities and livelihood options?
- List out major gender actions.
- Develop gender-disaggregated indicators and monitoring plan.
- Incorporate the preferences of community men and women on issues such as: number and location of assets and sharing vs. individual arrangement of assets; and highlight women's strengths in mobilizing savings and resources.
- Incorporate the preferences of men and women in the community on: financing arrangement; possible preferential treatment for very poor, female-headed and other disadvantaged families; credit or community-based revolving funds for women's group

Additional

- Ensure adequate gender balance in staffing, especially in project's field teams.
- Select field team members with gender awareness, local knowledge, cultural understanding, and willingness to listen.

Gender Analysis Guidelines:

To develop a participation strategy for men and women during project implementation and M&E, it is expected that the implantation agency (i.e. DoF) might have to avoid overly high expectation of women's participation and develop a practical schedule, as women often have constraints, such as cultural, familial and other customary social barriers. Nevertheless, the strategy should incorporate the following principles and components to advance the project objectives and goals:

- Conduct women specific consultation to take their views and suggestions on the design of activities.
- Ensure work conditions that are conducive to women's participation (e.g., gender-equal wage rates, construction season, toilet and other related facilities).
- Develop a feedback mechanism in which both male and female have a voice. Identify organizations that could facilitate women's participation during implementation and M&E.
- Identify ways to link up with income-generation, literacy, and other activities to support an integrated approach to poverty reduction and women empowerment
- Consider seasonal labor demand in scheduling civil works.
- If appropriate, set a minimum percentage of female laborers and prohibit the use of child laborers in the civil works contract.
- Ensure adequate and flexible budgeting to allow a "learning" approach (e.g., training budget, consulting service budget for women's organizations).
- Support a decentralized structure to allow linkages between the fishing villages and local government.
- Develop M&E arrangements: (i) internal M&E by project staff or consultants, as necessary; and (ii) participatory monitoring by beneficiary men and women.

- Disaggregate all relevant indicators by gender such as number of women gaining access to credit, increase in women's income, and career prospects for project trained women.

Steps of Gender Mainstreaming

Three major tools will be used to identify and deal with gender issues in the project cycle: initial gender assessment, gender action plan, and policy note. The initial gender assessment will be an integral part of the initial social assessment at the screening stage. The issues identified will be addressed either through project design or stand-alone gender action plan. The project design to the extent possible will be gender responsive. The findings and recommendations from the gender analysis during project planning and feedback from beneficiaries during implementation must be discussed thoroughly to determine the need for further action.

Table 5.2: Process of Gender Mainstreaming

Focus of intervention	Inputs and process indicators	Data source
Policy checklist	i. What are the requirements of the national gender equality policy, if any, and the executive support provided to it? ii. Which ministry focal point or unit is responsible for advocacy and gender inclusion at the policy and project level? iii. Do the fisheries sector strategy address gender issues (labour issues, e.g. promotion of gender in labour-based work, participation of women in prioritization and design of works, measures to eliminate discriminatory labour or contracting practices, HIV/AIDS prevention and treatment) in its works and contracts? iv. Do DoF planning procedures explicitly take gender into account: identification of gender gaps and gender-specific needs, capacities, constraints, and opportunities inclusion of socioeconomic empowerment as an integral element? v. Are women and men, civil society stakeholders consulted on policies and programs; included in teams analyzing policy and strategy; included in decision making? vi. Is there a system for monitoring the implementation of gender and other components of sector policies and strategies? vii. Gender disaggregation of beneficiary data and key gender indicators outreach and capacity building on gender and other social dimensions grants for addressing gender issues? viii. Are there training sessions on gender including gender-sensitive planning? ix. Is stakeholder consultation facilitated? x. Is there participation of implementing agencies or community organizations? xi. Are gender sensitization workshops held for men and women of department and implementing agencies, and do they consider knowledge gaps in gender elements in the sector? xii. How many women are represented on gender boards and in works prioritization and decision-making forums related to the planning, implementation, monitoring, and evaluation of projects?	Contract documents; DoF and PMU
Project cycle: Project identification, preparation, and design	i. Conduct a rapid assessment to identify and quantify potential gender-related issues and impacts affecting access, risks, benefits, and participation ii. Identify disadvantaged or vulnerable groups, including who they are, where they live, and their socioeconomic characteristics (women-headed households, widows, disabled)	Stakeholder and beneficiary assessments: project concept note, social assessments

Focus of intervention	Inputs and process indicators	Data source
	ii. Examine the impacts of project on these groups iv. Identify the gender-specific implications of land purchase and resettlement v. Identify gender-specific implications of income generation opportunities to be created under the project vi. Identify gender-specific constraints in receiving information and providing feedback and complaints on the project ii. Discuss identified gender and other social issues in the project ii. Include both females and males affected by the project in stakeholder consultations ix. Use separate focus groups to enable women to voice their views separately from men x. Analyse the data collected to highlight gender differences in uses and the underlying causes of women's and men's project related problems xi. Examine relevant inter-sectoral linkages, such as access to health services, HIV/AIDS prevention, and access to markets and schools ii. Ensure that analysis of gender differences in needs, use, constraints, and access are included in the terms of reference for the social assessment iii. Identify the gender-related issues that need to be addressed to ensure the effectiveness and sustainability of the project iv. Develop approaches for addressing the gender-related issues identified and creating opportunities for equal access to project benefits for men and women, including training, organizational capacity building, grants programs, targets for women's participation v. Develop indicators for measuring progress on gender-related issues within the relevant project components (e.g. construction works, institutional arrangements, land acquisition and resettlement benefits, privatization, livelihood restoration, awareness building, consultations, complaint handling)	(household surveys and focus group discussions in project influence area), mid-term and end term evaluation surveys
Project cycle: Methodology	i. Desk review (secondary literature) ii. Review available information (e.g. statistics, gender analysis, documents of previous solar projects, if available or other projects involving acquisition for non-linear projects) in the project area and the socioeconomic profile of the target population iii. Review the relevant legal framework (e.g. inheritance law), policy framework (e.g. resettlement and rehabilitation), and institutional framework (e.g. current administrative system for land acquisition, compensation disbursement, grievance handling, awareness creation) and their gender implications iv. Review government programs for encouraging equal opportunities and participation of women in the project influence area v. Household surveys (primary survey) vi. Draw up gender-disaggregated socioeconomic and cultural profiles and identify the problems faced by and needs of the target population ii. Conduct group discussions, random interviews, and transect walks to study the activity pattern ii. Collect quantitative information ix. Participatory methodologies (e.g. participatory rapid appraisal)	Other projects in the country/state and gender policy documents, household surveys, national sample survey, latest census data, participatory rapid appraisal of target area, focus group discussions, consultations with beneficiaries

Focus of intervention	Inputs and process indicators	Data source
	x. Collect qualitative information that cannot be collected through surveys (socio cultural norms, behavioural questions) xi. Define ways in which men and women beneficiaries and other stakeholders, especially poor women, can equally participate in the project xii. Map out the target areas and assess which are the most disadvantaged areas and sections of society (widows, female-headed households, disabled men and women) in terms of access to services and poverty level xiii. Identify major stakeholder groups and their positions xiv. Staffing xv. Ensure adequate gender balance in field teams xvi. Select field team members with gender awareness, local knowledge, cultural understanding, and willingness to listen	
Project cycle: Data collection	i. Socio-economic profile: Gender-disaggregated data ii. Demographic: Gender, sex ratio, caste, marriageable age, female-headed households, migration trend, household size iii. Economic: Income level and source, expenditure pattern and decision making, access to land and resources iv. Health: Population growth rate, infant and adult mortality rate, availability of medical facility, reproduction-related decision making, HIV/AIDS awareness v. Education: Literacy, school enrolment and dropout ratio, child labour vi. Status of women: Political representation and awareness, socio cultural perceptions and practices of men and women, domestic violence, trafficking, gender-discriminatory policies and laws, gender roles, responsibilities and gender division of labour in productive areas (e.g. agriculture, income-generating activities) and reproductive areas (e.g. household chores, child care), and time allocation for each responsibility vii. Fuel, fodder, water and sanitation viii. Availability, quantity, and quality of fuel and fodder, who collects fuel, fodder, and water for the family, sources of drinking and agricultural water, how men and women store and use water collected, dry season management, how far away these resources are located, time spent on collection of the resources, mode of transport used to collect the resources, availability of sanitation service (chargeable or not, who runs it) ix. Access, control, constraints x. How men and women differ in their access to and control of land, agricultural inputs, extension, markets, employment opportunities, and credit xi. Whether external assistance is provided to improve access and control, and by whom xii. Participation xiii. Factors affecting the level of participation of men vs. women, incentives and constraints, means of information dissemination about the project preferred by men vs. women, labour demand for men vs. women, which modes of participation men and women favour (e.g. decision making in planning, cash contribution, labour contribution for construction, training, financial management, organizational management) xiv. Perception of benefits and impacts	District, upzila, and village census data, national sample survey data, health survey data, household surveys, focus group discussions, behavioural surveys, observation

Focus of intervention	Inputs and process indicators	Data source
	iv. Men's and women's perceptions of positive and negative impacts of the project, how negative effects can be mitigated	
Project implementation: Gender Action Plan	i. A Gender Action Plan (GAP) has been developed with this ESMF with preparation level gender analysis. ii. Project will further quality social and gender analyses, identify constraints to participating and benefiting men and women; and include strategies for each component to ensure that men and women participate and benefit equally. iii. Revisit gender design strategies at inception to update the GAP. The GAP needs to be tested and reviewed early in implementation; identify detailed activities, targets, resources, and responsibilities for implementation iv. Gender action plan must be fully owned and understood by the executing agency. Use a participatory and flexible approach to developing the plan; a strong rationale that is directly linked to overall project objectives is needed for targeting and working with women v. Include gender capacity building in the GAP. Both formal training and ongoing support and mentoring are needed for developing skills, ownership, and commitment. vi. Provide adequate skills and resources for implementation of the GAP. Long-term gender specialists in the executing agency or project team and adequate resources for implementation of actions; any NGOs and other agencies contracted to implement project activities should have a demonstrated gender capacity. vii. Monitor and follow up gender-related targets and activities. Systematic follow-up to ensure that policy reforms and gender actions are implemented; routine monitoring and reporting; gender-sensitive indicators and gender-related risks must be included in project logical frameworks.	Gender expertise, Discussion and participation with beneficiaries, separate focus group discussions with men and women, government departments, labour and employment laws, provisions in project and budget, learning approaches from good practice cases
Project implementation: Participation strategy	i. Develop a participation strategy for men and women during project implementation and monitoring and evaluation: ii. Avoid overly high expectation of women's participation and develop a practical schedule for participation iii. Planning. Conduct women-specific consultation to take their views and suggestions on the design. Any mechanism established during the project design, such as grievance mechanisms, should have adequate representation of women iv. Construction. Ensure work conditions that are conducive to women's participation (e.g. gender-equal wage rates, construction season, toilet and child care facilities) v. Training options. Identify ways to link up with income generation, literacy, and other activities to support an integrated approach to poverty reduction and women's empowerment vi. Staffing, scheduling, procurement, and budgeting. Hire female project staff vii. Consider seasonal labour demand in scheduling civil works viii. If appropriate, set a minimum percentage of female labourers and prohibit the use of child labourers in the civil works contract ix. Ensure adequate and flexible budgeting to allow a learning approach (e.g. training budget, consulting service budget for women's organizations)	Gender expertise, Discussion and participation with beneficiaries, separate focus group discussions with men and women, government departments, labour and employment laws, provisions in project and budget, learning approaches from good practice cases
Project cycle: Impact	i. Establish whether men and women perceive positive and negative impacts of the project differently, and assess how the	Project monitoring reports, audits,

Focus of intervention	Inputs and process indicators	Data source
	negative effects can be mitigated ii. Consider whether the benefits are likely to be distributed equitably iii. For disadvantaged or vulnerable groups, find out who they are, where they live, what are their socioeconomic characteristics (scheduled castes, women-headed households, widows, disabled), and how the project will affect them iv. Assess the gender-specific implications of the following: v. land acquisition and resettlement: extent of land being acquired vi. utility relocation: what and where vii. tree cutting: how many and local dependence viii. diversion of forest land: how much and local dependence	group discussions, household survey, land tenure details
Monitoring and Evaluation: Feedback mechanism	i. Develop a feedback mechanism in which both males and females have a voice ii. Disaggregate all relevant indicators by gender, such as number of women gaining access to credit, increase in women's income, and career prospects for project-trained women iii. Integrate sex-disaggregated beneficiary data and relevant measures of gender equality into the baselines and other routine monitoring and evaluation processes iv. Measure the impacts of the project components on women and men v. Assess the value added by women's participation in the project	Focus group discussions, project monitoring reports
Monitoring and Evaluation: Gender-informed indicators	i. Develop gender-informed results indicators for monitoring. These include: ii. Increased income, employment, and entrepreneurship. Number of women and men employed in sector, number of women and men employed in solar power project; increased women's and men's income from produce marketed using project services. iii. Time saving and increased productivity. Reduced women's and men's time for domestic work (collection of water, fuel wood, food crop collection, fodder, etc.); increased productive time used for economic activities. iv. Improved affordability. Percentage increase of income among women and men; increased participation in decision making; number of women and men participating in community decision meetings; reduced incidence of harassment, crime, and human trafficking; increased awareness of HIV/AIDS transmission and prevention; number of women and men leading committees; number of women and men managers in agencies; women control their income and establish bank accounts in their names; increased recognition of women's contributions to the household and community	Review of gender-informed results indicators

5.4 Impact Assessment and Prediction

This section discusses the guideline to predict the potential and mostly typical impacts on the key environmental parameters of the BSCMFP area based on the overall baseline, assessment of project components/sub-components and the primary assessment of the activities.

5.4.1 Impact Assessment Methodology

The assessment of effects and identification of residual impacts takes account of any incorporated mitigation measures adopted due to any potential impact of Program activities, and will be largely

dependent on the extent and duration of change, the number of people or size of the resource affected and their sensitivity to the change. Potential impacts can be both negative and positive (beneficial), and the methodology defined below will be applied to define both beneficial and adverse potential impacts.

The criteria for determining significance are generally specific for each environmental and social aspect but generally the magnitude of each potential impact is defined along with the sensitivity of the receptor. Generic criteria for defining magnitude and sensitivity used for the Program are summarized below:

Impact Magnitude

The assessment of magnitude shall be undertaken in two steps. Firstly, the key issues associated with the BSCMFP program are categorized as beneficial or adverse. Secondly, potential impacts shall be categorized as major, medium, minor or negligible based on consideration of the parameters such as:

- Duration of the potential impact;
- Spatial extent of the potential impact;
- Reversibility;
- Likelihood; and
- Legal standards and established professional criteria.

The magnitude of potential impacts of the program shall be identified according to the categories outlined in Table 5.3.

Table 5.3: Parameters for Determining Magnitude.

Parameter	Major	Medium	Minor	Negligible/Nil
Duration of potential impact	Long term (more than 20 years)	Medium Term Lifespan of the Program (5 to 10 years)	Less than program lifespan	Temporary with no detectable potential impact
Spatial extent of the potential impact	Widespread far beyond program boundaries	Beyond immediate Program components, site boundaries or local area	Within program boundary	Specific location within program component or site boundaries with no detectable potential impact
Reversibility of potential impacts	Potential impact is effectively permanent, requiring considerable intervention to return to baseline	Potential impact requires a year or so with some interventions to return to baseline	Baseline returns Naturally or with limited intervention within a few months	Baseline remains constant
Legal standards and established professional criteria	Breaches national standards and or international guidelines/obligations	Complies with limits given in national standards but breaches international lender guidelines in one or more parameters	Meets minimum national standard limits or international guidelines	Not applicable
Likelihood of potential impacts occurring	Occurs under typical operating or construction	Occurs under worst case (negative impact) or best	Occurs under abnormal, exceptional or	Unlikely to occur

Parameter	Major	Medium	Minor	Negligible/Nil
	conditions (Certain)	case (positive impact) operating conditions (Likely)	emergency conditions (occasional)	

Sensitivity of Receptor

The sensitivity of a receptor shall be determined based on review of the population (including proximity/ numbers/ vulnerability) and presence of features on the site or the surrounding area. Criteria for determining receptor sensitivity of the program's potential impacts are outlined in Table 5.4.

Table 5.4: Criteria for Determining Sensitivity.

Sensitivity Determination	Definition
Very Severe	Vulnerable receptor with little or no capacity to absorb proposed changes or minimal opportunities for mitigation.
Severe	Vulnerable receptor with little or no capacity to absorb proposed changes or limited opportunities for mitigation.
Mild	Vulnerable receptor with some capacity to absorb proposed changes or moderate opportunities for mitigation
Low/Negligible	Vulnerable receptor with good capacity to absorb proposed changes or/and good opportunities for mitigation

Assigning Significance

Following the assessment of magnitude, the quality and sensitivity of the receiving environment receptor shall be determined and the significance of each potential impact established using the potential impact significance matrix shown in Table 5.5.

Table 5.5: Assessment of Potential Impact Significance.

Magnitude of Potential impact	Sensitivity of Receptors			
	Very Severe	Severe	Mild	Low / Negligible
Major	Critical	High	Moderate	Negligible
Medium	High	High	Moderate	Negligible
Minor	Moderate	Moderate	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

5.4.2 Potential Key Environmental Impacts

The overall impact assessment of the proposed project to be implemented reveals that most of the likely adverse impacts could be minimized or eliminated by adopting standard mitigation measures; there is also scope to enhance some of the beneficial impacts to be generated from the proposed project.

The potential impacts of the program on the key environmental parameters that have been identified as part of the ESMF are listed in Table 5.6 and 5.7. Also, given in the table is the significance of each impact based upon the criteria defined in Section 5.5 and Tables 5.3 to 5.5. In

the subsequent sections, these impacts are discussed and guidelines included for the EMF of the BSCMFP.

EIA studies should modify and further detail out this analysis as applicable, based on professional judgment and public consultations. A preliminary categorization of the project components/sub-components based on their environmental assessment requirement is given in Table 6.5. During additional phase, EIA should also incorporate into their impact assessment a review of monitoring results from the Phase I, and adjust this preliminary impact identification as appropriate based on the findings.

A. Significant Environmental Impact Related to Project Siting

Land Cover and Land Use Changes:

Construction of different infrastructures may change existing land use and land cover at the local level. Although, most of the proposed infrastructures are relatively small in nature, but their quantity is significantly high and will be spread over 450 villages across 14 districts.

Loss of natural vegetation and trees/mangroves

Siting of proposed infrastructures may require cutting of trees and removal of natural vegetation, which could be significant in number.

Loss of aquatic habitat

Loss of aquatic habitats could be happened due to siting of proposed infrastructures, specially the construction of small access roads, sheds, fish markets, FVG offices, landing sites, etc.

Loss of coastal/ marine habitats

Siting of promoted mariculutre area would have negative impacts on surrounding coastal and marine habitats by replacing natural setting through artificial infrastructure. It may alter the natural habitat of coastal birds by altering their staging and feeding ground if not properly designed and implemented.

Drainage congestion and water logging

Proposed construction activities can cause drainage congestion and water logging at the local area, if not properly considered the local drainage of runoff.

B. Environmental Impacts during Project Implementation

Air Pollution

Construction of connecting roads and buildings, canal re-excavation and repairing of sluice gates may generate emissions from excavation equipment, other machinery and construction traffic. The emissions may also include greenhouse gases (GHGs) from engine fuel combustion (exhaust emissions) and evaporation and leaks from vehicles (fugitive emissions) and emissions from asphalt works. The emissions from construction activities will deteriorate the ambient air quality and affect the public health. The dense populated areas and crowded market places (bazzars) are particularly vulnerable to these impacts. In addition, dust generated from the above activities will also have impacts on crops and livestock.

Noise Pollution

Noise will be produced by vehicular movement, excavation machinery, concrete mixing, and other construction activities. The schools, religious places and crowded market areas are particularly vulnerable to the increased noise levels.

Water Pollution

During the construction phase, re-excavation and repairing of sluice gates can potentially cause some localized increase in water turbidity. However, this increase in turbidity is not likely to have any significant impact on overall water quality and the aquatic fauna primarily because of its temporary and localized nature. The construction camps and other site facilities such as offices and warehouses will also generate considerable quantities of waste effluents. Other possible causes of land or water contamination include accidental leakage or spillage of fuels, oils, and other chemicals, and waste effluents released from construction sites. These effluents can potentially contaminate the drinking water sources of the area and can also be harmful for the natural vegetation, cultivation fields, water bodies, and aquatic flora and fauna.

Soil Contamination

Much like water pollution discussed above, soils in the construction area and nearby lands that are used for agriculture will be prone to pollution from the construction activities, construction yards, workers camps and other construction areas. Fuel and hazardous material storage sites and their handling are also the potential sources for soil and water pollution. Improper siting, storage and handling of fuels, lubricants, chemicals and hazardous materials, and potential spills from these will severely impact the soil and water quality and also cause safety and health hazards.

Generation of Solid Waste and Hazardous Waste

Solid waste generated during the construction phase will include excess construction material such as sand and soil, faulty/damaged parts, metal scraps, cardboard boxes and containers, and cotton swaths from workshops, and domestic solid waste from construction offices and camps. In addition to the above, small quantities of hazardous waste will also be generated mainly from the vehicle maintenance activities (liquid fuels; lubricants, hydraulic oils; chemicals, such as anti-freeze; contaminated soil; spillage control materials used to absorb oil and chemical spillages; machine/engine filter cartridges; oily rags, spent filters, contaminated soil, and others). It is imperative that such waste is responsibly disposed to avoid adverse environmental, human health and aesthetic impacts. Inappropriate disposal of these wastes can lead to soil and water contamination as well as health hazards for the local communities, livestock, and aquatic as well as terrestrial fauna.

Impacts on aquatic habitat

Sand extraction from the ponds and other wetlands, re-excavation of canals, repairing of sluice gates and construction of mariculture farms may potentially disturb the aquatic habitat by increasing the water turbidity (siting impacts of these activities have already been discussed earlier in the Chapter). Some sensitive and important habitats exist in the coastal chars for wintering birds and some of the river coastal water area for fish and dolphins. However, construction activities are not likely to have any direct impact on terrestrial or aquatic wildlife or their habitat since no sensitive ecological hot spots have been identified at the EMF stage. However, any accidental leakage, spillage of contaminants, or dumping of solid waste/ debris on land or in water bodies can potentially affect these habitats. During construction of mariculture and oyster and sea grass beds-related boat traffic, there is a potential risk of collisions with fish and other aquatic species. This can cause injuries and even fatalities to these species.

Site Clearance and Restoration

After the completion of the construction activities, the left-over construction material, debris, spoils, scraps and other wastes from workshops, and camp sites can potentially create hindrance and encumbrance for the local communities in addition to blocking natural drainage and or irrigation channels.

Occupational Health and Safety

Generally, the construction activities will involve small to medium scale excavation, operations of construction machinery and vehicular traffic. These activities may pose health and safety hazards to the workers at site during use of hazardous substances, lifting and handling of heavy equipment, operating machinery and electrical equipment, working near water or at height and more. The program will need fuels, oils, and asphalt during the construction phase. Inappropriate handling or accidental spillage/leakage of these substances can potentially lead to safety and health hazards for the construction workers as well as the local community.

C. Environmental Impacts during Post Project operational Period

Potential Changes in Water Courses (Canal)

The potential re-excavation of canals/other water courses may include stabilization and deepening of the channel. These changes are mostly positive in nature, likely to take place over a long period of time and need to be regularly monitored. Canal re-excavation will only induce localized bed changes.

Loss of Ecological Connectivity

Construction of access roads and other infrastructures may disconnect local wetland connectivity's that would have potential negative impact on fish and other aquatic species life-cycle. That would also have potential impact of other aquatic and terrestrial wildlife, demands detail baseline survey.

Impact on marine habitat

Improvement of coastal defense (where feasible) by mangrove rehabilitation and artificial sea grass and oyster beds and promoting mariculture in potential coastal area may alter surrounding marine habitats. However, mangrove rehabilitation, sea grass and oyster beds will have positive impact once they are sustained in the area. But mariculture may cause water pollution and alter the beach ecosystem due to the artificial infrastructures. It may cause loss of staging and feeding ground of coastal birds.

Loss of Vegetation

Infrastructures those will be constructed under the proposed project would be the sites of human access, which may lead to loss of more vegetation (herbs, shrubs and trees) at the surroundings due to human footprint.

Generation of Solid Waste

Solid waste will be generated from markets, landing sites, packaging units and also during regular operation and maintenance activities of the constructed infrastructures. Hazardous waste will also be generated from access road maintenance. This waste if not appropriately disposed has a potential to contaminate soil and water resources, thus negatively affecting communities as well as natural habitat.

Air Pollution

Emissions from local road traffic along the markets, landing sites and other infrastructures may affect the ambient air quality. Road traffic will be increased due to construction of these infrastructures at the project area.

Noise Generation

During operation, noise levels along the access roads, markets, landing sites, depots, collection center and FVG offices will be increased due to the higher traffic volume and mass people gathering. Traffic noise will be a significant nuisance to the sensitive receptors such as schools and religious places located very close to the roads and also to the children and aged persons.

Water Pollution

Generally paved road increases the amount of impermeable surface area, which increases the rate of surface water runoff. Increased storm water flow rates can lead to stream erosion and flooding downstream; cause soil erosion, channel modification and siltation of streams. During the operation phase, some localized increase in turbidity may take place during any maintenance works of the constructed sites. Similarly, the maintenance works can also generate a limited quantity of waste effluents.

Changes in Land Use Pattern

Markets, landing sites, depots, access roads, mangrove plantation, oyster/ sea grass beds and mariculture (at suitable sites) may change local land use pattern upon getting popularity during the operation period, which will replace existing use such as agriculture and vegetation in terrestrial area and natural aquatic system/ beach ecosystem at the marine area.

Table 5.6: Summary of Potential Environmental Impacts and their Significance.

Potential Impacts	Duration of Impact	Spatial Extent	Reversible or not	Likelihood	Magnitude	Sensitivity	Significance Prior to Mitigation	Significance after Mitigation
Environmental Impacts related to project siting								
Land cover and land use changes	Long term	Local	No	Certain	Medium	Moderate	Moderate negative	Low negative
Loss of natural vegetation and trees/mangroves	Long term	Local	Yes	Certain	Medium	Mild	Moderate negative	Low negative
Loss of aquatic habitat	Long term	Local	No	Likely	Minor	Mild	Moderate negative	Negligible negative
Loss of coastal/marine habitats	Long term	Local	No	Likely	Medium	Moderate	Moderate negative	Low negative
Drainage congestion and water logging	Long term	Local but beyond project foot print	Yes	Likely	Medium	Mild	Moderate negative	Low negative
Loss of agriculture land	Long term	Local	No	Likely	Minor	Moderate	Moderate negative	Low negative
Environment impacts during project implementation phase								
Air pollution	Short term	Local	Yes	Certain	Medium	Mild	Moderate negative	Low negative
Noise	Short term	Local	Yes	Likely	Medium	Mild	Moderate negative	Negligible negative
Water pollution	Long term	Local but beyond project foot print	No	Certain	Medium	Moderate	Moderate negative	Low to moderate negative
Soil contamination	Short term	Local	Yes	Certain	Medium	Mild	Moderate negative	Low negative
Solid wastes and hazardous wastes	Short term	Local	Yes	Certain	Medium	Mild	Moderate negative	Low negative
Impacts on aquatic habitat (coastal/char land)	Long term	Local but beyond project foot print	No	Certain	Medium	Moderate	Moderate negative	Low negative
Site clearance and restoration	Short term	Local	Yes	Certain	Medium	Mild	Moderate negative	Low negative
Occupational health and safety	Short term	Local	Yes	Certain	Medium	Moderate	Moderate negative	Low to moderate negative
Environmental impacts post-project operational period								
Changes in water courses	Long term	Local	No	Likely	Minor	Moderate	Low negative	Low negative
Loss of ecological connectivity	Long term	Local	No	Certain	Medium	Moderate	Moderate negative	Low negative
Impact on marine habitat	Long term	Local	Yes	Likely	Medium	Moderate	Medium negative	Low negative
Loss of vegetation	Long term	Local	Yes	Likely	Medium	Moderate	Moderate negative	Low negative
Generation of solid waste	Long term	Local	Yes	Certain	Medium	Moderate	Moderate negative	Low negative
Air pollution	Long term	Local	Yes	Likely	Medium	Mild	Moderate negative	Low negative
Noise generation	Long term	Local	Yes	Likely	Minor	Mild	Moderate negative	Low negative

Potential Impacts	Duration of Impact	Spatial Extent	Reversible or not	Likelihood	Magnitude	Sensitivity	Significance Prior to Mitigation	Significance after Mitigation
Water pollution	Long term	Local	No	Certain	Medium	Moderate	Moderate negative	Low to moderate negative
Changes in land use pattern	Long term	Local	No	Certain	Medium	Moderate	Moderate negative	Low negative

Table 5.7: Categorization of sub-components based on EA requirements.

Components/Sub-components	Activities/Specific task	Potential Negative Impact	EA Requirement
Component 1: Enabling sustainable fisheries sector investments and growth			
1.1 STOCK ASSESSMENT AND DEVELOPMENT OF NATIONAL FISHERY MANAGEMENT PLANS			
	1.1.1 Building National Fisheries Stock Assessment Functions		
	A. Strengthening DoF stock assessment unit and survey management	Nil	Excluded from EA
	B. Stock Surveys	Nil	Excluded from EA
	1.1.2 Strengthening of catch monitoring systems	Nil	Excluded from EA
	1.1.3 Preparation and update of Fisheries Management Plans	Nil	Excluded from EA
1.2 ENABLING INVESTMENTS IN SUSTAINABLE FISHERIES	1.2.1 Strengthening fishery policies, legal and regulatory framework	Nil	Excluded from EA
	1.2.2 Measures for reducing investment risks due to regulatory and enforcement gaps	Nil	Excluded from EA
1.3 MCS DEVELOPMENT FOR IUU REDUCTION	1.3.1 Expansion and strengthening of fisher's and boat registration	Nil	Excluded from EA
	1.3.2 Development and deployment of information systems for MCS	Nil	Excluded from EA
Component 2: Improving Infrastructure and Production Practices			
2.1. INFRASTRUCTURE IMPROVEMENTS FOR CAPTURE AND CULTURE FISHERIES			
	2.1.1. Prioritize Productive Infrastructure Investments	Potential negative (-) impacts on sensitive ecological setting of the coastal and marine areas.	Further EA, if deemed necessary
	2.1.2. Infrastructure for increased productivity	Potential negative (-) impacts on coastal and marine environment and ecological components from:	IEE/EIA

Components/Sub-components	Activities/Specific task	Potential Negative Impact	EA Requirement
		Re-excavation of old canals will enhance and ease tidal water flow and improve water quality conditions, fish dispersal and migration and aquatic biodiversity. Rehabilitation/renovation of water sluice gates (if needed) will also enhance and ease tidal water flow in the aquaculture farms and improve water quality conditions of the farms. Scaling-up of cluster farming will promote improved-extensive farming, which is more environment friendly and hatcheries and disease diagnostic laboratories are bound to comply to Hatchery Act, Feed Act, HACCP, Traceability, EU and USFDA rules which does not allow use of chemicals and antibiotics. Infrastructural development of fish landing centers, fish markets, and drainage facilities may have some negative impacts.	
2.2. VALUE CHAIN AND FOOD SAFETY	2.2.1. Seafood Safety and competitiveness	Nil	Excluded from EA
	2.2.2. Research and Innovation	Nil	Excluded from EA
2.3. BOOSTING COASTAL AQUACULTURE PRODUCTIVITY		Scaling up of cluster farming will promote good aquaculture practices and improved-extensive farming (no intensification and expansion) which is environment friendly.	Excluded from EA
Component 3: Community Empowerment and Livelihoods			
3.1. FISHING COMMUNITY INSTITUTIONS AND ALTERNATIVE LIVELIHOODS DEVELOPMENT	3.1.1. Development and Strengthening of Fishing Community Institutions	Nil	Excluded from EA
	3.1.2. Training on fisheries management, nutrition, climate change, and agriculture	Nil	Excluded from EA

Components/Sub-components	Activities/Specific task	Potential Negative Impact	EA Requirement
	3.1.3. Support to model fishers' villages for fisheries co-management plans	Nil	Excluded from EA
	3.1.4. Model fishers' village and alternative livelihoods	Potential negative (-) impact from building infrastructure at the local level viz. village fish markets, drainage facilities, local landing centers, etc. - Activities to provide alternative livelihoods to the fishermen families may also potential negative impacts (-) by polluting air, soil and water.	IEE
3.2 BUSINESS DEVELOPMENT AND MARKET LINKAGES FOR ALTERNATIVE LIVELIHOODS	3.2.1. Build and strengthen producer organizations in fishing communities	Nil	Excluded from EA
	3.2.2. Facilitate market linkages with producers in fishing communities	Nil	Excluded from EA
	3.2.3. Provide opportunities for youth in fishing households to access wage employment	Nil	Excluded from EA
Component 4: Project Management and Monitoring		Nil	Excluded from EA

5.4.3 Potential Key Social Impacts

When the sites for specific activities are identified and if, according to the substantive social effects are anticipated a brief SIA (based on PRA techniques) will be undertaken to identify project beneficiaries, particularly focusing on poor, impacted people and other relevant stakeholders. The SIAs will utilize a well-planned and all-inclusive communication and consultation strategy and include a baseline survey covering the prevailing status of income, employment, education, age, skills and other socio-economic aspects along with cultural and community aspects in the areas. The assessment will feed into the individual RPs created for each location and will be incorporated, along with consultation feedback from those identified in the PAP census and all other relevant stakeholders, in the development of mitigation measures, especially livelihood strategies. The project should develop a guideline for SIA specific to the intervention site – a generic guidelines set is provided below.

Intended Benefits: The project has been designed to provide a holistic response to a set of dynamic issues that poor, vulnerable coastal fishing communities face. It aims to increase coastal belt fisheries' contribution to the economy, poverty reduction, and environmental sustainability. The project intends to improve management of targeted coastal belt capture and culture fisheries and fishing communities' access to alternative livelihoods activities. Project's inclusive approach will

result in benefits to households and individuals, especially the most disadvantaged like female-headed households, widows, the poorest, and the elderly peoples in the target communities.

The project will support the establishment and empowerment of community co-management associations to make decisions on fisheries management and support the fisheries-dependent poor to adopt supplementary and alternative livelihoods. The project with its inclusive approach will target to reduce gender gaps those are the most glaring. Women and children will also benefit from the support for the consumption, production, processing, and marketing of high nutrient- and protein-rich small fish. The project will also promote more productive and better performing institutions and, over time, better services and effective co-management in the fishery sector.

Involuntary Resettlement Impacts: The project will not take any private land through involuntary acquisition and avoid any physical displacement of residents for activities under the project. All works will be carried out within the existing available lands. The project will not finance excavation of new ponds but support rehabilitation of the existing ones only. Nevertheless, there is small likelihood that using existing available lands for small infrastructures construction may involve displacement of formal and informal private users. For all these reasons, and largely as a precautionary measure, the project triggers OP4.12 on involuntary resettlement. A Resettlement Policy Framework (RPF) is prepared by the Department of Fisheries (DoF) and approved by the World Bank, which is also applicable for its co-executing agency, SDF for component 3. Site-specific RAPs will be developed - if and as necessary - during the project implementation. The RPF and any RAP will ensure the proper calculation and recording of the involuntary displacement impacts as well as identification of the affected people and mitigation of their loss and impacts. The purpose of the RPF and implementation of the RAPs is to ensure that there is no adverse effect on the living conditions and livelihoods of the affected people because of the project.

Impacts on Small Ethnic Communities: SECs present in the project area can be characterized as indigenous peoples in view of their unique characteristics including language, culture, occupation, and traditions. These communities are amongst the poorest in the Project areas. Most of the SECs are rural while some are urban. A very few families have been able to make a good progress in terms of social and economic status with higher education and diverse employment. Other than fishing, agriculture and agriculture labor constitute the mainstay of livelihoods for majority of SECs living in the target intervention areas. Tribal peoples are present in all 16 coastal districts of the project.

The SECs are amongst the poorest in the project districts and hence will receive priority in the project. One of the prerequisites of a successful development plan for the SECs is the preparation of a culturally appropriate development plan, with the involvement of the SECs and based on full consideration of the options preferred by them. The project will create opportunity for active involvement of the SECs at each stage of its operation. The SECs will not be affected by any of the project interventions, but rather be beneficiaries especially in the targets for livelihood development. However, given the vulnerability of the SECs in terms of their social status and traditionalistic culture, there is a risk of exclusion. The Bank operational policy on indigenous peoples has therefore been triggered and a Small Ethnic Community Development Framework (SECDF) to guide community participation and benefit sharing inclusive of the SECs. The involvement of the SECs in planning, implementation and monitoring of the programs meant for their own development would be the cornerstone of SECDF strategy of the project.

Livelihood Impacts: While effort will be exerted for livelihood improvement of the fishers' and fisheries-dependent communities, yet some of the project activities may have reversible and mitigable impacts on them. Therefore, the project incorporated a livelihood transformation program (LTP) for fisheries co-management and transformation of livelihoods of the poor and vulnerable fishers and fisheries dependent households. The probable impact on income and livelihood is minor since project will try to avoid acquisition of land and involuntary displacement of people. The major aim is to improve livelihood of the poor fisher's community of the coastal area with the capacity to

better manage local resources and expand their participation in more exclusive and sustainable development.

The beneficiaries and their location will be selected by the DoF and the program will be designed and implemented by Social Development Foundation (SDF). The SDF is an autonomous and non-profit organization and was established in 2000 under the Ministry of Finance (MoF). The livelihood transformation program (LTP) will be designed and implemented in accordance with the rules and procedures agreed upon in the Project Implementation Plan (PIP), Community Operational Manuals (COM), Training and Learning Manuals and the Human Resources Policy and Manual. The documents outline the roles and responsibilities of the implementing agency, other stakeholder and community organizations and provide details of project processes and implementation steps. The operational documents have been developed and improved upon to respond to lessons and experiences gained under the ongoing projects under the WB financing. The documents would be reviewed periodically by GoB and IDA with stakeholder participation to ensure that they remain adaptable, relevant and responsive to issues arising during the implementation process of the project.

Categories of social risks and impacts associated with the project: The project activities may induce adverse impact on livelihoods of the fishers and fisheries dependent households of varying degrees. Following basic categories of impacts or issues may take place under this project, especially for fish catch control for replenishing fisheries resources in the coastal areas including the Bay and the sea area.

Loss of access or limited access to the usual fishing areas;

Loss of source of livelihood;

Loss of private or community based fishing areas or similar facilities;

Loss of network; and vulnerability to local power elites

We indicate such possible impact (a-d) in the light of project component 1-3 (good governance; community empowerment; economic growth) and subsequent activities under the component in Table 5.8 below.

Table 5.8: Activities vis-a-vis Probable Impacts.

Governance Related	
Nature of activities	Probable impact category
Policy implementation and international compliance	a, b, c
MCS and enforcement - deployment of satellite, radar or computer-based vessel monitoring equipment on fishing vessels	a, b, c
Marine fisheries surveillance check-posts (MFSCP) for strengthening MCS procedure	a, b
Other registration and MCS related measures	
Community Empowerment and Livelihood Related	
Nature of activities	Probable impact category (s)
Co-management and institutional strengthening	d
Livelihood transition – training on alternative livelihoods and technical occupation	b

Sustainable Economic Growth	
Nature of activities	Probable impact category (s)
Registration, technological adoption, quality control	a, b
Development of Mariculture areas	a
Rehabilitation of coastal aquaculture areas	a, b, c
Rehabilitation of fish and shrimp habitats	a, b
Scaling-up selected shrimp clusters	c
Establishment of hatchery, markets and related infrastructure	c
Construction and rehabilitation of existing post-harvest service centers, processing facilities	b

Chapter 6: Tentative Environmental and Social Management Plan (ESMP)

6.1 Environmental Management Plan (EMP)

This section presents the outline environmental management plan (EMP) of the BSCMF. A more detailed version of EMP must be included in the IEE and if required in EIA of the BSCMF Phase I; the EIAs of subsequent phases will also include a similarly detailed version of EMP.

6.1.1 Scope and Objectives of EMP

The basic objective of the EMP is to manage adverse impacts of program interventions in a way that minimizes the possible adverse impact on the environment and people of the program influence area. The specific objectives of the EMP are to:

- Identify the mitigation measures during EMF and EIA; and facilitate implementation of those during implementation of BSCMF;
- Maximize and sustain potential program benefits and control negative impacts;
- Draw responsibilities for program proponent, contractors, consultants, and other members of the program team for the environmental and social management of the program;
- Define a monitoring mechanism and identify monitoring parameters in order to:
 - Ensure the complete implementation of all mitigation measures,
 - Ensure the effectiveness of the mitigation measures,
 - Maintain essential ecological process, preserving biodiversity and where possible restoring degraded natural resources and habitats; and
 - Assess environmental training requirements for different stakeholders at various levels.

The EMP will be managed through a number of tasks and activities and site specific management plans. One purpose of the EMP is to record the procedure and methodology for management of mitigation identified for each negative impacts of the program. The management will clearly delineate the responsibility of various participants and stakeholders involved in planning, implementation and operation of the program.

6.1.2 Inclusion of Relevant Components of EMP in Contract Documents

The specific IEE/EIA should include a section on special environmental clauses (SECs) to be incorporated in the Tender Document under General/Particular Specification. These clauses are aimed at ensuring that the Contractor carries out his responsibility of implementing the environment management plan (EMP), monitoring plan as well as other environmental and safety measures. Such clauses may specify, for example, penalties for non-compliance as well as incentives to promote strong compliance. The various contractors must be made accountable to implement the plans and mitigation measures which pertain to them through contract documents and/or other agreements of the obligations and importance of the environmental and social components of the program. In addition, the specific EIA will ask to submit an Environment Management Action Plan (EMAP) to encompass all of the detailed plans, measures and management systems they are required to develop and implement, to be based on the EMF recommendation and EIA findings, their work methodology, work force involvement, equipment's standard, and work scheduling.

Payment Milestones

Payments to contractors would be linked to environmental performance, measured by completion of the prescribed environmental and social mitigation measures. Contractors would be required to join forces with the executing agency, project management unit, supervising consultants and local

population for the mitigation of adverse impacts of the program. For effective implementation of the proposed mitigation and monitoring measures they would attract trained and experienced environmental management staff.

Guideline to Incorporate Environmental Management in Bid Documents

The main consultants of PMU will be responsible to incorporate environmental management requirements in the bidding documents, with the assistance of the environmental consultants. The generic guidelines to incorporate environmental aspects in the bidding documents are listed below. These are examples only and shall be further elaborated and expanded upon based on the findings and recommendations of the phase-specific EIAs.

- Prepare cost estimates, to be incorporated in Bid Documents.
- Contractor version of the Environmental Management Plan along with the ECoPs to be incorporated in the bid document's work requirements.
- Penalty clauses for not complying with EMP requirements to be incorporated.
- Indicative penalty clauses are presented below (Addendum to Clause 17.2 Contractor's Care of the Works of FIDIC).
 - The contractor has to follow all traffic safety measures as defined in the technical specification. Damage shall be levied at the rate of up to BDT 10,000 per day per location for non-conformity of traffic safety measures as per the decision of the DoF officials.
 - The contractor has to follow all environmental mitigation and management measures as defined in the technical specification read along with the Environmental Management Plan for the specific BSCMFP activities. Damage shall be levied at the rate of up to BDT 10,000 per day per location for nonconformity of EMP measures as per the decision of the DoF officials.
 - The contractor has to ensure that prior to every monsoon season, during the construction period; all the temporary and permanent cross drainage structures are free from debris as defined in the Technical Specifications read along with the EMP. Damage shall be levied at the rate of BDT 3,000 per day per location for non-conformity as per the decision of the DoF officials.
 - The contractor has to ensure that a comprehensive Health and Safety program is in place for the duration of construction. Implementation of the program will include, among other aspects, ensuring that sufficient numbers and good quality Personnel Protective Equipment (PPE), should be provide to staff and labor all time as defined in the labor codes read along with the EMP. Damage shall be levied at the rate of up to BDT 5,000 per day for non-conformity as per the decision of the DoF officials.
 - In addition, for any non-compliance causing damages or material harm to the natural environment, public or private property or resources, the contractor will be required to either remediate / rectify any such damages in a timeframe specified by and agreed with the engineer, or pay DoF for the cost (as assessed by DoF) of contracting a third party to carry out the remediation work.
- Since many contractors do not have clear understanding the need of environmental management, some quote very low price for implementation of EMP and eventually cannot implement EMP as per specific requirement of EMP and project design. To avoid this problem, fixed budget may be assigned for EMP implementation. The contractors may need orientation on the requirement of the EMP in the pre-bidding meeting.

6.1.3 Institutional Arrangements

The following institutional arrangements have been suggested in this EMF, recommended to elaborate during specific IEE/EIA of BSCMFP, Phase I. For the later phases, these arrangements will be revisited and modified as appropriate.

During Project Implementation

The BSCMFP implementation will be led by the Program Management Unit (PMU) that will be established within DoF. The PMU will be headed by the assigned Project Director (PD). The post Deputy Director (finance & Planning) was assigned in July 2017 as the PD of the BSCMFP. Further details of the institutional arrangement for the overall BSCMFP management should be available in the EMP of specific IEE/EIA report for BSCMFP, Phase I under the Institutional Arrangement volume.

It is suggested that DoF is to set-up an Environment and Social Development desk with qualified staff in its regular organogram under the DD (F&P), since the staffing of the desk will require several administrative clearances, as an interim measure, DoF will set-up a project specific Social, Environment, and Communication Office (SECO) in the PMU of BSCMFP. This SECO under the leadership of a DoF planning officer will assist the PMU (i.e. PDO) on issues related to environmental and social management. SECO will oversee the Construction Supervision Consultant (CSC)/Project Management Consultants and other contractors (to be engaged in project activities implementation) and will compile quarterly monitoring reports on EMP compliance, to be sent to the Project Director and also shared with the World Bank, throughout the project implementation period. The SECO will also provide trainings to the DoF field personnel responsible for monitoring of environmental compliance during both implementation and subsequent post project period of the program. Thus, smooth transition to DoF will happen to ensure environmental compliance during the post project period. The organogram for Environmental and Social Development Unit is shown in Figure 761.

The overall responsibility of environmental performance including EMP implementation of the BSCMFP will rest with the PMU (i.e. PDO). Aside from their in-house environmental and social specialists, the PMU will engage construction supervision consultants (CSC)/ Project Management Consultants (PMC) to supervise the contractors including environmental and social management requirements and measures on their execution of construction-related, infrastructural development and other activities that have significant negative environmental impacts identified in the EMF/EIA. The CSC/PMC will ensure adherence to the monitoring parameters including quality requirements, as well as all EMP measures.

The SECO will have adequate numbers of environmental and social scientists/specialists and maintain coordination and liaison with CSC/PMC for effective EMP implementation. Similarly, the CSC/PMC will also have environmental and social monitors who will supervise and monitor the contractors for effective EMP implementation. The contractors in turn will also have Health, Safety and Environment (HSE) supervisors who will ensure EMP implementation during implementation of different activities (including construction) and will be tasked to develop necessary detailed HSE plans as per this EMP, and oversee their implementation.

The PMU will also engage an independent organization to carry out third party environmental monitoring during project implementation. The roles and responsibilities of SECO, CSC/PMC, external monitor, and contractors are presented in Table 6.1 below.

Table 6.1: Roles and Responsibilities of EMP Implementation

Organization	Responsibilities
PMU (PDO)	• Ensure that all project activities are well-managed and coordinated • Procurement of works and goods • Payment of compensation to the project affectees • Recruitment and supervision of Construction Supervision Consultants (CSC)/Project Management Consultants (PMC) • Recruitment and supervision of external monitoring consultant
SECO	• Ensuring inclusion of EMP in bidding documents • Providing training on EMP principles and requirements to CSC, contractors, DoF field staff, and others as needed to ensure effective implementation of EMP • Supervising CSC/PMC for the implementation of EMP • Ensure that all the project activities are carried out in environmentally sound manner • Closely coordinate with other concerned agencies, local governments and communities to support implementation of EMP • Preparation of progress reports on implementation of EMP • Ensure effective implementation of EMP components not directly tasked to the contractor including components dealing with indirect, induced and cumulative effects, as well as operations and maintenance (post project) stage plans and measures • Commissioning and oversight/review of consultant reports for EIAs/EMPs
CSC (PMC)	• Supervise civil works, ensuring compliance with all design parameters including quality requirements and supervise all other project activities that have significant environmental impact • Supervising contractors for EMP implementation • Prepare monthly reports and submit to PMU • CSC/ PMC will have dedicated environmental and social staff
Contractor/NGO/Others	• Responsible for implementation of mitigation and monitoring measures proposed in the EMP • Each contractor will recruit an Environmental, Health, and Safety Manager (EHSM), who will be responsible for implementing the contractors' environmental, health and safety responsibilities, and liaising with government agencies. S/he will have adequate number of staff to support him/her for these tasks
External Monitor	• Independent monitoring of implementation of EMP • External Monitoring and evaluation

Post Project Monitoring Period

For the environmental management of the project during the post project monitoring period, DoF will establish an Environmental Desk under the DD (F&P), which will have adequate numbers of the environmental specialists and will also benefit from training by the project's SECO. During the life of the project loan, the PMU will remain ultimately responsible for all environmental monitoring aspects of the project, but with the goal of gradually transitioning this role with respect to environmental and social dimensions of monitoring requirements to the Environmental Desk, including through capacity building activities as well as on-the job involvement of team members in post project monitoring stage EMP implementation.

Social, Environment and Communication Office (SECO)

The SECO to be established to implement and manage the EMP will be structured to provide co-ordination, technical support and services during the environmental screening and preparation of

EIA, and implementation of the environmental mitigation measures. Functions and the staffing responsibilities of SECO are listed in Table 6.2 below. In order to effectively manage the EIA process and EMP implementation, the SECO will be established and made operational before awarding the contract to contractor. One Senior Environment Specialist will be appointed at the head quarter. One environment specialist and one social development specialist will be posted at each major regional field offices.

Table 6.2: Functions and Responsibilities of the SECO

Designation	Function/Responsibility
SECO (Sr. Environment Specialist)	- Assist the PD in conducting environmental screening and categorization of each phase; - Assist the PD in implementation of the EIA and EMP during the project implementation period; - Preparation of EA and finalization of the same in close co-ordination with the other consultants and the World Bank; - Ensure integration of the EA and resulting EMP into the project implementation plans (contract documents); - Ensure compliance of the mitigation measures by the Contractors; - Ensure incorporation of appropriate environmental specifications into the respective bidding and contract documents; - Assist the DoF officials at site by providing appropriate environmental advice, and developing appropriate environmental mitigation measures; - Documenting and reporting on the experience in the implementation of the environmental process; - Assist consultant's and DoF community organizer to carryout participatory consultation during planning, design and implementation; - Assist the PD in obtaining Environmental Clearances from the DoE; - Develop training program on environmental aspects for the key stakeholders (DoF), contractors, public representatives and local government institutions/ NGOs, in collaboration with the field level junior Environmental Specialist; - Review and approve the Contractor's Implementation Plan for the environmental measures, as per the EMP; - Liaison with the Contracts, CSC/PMC for the Implementation of the EMP; - Liaison with the DoE on environmental and other regulatory matters; - Interact with and oversee the NGOs and Community based organizations to be involved in the project for EMP implementation; - Dialogue with the project affected persons (PAPs) and ensure that the environmental concerns and suggestions are incorporated and implemented in the project; - Undertaking environmental monitoring and reporting to the Project Director and follow-up activities; - Provide guidance to field level junior environment specialist to resolve any environment related issue in the project; - Document the standard construction practices (for infrastructural development/canal re-excavation/construction of regulators, buildings, etc.) in the project on incorporation and integration of environmental issues into engineering design and on implementing measures reconstruction/rehabilitation and maintenance programs; - Assist the PD to arrange for the Environmental Auditing and follow up action on the Audit recommendation; - Report to the PD on the environmental aspects pertaining to the project; - To guide and assist the PD and the DoF to strengthen the environmental management practices; - Ensuring development and regular update of database for project specific environmental information; - Prepare periodic progress reports on the implementation of the EMF/EMP for transmission to the World Bank throughout the project implementation period;

Designation	Function/Responsibility
	• Update of Environmental Management Plan and Environmental Impact Assessment after receiving information from the contractors and other consultants; • Capacity Building of the responsible personnel for environmental sustainability assurance of DoF project; • Maintaining project-specific Database for Environmental Management; • Draft terms of reference and oversee contracting and implementation of contract requirements for consultants hired to complete EA work; • Ensure and facilitate effective and smooth ongoing communication and flow of information between the environmental consultants, construction design consultants and social consultants; and • Review draft deliverables and provide comments to consultants.
Field Level Environment and Social Development Specialists	• Assist in Environmental screening process; • Assist the PMU in Environmental and Social Assessments for the project; • Assist PMU in obtaining of requisite Environmental Clearances for the project; • Assist the Senior Environment Specialist and the Environmental Specialist of the Consultants and CSC/PMC in preparation of the training materials and in conducting training; • Review the contractor's Implementation Plan for the environmental and social mitigation measures, as per the EMP with assistance from the Environmental Specialist of the consultant; • Liaison with the contractors and CSC/PMC on the implementation of the EMP; • Carry out consultations with the NGOs and Community groups to be involved in the project; • Establish dialogue with the affected communities and ensure that the environmental concerns and suggestions are incorporated and implemented in the project; • Carry out site inspections, check and undertake periodic environmental monitoring and initiate necessary follow-up actions; • Document the good practices in the project on incorporation and integration of environmental issues into engineering design of the various construction activities; • Report to the DFO/SUFO or PD on the environmental aspects pertaining to the project; and • Assist in the preparation of periodic reports for dissemination to the PMU, and World Bank.

Construction Supervision Consultants (CSC)/ Project Management Consultants (PMC)

The CSC/PMC will be responsible for supervising the contractors for the implementation of EMP. For this purpose, the CSC/PMC will appoint dedicated separate environment and social staff to ensure EMP implementation during the program. They will supervise the contractor for the EMP implementation, particularly the mitigation measures. They will also be responsible for implementing the monitoring of effects of these measures.

Contractors/NGO

Each contractor will be required to appoint adequate number of dedicated Environment/Social Officers at the site for the implementation of EMP in the field, particularly the mitigation measures. The contractor will also be responsible for communicating with and training of its staff in the environmental/social aspects. The contractor will develop the various plans directed towards health, safety, the environment and social issues, and get them approved by the CSC before the commencement of the physical works on site. Appropriate numbers of the following personnel are required in the contractor's environmental team:

- Environmental Specialists
- Occupational Health and Safety Specialists

- Environmental Technicians (both for lab and field investigations)

The construction contracts will have appropriate clauses to bind the contractors for the above obligations.

6.1.4 Environmental Management

Various environmental management plans will be prepared for the BSCMFP. Suggestive plans are based on the experience of similar EIA carried out in the past and expert input of the EMF consultant. The suggestive plans will be revisited during the preparation of the EIA for BSCMFP Phase I.

Environmental Codes of Practice (ECoPs)

The environmental codes of practice (ECoPs) are generic, non-site-specific guidelines. The ECoPs consist of environmental management guidelines and practices to be followed by the contractors/implementation organizations for sustainable management of all environmental issues. The contractor will be required to follow them and also use them to prepare site-specific management plans. Details of the ECoPs listed below are in Annex F.

- ECoP 1: Waste Management
- ECoP 2: Fuels and Hazardous Substances Management
- ECoP 3: Water Resources Management
- ECoP 4: Drainage Management
- ECoP 5: Soil Quality Management
- ECoP 6: Erosion and Sediment Control
- ECoP 7: Top Soil Management
- ECoP 8: Topography and Landscaping
- ECoP 9: Borrow Areas Management
- ECoP 10: Air Quality Management
- ECoP 11: Noise and Vibration Management
- ECoP 12: Protection of Flora
- ECoP 13: Protection of Fauna
- ECoP 14: Protection of Fisheries
- ECoP 15: Road Transport and Road Traffic Management
- ECoP 16: River Transport management
- ECoP 17: Construction Camp Management
- ECoP 18: Cultural and Religious Issues
- ECoP 19: Workers Health and Safety.

Mitigation and compliance monitoring plans

The mitigation and compliance monitoring plans are the key element of EMP to be prepared on the basis of impact assessment described in Chapter 6. The Plans describe the potentially negative impacts of each program activity, lists mitigation and control measures to address the negative impacts, and assigns responsibilities for implementation and monitoring of these measures. The Plans for the BSCMFP, Phase I will be prepared and included in the EIA; similar plans will be prepared for the later phases and included in the associated EIAs. Table 6.3 presents the sample format of these plans.

Table 6.3: Format of Mitigation and Compliance Monitoring Plan-During Project Implementation Period (Sample)

Environmental Impact/Issue	Actions	Responsibility		Key Performance Indicator	Timing	Cost Allocation
		Execution	Monitoring			
1. Activity: Design / pre-construction considerations of infrastructures						
1.1 Changes in land use, loss of properties, cultivated land and grazing land, relocation of settlements and amenities	The RAP will be implemented for permanent land acquisition and loss of assets/livelihood and other similar impacts	DoF PMU (PDO)	Env. Desk/ SECO	• Documentary evidence of RAP implementation • Establishment of resettlement sites • Payment of compensation amounts • People resettling in new villages • Income levels of displaced households • Number of public grievances re resettlement and compensation	Before construction	Included in Overall programCost
	Contractors will lease the land for construction facilities on temporary basis. Proper documentation will be carried out for this leasing. Site selection will be carried out in consultation with the community and local officials; approval from CSC will also be required for the selected sites.	Contractor	CSC/ SECO	• Documentary evidence of land leasing for temporary facilities • CSC approval for the selected site(s) • Absence of grievances regarding temporary facilities	Before Contractor mobilization	Included in contractors’ costs
1.2 borrowing Construction material	A material (particularly river sand and soil from agricultural land/wetlands, if required) borrowing plan will be prepared	Contractor	CSC/ SECO	• Approved plan • Plan itself will outline appropriate KPIs for its implementation.	Before construction	Included in Contractors’ costs

Site Specific Management Plans

Sand or soil borrowing plan (if required from river bed, agriculture land and wetlands): will be prepared and implemented by the contractors on the basis of the ECoPs and the mitigation measures given in Table 6.4. The Plan will describe among others the methodology to be adopted, restrictions to be followed, prior survey to be conducted, and documentation to be maintained for the sand extraction. The Plan will be submitted to the CSC for their review and approval before initiating the sand extraction activity.

Pollution Prevention Plan: will be prepared and implemented by the contractors on the basis of the ECoPs and WBG EHS Guidelines (1997) that will be part of the bidding documents. The Plan will be submitted to the CSC for their review and approval before contractor mobilization.

Waste Disposal and Effluent Management Plan: will be prepared and implemented by the Contractor on the basis of the EMP, ECoP, and WBG EHS Guidelines (1997), which will be part of the bidding documents. The Plan will be submitted to the CSC for their review and approval before contractor mobilization.

Drinking Water Supply and Sanitation Plan: Separate water supply and sanitation provisions will be needed for the temporary facilities including offices, labor camps and workshops in order not to cause shortages and/or contamination of existing drinking water sources. A Plan will be prepared by the contractors on basis of the EMP and ECoPs, which are part of the bidding documents. The Plan will be submitted to the CSC for their review and approval before contractor mobilization.

Occupational Health and Safety (OHS) Plan: will be prepared and implemented by each contractor on the basis of the WBG EHS Guidelines (1997), ECoPs, mitigation plan (Table 7.5), and other relevant standards. The Plan will be submitted to the CSC for their review and approval before contractor mobilization.

Traffic Management Plan: will be prepared by each contractor after discussion with DoF and authorities responsible for roads and traffic. The Plan will be submitted to the CSC for their review and approval before contractor mobilization. The Plan will identify the routes to be used by the contractors, procedures for the safety of the local community particularly pedestrians, and monitoring mechanism to avoid traffic congestion.

Construction Camp Management Plan: will be prepared by each contractor. The Plan will include the camp layout, details of various facilities including supplies, storage, and disposal. The Plan will be submitted to the CSC for their review and approval before camp establishment.

Fuel and Hazardous Substances Management Plan: will be prepared by each contractor in accordance with the standard operating procedures, relevant guidelines, and where applicable, material safety data sheets (MSDS). The Plan will include the procedures for handling the oils and chemical spills. The Plan will be submitted to the CSC for their review and approval before contractor mobilization.

Emergency Preparedness Plan: will be prepared by each contractor after assessing potential risks and hazards that could be encountered during construction. The Plan will be submitted to the CSC/ DoF for their review and approval before contractor mobilization.

Plantation Plan: A plantation plan will be prepared for the trees to be planted on the project construction site. The Plan will include the species to be planted, the plantation methodology, and plantation layout.

Environmental Management of Resettlement Sites: will be prepared by the Contractor in compliance with the stand-alone EMP prepared for Resettlement Sites and presented in the main EIA.

Health, Safety and Environment Plan: will be prepared by DoF to address solid waste and emergencies associated with workers and community health and safety and to properly manage

waste effluents generated from the maintenance works. The Plan will be submitted to the World Bank for review and approval prior to completion of construction.

Resettlement Action Plan (RAP): The program will require land construction of infrastructures, canal re-excavation, repairing of sluice gates and other extension facilities and affect local persons. The environmental impacts will largely include loss of vegetation, wetlands and agricultural land. To address and mitigate these relocation and resettlement impacts, the Resettlement Action Plan (RAP) will be prepared. The RAP should be based on the findings of the inventory and census surveys as well as meetings and consultations with various program -affected persons. The RAP will present (a) type and extent of loss of assets including land, structures and trees; (b) principles and legal framework applicable for mitigation of these losses; (c) the entitlement matrix, (d) relocation strategies and plans, including provision for livelihoods; (e) resettlement and rehabilitation budget; and (f) institutional framework for the implementation of the plan, including monitoring and evaluation. It will be designed as a “development” plan, therefore the overall objective of the RAP is to restore and/or improve the living standards of the affected persons from pre- program level.

Communication Strategy: A formal communication strategy will be prepared for the project laying out various communication needs and outreach tools and explaining the responsibility of PMU to convey the project impacts and its implications for various stakeholders. A key aspect of this strategy shall be the communication of any project related impacts.

Environmental Improvement Plans

Biodiversity conservation and monitoring: Detailed ecological studies will be carried out, during EIA study in the project impact area, to broaden the existing baseline data. The EIA of BSCMFP should identify potential sites of sensitive ecological area, mangrove area, fish conservation area, locations of dolphin conservation, habitat for coastal birds, sea turtle, etc. in the project area. The proposed study will confirm these locations, identify additional locations and islands/chars of conservation significance and prepare detailed conservation plans and implement these plans. A consulting firm will be hired to carry out the studies and to conduct biodiversity monitoring during the construction and post-construction periods.

Pest Management Plan: has been prepared during EMF, this will be used to provide training of farmers and project staff based in research vessels on integrated pest control. A community NGO is suggested to engage to implement the IPM plan.

6.1.5 Overview of Impacts and Mitigating Measures

An overview of all impacts identified in EMF and mitigating measures, including responsibilities and monitoring requirements, is given in Table 6.4.

Table 6.4: Overview of Impacts and Mitigation.

Impacts/Issues	Mitigation Measures	Time Frame	Cost (USD x 10 ⁶)	Responsibility		Key Monitoring Indicators	Monitoring Frequency
				Implementation	Supervision		
ENVIRONMENTAL IMPACTS DUE TO PROJECT SITING							
Land cover and land use changes	Relevant ECoPs of site selection. Integrated Pest Management Plan; Linkages with ongoing pest management programs	2018 onwards	In budget of EMP	PMU	CSC, PMU	- to be developed under IPM	Six-monthly
Loss of natural vegetation and trees	Compensatory tree plantation along reconstructed embankment	2018-2023	In budget of EMP	PMU	CSC, PMU	- trees cut and trees planted	Monthly
Loss of aquatic habitat	Organic shrimp farming/aquaculture expansion Fish sanctuaries/MPA in BoB	2018-2023	In budget of EMP	PMU	CSC, PMU	- abundance of fishes and species diversity in MPA/sanctuaries	Quarterly
Drainage congestion and water logging	Installation of regulators and culverts	2018-2022	Project design	Contractor	CSC, PMU	- User committees are formed and trained, area water logged	Quarterly (Monthly during flood season)
ENVIRONMENT IMPACTS DURING IMPLEMENTATON PERIOD							
Impacts of burrowing of material from river beds, agriculture land and wetlands (if required)	Compliance with relevant ECoPs of sand extraction, agricultural top soil management and wetland digging	2018-2023	In budget of Contractor	Contractor	CSC, PMU	Sites approved, ongoing visual inspection of sand extraction	At the beginning of works and through sand extraction
Air pollution	Pollution prevention and implementation of ECoPs	2018-2023	In budget of Contractor	Contractor	CSC, PMU	Plan approved and implemented; community complaints	Quarterly
Noise	Noise control measures and relevant ECoPs	2018-2023	In budget of Contractor	Contractor	CSC, PMU	Plan approved and implemented; community complaints	Quarterly
Water pollution	Pollution prevention and control plan	2018-2023	In budget of Contractor	Contractor	CSC, PMU	Plan approved and implemented	Quarterly
Soil contamination	Pollution prevention and control plan	2018-2023	In Contractors budget	Contractor	CSC, PMU	Plan approved and implemented	Quarterly
Solid wastes and hazardous	Waste management and	2018-2023	In budget of	Contractor	CSC, PMU	Plan approved and	Quarterly

Impacts/Issues	Mitigation Measures	Time Frame	Cost (USD x 10 ⁶)	Responsibility		Key Monitoring Indicators	Monitoring Frequency
				Implementation	Supervision		
wastes	pollution control plan		Contractor			implemented	
Impacts on aquatic habitat	Treatment of waste effluents	2018-2023	In budget of Contractor	Contractor	CSC, PMU	Sites approved and ongoing monitoring of plan implementation	Before and during expansion of mariculture, aquaculture
Impacts on wildlife habitats	No construction related activities on sensitive wildlife habitat, use of low wattage lights at construction sites	2018-2023	In budget of EMP	Contractor	CSC, PMU	Biodiversity monitoring studies	Six monthly
Site clearance and restoration	Site restoration and landscaping	2018-2023	In budget of Contractor	Contractor	CSC, PMU	Sites established and cleared	After construction
Occupational health and safety	Implement health and safety, and emergency response plan	2018-2023	In budget of Contractor	Contractor	CSC, PMU	Plan prepared and implemented	Quarterly
ENVIRONMENTAL IMPACTS DURING POST PROJECT PERIOD							
Changes in water courses (canal)	Long term monitoring and biodiversity conservation measures	2023 on wards	In budget of the project	DoF	DoF	Biodiversity conservation measures	Quarterly
Generation of solid waste	Implementation of Health Safety Environment Plan	2023 on wards	DoF annual budget	DoF	DoF	Plan prepared and implemented	Six monthly
Air and noise pollution	Air and noise quality and appropriate measures	2023	DoF annual budget	DoF	DoF	to be developed	
Water pollution	Organic aquaculture, water treatment, etc.	2023 on wards	DoF annual budget	DoF	DoF	Working condition of connected canals, mariculture area	Annually
Ecological connectivity	Implementation of relevant ECoPs of wetland connectivity	2023 on wards	DoF annual budget	DoF	DoF	Plan prepared and implemented	Annually
Marine habitat	Guideline for mariculture, sea grass and oyster beds	2023 on wards	DoF annual budget	DoF	DoF	Plan prepared and implemented	Annually
Loss of vegetation	Implementation of related ECoPs of plantation	2023 on wards	DoF annual budget	DoF	DoF	Plan prepared and implemented	Annually
Impact of avifauna	Implementation of related ECoPs	2023 on	DoF annual	DoF	DoF	Plan prepared and	Annually

Impacts/Issues	Mitigation Measures	Time Frame	Cost (USD x 10 ⁶)	Responsibility		Key Monitoring Indicators	Monitoring Frequency
				Implementation	Supervision		
	of wildlife management	wards	budget			implemented	

6.1.6 Technical Assistance, Capacity Building

Capacity building for effective implementation of the environmental and social safeguard requirements is a key element of the EMP. Capacity building for environmental and social safeguard management will need to be carried out at all tiers of the program, including DoF, Env. Desk, CSC, and contractors. At the construction site, CSC will take the lead in implementing the capacity building plan, though the contractors will also be responsible to conduct trainings for their own staff and workers. The various aspects that are covered under the capacity building will include general environmental and social awareness, key environmental and social sensitivities of the area, key environmental and social impacts of the program, EMP requirements, OHS aspects, and waste disposal. Table 6.5 provides a summary of various aspects of the environmental and social trainings to be conducted at the construction site. DoF may revise the plan during the program implementation as required.

During the post project period of the program, these trainings will continue to be conducted by DoF staff for all relevant personnel and community.

Table 6.5: Environmental Trainings.

Contents	Participants	Responsibility	Schedule
General environmental awareness; Environmental sensitivity of the program influence area; Key findings of the EIA; Mitigation measures; EMP;	Selected staff of DoF, CSC, And contractors	CSC	Prior to the start of the program activities. (To be repeated as needed.)
General environmental awareness; Environmental sensitivity of the program influence area; Mitigation measures;	PMU; CSC; Selected contractors' crew	CSC	Prior to the start of the field activities. (To be repeated as needed.)
EMP; Waste disposal; OHS;	Construction crew	Contractors	Prior to the start of the construction activities.
Road/waterway safety; Defensive driving/sailing; Waste disposal;	Drivers; boat/launch crew	Contractors	Before and during the field operations. (To be repeated as needed.)
Camp operation; Waste disposal; OHS; Natural resource conservation;	Camp staff	Contractors	Before and during the field operations. (To be repeated as needed.)
Restoration requirements; Waste disposal.	Restoration teams	Contractors	Before the start of the restoration activities.
Safety at Sea	Crew; Researchers; Respective officials for MSC.	Contractors	Before the start of vessel operation.

6.2 Social Management Plan (SMP)

6.2.1 Scope and Objective of SMP

Management of social risks and impacts associated with the project interventions relating enabling sustainable coastal and marines fisheries sector development through fisheries stock regulation, creation of investment climate, small infrastructure development, fisheries value chain and food safety development, productivity improvement, community co-management and livelihood transformation. The project will not acquire private land for infrastructure construction, rather use existing available lands, and potentials for involuntary displacement is bare minimum. The project

approach will be to engage targeted beneficiaries inclusive of their location, age, gender, disability, ethnic identity, poverty and any other exclusion excuses.

The Social Management Plan (SMP) provides guidance to the DoF, SDF and any Contractor on the social development requirements during implementation of the Project and applies to all Project activities and construction sites.

The SMP provides for obligations of the executing agencies and project staff on social development and safeguards requirements of the World Bank in supplement with national legislative requirements and guides DoF and SDF in identification, planning, auditing, monitoring, reviewing, evaluation and reporting of social performance of project implementation.

The SMP includes action plans for consultation and participation framework, gender framework, livelihood transformation program, grievance management and labor influx management. The SMP also refers to RPF and SECDF guiding management of involuntary resettlement and small ethnic communities at the implementation level.

6.2.2 Consultation and Participation Plan

Objectives and Methodology: The objectives of consultation and participation are to inform, consult, engage, collaborate and empower the communities and other local stakeholders at all levels of project cycle. Consultation and community participation will be undertaken to achieve the following specific objectives at identification, planning, design, implementation and evaluation stages:

- **Identification** – to sensitize the community about the project objectives, its components and their role and identify inclusive ground needs;
- **Planning** – to ensure transparency of the planning process, reflect community expectations in project design, acceptable work schedule and procedures; ensure identification of adverse impacts and measures to mitigate them;
- **Implementation** – to ensure that benefit accrues to the targeted beneficiaries inclusive of all groups including the very poor and vulnerable groups and activities designed and implemented at a standard satisfactory to the communities.
- **Review and evaluation** – to evaluate the beneficiary satisfaction and outcomes of the project activities for intended benefits to targeted group beneficiaries.

Involvement of communities is not limited to interactions with them but also disclosing relevant information pertaining to the project tasks and targets. Consultation and participation involves communities and other stakeholders and will take place through interpersonal communications, focused group discussions and small and large community meetings. DoF as the implementing agency will be responsible to carry out continued consultation with and information dissemination to the key stakeholders regarding:

- The relevant details of the project;
- The target group beneficiaries and targeting criteria;
- Intended benefits and sharing of project benefits among target group beneficiaries;
- Involuntary displacement and resettlement entitlements;
- Eligibility of entitlements and project resettlement policy framework;
- Compensation process and compensation rates;
- Definition of small ethnic communities and their rights in accessing project benefits;
- Project's accountability mechanism including GRM;

- Objectives and methods of consultation and participation.

The implementing agencies shall enlist the help of community leaders and other influential stakeholders in encouraging the participation of the communities and affected persons in project activities. Finally, they shall attempt to ensure that all vulnerable groups and indigenous peoples/ethnic minorities understand the process and that their needs are specifically taken into consideration.

Public participation will be performed and information will be made available during preparation and implementation of the resettlement plan and small ethnic communities development plans at the minimum includes community meetings and focus-group discussions. Public consultation must be appropriately documented.

Communication and consultation strategy: As required for informed consultation, DoF and SDF will provide communities and affected persons including the fishers and fisheries-dependent households with all activity-related information, including that on potential adverse impacts in a language familiar to and understandable by the target communities. To facilitate consultation the implementing agency will:

Prepare a time-table for dialogues during activity selection, design and implementation processes, and consult them in manners so that they can express their views and preferences freely.

In addition to the communities in general, consult community organizations, community elders/leaders and others with adequate gender and generational representation; and civil society organizations like NGOs and groups knowledgeable of issues related communities living within project area.

Consultation will include the activity objectives and scope; the likely key adverse impacts on (and benefits for) communities; communities' own perception of the impacts and feedback; and a preliminary assessment of economic opportunities which the implementing agency could promote – in addition to mitigation of the adverse impacts.

Consultation will in general concentrate on targeting and the adverse impacts perceived by the communities and the probable (and feasible) mitigation measures, as well as exploring additional development activities that could be promoted under the project.

The implementing agency will keep Minutes of these consultation meetings in the activity files and make them available for inspection by World Bank, respective government officials and other interested groups and persons.

If the presence of small ethnic communities is identified in the sub-project area, based on the baseline data appropriate social tool will be adopted using free, prior, informed consultation. This will serve as the basis for sub-project implementation and monitoring. **Information Disclosure:** The mechanism of information dissemination should be simple and be accessible to all. Two of the important means that have been followed until now include briefing material and organization of community consultation sessions. The briefing material (all to be prepared in local language) can be in the form of (a) brochures (including project information, details of entitlements including compensation and assistance to be given to the PAPs; grievance mechanism) that can be kept in the offices of local self-government (gram parishad office) and project office; (b) posters to be displayed at prominent locations and (c) leaflets that can be distributed in the project areas. Consultation meetings should also be organized at regular intervals by the project to acquaint the communities, target group beneficiaries and affected persons of the following:

- Timeline and progress of the project by components;
- Information on beneficiary participation;
- Information of involuntary displacement, compensation and entitlements;

- Information of participation of small ethnic communities;
- Time line for acquisition of land using voluntary donation, direct purchase and any other voluntary approach.

Also, opinion and consensus of the community needs to be sought for livelihood transformation, relocation of any community assets and involuntary resettlement management. Information disclosure procedures are mandated to provide citizen centric information as well as all documentation necessary for addressing any queries. Disclosure of information will enhance governance and accountability specifically with respect to strengthening of monitoring indicators to help the World Bank monitor compliance with the agreements and assess impact on outcomes.

Table 6.6: Disclosure Requirements.

Topic	Documents to be Disclosed	Frequency	Where
Resettlement, Rehabilitation and Land requirement	Social Impact Assessment; Resettlement Action Plan (RAP).	Once in the entire project cycle. But to remain on the website and other disclosure locations throughout the project period.	World Bank's website; On the website of DoF, The client would make the RAP available at a place accessible to displaced persons and local NGOs, in a form, manner, and language that are understandable to the PAPs in the following offices: UP Office Public Library if any Project Office
	Resettlement Policy Framework translated in local language	Once in the entire project cycle.	Distributed among Project Affected Persons (PAP)
	Information regarding impacts and their entitlements in local language	Once at the start of the project and as and when demanded by the PAP.	Through one-to-one contact with PAPs. Community consultation List of PAPs with impacts and entitlements to be pasted in the project office and website of DoF,
	R&R monthly progress report.	10th day of every month	Website of DoF. Hard copy in the project office
	RAP Impact Assessment Report	At mid-term and end of the RAP implementation	DoF website in local language.
Small ethnic communities	Small Ethnic Community Development Framework and Plans	Identification, design and implementation, monitoring and evaluation	DoF and SDF websites Hard copies in local language in the following offices: UP Office Project Office SECs to be informed on one to one contact
Public Consultation	Minutes of Formal Public Consultation Meetings	Within two weeks of meeting	On the web sites of DoF Hard copies in local language in the following offices: UP Office Project office
Grievance redressal process	Proceedings of grievance process/ monitoring reports	Continuous process throughout the project cycle.	On the web sites of DoF Hard copies in local language in the following offices: UP Office Project Office Beneficiaries and affected persons to be informed on one to one contact

Topic	Documents to be Disclosed	Frequency	Where
Beneficiary identification and engagement	Approach and proceedings/long and short list of beneficiaries	Continuous process throughout the project cycle.	On the web sites of DoF Hard copies in local language in the following offices: UP Office Project Office Potential target group beneficiaries to be informed on one to one contact

6.2.3 Beneficiary Identification and Selection Procedure

The project targets the poor, vulnerable coastal fishing communities. Households and individual members, especially the most disadvantaged of those communities like the female-headed households, widows the poorest and the elderly will be focused under the project. Direct beneficiaries are the fishers and the poor and extremely poor fisheries-dependent households in 16 coastal districts. The project approach will be to identify and select beneficiaries in an inclusive fashion also ensuring their access to a decentralized grievance redress system established for the project. Special attention will be given to women and vulnerable groups and a participatory method will be applied for balancing poverty, vulnerability and resilience.

Special Attention to Women and Other Vulnerable Groups. The vulnerable groups include Women Headed Households, Destitute, Below Poverty Line families, Old Aged, Differently Aged, Chronically Ill and Orphans. It is envisaged that during conducting Social Assessment and preparing and implementing Social Management Plans, interests of these vulnerable groups would be adequately addressed and protected. Like in other projects, as per available experience, in these sub-projects as well, these 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 the adverse conditions to their participation and engagement. Social management plans will promote inclusion of these vulnerable households for participation in the project interventions as direct and indirect beneficiaries. Special interventions will be included in the social management plans for accessing benefits from the project equally.

Balancing Poverty, Vulnerability and Resilience. The project will ensure that all members of the fishing community will have access to the project services and benefits. To ensure social justice, the project will prioritize the beneficiaries based on Poverty, Vulnerability to Shocks and Disasters and their Resilience to Shocks and Disasters. This will be done in the following manner.

Participatory Identification of Beneficiary(PIB) from among community members
Rank each poor fishing household for its Poverty on a 1 to 10 scale using Participatory Ranking System: Outcome PR (poverty)
Rank each poor household's Vulnerability to shock and natural disasters on a 1 to 10 scale, using Participatory Ranking System: Outcome VR (vulnerability)
Rank each poor household's Resilience to shock and natural disasters on a 1 to 10 scale, using Participatory Ranking System: Outcome RR (resilience)
Prioritize beneficiaries using the scores of the Participatory Rankings of Poverty, Vulnerability and Resilience: Prioritization: PR+VR-RR

This exercise will be conducted during pre-planning phase of the project during initiation of project in the village. The project team will perform this ranking exercise in a participative manner with the assistance of identified informed villagers. The Project teams need to be trained in this ranking method. In the process, project will form a Village Development Committee and a Social Audit Committee in the village. A guideline for conducting Participatory Identification of Beneficiaries (PIBs) is provided in Annex H.

6.2.4 Livelihood Transformation Program

Background and Objectives. With the goal to increase coastal belt fisheries' contribution to the country's overall economy, poverty reduction and environmental sustainability, the project intends to play with known stock of coastal and marine fisheries resources, controlled catch and production to maintain minimum level of stock and improvement of production and marketing value chains enabling investment in the sector. The policy and institutional interventions may reduce or control scope of employment in the coastal and marine fisheries industry and market chains. The project also intends to improve the livelihood of the poor fishers and fisheries-dependent households in the coastal area with the capacity to better manage local resources and expand their participation in more exclusive and sustainable development. Component 3 of the project is therefore, specifically designed as a community driven demand (CDD) approach to support fishers' livelihoods transformation and transition out of fishing facilitated through financial resources, investments in infrastructure and assets, and capacity building to help poor fisher households break out of the poverty cycle and transform their livelihoods.

Specific objectives of the livelihood transformation program imbedded with the component 3 actions have been intended as follows:

Reduce destructive fishing practices and boost more sustainable fisheries management in the coastal and marine fisheries sector;

Transition of fishers out of fishing to ensure feasible number of fishing crews in the coastal and marine fisheries with alternative livelihood support;

Capacity building of the poor fishers and fisheries-dependent households for transforming their livelihoods for better and sustainable income opportunities;

Help develop and strengthen community institutions including fisheries co-management for self-reliant and self-managed livelihood endeavors;

Finance and help establish revolving funds available for income generation activities and small scale local infrastructure development;

Provide training for sustainable fisheries management, nutrition, climate change and agriculture.

Program Actions for Livelihood Transformation: The project finance will be used for design and implementation of the following activities with active participation of the target group communities also engaging with other stakeholders in the value chain. Several actions will be pursued under two major subcomponents namely (i) Community Fisheries Management and Alternative Livelihood and (ii) Business Development and Market Linkages for Alternative Livelihoods.

Program 1: Community Fisheries Management and Alternative Livelihood

The program for community fisheries management and alternative livelihood will be implemented through several mutually contributing activities to achieve the objectives. The subcomponents activities those will be pursued including community institutions building including fishing village groups and institutionalize fisheries co-management. The interventions also including direct financing support, small local infrastructure investment, training and gender inclusion.

a) Development and strengthening of fisheries community organizations

This component would ensure support needed to build institutions of the poor fishers in the selected villages and subsequently help strengthen these institutions so that they can function independently and effectively. The initial community planning process would be broadened such as to include basic aspects of livelihood, business and market linkages, nutrition awareness, disaster risk and climate change concerns at that level to feed into the overall investment planning. The process will essentially comprised of the following exercises by the project field implementation forces:

- Conduct participatory identification of the poor fisher households
- Development of village institution at village level
- Capacity building of the fisher's community organizations
- Mobilization of fishers group for savings and lending
- Need assessment for undertaking livelihood ventures
- Start-up activities.

b) Financing of fishers' community programs and ventures with Village Development Fund (VDF)

Following establishing or strengthening of fishers organizations at village level, the project will finance the community plans and start-ups through creation of a Village Development Fund (VDF). The VDF will consist of four sub-funds (i) the Institutional Development Fund (IDF), which will largely support the establishment and capacity building of the community groups; (ii) Community Financing or the so called Swabolombi Fund (SF) - that would work as a revolving fund to provide loans to beneficiaries for livelihood/income generating activities; (iii) the Community Infrastructure Support Fund (CISF) that would support improving or building of key community infrastructures to facilitate and enhance livelihood related activities of the communities and (iv) The Nutrition Support Fund (NSF) which would aim to raise awareness, improved attitudes and practices that enhance nutritional outcomes for targeted beneficiaries and that support beneficiaries in optimizing their livelihood activities.

The potential activities are identified from FGDs and learnings from similar examples, e.g., from intervention of Social Development Foundation (SDF) through two different livelihood-focused programs funded by the World Bank which were implemented in 4 Divisions of Bangladesh. Therefore, adapting from the SDF modalities and from DoF's participatory learnings and exercises, the following categories of community ventures and programs will be included under the aforementioned funding types:

(i) Institution Development Fund (IDF)

- Capacity building of the fisher's community
- Land purchase for office building
- Training on fisheries management, climate change and environment
- Skill training to the fisher's community
- Youth skill development
- Temporary office set up at village level

(ii) Revolving Fund (Swabolombi Fund)

- Investment in individual or group-based Income Generating activities (IGAs)
- Youth employment loan support

(iii) Community Infrastructure and Support Fund (CISF)

- Office building construction at village level
- Tube-well and sanitation
- Connecting-road at village level

- Water treatment or supply facilities/plant etc.

(iv) Nutrition Support Fund (NSF)

- Nutrition Awareness building
- Improved kitchen gardens
- Nutrition practices; and hand-washing etc.

Action Plan

In order to implement the LTP-1 component, especially to demonstrate and ensure successful services to the poor fishers by the project authorities, the project will emphasize on the co-management of fisheries resources. At the same time, it will help establish several model fishing villages.

The co-management body will involve different stakeholders, such as, boat owners, boat builders, fish traders, relevant government and non-government agencies) for sustainable management of the fisheries sub-sector. The management mechanism will only strengthen the institutional capacities of the local fishers' organization but also build relationship with the stakeholders and enhance to make formal or non- formal partnerships. The activities may be-

- Conduct stakeholder workshops/ seminars
- Periodic meeting with stakeholders
- Exposure visit

The model village concept means a demonstrative development achievement displaying in the coastal fishers' community. The fishers' community those who will be involved with fishing, will do their job right way with full safety including business viability. The fishers' community those who will not be involved with fishing, will undertake alternative visible livelihoods which is viable as a business aspect. The development will be found remarkable and learning events for the others fisher's community for replication.

- Community participatory needs assessment
- Support to fishers' community to prepare business plan.
- Support to non-fishers' community to prepare business plan
- Institution Development Fund (IDF)
- Revolving/Swabolombi Fund
- Community Infrastructure and Support Fund
- Nutrition support Fund NSF)

Program 2: Business Development and Market Linkages for Alternative Livelihoods

The objective of the component is to improve the livelihood opportunities of poor fishers by organizing them in producer groups, cooperatives or societies and improving their market access. The component would also provide youth employment support to fisheries community as alternative development.

Action Plan

The main purpose of this component is to mobilize producer group; scaling-up of IGAs, enterprise development, and value addition; improve productivity of fisher's or producers. The project would facilitate producers or group members to improve quality of product and marketing of the same in a collective way. Other than mobilization and capacity building, the project will also facilitate the start-ups in obtaining legal and institutional registration and enlistment.

Second, the project would facilitate market linkages with producers in fishing communities. It would aim to increase livelihood opportunities of poor fishers by facilitating their organization into producer groups, federation and by improving their market and business orientation and forward and backward linkages in the market systems. Typical activities which will be undertaken in the process will involve:

- Stakeholder workshops/meeting
- Periodic meeting with stakeholders
- Development of promotional materials
- Develop LSP and ensuring their services
- Exposure visit

As part of creating livelihood, under this sub-component the project will aim to provide opportunities for youth in the project villages to gain skills and access to employment opportunities. These activities will help youth community to undertake alternative wage employment rather than traditional fishing activities at local area. Typical activities to accomplish this purpose will involve:

- Mobilization of the youth
- Counseling of un/under employment youth in fishing households and their families
- Training and skills development to help unemployed/underemployed youth in fisher households
- Skill development training to the youth
- Counseling pre-youth for mobilization

As well, the project will provide employment support to these trained youth folks. It will conduct a market survey to identify appropriate employers and build networks to ensure employment of the un/under employed youths to be receiving training from the project and facilitate possible job placement.

Program 3: Development of Second Tier Institution, Sustainability

The component would primarily focus on supporting the second-tier institutional development for the upazilas and districts level federation. It is expected that facilitation and monitoring of community activities would be fully handed over to the Federation in all working areas end 2022. The aim of the activities is to establish a sustainable organization at community level.

- Develop cluster/ upazila level federation of fisheries community
- Develop district/ regional level federation of fisheries community
- Capacity building of federation
- Financial support to federation
- Partnership development
- Legal entity of the federation

Overall Implementation Arrangements of LTP Components:

The LTP components of the project would be implemented in partnerships with the Social Development Foundation (SDF), an autonomous organization 'Not for profit' established in 2000 under the Ministry of Finance. The GoB envisages the long-term development of SDF as a home-grown institutional resource on the community-driven approach to poverty reduction and livelihoods development. The project would be implemented in accordance with the rules and procedures agreed upon in the Project Implementation Plan (PIP), Community Operational Manuals (COM), Training and Learning Manuals and the Human Resources Policy and Manual.

The documents outline the roles and responsibilities of the implementing agency, other stakeholder and community organizations and provide details of project processes and implementation steps.

The operational documents have been developed and improved upon to respond to lessons and experiences gained under the previous project. The documents would be reviewed periodically by GoB and IDA with stakeholder participation to ensure that they remain adaptable, relevant and responsive to issues arising during the implementation process of the project.

SDF has three regional/area project offices for overseeing all component activities. The location of the offices may be revisited based on the final selection of the unions and villages that the project would be working in. Each regional office has some technical specialists and office administrative staff. The region team will provide guidance, technical support, monitoring and supervision the component activities. Upazila/ cluster (field) offices will be set up at upazila or any suitable place under the upazila. The cluster (field) offices have the role to mobilize and facilitate the establishment of community structures, the development of the community plans and the implementation on the village level.

6.2.5 Gender Action Plan

A gender action plan has been proposed for the project for review and updating by the DoF and SDF before implementation based on social screening, social impacts assessment and designing the activities for implementation. The draft gender action plan has been proposed in Table 6.7.

Table 6.7: Disclosure Requirements.

Objectives	Measures	Targets	Responsibility/Mean of verification
Gender inclusive social impact analysis	Attention to gender concerns in social impact analyses. Include analyses of gender risks, constraints, and opportunities Ensure adequate reflection of women's voices in the analysis	Attaining 30% participation of women in all structured surveys; Attaining 40% participation of women in consultations; Ensure women's response recorded in data collection process.	DoF/SDF In the design process
Gender equity in fisheries production and marketing value chain	Assess key constraints for women in fisheries and aquaculture value chains, and map potential in growth or remunerative segments to increase women's economic participation. A gender informed value chain mapping/ assessment:	Increase in women's economic participation	DoF/SDF Design stage for each activity, and at monitoring level
	Assessment to identify areas and constraints for women already engaged in fisheries-related employment and income opportunities	Women friendly work environment in fisheries sector	DoF/SDF Feedback survey at monitoring and evaluation
Gender mainstreaming in fisheries	Revisions in policies e.g., 1998 fisheries policies, to include	Increase in women's economic	DoF/SDF Design stage for each

Objectives	Measures	Targets	Responsibility/Mean of verification
governance and management	attention to gender dimensions Increase participation and training opportunities for women in fisheries governance and management e.g., as MCS/AIS data operators Identify suitable and optimum levels of women's participation in governance and management Identify opportunities to strengthen gender equity in institutional setup (including gender sensitization training needs)	participation	activity, and at monitoring level
Gender mainstreaming in fisheries production practices	Needs assessment to flag any actions needed to protect the gender specific interests of women workers Training and capacity building for women workers involved in food safety Action research on mud crab farming where women's involvement is particularly high Support networks and platforms of women's organizations and within producer and trader organizations to represent interests of women in the sector	Increase in women participation in fisheries production practices	DoF/SDF Design stage for each activity, and at monitoring level
Gender equality in community empowerment and livelihoods	Provide both men and women (husbands and wives) with information and skills for alternative livelihoods Vocational skills training to youth to target young women and men Build social capital and influence and leadership in the community, through women's community saving groups and women's participation in village sub groups and development associations Prioritize recruitment of women extension and training officers and community facilitators Engage equal number of female and male facilitators	Promotion of women in project management and livelihood opportunities	DoF/SDF Design stage for each activity, and at monitoring level
Gender balance in	Nutrition component to address	Women enjoy equal	DoF/SDF

Objectives	Measures	Targets	Responsibility/Means of verification
access to nutrition and food security	food security issues and improve dietary practices especially for pregnant women	access to food and nutrition	Beneficiary feedback survey

6.2.6 Grievance Redress Mechanism

The BSCMFP program will establish a grievance redress mechanism (GRM) for addressing grievances and complaints received from the program -affected persons due to environmental issues. Grievance Redress Mechanism (GRM) is a valuable tool which will allow affected people to voice concerns regarding environmental and social impacts for BSCMFP's activities. DoF would ensure that grievance redress procedures are in place and would monitor those procedures to ensure that grievances are handled properly. The DoF office will establish a procedure to answer sub-program -related queries and address complaints, disputes, and grievances about any aspect of the sub-program, including disagreements regarding the assessment and mitigation of environmental and social impacts. Details of the institutional arrangements and procedures are discussed in following sections.

Overview and Scope. DoF will establish and SDF will follow a Grievance Redress Mechanism (GRM) for answering queries, receiving suggestions and addressing complaints and grievances likely to arise in the project cycle including identification, planning, design and implementation. The GRM spans the entire implementation period and will cater to both the beneficiary communities and the directly and indirectly affected population including the fishers and the fisheries-dependent households. Though the GRM proposed here is a mechanism of redress has been designed to address environmental and social problems identified during implementation, it will also cater to manage any disconnects that emerge from the field level and that has significant implications for effective implementation of the project interventions.

Objectives of Grievance Redress Mechanism: The fundamental objective of GRM will be to resolve any program-related grievances locally in consultation with the aggrieved party to facilitate smooth implementation of the social and environmental action plans. Another important objective is to democratize the development process at the local level and to establish accountability to the affected people. The procedures will however not pre-empt a person's right to go to the courts of law.

The GRM will be consistent with the requirements of the World Bank safeguard policies to ensure mitigation of community concerns, risk management, and maximization of environmental and social benefits. The overall objective of the GRM is therefore to provide a robust system of procedures and processes that provides for transparent and rapid resolution of concerns and complaints identified at the local level.

The GRM will be accessible to diverse members of the community, including women, senior citizens and other vulnerable groups focusing the fishers and fisheries-dependent households and persons. Culturally-appropriate communication mechanisms will be used at all project sites both to spread awareness regarding the GRM process as well as complaints management.

Where project intervention areas cover beneficiaries from the SECs, project GRM will integrate traditional grievance management system available with the small ethnic communities.

Communication and Awareness raising on GRM: The final processes and procedures for the GRM will be translated in to local language (i.e. Bangla) and disseminated at all sub-project locations. These shall be made available (in both leaflet and poster format) to all sub-project locations with copy to Project Manager on-site and in the offices of each DC Office.

Proposed Institutional Mechanisms: For addressing grievances, four tier GRM will be established with representations from beneficiary communities including men and women, civil society

organizations, elected representatives and the project proponents including DoF and SDF. The Social Development Specialist consultant with the PMU will be the contact person at DoF. In case the issue is not resolved, the aggrieved person has the option to adopt judicial procedure. In cases where vulnerable persons are unable to access the legal system, the GoB will provide legal support to the vulnerable person(s). As well as, the PMU will assist the vulnerable person(s) in getting this support from the GoB. The PMU will also ensure that there is no cost imposed (such as for travel and accommodation) on the aggrieved person, if the person belongs to the vulnerable groups including the SECs. The verdict of the judiciary will be final. The project specific GRM is summarized in the table below:

Table 6.8: The Grievance Redress Process and Timeline

Tiers of GRM	Nodal Person for Contact	Facilitation by Project	Timeframe
First Tier: Upazila Project Coordination Committee (UPCC)	Once the UPCC is created, it will be the first level of contact in specific grievance related to the management of the project or any other issue related to land; access and adverse impacts on the PAPs or community.	The UPCC will maintain a Community Information Board to record the grievance, contacting and facilitating the aggrieved person to redress.	15 days
Second Tier: District Management Committee (DMC)	The grievance will be forwarded to the DMC.	Only after exhausting the first tier. Website advertisement, public notices in print media. The aggrieved person can attend the hearing in person. The District Fisheries Officer will be responsible to ensure that there is no cost imposed (such as for travel, etc.) on the aggrieved person if the person belongs to the vulnerable groups, the project will assist the PAPs with travel and accommodation costs, if needed.	30 days
Third Tier: Department of Fisheries (DoF)/ Ministry of Fisheries and Livestock (MoFL) – E&S Safeguards Coordinator of the Project Management Unit (PMU).	The grievance will be forwarded to the Social Coordinator at the PMU.	Only after exhausting the first and second tier. Website advertisement, public notices in print media. The aggrieved person can attend the hearing in person. The District Fisheries Officer will be responsible to ensure that there is no cost imposed (such as for travel, etc.) on the aggrieved person if the person belongs to the vulnerable groups, the project will assist the PAPs with travel and accommodation costs, if needed.	60 days
Fourth Tier: Independent Institutions such as Anti-Corruption	Independent Institutions and the Judiciary will remain as an option for an aggrieved person and/or community in case that the other	Only for vulnerable person (s) as per the grievance mechanism of the project. Only after exhausting both	As per established laws of Bangladesh

Tiers of GRM	Nodal Person for Contact	Facilitation by Project	Timeframe
Commission, Human Rights Commission etc.	tiers have not been effective.	first, second and third.	
OR the Judiciary			

GRM Operation: Project GRM will be accessible to all communities and persons irrespective of the social status, gender, ethnic identity and disability. DoF and SDF will establish the following prior to commencing project implementation activities including identification, planning and design:

- Any person can access PMU website or office to record grievances and write a formal letter in the name of Project Director, PMU. The person can also visit the PMU office in person and log complaints.
- The PMU Office (DoF and SDF) will maintain an electronic database that will provide a summary of complaints received and their resolutions. The PMU Office (DoF and SDF) will also provide an analysis of the grievances at each project site using a pre-designed M&E template that will give insight into the type of complaints received and qualitative and quantitative review of grievance redress. The PMU Office (DoF and SDF) will also be responsible for uploading the actions and results for each grievance for each project site location on a periodic basis to the PMU website.
- Apart from the electronic database that will be maintained at the PMU level, a manual register and complaint box of all complaints and actions taken will be maintained at each project sites and locations. GRM sign boards on which Compliant numbers (Conveners phone numbers) will also be displayed at project intervention sites.
- Grievance Focal Point (GFP) will also be chosen from local community on each location of project activity.
- The PMU (DoF and SDF) and the local government bodies will issue public notices to inform the public within the project area of the GRM. Contact address, phone number, email address and web address of PMU will be disseminated to the people through displays at the respective Upazila and Union offices as well.
- Given that the female community members have restricted mobility outside of their houses, the female staff from PMU (DoF and SDF) will be required to undertake visits to the local community. The frequency of visits will depend on the nature and magnitude of activity in an area and the frequency of grievances.
- The PMU officers (DoF and SDF) will log complaints and date of receipt onto the complaint database and inform their environmental and social specialists staff;
- PMU (DoF and SDF) will coordinate with local government to “capture” complaints made directly to them;
- The PMU staff (DoF and SDF), with the help of UPCC and DMC, will investigate the complaint to determine its validity, and to assess whether the source of the problem is due to project activities, and identify appropriate corrective measures.
- The PMU (DoF and SDF) will inform the Complainant of investigation results and the action taken;
- If complaint is transferred from local government agencies, the PIU will submit interim report to local government agencies on status of the complaint investigation and follow-up action within the time frame assigned by the above agencies;

- The PMU (DoF and SDF) will review with the help of UPCC and DMC, the complainants' response on the identified mitigation measures, and the updated situation;
- The PMU (DoF and SDF) will undertake additional monitoring, as necessary, to verify as well as review that any valid reason for complaint does not recur.

World Bank Grievance Redress Service (GRS): Communities and individuals who believe that they are adversely affected by Sub-project interventions may submit complaints to existing project-level GRM or the WB Grievance Redress Service (GRS). Project affected communities and individuals may also submit their complaint to the World Bank's independent Inspection Panel, which determines whether harm occurred, or could occur, because of non-compliance with WB safeguards policies and procedures. Details of the procedures to submit complaints to the WB's corporate GRS, is available in the GRS website: <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the WB Inspection Panel, please visit www.inspectionpanel.org. Any disclosure instrument on GRM will provide addresses of the GRS and the Inspection Panel.

6.2.7 Labor Influx Management

Civil works construction under the Project will require labor force and associated goods and services those cannot be fully supplied locally for several reasons, among them worker unavailability and lack of technical skills and capacity. In such cases, the labor force (total or partial) may be brought in from outside the project area. In many cases, this influx is compounded by an influx of other people ("followers") who follow the incoming work force with the aim of selling them goods and services, or in pursuit of job or business opportunities. The rapid migration to and settlement of workers and followers in the subproject areas is referred to as labor influx, and under certain conditions, it can affect subproject areas negatively in terms of public infrastructure, utilities, housing, sustainable resource management and social dynamics.

DoF will look at the contractors' labor and staff management to avoid any unintended incidents of social risks. The site specific social assessment and management plans will assess the risks associated with influx of outsiders in the project site. The contractors labor management should include plans to reduce influx (by using local labor as far as possible), mitigate risks and implement the plans. This will be mandatory for contractors to follow, if labor influx is assessed for civil works sites and will be specified as the contractor's obligation in all bid documents. DoF will be vigilant on labor influx management in the civil works sites and report to the Bank on a regular basis as per monitoring and evaluation of social development and safeguards action plans under the project.

6.3 Monitoring Program

As one of the key elements of the EMP, a three-tier monitoring program is proposed comprising compliance monitoring, effects monitoring, and external monitoring. The main purpose of this monitoring program is to ensure that the various tasks detailed in the EMP particularly the mitigation measures are implemented in an effective manner, and also to evaluate program impacts on the key environment parameters. Various types of EMP monitoring are discussed below.

6.3.1 Compliance Monitoring

The purpose of the compliance monitoring is to ensure that the contractor implements the mitigation measures given in the EMP are effectively and timely implemented. This monitoring will generally be carried out by the CSC/ PMC with the help of checklists to be prepared on the basis of the Mitigation Plan (Table 6.8).

6.3.2 Effects Monitoring During Project Implementation

Effects monitoring is a very important aspect of environmental management to safeguard the protection of environment. The effects monitoring plan proposed for the BSCMFP, Phase I is presented in Table 6.9; after the specific EIA, this program will be revisited and revised. The

monitoring will comprise surveillance to check whether the contractor is meeting the provisions of the contract during construction and operation of the program including the responsible agencies for implementation and supervision.

Table 6.9: Effects Monitoring Plan.

Parameter / Activity	Location	Means of Monitoring	Frequency	Responsible Agency	
				Implemented By	Supervised By
During Project Implementation					
Sand extraction/ soil collection	At all sand extraction points	Ecological inspection of the site prior to development; and extraction carried out not in long stretches	Weekly	Contractor	CSC
Sediment Quality for heavy metals	Canal/ riverbed sediments at 5 locations	Laboratory analysis for analysis of metals and oil/ grease (lead, cadmium, chromium, copper, manganese, mercury and zinc)	Before sand extraction	Contractor through a nationally recognized laboratory	CSC
Soil Pollution	Canal, construction site, camp & RS	Visual inspection that filling is through several compartments	Beginning of earth filling works	Contractor	CSC
	Canal, construction, RS and material storage sites	Ensure no contaminated effluent is leaving from the filling area to the nearby agricultural lands	Weekly	Contractor	CSC
Stability of slopes	Side slopes of sluice gates, canal dyke, pond dyke, and Resettlement Sites	Compaction as per contract specifications, Visual inspection of erosion prevention measures and occurrence of erosion	Monthly	Contractor	CSC
Hydrocarbon and chemical storage	Construction camps and yards, aquaculture firms, mariculture sites	Visual Inspection of storage facilities	Monthly	Contractor	CSC
Traffic Safety	Construction Access Roads	Visual inspection to see whether proper traffic signs are placed and flag-men for traffic management are engaged	Monthly	Contractor	CSC
Air Quality (dust, smoke)	Construction sites	Visual inspection to ensure good standard equipment is in use and dust suppression measures (e.g., spraying of waters) are in place.	Daily	Contractor	CSC
	Material storage sites	Visual inspection to ensure dust suppression work plan is being	Monthly	Contractor	CSC

Parameter / Activity	Location	Means of Monitoring	Frequency	Responsible Agency	
				Implemented By	Supervised By
		implemented			
Air quality	Sensitive receptors along construction corridor	24 hours continuous monitoring with the help of appropriate instruments and analyzers (particulate matter, carbon dioxide, sulphur and nitrogen oxides)	Quarterly	Contractor	CSC
Noise	Construction sites	Noise measurement using noise meter; Ensure work restriction between 21:0 - 06:0 close to the sensitive locations	Weekly	Contractor	CSC
Surface Water Quality	At the baseline monitoring sites at five sites	Sampling and analysis of surface water quality (TDS, Turbidity, pH, dissolved oxygen, biological and chemical oxygen demand)	Quarterly	Contractor through a nationally recognized laboratory	CSC
Groundwater quality	Locations of tube-well installation (for workers camps and RS), Shrimp farm, Other buildings, fish landing centers, markets, etc.	Depth of tube well should be more than 30m. Test water for arsenic iron and manganese before installing of casing. If the quality is found not suitable further deepening will be done.	During drilling of wells	Contractor through a nationally recognized laboratory	CSC
	Water wells to be used by contractors for drinking	Laboratory analysis of all drinking water parameters specified in national standards	After development of wells	Contractor through a nationally recognized laboratory	CSC
Plantation	Canal slopes, building construction sites, affected mangrove forest sites	Visual inspection to ensure plantations are taken care of.	Monthly	Contractor	CSC
Waste Management	Construction camps and construction sites, shrimp farms area, mariculture area, hatcheries, other infrastructure sites, laboratory, research vessels, etc.	Visual inspection that solid waste is disposed at designated site	Monthly	Contractor	CSC

Parameter / Activity	Location	Means of Monitoring	Frequency	Responsible Agency	
				Implemented By	Supervised By
Drinking water and sanitation	Construction camps and construction sites, shrimp farm area, mariculture area, hatcheries, other infrastructure sites, laboratory, research vessels, etc.	Ensure the construction workers are provided with safe water and sanitation facilities in the site	Weekly	Contractor	CSC
Flora and Fauna	Sensitive habitats in Project influence area	Survey and comparison with baseline environment Ensure use of lighting at construction sites conforms with requirements to limit impacts to wildlife	Six-monthly	Biodiversity Conservation and Monitoring Consultant	CSC, DoF
Fish migration	Regulators, mariculture area, canal re-excavation, etc.	Sample fish catch	Monthly after installation of regulators	Consultants	CSC, DoF
Restoration of Work Sites	All Work Sites	Visual Inspection	After completion of all works	Contractor	CSC, DoF
Safety of workers Monitoring and reporting accidents	At work sites	Usage of Personal Protective equipment and implementation of contractor OHS plan	Monthly	Contractor	CSC, DoF
Grievances (environmental issues)	In the project area	Number of grievances registered and addressed	Monthly	PMU	CSC, DoF
During Post Project Period					
Stability of protection works	Canal slopes, regulators sites, and Resettlement Sites	Visual inspection of erosion prevention measures and occurrence of erosion	Monthly	DoF	DoF
Plantation	Construction sites, canal slopes, pond dyke, shrimp farms, etc.	Visual inspection to ensure plantations are taken care of.	Monthly	Contractor	CSC
Fish migration	Regulators, mariculture area, canal re-excavation, etc.	Sample fish catch	Monthly during migration season	Consultants	CSC, DoF
Waste effluents	Construction camps and construction	Visual inspection that solid and liquid waste effluents are properly	Six-monthly	Environmental Desk of DoF	DoF

Parameter / Activity	Location	Means of Monitoring	Frequency	Responsible Agency	
				Implemented By	Supervised By
	sites, shrimp farm area, mariculture area, hatcheries, other infrastructure sites, laboratory, research vessels, etc.	managed during post project period			
Pesticide residue in soil and water	Cultivation fields, <i>khals</i> and <i>beels</i>	Laboratory analysis of pesticide related parameters	Six-monthly	DoF through a nationally recognized laboratory	DoF

6.3.3 Third Party Monitoring

DoF will engage an independent consulting firm to conduct external and independent monitoring of the EMP implementation. The main purpose of the external monitoring will be to ensure that all the key entities including SECO/ Env. Desk, CSC, PMC and contractors are effectively and adequately fulfilling their designated role for EMP implementation, and that all the EMP requirements are being implemented in a timely and effective manner. The ToR of the external monitoring will be presented in the EIA report.

6.3.4 Performance Indicators

For evaluating the performance of the environmental management and monitoring plan, performance indicators are identified to for efficient and timely implementation of measures/actions proposed in EMP. The indicators are defined both for implementation phase and for post project period. CSC will be responsible for compiling the information on these indicators and report to DoF.

Separate performance indicators for each environmental issue will be specified in the mitigation plans for the BSCMFP, Phase I and included in the associated EIA. To measure the overall environmental performance of the program, an additional list of performance indicators is given below.

- Number of inspections carried out by CSC per month.
- Number of non-compliances observed by CSC or SECO/ Env. Desk.
- Availability of environmental specialists in SECO/ Env. Desk.
- Availability of environmental specialists in CSC.
- Availability of environmental specialists with contractors.
- Timely reporting of documents (as defined in EMP and monitoring plan).
- Number of trainings imparted to stakeholders/ other capacity building initiatives.
- Timely disbursement of compensation/ timely resettlement of program affectees.
- Timely implementation of resettlement schedule.
- Number of grievances received.
- Number of grievances resolved.
- Number of construction related accidents.

6.4 EMP Implementation Cost

Cost estimates will need to be prepared for all the mitigation and monitoring measures to be proposed in the specific EIA in accordance with the EMF. The cost estimates for some of the mitigation measures to be identified in the EMP will be part of civil works contract. Some of suggestive activities from EIA will be implemented by hiring competent institutes.

The Development Project Proposal (DPP)/ Technical Assistance Project Proposal (TAPP) of DoF/ MoFL/ GoB for the proposed program should reflect the EMP activities with budget for successful environmental management of the program.

Total US\$ 2.4 million is estimated for implementation of EMP which is embedded in the proposed total project budget US\$ 256 million from IDA.

Table 6.10: Cost Estimates for Environmental Management and Monitoring of BSCMFP.

SN	Description	Amount million US\$
1	Contractor's Budget for development of management plans, staff, training, etc.	0.3
2	Water quality monitoring during construction (quarterly for 5 years)	0.2
3	Tree plantation development and maintenance	0.2
4	Baseline Ecological Studies, development of conservation plans and biodiversity monitoring during construction and operation (5 years), training to workers, monitoring of sites	0.3
5	Integrated pest management	0.2
6	Independent Environment Consultants/M&E	0.3
7	PMU/CSC Environmental staff	0.4
8	Capacity building and institutional strengthening	0.5
	TOTAL =	2.4

Chapter 7: Stakeholder Consultations and Disclosure

7.1 Stakeholder Consultations and Disclosure

Field surveys, consultations with different stake holders, focus group discussions (FGDs) that were carried out to develop this Environmental and Social Management Framework (ESMF) of BSCMFP, are not enough considering the project area and dimension of the stakeholders. Extensive field visits are required at the EIA stage to overcome this shortcoming and conduct extensive discussions with the relevant stakeholders throughout the program sites to discuss components, sub-components, activities, potential positive and negative impacts and measures taken to mitigate those impacts. It is also required to record the views of each of the respondents of the consultations, irrespective of gender, profession, religion, and age groups. The ToR of the EIA should be disclosed in the public meetings during the initial stage of the EIA in all the sites of the proposed project. Findings of the EIA will also be presented in local language going back to the same stakeholders while the draft is ready to submit for DoE clearance. Consultation meetings are necessary to identify issues and problems to enable DoF to include corrective measures and to identify lessons and opportunities to enhance program implementation mechanism.

7.1.1 Objective of the Consultations

The GoB as well as international development partners (e.g. the World Bank) place great importance on involving primary and secondary stakeholders for determining the environmental and social impacts associated with project implementation. In order to gather local knowledge for baseline conditions, understand perceptions of the community regarding impact significance, and propose meaningful mitigation measures, participation of stakeholders is an integral part of the environmental assessment process. During the preparation of the present ESMF, initial consultations with the key stakeholders have been carried out at 12 sites covering 07 (seven) districts to obtain their views on program interventions.

The consultation process has been conceived, planned, and initiated with the following key objectives:

- To provide key program information and create awareness among various stakeholders about program intervention;
- To share the terms of reference of the current EMF and proposed EIA;
- To have interaction for primary and secondary data collection with program beneficiaries, affectees, and other stakeholders;
- To identify environmental and social issues such as displacement, safety hazards, employment, and vulnerable persons;
- To begin establishing communication and an evolving mechanism for the resolution of social and environmental problems at local and program level;
- To involve program stakeholders in an inclusive manner; and
- To receive feedback from primary stakeholders on mitigation and enhancement measures to address the environmental and social impacts of the program.

7.1.2 Methodology and Tools for the Consultation

The consultation and participation process undertaken so far has adopted a highly participatory approach fully involving all the stakeholders, both primary and secondary through FGDs. However, this should be more participatory irrespective of gender, profession, religion and age groups during conducting EIA. The various tools will be used for consultations including household level interviews, participatory rural appraisal, FGDs, stakeholders consultation meetings, issue specific consultation

meetings, open meetings, and workshops at both local and national levels. During EIA, consultation meetings and FGDs will be carried out in all selected Unions (lowest administrative unit) and local level workshops will be organized in all selected Upazilas (Sub-district) to ensure a comprehensive coverage of the entire program area.

Consultation Meetings and FGDs

In order to prepare an Environmental and Social Management Framework (ESMF) of the BSCMFP, 12 FGD sessions were organized in the 07 (seven) coastal districts involving project beneficiaries viz: fishers/ fish farmers, fish traders, DoF field level officer/ staffs, local Union Parishad representatives to orient the activities of the project. Both male and female stakeholders were consulted through these meetings. Additionally, teachers, businessmen, village leaders, and local government members, farmers, and fishermen were consulted individually. Female heads of the households were also interviewed. Summary matrix of consultation meetings and FGDs carried out in different districts is given in Table 7.1; Figures 7.1 to 7.6 present some photographs of the consultation meetings and FGDs. List of attendee of all the FGDs so far carried out is given in the Annex D.

Table 7.1: Summary matrix of each of the individual FGD is given below:

SI	Date	Place	Total No. of Participant	Recommendation
1.	09 August 2017	Conference Room at the District Fisheries Office, Bagerhat	15	1. Field level officials of DoF opined for increasing manpower at the upazila level while implementing the up-coming fisheries project. 2. Prior to finalizing options of canal excavation during project implementation the opinion of relevant Upazila Fisheries Officer (UFOs) should be taken into consideration. 3. Senior Upazila Fisheries Officer (SUFO), Rampal opined that capture fishers should be involved in aquaculture/ fish trades as a means of AIGAs in the project areas. He also gave importance for modernization/ improvement of the existing fish depots/ fish service centers of the area by the project finance. 4. Coastal capture fishers should be helped with Early warning system (EWS) installed in fishing boats through the project funds. 5. SUFO, Morelgonj pointed out project implementation may not have any environmental implications but providing AIGAs may face some social problems. To solve this social challenge, only registered fishers having valid ID card should be selected for providing AIGAs – which needs to be articulated in the DPP.
2.	10 August 2017	Conference Room Fakirhat Upazila Parishad, Bagerhat	21	1. Local elected people's representative should be involved in the project implementation activities. 2. NOC should be taken from the concerned local elected people's representative prior to inclusion of any canal for excavation during project implementation in the project proposal.

SI	Date	Place	Total No. of Participant	Recommendation
				- During many previous excavation programs the local administration has to evict people from the area which creates social problems. Hence the benefits of canal excavation to be informed to the beneficiaries through the local elected representatives before project implementation and the list of canals to be brought to the notice of the local administration for easing social problem. - Only the fish depots/ fish service centers established on khas land should be prioritized in modernization/ improvement of the existing fish depots/ fish service centers of the area by the project finance. - Vegetable farming on the ridges of the shrimp/ prawn farms should be prioritized in the project activities for enhancing farm income and fish farmer's livelihoods. - Development of social forestry along the project roads side through cooperative/ cluster formation of the fishers/ fish farmers of concerned area should be an option of AIGAs (both socio-economically & environmentally sustainable). - Hilsa fishers of Fakirhat are not covered by the present food safety scheme of the Govt. during hilsa fishing ban period. The project should give such help to the registered ID holder hilsa fishers during project implementation. - Bhairab and Kaliganga rivers of Fakirhat including its tributaries and canals need to be excavated to ease water flow for aquaculture, navigation and reduce flooding in the area.
3.	18 August, 2017	Atshatobigha Primary School premise of Kalibari, Debhata, Satkhira	26	- Nearby canals/ river mouths need to be excavated urgently. - Shallow farms should be re-excavated on a priority basis. - Insolvent shrimp/ prawn farmer would get priority while selecting farms for re-excavation. - Farms located at a greater distance from the nearby canal would get priority. - For land less people bee farming, mud crab/ Eel farming in cages in the adjacent rivers and sewing options for womenfolk would be the best alternative income generating activities (AIGAs) in this area.
4.	14 September 2017	Conference Room, HurkaUnion Parishad, Bagerhat	25	- Connecting canals needs to be re-excavated to ensure water exchange; - Ensure supply of required number of Specific Pathogen Free (SPF) shrimp Post-Larvae (PL);

SI	Date	Place	Total No. of Participant	Recommendation
				3. Depth of the gher/ pond needs to be increased. 4. Promotion of cluster farming and support to shrimp value chain will retain quality of their product ensuring better access to market with increased profit; 5. The farmers opined to re-excavate canals in areas where more shrimp farms are located; 6. The focus group suggested to re-excavate gher/ ponds owned by poor and vulnerable farmers; 7. The focus group shows interest to abstract water from the excavated canal by their own arrangement.
5.	15 September 2017	Charbanda, Sonadana, Paikgacha, Khulna	31	1. Connecting canals needs to be re-excavated to ensure water exchange; 2. Ensure supply of required number of Specific Pathogen Free (SPF) shrimp Post-Larvae (PL); 3. Depth of the gher/ pond needs to be increased. 4. The group desired to facilitate with common collection center (depot) for the cluster to get rid of from the clutch of middleman. 5. Promotion of cluster farming and support to shrimp value chain will retain quality of their product ensuring better access to market with increased profit; 6. The farmers opined to re-excavate canals in areas where more shrimp farms are located; 7. The focus group suggested to re-excavate gher/ ponds owned by poor and vulnerable farmers; 8. The focus group shows interest to abstract water from the excavated canal by their own arrangement.
6.	23 November 2017	Shabab Chowdhury's Hat, Subarna Char, Noakhali	16	1. To arrange micro credit interest free; 2. To provide the net fiber among the group by forming 7-8 group members; 3. To provide the fishing boat/ vessel among the group by forming 7-8 group members; 4. To ensure 100% VGF card holders; 5. To provide the cattle (cow) among the fishers in order to create alternate income generating activities; and 6. To provide training on sewing among the interested fisher's wife along with sewing machine,
7.	23 November 2017	Hotel Seagull, Cox's Bazar	18	1. Shrimp/ prawn/ crab/ fish farms should be re-excavated on a priority basis to ensure mortality reductions during peak growing season of March-April.

SI	Date	Place	Total No. of Participant	Recommendation
				- Electricity, safety, repair/ development of sluice gates, improve water exchange facilities by re-excavating silted canals would be crucial as 80% of lease holder are not solvent for capital investment; - Farms located at a greater distance from the nearby canal and insolvent/ vulnerable shrimp/ prawn/ crab/fish farmers would get priority while selecting farms for re-excavation.
8.	24 november 2017	Marine Fisheries Surveillance Check Post, Patenga, Chittagong	31	- The fishers also know the deleterious effect of using illegal gears and admitted to use the legal gears ; - Currently the fishing boats do not comply with safety measures which they accept to comply with; - The fishers are also concerned for post-harvest quality maintenance of their harvest; - They also expect wider awareness campaign/ training to let them be informed with relevant marine rules and regulations; - Fishers admit that fishing boats engaged in fishing should have registration and fishing license. - The fisherman also admit that fish stock is depleting due to over-exploitation and number of fishing boats engaged in marine fishing needs to be reduced. - They propose that if they get education, vocational technical training for skill development on driving, motor mechanic, welding, poultry rearing, fish farming, goat farming, cow rearing, crab farming, net making etc., they may be able to change their livelihood transformation. - Fishermen also expressed to facilitate with schools in their fishing villages to educate their children. They asked for mass awareness campaign/ training on fishing regulation, post-harvest management of harvested fish, education, sanitation, community mobilization. - They also expressed that if institutional access (government) be increased they will change this risky profession. - They expressed concern about the piracy at sea and bad weather and recommend providing fishing boats with communication devices to communicate among themselves at sea and between land/ port to take measures against piracy and bad weather.
9.	24	South	54	The fishers showed interest for the

SI	Date	Place	Total No. of Participant	Recommendation
	November 2017	KattolyJelepara, Pahartali, Chittagong		provision of supports in the project; - They expressed hope to get involved with Model Fisher Village to change their livelihood through transformation process; - Fishers admit to impose stringent restriction for use of illegal and detrimental gears; - The fisher expects awareness training to practice for responsible fishing; - Currently the fishing boats do not comply with safety measures which they accept to comply with; - The fishers also concern for post-harvest quality maintenance of their harvest; - They also expect wide awareness campaign/ training to let them informed with relevant marine rules and regulations; - Fishers admit that fishing boats engaged in fishing should have registration and fishing license. - They expressed concern about fishers entering from adjoining areas viz. Bhola, Barisal and engage fishing with destructive gears. - They need vocational training for skill development on driving, motor mechanic, welding, poultry rearing, fish farming, goat farming, cow rearing, crab farming, net making, ice making, painting, car servicing, press operating etc. to start livelihood transformation process. - They need loan or grant to build fishing boats to go deeper and distant waters for fishing. - They want insurance coverage for fishers as safeguard under safety net coverage; - They expressed that they are bound to do illegal fishing as they have taken loan from the dadondar, (middle man) they want loan facility to get rid from the dadondar (middle man)
10.	24 November, 2017	BFDC Landing Center, Cox's Bazar Sadar, Cox's Bazar	19	- The landing center alongside Banskhali River partially washed away and the remaining portion is left unused for which great difficulty is faced in landing fishes from the boats that needs renovation improving with sanitation and hygiene condition; - Landing shade is risky that requires repairing and renovation for using safely; - Excessive time is usually required in lifting and landing fish that leads to wastage of fish;

SI	Date	Place	Total No. of Participant	Recommendation
				4. Absence of neatness and cleanness and lack of ice plant; 5. Paucity of water supply arrangement; 6. Acute toilet problem; 7. Fish storage problem; 8. Problem in entering trawler from Nazirar Take; 9. Lack of Canteen; 10. Training for fishermen is needed; 11. Constructions of new structures are needed.
11.	24 November 2017	Office of Shrimp Hatchery Association of Bangladesh (SHAB), Cox's Bazar	18	1. Develop protocol for importing SPF brood. 2. Support should be provided to establish more private shrimp hatcheries for production of SPF PL of Black Tiger Shrimp 3. Prepare plan to estimate total number of SPF PL production needed for the next five years.
12	24 November 2017	Office of the Marine Fisheries Survey Management Unit, Agrabad, Chittagong	15	1. Procure high speed marine petrol vessel for the proper implementation of Marine Fisheries Ordinance 2. Establish marine fisheries surveillance check post along the strategic locations in coastal rivers/ estuaries for catch monitoring and check compliances; 3. Procure another research and survey vessel to support RV MeenShandhani in surveying acoustic survey; 4. For the research and survey vessel, provision of recruitment of all categories of manpower must be incorporated and this manpower should have provision to transfer to revenue budget for sustainability; 5. Provision of Masters and Doctoral Program for the officers engaged in Marine Fisheries Management be kept in the project skill development provision.



Figure 7.1: FGD_09 August 2017_ Bagerhat District Fisheries Office.



Figure 7.2: FGD_10 August 2017_ Fakirhat Upazila Parishad.



Figure 7.3: FGD23 November 2017Hotel Seagull, Cox's Bazar.



Figure 7.4: FGD_24 November 2017_ BFDC Landing Center Cox's Bazar.



Figure 7.5: FGD_24 November 2017_Shrimp Hatchery Association of Bangladesh (SHAB)_Cox's Bazar.



Figure 7.6: FGD_24 November 2017_South KattolijelePara_PahartoliChittagong.

7.2 Summary of the Stakeholder Consultations

FGDs were held in the greater Khulna-Satkhira-Bagerhat in the South-west and Chittagong-Cox's Bazar in the south-east coastal area to get views/ ideas on the prevailing aquaculture practices from the community and aquaculturists/ fishers associations/ cooperatives/ clusters, importance of aquaculture, fisheries and environmental safeguard measures:

1. 09 August, 2017 in the Conference room of the District Fisheries Officer, Bagerhat.
2. 10 August, 2017 in the Conference room of the Fakirhat Upazila Parishad, Bagerhat.
3. 18 August, 2017 at Atshatobigha Primary School premise of Kalibari, Debhata, Satkhira.
4. 14 September 2017 in the Hurka Union Parishad Conference Room, Rampal, Bagerhat.
5. 15 September 2017 in the Charbanda (Under Sonadana Union), Paikgacha, Khulna
6. 23 November, 2017 at Shabab Chowdhury's Hat, Subarna Char, Noakhali.
7. 23 November 2017 at Hotel Seagull, Cox's Bazar
8. 24 November, 2017 in the Meeting Room of Marine Fisheries Surveillance Check Post, Patenga, Chittagong
9. 24 November, 2017 in South Kattolijele Para, Pahartali, Chittagong
10. 24 November, 2017 at Marine Fisheries Surveillance Check Post at Patenga, Chittagong
11. 24 November, 2017 in BFDC Landing Center, Cox's Bazar Sadar, Cox's Bazar
12. 24 November 2017 in the Office of Shrimp Hatchery Association of Bangladesh (SHAB), Cox's Bazar

Irrespective of their age, sex, occupation or economic condition, all of the consulted stakeholders strongly welcomed the program. Although some were hesitating about environmental consequences of the various proposed activities viz. canal re-excavation, expansion of shrimp farming and mariculture, etc. but considering future benefits to the larger community, they are optimistic to the project benefits and suggested to consider implementation of EMP through project budget and also to adopt long term post project monitoring engaging communities.

Major recommendations of the FGDs are as follows:

A. River/ canal/ farm excavation

1. Local elected people's representative should be involved in the project implementation activities;
2. Prioritize re-excavation of river mouths and canals where more shrimp farms are located;
3. Nearby canals/ river mouths and its tributaries need to be excavated to ease water flow for aquaculture, navigation and reduce flooding and water logging in the area;
4. Benefits of canal excavation are to be informed to the beneficiaries through the local elected representatives;
5. NOC should be taken from the concerned local elected people's representative prior to inclusion of any river/ canal for excavation during project implementation;
6. List of rivers/ canals to be excavated need to be brought to the notice of the local administration for reducing social problem of eviction programme during excavation;
7. Shallow shrimp/ prawn/ crab/ fish farms should be re-excavated on a priority basis to ensure mortality reductions during peak growing season of March-April;
8. Electricity, safety, repair/ development of sluice gates, improved water exchange facilitated by re-excavating silted canals would be crucial as 80% of lease holder are not solvent for capital investment; and
9. Farms located at a greater distances from the nearby canal and insolvent/ vulnerable shrimp/ prawn/ crab/ fish farmers would get priority while selecting farms for re-excavation.

B. Resilient practices

1. Disposal of sludge (black soil) from shrimp ghers/ ponds and intervening crop rotation should be prioritized;
2. Easy availability of Specific Pathogen Free (SPF) post-larvae (PL) of Black tiger shrimp (Bagda) and Freshwater Giant Prawn (Golda) and quality fish seed need to be ascertained for sustained production and returns;
3. Cluster farming and support to shrimp/ prawn/ fish value chain will retain quality of their produce ensuring better access to market with increased profit;
4. Vegetable farming on the ridges of the shrimp/ prawn farms should be prioritized in the project activities for enhancing farm income and fish farmer's livelihoods;
5. The fisherman also admit that fish stock is depleting due to over exploitation;
6. Hatchery should be established to ensure supply of SPF PL; and
7. To ensure and maintain quality of shrimp value chain system require to be strengthened.

C. Capacity building

1. Coastal and marine fishers need wide awareness campaign and training, through formation of Model Fishers Village (MFV), to have good knowledge of relevant coastal/ marine fisheries rules and regulations, sanctuaries, CCRF and measures for sea safety, detrimental/ illegal vis-à-vis environment friendly gears and post-harvest quality maintenance of their harvest;
2. All fishing boats engaged in inland/ coastal/ marine fishing should have registration and fishing license with valid ID cards for the fishers;
3. Fishers/ aquaculturists want access rights to institutional credit and insurance;
4. MFV needs good water supply, sanitation, roads for easy access to market, educational institutions and health service centers;
5. Currently the fishing boats do not comply with safety measures which they accept to comply with project support;
6. STDF initiative (of FAO-DoF) for cluster farming approach produced an average of 800 kg/ha of quality and safe shrimp need to be scaled-up;
7. Uninterrupted supply of raw material is essential to use full capacity of the processing plants to boost export;
8. Identify the gaps for dropping out of successful semi-intensive farming practice; and
9. Predominance of viral diseases like EMS/ WSSB is evidenced whenever PL stocked from outside source.

D. Depots/ Service centers improvement

1. Only the fish depots/ fish service centers established on khas land should be prioritized for modernization/ improvement by the project finance;
2. To maintain the quality of shrimp/ fin-fish through supply chain development;
3. Relevant stakeholder expected to be benefitted from the activities envisaged through development of these services; and
4. Through development of facilities post-harvest loss will be reduced leading to increased beneficiary profit.

E. AIGAs

1. Only registered fishers having valid ID card, womenfolk and landless farmers/ people should be selected for providing AIGAs – which needs to be articulated in the DPP; and
2. Aquaculture, mud crab/ eel farming in small cages, fish trade, development of social forestry, Honey bee farming/ cow (for milk) farming, goat farming, Motor driving, motor mechanic, welding, poultry rearing, net making and sewing-stitching for fishers' wives & womenfolk's should be better options of AIGAs.

F. Disaster reduction

1. Coastal fishers should be helped with Early warning system (EWS) installed in their fishing boats through the project funds;
2. Hilsa fishers of some coastal areas are not covered by the present food safety net scheme of the Govt. during hilsa fishing ban period. The project should prioritize giving such help to the registered ID holder hilsa fishers during project implementation;
3. All (100%) vulnerable fishers (old, physically challenged, disabled, etc.) should be brought under VGF Card holding scheme;
4. Fishers need interest-free small loans without collateral or grant to build fishing boats to go to deeper area for fishing;
5. Small fishers' groups/ cooperatives/ associations (7-8 members) should be provided with net twines for making/ mending nets and fishing boats for fishing;
6. They express concern about the piracy at sea and bad weather and recommend that if the fishing boat have devices from the project for their internal communication between sea going boats it will be helpful to combat against piracy and as well as bad weather;
7. They want insurance coverage for fishing profession; and
8. They want easy access to institutional loans to get rid from the exploitation of private money lender (dadondar, bahaddar, middle man).

7.3 Consultations and Communication Framework

Consultations with the key stakeholders will need to be carried out throughout the program life. These will include consultations and liaison with communities and other stakeholders during the project implementation and also extensive consultations with the grass-root as well as institutional stakeholders during the EIA study. The framework for the future consultations is presented in Table 7.2 below:

Table 7.2: Future Consultation Framework.

Description	Objective/Purpose	Responsibility	Timing	Frequency
Consultations with communities and other stakeholders during project implementation	Information dissemination; public relation; confidence building; awareness about risks and impacts; minimizing conflicts and frictions.	Env. Desk, DoF; Contractors; CSC/ PMC	During Project Implementation	Project Specific Location of interventions and impacted area.
Consultations with communities and other stakeholders during EIA study	Sharing EIA ToR	DoF and EIA team	During scoping stage of EIA	Consultation Meeting at all selected Upazila; FGD at All selected Unions
	Dissemination of information on program and its key impacts and proposed mitigation measures; soliciting views, comments, concerns, and recommendations of stakeholders	DoF and EIA team	During EIA study (once draft analysis is available for discussion and feedback) before submission to DoE for clearance	Consultation Meeting at all selected Upazila; FGD at All selected Unions; National Stakeholders; Consultation.
Consultations with communities	Liaison with communities and program beneficiaries	DoF	Post Project Period	As and when necessary

7.4 Access to Information

The draft EMF of BSCMFP will be disclosed to the local and national level stakeholders through different methods as described below.

Workshop: A national workshop will be held at Dhaka to present the detailed project including safeguard aspects of BSCMFP to the key stakeholders. In addition, stakeholders' meetings will be held at all selected upazilas to disclose the ToR and results of the IEE and EIA. Representative of implementing authority, the study team, and the government officials from different departments, representatives from NGOs, local communities of different occupation, journalist, and local elite/civil society may attend the workshops. In the workshops, the participants will share their observations, views, and remarks with the study team. Appropriate suggestions and recommendations on different issues from the stakeholders of the meeting would be incorporated in the program specific IEE/EIA. The workshops will also help to resolve conflicting issues among stakeholders. Besides, FGDs and personal interviews will be carried out at the all selected unions of the BSCMFP project area to generate communities' views and concerns.

Publication in electronic and print media: The information on program interventions and the findings of environmental assessment would also be disclosed through newspapers and electronic media (e.g. internet, TV, radio, etc.). The report would be disclosed in Bengali language as well.

Availability of the Document: Summary of the IEE, EIA and EMF report along with EMP will be translated into Bengali language and disseminated locally. The full report (in English) and the summary (in Bengali) will also be uploaded in the website of DoF and World Bank. Hard copy of the IEE, EIA and EMF will also be available at DoF District and Upazila offices of program area.

Annex A: Terms of Reference (ToR) of the EIA Study

1. **Introduction:** The World Bank is assisting the Government of Bangladesh (GoB) to develop a comprehensive, multi-year program to improve the management and economic performance of the country's coastal and marine fisheries sub-sector (both capture and culture), and enhancing the livelihoods of the coastal fisher and fishing communities. Department of Fisheries (DoF) under the Ministry of Livestock and Fisheries (MoLF) is executing preparation of a Bangladesh Sustainable Coastal and Marine Fisheries Project (the Project) for the proposed investment using financing from the International Development Association (IDA) of the World Bank Group (the Bank). As part of preparation of the proposed Project, DoF has prepared an Environmental Management Framework (EMF) which has recommended this BSCMFP as Green Category Project (according to the ECR'97) and Category B (according to the World Bank O.P 4.01), hence required a project specific Environmental Impact Assessment (EIA) in order to minimize the negative environmental impacts of the proposed interventions and prepare Environmental Management Plan (EMP). The present terms of reference (ToR) have been prepared for the EIA study required to be conducted for the Phase I of the BSCMFP.
2. **Background:** Bangladesh lies within the Ganges-Brahmaputra-Meghna Delta-the world's largest, most densely populated delta and one of the richest in aquatic resources. In 2014, Bangladesh crossed the threshold to become a low middle Income country (LMIC) and per capita income reached US\$ 1,190 in 2015. Bangladesh's remarkable development achievements notwithstanding, high levels of poverty and population density remain pressing development challenges, particularly in coastal areas and in the context of climate change.

Given increasing population pressure on land, the GoB has recognized that the expansion of coastal and marine fisheries, both capture and culture, can offer an Important pathway to sustainable economic development and future poverty reduction opportunities for Bangladesh. The fisheries sector is taking an increasingly major role in this performance, accounting for nearly a quarter of the agricultural GDP and emerging as a major growth driver in the last two decades as compared to the livestock or the stili-dominant crops sectors. The fisheries sector also plays an important role in the food supply, food security, and livelihood security of the country's millions of fishers and other stakeholders. Fish provides 60% of all animal protein consumed in Bangladesh. Fisheries and aquaculture also play a major role in employment: about 17 million people (11% of the total population) are associated with the fisheries sector, with 5 million people involved in marine fisheries. Moreover, certain nutrient rich fish species once wild caught and now cultured in Bangladesh are being piloted to test the efficacy of fishbased solutions to address malnutrition and hidden hunger, particularly among poor women and children in rural areas. At the same time, poverty among coastal inhabitants remains among the highest in the country.

Bangladesh's fisheries sector includes three main sub-sectors: aquaculture (55.93% of total production), inland capture fisheries(27.79), and marine and coastal capture fisheries (16.28%), with the total sector value estimated at US\$ 3.6 billion in 2014-15. As of 2014, the country's inland capture fisheries and aquaculture sectors ranked 4th and 5th in the world, respectively. With inland aquaculture accounting for nearly 80 percent of total aquaculture production, Bangladesh (in part as a result of WBG support over two decades to develop this sector) is well established as one of the world's leading inland fisheries producers overall, delivering over 3 million tons of fish in 2014-15 (two-thirds from inland aquaculture), an increase of 1 million tons (67%) over the past decade alone. Meanwhile, the country's total marine fish production for the same period was around 0.6 million tons (US\$ 515 million, first sale value) taken mainly from near shore areas (<40 m depth) and far less than the 6 million tons harvested by Bangladesh's neighbors in the BoB. Historically, captured marine fisheries have received less national or donor attention and, while basic functions of data collection and regulating trawler operations are carried out. In practice there have been little tangible progress with fisheries management

outside of the Bangladesh's iconic Hilsa fishery. Both small- and large-scale fishing operations are linked to Bangladesh's national and international trade in seafood (US\$ 599.4 million in 2014-15), operated through a complex system of merchants and middlemen that often comes at a cost to the producer.

The GoB recognizes the potential for the country to increase the value of its coastal and marine fisheries through more sustainable management and in doing so, improve the lives of poor, coastal inhabitants. Several key sector-wide challenges necessitate government intervention and investments to enable responsible private-sector-driven growth. These include (i) the absence of an effective regulatory framework for managing coastal and marine fisheries; (ii) limitations in the basic public infrastructure necessary to enable private sector investment; and (iii) limitations in both public and private sector capacity for improved fisheries management and optimal productivity. To overcome these challenges and enable private sector investment, Bangladesh can learn from both regional and global experience and good practices for investing in marine capture fisheries governance reforms. Global experience highlights the need to first establish a core public sector governance framework, including an agreed sector vision, coherent policy, and enabling legal framework, to enable the design, piloting, and implementation of sustainable fisheries management systems supported by adequate institutional capacity building. The latter entails first and foremost building the DoF capacity to implement an effective management and MCS system to address the de facto uncontrolled, open access system for the artisanal fleet while improving the sustainability and performance of the industrial fleet. Broader public sector reforms, in particular to support fishers to diversify their livelihoods in conjunction with the introduction of a functioning MCS, are necessary to incentivize sustainable fisheries management without negatively affecting livelihoods in the short-term and to provide the foundation for responsible private sector finance and investment in the long-term. In addition, enacting community-based approaches can address challenges faced by artisanal fishers and support those most disadvantaged, including the rural coastal poor and women. Initiatives for expanding community access and management rights in inland fisheries could be replicated and scaled-up in the coastal fisheries to better address user conflicts and illegal, unreported, and unregulated (IUU) fishing and improve their overall governance.

3. **Objectives of the EIA:** The objective of the assignment is to carry out the tasks related to environmental aspects in light of the ToR. These include preparation of the Environmental Impact Assessment (including EMP) of the BSCMFP, Phase I.
4. **Scope of Services:** Carry out an overall Environmental Impact Assessment (EIA) and prepare Environmental Management Plan (EMP) for the project area covered under the BSCMFP. EIA and EMP would be prepared according to the World Bank Guidelines and Operational Policies and the GoB procedures. The Consultant shall familiarize themselves with the project details and components. The Consultant should interact with other preparation consultants of PMU to determine best way of conducting environment activities. Consultant shall appropriately plan the timing of the deliverables.

The major activities to be carried out will include, but not limited to the following:

A. Review the EMF Report

- a. Review the existing EMF report prepared for the BSCMFP;
- b. Review the preliminary Baseline report prepared on the basis of reconnaissance field investigations carried out by DoF;
- c. Determine any gaps particularly in the EMF;

B. Review the Project details

- a. Obtain from the DoF and PMU consultants all the details about the project;
- b. Hold meetings with the PMU team to understand the scope and nature of work;

C. Scoping

- a. Carry out reconnaissance field visit. On the basis of this field visit and review of the project details, carry out scoping for the EIA study. Screen out the impacts that are not likely to take place and prepare a list of potential impacts that are likely to take place.
- b. Prepare criteria to be used to determine the program influence area for conducting EIA;
- c. Specify the boundaries of the study area for the assessment (project influence area): canal area, river basin/ catchments, land use, the drainage area and patterns, aquaculture and other development interventions – current and proposed, watersheds, access to sensitive/ remote areas such as parks/ reserves/ forests/ agriculture land, elements of transport development program in the area.

D. Describe the Proposed Project

- a. Provide information on the following: location of all project-related development sites and general layout and extent of facilities at project-related development sites; diagrams/ drawings of proposed structures; design basis, size, capacity; pre-construction activities; construction activities (land clearing, land grading, worker camps, if any), schedule, staffing and support, facilities and services; operation and maintenance activities, staffing and support, facilities and services; management of risks, including health and safety; life expectancy for major components. Components may include any or all of the following: structural measures; dikes and levees; drainage, and non-structural measures, service road and route(s), adjustments to alignments of canals, including earthworks; fish passes and regulator, repair/ replacement of infrastructures; and resettlement sites. Also describe sources of materials used during proposed works; generation of wastes and their disposal, expected volume of use, construction-related vehicular traffic; resettlement, land acquisition, safety features; staffing and accommodation of employees, including site clearance, scheduling of project activities, approximate quantity and likely source of construction materials.
- b. Provide maps and diagrams with appropriate scales to illustrate the general setting of project-related development sites and key project components. These maps and diagrams shall include overall project layout, details of individual components, project time schedule, and any related aspects.

E. Description of the Environment

- a. Review the Baseline report prepared as part of the EMF of the BSCMFP and identify gaps, if any. Obtain additional data as needed.
- b. Assemble and evaluate and baseline data on the environmental characteristics of the study area, including river basin/ watershed, site of mariculture, aquaculture, construction, resettlement sites, inundation, floodplain, marine (pelagic and demersal) and biological features (habitats and rare species, vegetation, fisheries, birds, terrestrial fauna), and floodplain (recession) agriculture. Include information on any changes anticipated before the project commences.
- c. Physical environment: geology, topography, soils, climate, surface and ground water hydrology, annual peak discharge, ambient air quality; noise; vehicular traffic; recurrence intervals of various peak discharges and peak stages of various discharges, erosion and sediment loading, existing/ projected pollution discharges and receiving water quality; instances of flooding, siltation/ erosion, tide, wave, current, depth, bottom topography of the BoB;
- d. Biological environment: ecology: flora and fauna, including rare or endangered species; sensitive natural habitats, including sanctuaries and reserves; biological connectivity; potential vectors for disease; exotics and aquatic weeds; application of

- pesticides and fertilizers (current and projected as agriculture production is expected to increase);
- e. Socio-cultural environment: land use (including current crops and cropping patterns; fisheries and farm outputs and inputs; transportation; land tenure and land titling; present water supply and water uses (including current distribution of water resources); control over allocation of resource use rights; water and fisheries related human health problems; cultural sites, present and projected population; present land use/ ownership; planned development activities; community structure; present and projected employment by industrial category; distribution of income, goods and services; recreation; public health; cultural properties; indigenous peoples, customs and aspirations; significant natural, cultural or historic sites, etc. Presence of HIV/ AIDS and other sexually transmitted diseases;
 - f. Provide location-wise and union/ upazila-wise information of the project intervention and identify any critical aspects that need special consideration during design, construction and operation.

F. Stakeholder consultations

- a. Consultations need to be carried out at least twice, in accordance with the WB requirements: (a) shortly after environmental screening and before the terms of reference for the EIA is finalized; and (b) once a draft EIA report is prepared.
- b. Review the consultations carried out during the EMF.
- c. Carry out consultations with institutional stakeholders including but not limited to officials from DoE, DoF, Local Government, BWDB, LGED, and also with local, national, and international NGOs, and other organization as appropriate and relevant.
- d. Carry out comprehensive consultations with primary stakeholders particularly with the communities to be positively and negatively affected by the project.
- e. Relevant materials will be provided to affected groups in a timely manner prior to consultations and in a form and language that is understandable and accessible to the groups being consulted. The Consultant should maintain a record of the public consultation (written and video and pictorial proof) and the records should indicate: means other than consultations (eg, surveys) used to seek the views of affected stakeholders; the date and location of the consultation meetings, a list of the attendees and their affiliation and contact address; and, summary of minutes.

G. Determination of the Potential Impacts of and Impacts on the Proposed Project

- a. Review the impact assessment carried out during the EMP and identify gaps, if any.
- b. Review the EMP compliance for the EMF, particularly review the institutional set up, implementation of mitigation measures, environmental monitoring and documentation, environmental monitoring reports, environmental quarterly progress reports, and other reports. Determine gaps, if any; also determine impracticality and or inappropriateness of any EMP aspect such as institutional set up, mitigation measures, monitoring measures, and others.
- c. This analysis will require in depth interpretation. In this analysis, distinguish between significant positive and negative impacts, direct and indirect impacts, and immediate and long-term impacts. Identify impacts that are unavoidable or irreversible. Wherever possible, describe impacts quantitatively, in terms of environmental costs and benefits. Assign economic values when feasible. Characterize the extent and quality of available data, explaining significant information deficiencies and any uncertainties associated with predictions of impact. Compare the impact with the baseline. Provide ToRs for studies to obtain the missing information. Special attention should be given to the environmental impact those identified during the screening process of EMF.

H. Development of an Environmental Management Plan (EMP)

- a. Review the EMP included guideline in the EMF.
- b. Identify key mitigation and enhancement approaches and prepare the impact specific mitigation measures. Estimate the impacts and costs of the mitigation measures and of the institutional and training requirements to implement them. If appropriate, assess compensation to affected parties for impacts that cannot be mitigated. Prepare an EMP, including proposed work programs, budget estimates, schedules, staffing and training requirements, and other necessary support services to implement the mitigating measures, monitoring, etc. Include measures for emergency response to accidental events (e.g. entry of raw sewage or toxic wastes into rivers, streams, marine water).
- c. Prepare a detailed plan to monitor the implementation of mitigating measures and the impacts of the project during rehabilitation and operation (e.g., emission and ambient levels of pollutants where these may be detrimental to human health, soil erosion, changes in the floodplain). Include in the plan an estimate of capital and operating costs and a description of other inputs (such as training and institutional strengthening) needed to implement the plan. Include a regular schedule of monitoring the quality of surface and ground waters to ensure that mitigation measures are effective. Provide guidance for reporting and enforcement and conducting environmental audits.
- d. Estimate the costing of EMP, environmental code of practice (ECoP) and provide necessary clauses for incorporating in the bid document.
- e. Review the responsibilities and capability of institutions at local, provincial/ regional, and national levels and recommend steps to strengthen or expand them so that the EMP may be effectively implemented. The recommendations may extend to new laws and regulations, new agencies or agency functions, inter-sectoral arrangements, management procedures and training, staffing, operation and maintenance training, budgeting and financial support.
- f. An outline of the contents of the EMP to be included in the project's Operational Manual (POM) should be provided along with environmental/ social protection clauses for contracts and specifications.
- g. Define the roles and responsibilities of officials, staff, consultants and contractors of DoF on environmental management.
- h. Describe in details who will (a) implement the environmental mitigation activities; (b) carry out environmental monitoring; (c) supervise environmental mitigation and monitoring; (d) design, implement and apply the environmental management information system (EMIS); and (e) prepare quarterly progress report on environmental management;

5. EIA Report Compilation:

- a. Finalize the draft EIA incorporating the comment from the consultation (see Annex B for the EIA structure);
- b. Translate and finalize the executive summary of EIA in Bengali.

6. Team composition and qualifications:

The assignment requires interdisciplinary analysis with specialized sector knowledge (i.e., ecology, fisheries, marine sciences, water resource and hydrology). The general skills required of the Environmental Safeguard team are: environmental management planning, civil engineer(s), with particular experience in fisheries projects, river/ canal re-excavation, mariculture, aquaculture, general construction, hatchery establishment, marine vessel operation; aquatic biologist depending upon the predicted impacts, land use planner, sociologist, archaeologist and

communications/ stakeholder engagement. The consulting team must be able to demonstrate appropriate skill mix and depth of experience to cover all areas of the proposed analysis, including incorporation of other specialized skill sets where required. The consulting team shall be led by a Team Leader with at least 10 years of experience leading EIA studies, including prior international experience on similar types of coastal and marine fisheries projects, and prior experience as either team leader or deputy team leader on at least one (1) previous major EIA for World Bank funded projects.

7. Schedule/Duration of the study:

The study period shall be of 12 (twelve) months from the date of commencement of the study.

8. Reports:

After commencement of the study the submission of the reports shall be both in hard (3 copies) and soft copy as follows:

- Inception Report---submitted at the end of 1st month of signing the contract
- Draft Scoping Report ---submitted at the end of 3rd month of signing the contract
- Draft Baseline Report---submitted at the end of sixth month of signing the contract
- Draft Environmental Impact Assessment with a stand alone Executive Summary submitted at the end of 9th month of signing the contract
- Final Environmental Impact Assessment with a stand alone Executive Summary submitted at the end of 12th month of signing the contract
- Bengali Translation of the Executive Summary -- submitted at the end of 12th month of signing the contract.

9. Reporting:

The consultant will report to the Project Director, Bangladesh Sustainable Coastal and Marine Fisheries Project (BSCMFP), Department of Fisheries (DoF).

Annex B: Structure of the EIA Report

The Consultant is required to prepare an EIA report that is concise and limited to significant environmental issues. The main text should focus on findings, conclusions and recommended actions, supported by summaries of the data collected and citations for any references used in interpreting those data. Detailed or uninterrupted data are not appropriate in the main text and should be presented in appendices or a separate volume. Unpublished documents used in the assessment may not be readily available and should also be assembled in an annex. Organize the environmental assessment report according to the outline below.

The report should be prepared as per the following key contents:

1. Executive Summary (ES): The Executive Summary should mirror the report both in form and content and should be about 10 percent in length of the report. The significant findings and recommended actions should be clearly discussed in the ES.
2. Introduction: This section will include (i) purpose of the report and (ii) extent of the environmental study.
3. Policy, Legal and Administrative Framework: This section will describe relevant environmental policies, rules and administrative procedures that need to be followed for the proposed project. The relevant international environmental agreements to which Bangladesh is a signatory should also be discussed.
4. Project Planning of Components and Description: This section will provide a brief but clear picture about (i) type of project; (ii) category of project; (iii) need for project; (iv) location (use maps showing general location, specific location, and project site); (v) size or magnitude of operation; (vi) Project influence area (vii) proposed schedule for implementation. The proposed project should be described with reasonable details so that the EIA report can be read as a stand alone document without reference to other project documents. This section should present the parameters which should be considered in the design for minimizing the environmental impact.
5. Environmental Baseline: This section will provide sufficient information on the existing environmental baseline resources in the area affected by the project, including the following:
 - a. Physical Resources: (e.g. atmosphere (e.g. air quality and climate), topography and soils, surface water and groundwater, geology/ seismology)
 - b. Water Resources: (e.g. hydrology, surface water and groundwater system, sedimentation, tidal influence, etc.)
 - c. Land and Agriculture resources: (e.g. land type, land use, cropping pattern, crop production, etc.)
 - d. Fisheries resources: (e.g. fisheries diversity, fish production, aquaculture, etc.)
 - e. Ecology: (e.g. ecosystems, wildlife, forests, rare or endangered species, protected areas)
 - f. Socio-economic condition: (e.g. population and communities (e.g. numbers, locations, composition, employment), health facilities, education facilities, socio-economic conditions (e.g. community structure, family structure, social wellbeing), physical or cultural heritage, current use of lands and resources for traditional purposes by indigenous peoples, structures or sites that are of historical, archaeological, paleontological, or architectural significance, economic development (e.g. industries, infrastructure facilities, transportation, power sources and transmission, mineral development, and tourism facilities, etc.).

To assess the dimensions of the study area, the relevant physical, biological, and socio-economic conditions before the project commencement should be discussed. The relevant data related to the issues have to be collected and reported.

6. Climate Change issues: Climate change aspects in global, regional and local perspectives and the likely impacts on the Project area and its surroundings should be briefly discussed in this section.
7. Significant Environmental Impacts: This chapter will need careful interpretation. Significant environmental and social impacts due to project location, and related to project design, construction, and operations phase should be discussed in detail in this section. The prediction and assessment of the project's likely positive and negative impacts, in quantitative terms to the extent possible should be made. The mitigation measures and any residual negative impacts that cannot be mitigated should be identified. The opportunities for environmental enhancement should also be explored. Estimates should be done on the extent and quality of available data, key data gaps, and uncertainties associated with predictions; and the topics that do not require further attention should be specified. Considering the impact the project has to be classified into Categories of A, B or C as per OP 4.01.
8. Cumulative and Induced Impacts: Cumulative impacts of the proposed Project and other projects as well as induced impacts should be provided in this section.
9. Environmental Management Plan: The environmental management plan (EMP) will include mitigation and enhancement plan, compensation and contingency plan as well as monitoring plan including institutional arrangement for implementation of the EMP. The EMP should also include tentative cost of implementation of the plan. Guideline for preparation of EMP is included in Annex C.

The EMP should include a grievance redress mechanism (GRM). The mechanisms should be outlined to ensure that the project sponsor maintains appropriate external channels for communicating with and receiving feedback, questions, and complaints from local stakeholders, as well as internal procedures for following up and resolving any complaints or grievances in a timely manner. The mechanism should include more than one channel for receiving communications and grievances (for example, a hotline, a public information office, boxes to receive written complaints or queries, etc. – depending on local preferences, literacy levels, etc.), as well as indicating requirements, responsibilities and budget for documenting, processing, and resolving issues that arise, including providing feedback to complainant(s) regarding the resolution. The existence of the grievance mechanism must be fully and proactively disclosed to the public.

10. Stakeholder Consultation and Disclosure: The proceeding of the consultations done as per OP 4.01 has to be included in this section of the EIA report. It is to be noted that during the EIA process for all WB Category A and B projects, the proponents have to consult project-affected groups and local NGOs about the project's environmental aspects and take their views into account. The proponent is to initiate such consultations as early as possible. For Category A projects, the proponents need to consult these groups at least twice: (a) shortly after environmental screening and before the ToR for the EIA is finalized; and (b) once a draft EIA report is prepared. In addition, the proponent must consult with such groups throughout project implementation as necessary to address EIA-related issues that affect them.

Disclosure: For meaningful consultations between the borrower and project affected groups and local NGOs on all Category A and B projects proposed for WB financing, the proponents must provide relevant material in a timely manner prior to consultation and in a form and language (i.e. Bangla) that are understandable and accessible to the groups being consulted. The disclosure details done as per OP 4.01 should be provided in this section.

11. References: References should be provided to written materials both published and unpublished, used in study preparation.

Annexes:

- List of Environmental Assessment Preparers
- Record of inter-agency and consultation meetings, including consultations for obtaining the informed views of the affected people and local NGOs. The record specifies any means other than consultations (e.g., surveys) that were used to obtain the views of affected groups and local NGOs
- Data and Unpublished Reference Documents.

Annex C: Guideline for Preparing Environment Management Plan (EMP)

The Consultant is required to develop an Environmental Management Plan (EMP) consisting of a set of feasible and cost-effective mitigation measures and monitoring and institutional plan to prevent or reduce significant negative impacts to acceptable levels. This will include measures for emergency response to accidental events (e.g., fires, explosions), as appropriate. The Consultant will provide an estimation of the impacts and costs of the mitigation measures, and of the institutional and training requirements to implement them. In particular, this would include:

- **Environmental Mitigation and Enhancement Measures:** Recommend feasible and cost effective measures to prevent or reduce significant negative impacts to acceptable levels. Apart from mitigation of the potential adverse impacts on the environmental components, the EMP shall identify opportunities that exist for the enhancement of the environmental quality along the surrounding area. Residual impacts from the environmental measures shall also be clearly identified. The EMP shall include detailed specification, bill of quantities, execution drawings and contracting procedures for execution of the environmental mitigation and enhancement measures suggested, separate for pre-construction, construction and operation periods. In addition, the EMP shall include good practice guides related to construction and upkeep of plant and machinery. Responsibilities for execution and supervision of each of the mitigation and enhancement measures shall be specified in the EMP. A plan for continued consultation to be conducted during implementation stage of the project shall also be appended.
- **Institutional Arrangements, Capacity Building and Trainings:** The EMPs shall describe the implementation arrangement needed for the project, implementation of EMP, especially the capacity building proposals including the staffing of the environment unit (as and when recommended) adequate to implement the environmental mitigation and enhancement measures. For each staff position recommended to be created, detailed job responsibilities shall be defined. Equipment and resources required for the environment unit shall be specified, and bill of quantities prepared. A training plan and schedule shall be prepared specifying the target groups for individual training programs, the content and mode of training. Training plans shall normally be made for the client agency (including the environmental unit), the supervision consultants and the contractors.
- **Supervision and Monitoring:** Environmental monitoring plan will be an integral part of the EMP, which outlines the specific information to be collected for ensuring the environmental quality at different stages of project implementation. The parameters and their frequency of monitoring should be provided along with cost of the monitoring plan and institutional arrangements for conducting monitoring. Reporting formats should be provided along with a clear arrangement for reporting and take corrective action. The EMP shall list all mandatory government clearance conditions, and the status of procuring clearances.
- **Reporting:** The EMP will specify the documentation and reporting requirements, specifically, complete record will be maintained for compliance monitoring, effects monitoring, trainings, grievances, accidents, incidents, resource usage, and waste disposal quantities.
- **Grievance Redress Mechanism:** The EMP will describe the grievance redress mechanism (GRM) to address the project-related grievances and complaints particularly from the local communities.
- **EMP implementation cost:** The EMP will also include the cost of its implementation including personnel costs, costs on trainings, effects monitoring, additional studies, and others.

Annex D: List of Attendee in the Stakeholder Consultations

Consultation Meeting with Stakeholders to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh

Venue: 

Date: ২৪/০৮/১৭ খ্রি .

Attendance Sheet

#	Name of participant	Designation & Address	Mobile No. & email	Signature
1	আবদুল্লাহ আলী	BFDE অফিস	০১৮১৭৪২০৭৭৭	আবদুল্লাহ আলী
2	মহোদয় (মহোদয়)	BFDE অফিস	০১৮১৭৬৫১৩৭৭	মহোদয় (মহোদয়)
3	মোঃ মাহিদা	BFDE অফিস	০১৮১৭৭৭৬৭৬	মহোদয়
4	মোঃ মাহিদা হোসেন	BFDE অফিস	০১৮১৭৭৭৬৭৬	মোঃ মাহিদা হোসেন
5	মোঃ মাহিদা	BFDE অফিস	০১৮১৭০৮১৩৭৭	মোঃ মাহিদা
6	মোঃ মাহিদা হোসেন	BFDE অফিস	০১৮২৭৭৬৬২৩৬	মোঃ মাহিদা হোসেন
7	ডেপুটি মাস্টার	BFDE অফিস	০১৮৪৭৭৭৭৭৭	ডেপুটি মাস্টার
8	মোঃ মাহিদা হোসেন	BFDE অফিস	০১৭১৮০১৭৭৭৭	মোঃ মাহিদা হোসেন
9	মোঃ মাহিদা হোসেন	BFDE অফিস	০১৮১৭৭৭৭৭৭	মোঃ মাহিদা হোসেন
10	মোঃ মাহিদা হোসেন	BFDE অফিস	০১৮৪০৬৩৭০০৬	মোঃ মাহিদা হোসেন
11	মোঃ মাহিদা হোসেন	BFDE অফিস	০১৮৭৭৭৭৭৭৭	মোঃ মাহিদা হোসেন

Consultation Meeting with Stakeholders to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh

Venue: *গিলাশদিয়া বালুচরা*

Date: *২৪/১১/১৭*

Attendance Sheet

#	Name of participant	Designation & Address	Mobile No. & email	Signature
12	<i>শাহাঙ্গীরা বেগম</i>	<i>BFDC অফিস</i>	<i>01861223474</i>	<i>[Signature]</i>
13	<i>কামরুজ্জামান</i>	<i>BFDC অফিস</i>	<i>01812678726</i>	<i>[Signature]</i>
14	<i>শাহাঙ্গীরা বেগম</i>	<i>BFDC অফিস</i>	<i>01813779792</i>	<i>[Signature]</i>
15	<i>ডাঃ. আব্দুল হকিম</i>	<i>আব্দুল হকিম BFDC</i>	<i>01859754585</i>	<i>[Signature]</i>
16	<i>মোহাম্মদ হুমায়ুন কবীর</i>	<i>ফিল্ড অফিসার আই.এম.এ.স.স.স. আই.এম.এ.স.স.স.</i>	<i>01832585753</i>	<i>Machher</i>
17	<i>মোহাম্মদ হুমায়ুন কবীর</i>	<i>(আই.এম.এ.স.স.স.) আই.এম.এ.স.স.স.</i>	<i>01717899303</i>	<i>[Signature]</i>
18	<i>ডাঃ. আব্দুল হকিম</i>	<i>আব্দুল হকিম (আই.এম.এ.স.স.স.)</i>	<i>01711839156</i>	<i>[Signature]</i> <i>24/11/17</i>
19	<i>ডাঃ. আব্দুল হকিম</i>	<i>আব্দুল হকিম (আই.এম.এ.স.স.স.)</i>	<i>01718-157720</i> <i>molahim_2003@yahoo.com</i>	<i>[Signature]</i> <i>24/11/17</i>

Consultation Meeting with Stakeholders to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh

Venue: *Hotel Sonagull*

Date: *23/11/17*

Attendance Sheet

#	Name of participant	Designation & Address	Mobile No. & email	Signature
01.	Mizanur Rahman	Project Manager DOF, Cox's Bazar	01715406090 mizan.dof@ gmail.com	<i>[Signature]</i> 23.11.2017
02.	A.K.M. Mukhlisan Rahman	Regional Fisheries Officer DOF, Cox's Bazar	01715132134 mukhlisanrmd @gmail.com	<i>[Signature]</i> 23.11.2017
03.	Hirannoy Bhattacharya	Sr. Aquaculture Expert, BSFF	01711038809 hirannoybsff@gmail.com	<i>[Signature]</i> 23/11/17
04.	Md. Rafiqul Islam	EDM, BSFF	01711839156 rafique@gmail.com	<i>[Signature]</i> 23/11/2017
05.	Dr. Zia U. Ahmed	Chairman, VIPB Inet Prof. Co. Ltd.	01755550056 Zia@vipblimited.com	<i>[Signature]</i> Zia
06.	Md. Rafiqul Islam	Team Leader SAFETY-BSFF	01711548236 rafique553@hotmail.com	<i>[Signature]</i>
07.	Dr. Md. Abdul Ali	Dist. Fisheries Officer Cox's Bazar	01718-157230 mdali11-2013@yahoo.com	<i>[Signature]</i> 23.11.17
08.	Dr. Md. Saimon Alam	DFO, Matsya Goban, Dhaka	01716730666 saimon.dfo@gmail.com	<i>[Signature]</i> 23.11.2017
09.	S.M. Marshed Zafar	Secretary BSFF	01775348873 marshad.zafar @gmail.com	<i>[Signature]</i>
10.	Syed Nazul Akbar	Secretary of 11 ACR farmers owners Association	01713-376261	<i>[Signature]</i>
11.	A.J.M. Zahidul	MEMBER - E.C. 11 ACR- STABILITY	01819649613	<i>[Signature]</i>

Consultation Meeting with Stakeholders to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh

Venue: *Hotel Seagull*

Date: *23/11/17*

Attendance Sheet

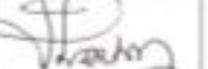
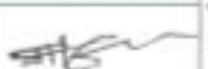
#	Name of participant	Designation & Address	Mobile No. & email	Signature
12	<i>Mr. Anisur Rahman</i>	<i>Shrimp Specialist and District Manager Comilla BRZ</i>	<i>01713-900259 anisur.rahman@wintack.org</i>	<i>[Signature]</i> <i>23-11-2017</i>
13	<i>MIZANUR RAHMAN</i>	<i>Secretary - 10 ACR Ship Somabdy Samity</i>	<i>01816243256</i>	<i>[Signature]</i> <i>23/11/17</i>
14	<i>Dr. MOIN UDDIN AHMAD</i>	<i>Senior Upazila Fisheries Officer Sadar Coxsbazar</i>	<i>01554313175 moinac@gmail.com</i>	<i>[Signature]</i>
15	<i>Anutash Sen</i>	<i>BSFF</i>	<i>01930-309106 anutashsen@gmail.com</i>	<i>[Signature]</i>
16	<i>Mahmuduzzaman</i>	<i>10 AKWZ</i>	<i>01912155137</i>	<i>[Signature]</i>
17	<i>A. Salam.</i>	<i>10 AKWZ</i>	<i>01817725275</i>	<i>[Signature]</i>
18	<i>Jahangir Quader</i>	<i>Managing Director Allah wala group</i>	<i>0171103364</i>	<i>[Signature]</i>

Consultation Meeting with Stakeholders to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh

Venue: SPAB Office, Cox's Bazar

Date: 24.11.2017

Attendance Sheet

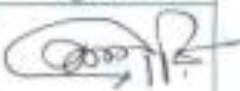
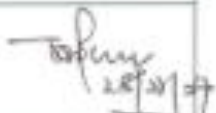
#	Name of participant	Designation & Address	Mobile No. & email	Signature
1	H.A. KHONDAKER	Aquaculture Consultant Palash Hatchery	01712164749 palash.khondaker@yahoo.com	
2	Mod. Nurul Baki	Aquaculture Consultant Radiant Hatchery	0181814212 Nurul Baki@gmail.com	
3	Mizanur Rahman Sabuz	G.M. S.R. Hatchery	01819926286 mizanur.sabuz@gmail.com	
4	Tajmala Bazar	Tanker M. S. PL	01818836828	
5	Broutam	G.M.	01783895350	
6	Narayan Ch. Nath	P.I.	01711-878641	
7	A.K.M. Mukhlisur Rahman	Regional Fisheries Officer DOF	01715132134	
8	MD SAIFUL ISLAM	BEHAL BAT HATCH	01762476813	
9	SHAFIA	RADIANT	01711217966	
10	Dr. Md. Abdul Alim	Deputy Fisheries Officer	01718157730	
11	Shamshul Haq	MD	01713941506	

Consultation Meeting with Stakeholders to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh

Venue: SHAB Office, Cox's Bazar

Date: 24.11.2017

Attendance Sheet

#	Name of participant	Designation & Address	Mobile No. & email	Signature
12	M.D. ALAMGIR	M.D. Q.S. P	01817708283	
13	Shahidul Alam Chy	Managing Director Golden Shrimp Hub.	01819386073	
14	HA MISON DATTA	DGM MODERN HATCHERY LTD	01777-75082	
15	Dr. Md. Saïnor Alam	DFO DOF, Dhaka	01711730666 saïnor.dfo@yahoo.com	
16	Md. Anisur Rahman	Shrimp Specialist District Manager COX'S BAZAR	01713-100299 anisur.rahman@univack.org	
17	Md. Rafiqul Islam	ED BRPD	rafiqueul@pmc.gov.bd	
18	S.M. Moshad Zafar	Secretary BRPD	moshadd.zafar@gmail.com	

১৩০: মাগুরা (চাঁদপুর) ও
তারিখ: ২৬/১১/১৭ লঃ

ক্র. স.	নাম	পদবী
১১	নাম: মাহবুবুল ০২৭১৩০২৬০২২	ডাঃ মাহবুবুল
১২	নাম: মাহবুবুল ০২৭১৩০২৬০২২	আবুল
১৩	নাম: মাহবুবুল	মাহবুবুল
১৪	নাম: মাহবুবুল	মাহবুবুল
১৫	নাম: মাহবুবুল ০২৭১৩০২৬০২২	মাহবুবুল
১৬	নাম: মাহবুবুল	ডাঃ মাহবুবুল

Bangladesh Sustainable Coastal and Marine Fisheries Project

Solidaridad

Network Asia

Solidaridad Network Asia

SISBP Project

Subject: FGD

Place: Barisal, Bangladesh, Bangladesh, Bangladesh

Date: 15.09.2017

Sl.	Name	Designation	Organization	Mobile number	Signature
1.	Mr. Ariful Islam	Deputy Director Project Director	Department of Fisheries	01552318626	
2.	Muhammad Badrud Atan Shakeen	Assistant Chief	Department of Fisheries	01744236911	
3.	Shameen Akward	Community Manager	SNA	01718703273	
4.	Md. Monirujjaman	SCDO	SNA	01711-017359	
5.	MD. Sabirul Islam	Director	SNA	01722252222	
6.	Munir Uddin	Team leader	SNA	01713-185406	
7.	Ragon Biswas	F-O	Uttarman	01725-352847	
8.	Hassan Kabir	F-O	"	0172378672	
	Farzad Kabir	F-C	"	01753-406030	

Solidaridad

Network Asia

Solidaridad Network Asia

SISBP Project

Subject: FGD

Place: Bagan, Chittagong, Bangladesh

Date: 15.09.2017

Sl.	Name	Village	Mobile number	Signature
১।	অফিসিয়াল	চিটগাং	০১৭১৩৭১১৬৪৭	অফিসিয়াল
২।	আইসিআইসিআই	আইসিআই	০১৭৭১-৭৪৬৭৫৪	আইসিআইসিআই
৩।	আইসিআইসিআই	"	০১৭১৬ ২৪৭৫৬৫	আইসিআইসিআই
৪।	আইসিআইসিআই	"	০১৭১৬ ৬৭১১১৪	আইসিআইসিআই
৫।	আইসিআইসিআই	"	০১৭১৩ ৬৬৭১০৭	আইসিআইসিআই
৬।	আইসিআইসিআই	"	০১৭১১ ৫৪৩৭৫১	আইসিআইসিআই
৭।	আইসিআইসিআই	"	০১৭১০-৬৭৭২৭৭	আইসিআইসিআই
৮।	আইসিআইসিআই	"	০১৭৩৭৪২০২৭৭	আইসিআইসিআই
৯।	আইসিআইসিআই	আইসিআই	০১৭৫০৬৭০১৫১	আইসিআইসিআই
১০।	আইসিআইসিআই	"	০১৭৭৭ ২৭৫৪৫৫	আইসিআইসিআই

Signature
Date: 15.09.2017

Solidaridad

Safarwan's Asia

Solidaridad Network Asia

SISBP Project

Subject: FGDPlace: Baran, Baranahi, Baranahi, Baranahi

Date: 15.09.2017

Sl.	Name	Village	Mobile number	Signature
১৫	শ্রীমতী সত্য	Baranahi	০১৭২৪-৭০৫ ২০১	শ্রীমতী সত্য
১৬	শ্রীমতী সত্য	Baranahi	০১৭২৪-৭০৭ ০৮৬	শ্রীমতী সত্য
১৭	শ্রীমতী সত্য	"	০১৭ ৬০-৪৭৬ ০৪০	শ্রীমতী সত্য
১৮	শ্রীমতী সত্য	"	০১৭৪৬ ০১৪৭০	শ্রীমতী সত্য
১৯	শ্রীমতী সত্য	"	০১৭৬৬-১৬৬২০	শ্রীমতী সত্য
২০	শ্রীমতী সত্য	"	০১৭৭০ ১০০৭৭	শ্রীমতী সত্য
২১	শ্রীমতী সত্য	"	০১৭৬৬-১২৬ ৬০৭	শ্রীমতী সত্য
২২	শ্রীমতী সত্য	"	০১৭২০ ১০০৬৬	শ্রীমতী সত্য
২৩	শ্রীমতী সত্য	"	০১৭৬৬-১২৬ ৬০৭	শ্রীমতী সত্য
২৪	শ্রীমতী সত্য	"	০১৭২০ ১০০৬৬	শ্রীমতী সত্য
২৫	শ্রীমতী সত্য	"	০১৭৬৬-১২৬ ৬০৭	শ্রীমতী সত্য
২৬	শ্রীমতী সত্য	"	০১৭২০ ১০০৬৬	শ্রীমতী সত্য
২৭	শ্রীমতী সত্য	"	০১৭৬৬-১২৬ ৬০৭	শ্রীমতী সত্য
২৮	শ্রীমতী সত্য	"	০১৭২০ ১০০৬৬	শ্রীমতী সত্য
২৯	শ্রীমতী সত্য	"	০১৭৬৬-১২৬ ৬০৭	শ্রীমতী সত্য
৩০	শ্রীমতী সত্য	"	০১৭২০ ১০০৬৬	শ্রীমতী সত্য
৩১	শ্রীমতী সত্য	"	০১৭৬৬-১২৬ ৬০৭	শ্রীমতী সত্য
৩২	শ্রীমতী সত্য	"	০১৭২০ ১০০৬৬	শ্রীমতী সত্য

Signature
Date: 15.09.2017

Solidaridad

Network Asia

Solidaridad Network Asia
SISBP Project

Subject: FGD

Place: FARM, GARBAR, CHANDRA, BAN

Date: 15.09.2017

Sl.	Name	Village	Mobile number	Signature
22	CHANDRA BAN	CHANDRA	01966960286	[Signature]
20	CHANDRA BAN	"	01919-540947	[Signature]
22	CHANDRA BAN	"	02258689554	[Signature]
22	CHANDRA BAN	"	01922-187118	[Signature]
22	CHANDRA BAN	"	01913-327165	[Signature]
22	CHANDRA BAN	CHANDRA	01747327909	[Signature]
22	CHANDRA BAN	CHANDRA	01917-893258	[Signature]
22	CHANDRA BAN	CHANDRA	01938-608754	[Signature]
22	CHANDRA BAN	CHANDRA	01914-781624	[Signature]
22	CHANDRA BAN	CHANDRA	01981-019427	[Signature]

[Signature]
4020-

Solidaridad Network Asia
Sustainable & Inclusive Shrimp Business Promoted Project(SISBP)
Attendance sheet

Purpose: Focus Group Discussion with Bagda Producer group

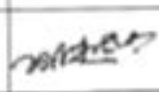
Venue: Hurka Union Parishad Conference Room

Date:

SL.No	Name	Designation	Mobile no.	Signature
1	অমূল্য সিংহ	L.F	01928999022	
2	উত্তম সিংহ	সিএসও		
3	অমল কান্তি মল্লিক	সিএসও	01799090699	
4	লুৎফুল করিম মল্লিক	সিএসও	01936035029	
5	সিদ্ধান্ত ব্রহ্ম	L.F	01915294953	
6	উত্তম সিংহ	সিএসও	01916489368	
7	সহিতা ব্রহ্ম	সিএসও		
8	উত্তম সিংহ	L.F	01920097856	
9	সহিতা ব্রহ্ম	সিএসও		
10	অমিত শর্মা	L.F	01820517522	
11	সুমনী ব্রহ্ম	সিএসও	01991980868	
12	সহিতা ব্রহ্ম	সিএসও	01929985668	
13	সহিতা ব্রহ্ম (সিএসও)	সিএসও	01826-0399997	
14	সহিতা ব্রহ্ম	সিএসও	01919 295689	
15	সহিতা ব্রহ্ম	"	01919 50 98 92	
16	সহিতা ব্রহ্ম	"	01919 99 32 12	
17	সহিতা ব্রহ্ম	"	01911 13 50 13	
18	সহিতা ব্রহ্ম	"	01919-228828	
19	সহিতা ব্রহ্ম	"	01923-998719	
20	সহিতা ব্রহ্ম	সিএসও	01989 323326	
21	সহিতা ব্রহ্ম	সিএসও	01942360064	
22	সহিতা ব্রহ্ম	সিএসও	01961133256	
23	সহিতা ব্রহ্ম	"	01933 62647	
24	সহিতা ব্রহ্ম	"	01712-813485	
25	সহিতা ব্রহ্ম	সিএসও		

Prepared by:

[illegible]

Sl. No.	Name	Address	Mobile No.	Signature
29.	মোঃ আমিনুল ইসলাম	ফরিদপুর	০১৭৪০৬৬ ৬৪৬৭	
30.	মোঃ মাহবুবুল হক	মহিলা	০১৭৩৬০২ ২৬৬১	
31.	মোঃ মাহবুবুল হক	মহিলা	০১৭২৪২৪ ৭০৪০	
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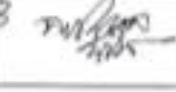
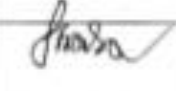
Government of the People's Republic of Bangladesh
Sustainable Coastal and Marine Fisheries Project
in Bangladesh (SCMFP): Preparation Facility
Department of Fisheries
Matshya Bhaban, Dhaka-1000

Focus Group Discussion on Marine Fisheries

Venue: South Kattoli Jalepara, Pahartali, Chittagong

Date: 24 November 2017

Time: 03.30 pm

Sl. No.	Name	Profession and Address	Mobile No.	Signature
1.	মিঃ মোঃ মাহমুদ, পিতা: মুক্ত আলী ১৩৩৩ নং. পাহারী মন্ডির রো. পাহারী মন্ডির	স্বতন্ত্র	০১৭৬০ ৮৩৮৮	
2.	মিঃ মোঃ মাহমুদ, পিতা: মুক্ত আলী ১৩৩৩ নং. পাহারী মন্ডির রো. পাহারী মন্ডির	স্বতন্ত্র	০১৭৬০ ৮৩৮৮	
3.	মিঃ মোঃ মাহমুদ			
4.	মিঃ মোঃ মাহমুদ	মোঃ মোঃ মাহমুদ		
5.	মিঃ মোঃ মাহমুদ			
6.	মিঃ মোঃ মাহমুদ			
7.	মিঃ মোঃ মাহমুদ			
8.	মিঃ মোঃ মাহমুদ			
9.	মিঃ মোঃ মাহমুদ			
10.	মিঃ মোঃ মাহমুদ			
11.	মিঃ মোঃ মাহমুদ			
12.	মিঃ মোঃ মাহমুদ			

Sl. No.	Name	Profession and Address	Mobile No.	Signature
13.	চানু দাস			
14.	বিসাল দাস			
15.	রুপন দাস			
16.	জাফর দাস			
17.	জাহাঙ্গীর দাস			
18.	মিস্ত্রী দাস			
19.	মুন্সি দাস			
20.	মৈত্রী দাস			
21.	মুন্সি দাস			
22.	মুন্সি দাস			
23.	মুন্সি দাস (স্বাক্ষর)			
24.	মুন্সি দাস			
25.	মুন্সি দাস			
26.	মুন্সি দাস			
27.	মুন্সি দাস			
28.	মুন্সি দাস			

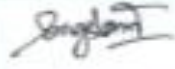
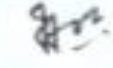
Sl. No.	Name	Profession and Address	Mobile No.	Signature
29.	বিজয় দাস			
30.	ফারুকুল হক			
31.	জিয়াউর রহমান			
32.	আব্দুল হক দাস			
33.	আব্দুল হক			
34.	কাজী হুমায়ুন			
35.	মির্জা হুমায়ুন			
36.	হুমায়ুন দাস	দেওয়ানী ০১৬৭৭ ৬১০৫৩৭		
37.	মহীন			
38.	মুনিম			
39.	অক্টন দাস			
40.	নির্মল			
41.	সিদ্দিকুল হক	দেওয়ানী		
42.	হিটর রহমান			
43.	সামান্টুল হক			
44.	মনিম সীতা দাস			

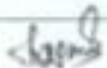
Sl. No.	Name	Profession and Address	Mobile No.	Signature
45.	মহম্মদ হান্না	বিজ্ঞান		
46.	অমিতা হান্না	মহম্মদ হান্না প. ৩০০	০১৮২০২৫৩৩৫	
47.	মুহাম্মদ হান্না	ডায়েরি	০১৬৭৬৭৫৬০২	
48.	মুহাম্মদ হান্না	মুহাম্মদ হান্না	০১৮৪৮০৭৫৫৬	
49.	মুহাম্মদ হান্না	মুহাম্মদ হান্না	০১৮৪৮০৭৫৫৬	
50.	মুহাম্মদ হান্না			
51.	মুহাম্মদ হান্না			
52.	মুহাম্মদ হান্না			
53.	মুহাম্মদ হান্না			
54.	মুহাম্মদ হান্না			
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Government of People's Republic of Bangladesh
Sustainable Coastal and Marine Fisheries Project
In Bangladesh (SCMFP): Preparation Facility
Department of Fisheries
Matsiya Bhaban, Dhaka-1000

Focus Group Discussion on Marine Fisheries

Venue: Office of the Marine Fisheries Survey Management Unit
Date and time: 24.11.2017, 014.00 PM

Sl no	Name and Designation	Name of the Office	Mobile No.	Signature
1.	Seaman Barua Assistant Director	Marine Fisheries Office	01712161101	
2.	Md. Mahmudul Islam Chowdhury Upazila Fisheries officer	Upazila Fisheries office, Minsarai.	01718762509	
3.	K.M. Shahinur Nagor SO	MFSMU	01717162260	
4.	Ap. Mahmud Scientific Officer	MFSMU	01764198680	
5.	SK. Hossain Kabir IT System Analyst	BMFCBP	01783320102	
6.	S.M. Hasan Ali Assistant Director	BMFCBP CTB	01930-538019	
7.	Dr. Md. Anisur Rahman PSO	BFRT RS Chandpur	01711458520	
8.	Dr. Moim Uddin Ahmad	Senior Upazila Fisheries office Sadar, Coxsbazar	01554313175	
9.	Adhir Chandra Das, AD,	Marine Fisheries Office, DOF, Ctg.	01721-195835	
10.	Md. Abdullah Al-Mamun Fisheries Quarantine Officer	Fisheries Quarantine Office, Chittagong Port	01723357929	
11.	Md. Sajjadur Rahman Scientific Officer	MFSMU, CTG.	01712060525	
12.	Nripendra kr. Sengupta Scientific Officer	MFSMU, CTG	01680-130465	

Sl no	Name and Designation	Name of the Office	Mobile No.	Signature
13.	Sanjoy Kumar Nadek Marine Fisheries Officer	MFSMU	01312204755	
14.	Anil Kr. Saha, DNP BMFCBP, Chittagong.	BMFCBP.	01711-262341	
15.	Prof. Dr. Zouhar Faruque Ahmmed	BAU Ngazunangir	01712-269016	
16.				
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**Consultation Meeting with Coastal Regional DoF officials
To Develop Environment and Social Management Framework
(ESMF) For
Sustainable Coastal & Marine Fisheries Project in Bangladesh.**

Venue: DFO Office Meeting Room Date: 09 August 2017

Attendance Sheet

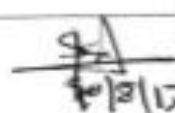
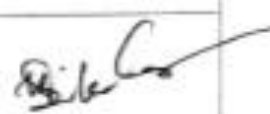
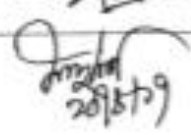
SN	Name and Designation	Working Station	Mobile and E-mail	Signature
1.	Md. Zia Haider Chowdhury, DFO	Bagerhat	01711466152	
2.	Md. Kabir Hossain, SUFO	Bagerhat Sador.	01716109332 Kabir0121121@gmail.com	
3.	Firuz Ahmed, FM	Sador Bagerhat	01919839950 firuzahmed@gmail.com	
4.	Binay Kumar Roy, SUFO (A.C)	Saran Khola	01212614234 binaydof@gmail.com	
5.	RIPON KANTI GHOSH	Rampal	01717-485313 glushripun@gmail.com	
6.	RABINDRANATH MONDAL, SUFO, Mollahat	Mollahat	01723523832 rabindranathmondal@gmail.com	
7.	MD. FERDOUS HANIF, SUFO, Mongla	Mongla	01724851296 f.ansurree@gmail.com	
8.	Manix Malik, EO-NATP	Chitalmari	01728671338 manixkps10@gmail.com	
9.	Sk. Sherazul Haque, AFO-Fakirhat	Fakirhat	01714695115	
10.	RUBIA KHATUN	DFO OFFICE BAGERHAT	01789411298	RUBIA
11.	Md. Mozammel Haque	Rampal	01712881553	
12.	S.M. Johangir Kabir	Sador, Bagerhat	01718655355	
13.	Md. Masum Raza, AFO	Mollahat	01755821583 masumrazafo@gmail.com	
14.	Md. Liaquat Ali, AFO	Mongla, Bagerhat	01711-066099	
15.	Faruk Khan, Bagerhat	Morrelganj Bagerhat	afapromis@yahoo.com 01712270549	

Consultation Meeting with Public Leaders, Government Employees, Journalists and Stakeholders of Fakirhat, Bagerhat to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh.

Venue :- Upazila Parishad Auditorium Fakirhat, Bagerhat.

Date:- 10-08-2017

Attendance Sheet:

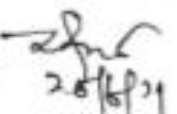
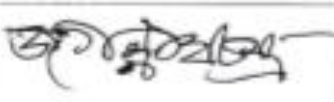
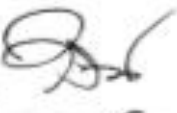
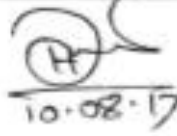
S.N	Name	Designation & working Area	Mobile No. & E-mail Address	Signature
1	SARIFUL KAMAL KARIM	CHAIRMAN UPAZILA PARISHAD FAKIRHAT BAGERHAT	01711443232	
2	Prizanka Paul	De Land Fakirhat Bagerhat	01712432578	
3	Md. Motaker Hossain	UAO. Fakirhat	01726-910440 uofakirhat@gmail.com	
4	Md. Dilder Hossain	UPPO Fakirhat	01712-109772 uofakirhat2017@gmail.com	
5	Dr. Puspun Kumar Sikder	ULO	01711031361 puspensikder@yahoo.com	
6	SK. Sherajul Haque	AFO, Fakirhat,	01714695115	
7	Sardar Amjad Hossain	U.S.O Fakirhat	01874110299	
8	Md. Shahidul Islam	USEO Fakirhat	01712522610	

Consultation Meeting with Public Leaders, Government Employees, Journalists and Stakeholders of Fakirhat, Bagerhat to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh.

Venue :- Upazila Parishad Auditorium Fakirhat, Bagerhat.

Date:- 10-08-2017

Attendance Sheet:

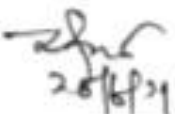
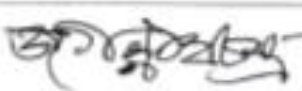
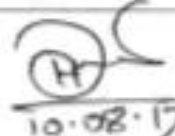
S.N	Name	Designation & working Area	Mobile No. & E-mail Address	Signature
17	MD Rezwan Karim Fakir	Chairman 5th Bahirga Mansha up.	01719-135481	
18	Manik Chandra Surker	Former Fakirhat	01725924237	
19		36(023) 24 216.21 2007	01716004932	
20	S. M. HABIBUR RAHMAN	UPAZILA ELECTION OFFICER FAKIRHAT	0171198846	
21	MD Zillur Rahman	FISH FARMER	01713 918762	

Consultation Meeting with Public Leaders, Government Employees, Journalists and Stakeholders of Fakirhat, Bagerhat to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh.

Venue :- Upazila Parishad Auditorium Fakirhat, Bagerhat.

Date:- 10-08-2017

Attendance Sheet:

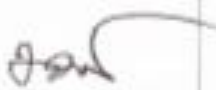
S.N	Name	Designation & working Area	Mobile No. & E-mail Address	Signature
17	MD Reshad Karim Fakir	Chairman 5 No Bakhira Mansha up.	01719-135481	
18	Manik Chandra Surker	Former Fakirhat	01725924237	
19		36 (৩৬) সফ সি.এ.এ. ২০০৭	01716004932	
20	S. M. HABIBUR RAHMAN	UPAZILA ELECTION OFFICER FAKIRHAT	0171198846	 10.08.17
21	MD Zillur Rahman	FISH FARMER	01713 918762	

Consultation Meeting with Stakeholders to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh.

Venue: Atshata Bigha Primary school.
Debhata, South Chittagong

Date: 18/08/20

Attendance Sheet:

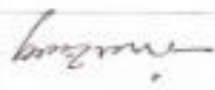
S.N	Name	Designation & working Area	Mobile No. & E-mail Address	Signature
1.				
2.	ড. এ. এ. আলী হোসেন	স্বাস্থ্য ও পরিবেশ সচিব	01718707273 Shawon.Ahmed@solidaridadnetwork.org	
3.	Md. Iftakharul Alam.	SUFO, Falmouth.	01716700601 iftakharul97@yahoo.com	
4.	Md. Boduruzaman	SUFO Debhata	01712-999278 shamoi.29@yahoo.com	
5.	Masudur Rahman	Program Officer (Aquaculture)	01712-802526 masudur@solidaridadnetwork.org	
06	Md. Mizanur Rahman	Project Officer Debhata, South Chittagong	01791-360570	
07	Md. MURAD Hossain	Field Organizer Debhata South Chittagong	01726628876	

Consultation Meeting with Stakeholders to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh.

Venue :-

Date:-

Attendance Sheet:

S.N	Name	Designation & working Area	Mobile No. & E-mail Address	Signature
০৯	আব্দুল হক খান	চিফ হাউস কোম্পানি	০১৭৪২৩৩২৪৪২	
১০	বাবুল হোসেন	৪	০১৯০৩০২৭২৬৭	
১১	চার্ভী সির	৪	০১৭৫৯৭৪৫২২৫	চার্ভী
১২	মজিবুল আলম	৪	০১৭৫৩৭৬৬০০	মজিবুল আলম
১৩	শিবাজ হোসেন	৪	০১৭৩৩৫৭৪৫৫	
১৪	আব্দুল হক খান	৪	০১৭২৪৩৭২০০৬	বি/সি/সি
১৫	আব্দুল হক খান	৪	০১৭১৭৬৪৫৫০	
১৬	আব্দুল হক খান	৪	০১৬৬৭৪০২১১৪	আব্দুল হক খান

২.

Consultation Meeting with Stakeholders to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh.

Venue :-

Date:-

Attendance Sheet:

S.N	Name	Designation & working Area	Mobile No. & E-mail Address	Signature
১	আবির সী/৬৭	চিফি মনি কোরমো	০১৭৪২৬৩৫০৫৩	আবির সী/৬৭
৬	খানসাহেব খান	৪	০১৯৪০২৭০২৭৫	খানসাহে
৮	আবাস আল	৪	০১৬৫০২৫০৪৫	আবাস আল
১০	মিল্লাতুল হাশ	৪	০১৭৫২৩৩১২০০	মিল্লাতুল হাশ
১১	আবু হাফিজ আল	৪	০১৭৬০০০০৪৫	আবু হাফিজ আল
১২	আবু হাফিজ আল	৪	০১৭৬০০০০৪৫	আবু হাফিজ আল
১৩	আবু হাফিজ আল	৪	০১৭৬০০০০৪৫	আবু হাফিজ আল
১৪	আবু হাফিজ আল	৪	০১৭৬০০০০৪৫	আবু হাফিজ আল
১৫	আবু হাফিজ আল	৪	০১৭৬০০০০৪৫	আবু হাফিজ আল
১৬	আবু হাফিজ আল	৪	০১৭৬০০০০৪৫	আবু হাফিজ আল
১৭	আবু হাফিজ আল	৪	০১৭৬০০০০৪৫	আবু হাফিজ আল
১৮	আবু হাফিজ আল	৪	০১৭৬০০০০৪৫	আবু হাফিজ আল

Consultation Meeting with Stakeholders to Develop Environment and Social Management Framework (ESMF) for Sustainable Coastal and Marine Fisheries Project (SCMFP) in Bangladesh.

Venue :-

Date:-

Attendance Sheet:

S. No	Name	Designation & working Area	Mobile No. & E-mail Address	Signature
26	কলিঙ্গ মাহাল	চিফ ইন্সপেক্টর নোয়াখালী	০১৭৮৫৫২০২৫৫	কলিঙ্গ মাহাল
27	অফিসী মাহাল	২	০১৭৮৪৪৬২২২৫	অফিসী

৪.

Annex E: Proposed geographical area coverage

Division	District	Upazila	No of unions
A. Khulna	i. Khulna	1. Batiaghata	7
		2. Dacope	8
		3. Paickgacha	10
		4. Dumuria	14
		5. Koyra	7
		6. Rupsa	5
		7. Dighalia	4
		8. Fultala	4
	ii. Bagerhat	9. Bagerhat Sadar	9
		10. Fakirhat	8
		11. Morelganj	16
		12. Rampal	11
		13. Mongla	7
		14. Kochua	7
		15. Chitalmari	7
		16. Mollahat	7
	iii. Satkhira	17. Sarankhola	4
		18. SatkhiraSadar	13
		19. Shyamnagar	12
		20. Tala	12
		21. Kaliganj	12
		22. Ashashuni	11
		23. Debhata	5
		24. Kolaroa	12
	iv. Jessore	25. Keshobpur	9
		26. Monirampur	17
	v. Narail	27. Avaynagar	8
		28. Lohagora	13
		29. Kalia	12
B. Chittagong	vi. Chittagong	30. Bashkhali	15
		31. Anowara	10
		32. Sitakunda	10
		33. Boalkhali	10
	vii. Cox's Bazar	34. Sadar	7
		35. Teknaf	5
		36. Chakoria	17
		37. Maheskhali	7
		38. Ukhiya	3
		39. Ramu	9
		40. Pakuya	5
		41. Kutubdia	6
	viii. Noakhali	42. Hatia/Nizhumdeep	10
		43. Subarnachar	8
	ix. Feni	44. Sonagazi	9
		45. Sadar	18
C. Barisal	xi. Barisal	46. Ramgati	12
		47. Sadar	10
		48. Bakerganj	14
		49. Ujirpur	9

Division	District	Upazila	No of unions
		50. Banaripara	7
		51. Muladi	7
		52. Mehendiganj	12
	xii. Jhalkathi	53. Sadar	10
		54. Rajapur	6
		55. Nalchhiti	9
	xiii. Barguna	56. Sadar	11
		57. Amtoli	12
		58. Patharghata	7
	xiv. Pirojpur	59. Sadar	10
		60. Zianagar	10
		61. Nazirpur	8
		62. Mathbaria	11
		63. Bhandaria	7
	xv. Patuakhali	64. Sadar	15
		65. Kolapara	8
		66. Golachipa	12
		67. Dasmira	6
		68. Baofall	14
	xvi. Bhola	69. Sadar	13
		70. Doulatkhan	9
		71. Borhanuddin	10
		72. Tazumuddin	4
		73. Lalmohan	9
		74. Charfason	10
		75. Monpura	3
TOTAL	16	75	705

* Upazila around Sundarbans

Annex F: ECoPs

ECoP 1: Waste Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
General Waste	Soil and water pollution from the improper management of wastes and excess materials from the construction sites.	The Contractor shall • Develop waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris, food waste etc.) prior to commencing of construction and submit to CSC for approval. • Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact. • Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach. • Segregate and reuse or recycle all the wastes, wherever practical. • Prohibit burning of solid waste • Collect and transport non-hazardous wastes to all the approved disposal sites. Vehicles transporting solid waste shall be covered with tarps or nets to prevent spilling waste along the route • Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process. • Provide refuse containers at each worksite. • Request suppliers to minimize packaging where practicable. • Place a high emphasis on good housekeeping practices. • Maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal.
Hazardous Waste	Health hazards and environmental impacts due to improper waste management practices	The Contractor shall • Collect chemical wastes in 200 liter drums (or similar sealed container), appropriately labeled for safe transport to an approved chemical waste depot. • Store, transport and handle all chemicals avoiding potential environmental pollution. • Store all hazardous wastes appropriately in banded areas away from water courses. • Make available Material Safety Data Sheets (MSDS) for hazardous materials on-site during construction. • Collect hydrocarbon wastes, including lube oils, for safe transport off-site for reuse, recycling, treatment or disposal at approved locations. • Construct concrete or other impermeable flooring to prevent seepage in case of spills.

ECoP 2: Fuels and Hazardous Substances Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Fuels and hazardous goods	Materials used in construction have a potential to be a source of contamination. Improper storage and handling of fuels, lubricants, chemicals and hazardous goods/materials on-site, and potential spills from these goods may harm the environment or health of construction workers.	The Contractor shall • Prepare spill control procedures and submit the plan for CSC approval. • Train the relevant construction personnel in handling of fuels and spill control procedures. • Store dangerous goods in bunded areas on a top of a sealed plastic sheet away from watercourses. • Refueling shall occur only within bunded areas. • Make available MSDS for chemicals and dangerous goods on-site. • Transport waste of dangerous goods, which cannot be recycled, to a designated disposal site approved by DoE. • Provide absorbent and containment material (e.g., absorbent matting) where hazardous material are used and stored and personnel trained in the correct use. • Provide protective clothing, safety boots, helmets, masks, gloves, goggles, to the construction personnel, appropriate to materials in use. • Make sure all containers, drums, and tanks that are used for storage are in good condition and are labeled with expiry date. Any container, drum, or tank that is dented, cracked, or rusted might eventually leak. Check for leakage regularly to identify potential problems before they occur. • Store hazardous materials above flood plain level. • Put containers and drums in temporary storages in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area shall preferably slope or drain to a safe collection area in the event of a spill. • Put containers and drums in permanent storage areas on an impermeable floor that slopes to a safe collection area in the event of a spill or leak. • Take all precautionary measures when handling and storing fuels and lubricants, avoiding environmental pollution. • Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials. • Return the gas cylinders to the supplier. However, if they are not empty prior to their return, they must be labeled with the name of the material they contained or contain, information on the supplier, cylinder serial number, pressure, their last hydrostatic test date, and any additional identification marking that may be considered necessary.

ECoP 3: Water Resources Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
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Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Hazardous Material and Waste	Water pollution from the storage, handling and disposal of hazardous materials and general construction waste, and accidental spillage.	The Contractor shall - Follow the management guidelines proposed in ECOPs 1 and 2. - Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways, storm water systems or underground water tables.
Discharge from Construction sites	During construction both surface and groundwater quality may be deteriorated due to construction activities in the river, sewerages from construction sites and work camps. The construction works will modify groundcover and topography changing the surface water drainage patterns of the area including infiltration and storage of storm water. These changes in hydrological regime lead to increased rate of runoff, increase in sediment and contaminant loading, increased flooding, groundwater contamination, and effect habitat of fish and other aquatic biology.	The Contractor shall - Install temporary drainage works (channels and bunds) in areas required for sediment and erosion control and around storage areas for construction materials - Install temporary sediment basins, where appropriate, to capture sediment-laden run-off from site - Divert runoff from undisturbed areas around the construction site - Stockpile materials away from drainage lines - Prevent all solid and liquid wastes entering waterways by collecting solid waste, oils, chemicals, bitumen spray waste and wastewaters from brick, concrete and asphalt cutting where possible and transport to an approved waste disposal site or recycling depot - Wash out ready-mix concrete agitators and concrete handling equipment at washing facilities off site or into approved bunded areas on site. Ensure that tires of construction vehicles are cleaned in the washing bay (constructed at the entrance of the construction site) to remove the mud from the wheels. This shall be done in every exit of each construction vehicle to ensure the local roads are kept clean.
Soil Erosion and siltation	Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies.	The Contractor shall - Stabilize the cleared areas not used for construction activities with vegetation or appropriate surface water treatments as soon as practicable following earthwork to minimize erosion - Ensure that roads used by construction vehicles are swept regularly to remove sediment - Water the material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds)
Construction activities in water bodies	Construction works in the water bodies will increase sediment and contaminant loading, and effect habitat of fish and other aquatic biology.	The Contractor shall - Dewater sites by pumping water to a sediment basin prior to release off site – do not pump directly off site - Monitor the water quality in the runoff from the site or areas affected by dredge plumes, and improve work practices as necessary - Protect water bodies from sediment loads by silt screen or bubble curtains or other barriers - Minimize the generation of sediment, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		wastes). These substances must not enter waterways, storm water systems or underground water tables. • Use environment friendly and nontoxic slurry during construction of piles to discharge into the river. • Reduce infiltration of contaminated drainage through storm water management design • Do not discharge cement and water curing used for cement concrete directly into water courses and drainage inlets.
Drinking water	Groundwater at shallow depths is contaminated with arsenic and hence not suitable for drinking purposes.	The Contractor shall • Pumping of groundwater shall be from deep aquifers of more than 300 m to supply arsenic free water. Safe and sustainable discharges are to be ascertained prior to selection of pumps. • Tube wells will be installed with due regard for the surface environment, protection of groundwater from surface contaminants, and protection of aquifer cross contamination • All tube wells, test holes, monitoring wells that are no longer in use or needed shall be properly decommissioned.
	Depletion and pollution of groundwater resources	• Install monitoring wells both upstream and downstream areas near construction yards and construction camps to regularly monitor the water quality and water levels. • Protect groundwater supplies of adjacent lands

ECoP 4: Drainage Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Excavation and earth works, and construction yards	Lack of proper drainage for rainwater/liquid waste or wastewater owing to the construction activities harms environment in terms of water and soil contamination, and mosquito growth.	The Contractor shall • Prepare a program for prevent/avoid standing waters, which CSC will verify in advance and confirm during implementation • Provide alternative drainage for rainwater if the construction works/earth-fillings cut the established drainage line • Establish local drainage line with appropriate silt collector and silt screen for rainwater or wastewater connecting to the existing established drainage lines already there • Rehabilitate road drainage structures immediately if damaged by contractors' road transports. • Build new drainage lines as appropriate and required for wastewater from construction yards connecting to the available nearby recipient water bodies. Ensure wastewater quality conforms to the relevant standards provided by DoE, before it being discharged into the recipient water bodies. • Ensure the internal roads/hard surfaces in the construction yards/construction camps that generate has storm water drainage to accommodate high runoff during downpour and that there is no stagnant water in the area at the end of the downpour. • Construct wide drains instead of deep drains to avoid

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		sand deposition in the drains that require frequent cleaning. • Provide appropriate silt collector and silt screen at the inlet and manholes and periodically clean the drainage system to avoid drainage congestion. • Protect natural slopes of drainage channels to ensure adequate storm water drains. • Regularly inspect and maintain all drainage channels to assess and alleviate any drainage congestion problem. • Reduce infiltration of contaminated drainage through storm water management design.
Ponding of water	Health hazards due to mosquito breeding	The Contractor shall • Do not allow ponding/storage of water especially near the waste storage areas and construction camps • Discard all the storage containers that are capable of storing of water, after use or store them in inverted position.

ECoP 5: Soil Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Filling of Sites with dredge spoils	Soil contamination will occur from drainage of dredged spoils	The Contractor shall • Ensure that dredged sand used for land filling shall be free of pollutants. Prior to filling, sand quality shall be tested to confirm whether soil is pollution free. Sediments shall be properly compacted. Top layer shall be the 0.5 m thick clay on the surface and boundary slopes along with grass. Side Slope of Filled Land of 1:2 shall be constructed by suitable soils with proper compaction as per design. Slope surface shall be covered by top soils/ cladding materials (0.5m thick) and grass turfing with suitable grass. • Leaching from the sediments shall be contained to seep into the subsoil or shall be discharged into settling lagoons before final disposal. • No sediment laden water in the adjacent lands near the construction sites, and/or wastewater of suspended materials excessive of 200mg/l from dredge spoil storage/use area in the adjacent agricultural lands.
Storage of hazardous and toxic chemicals	Spillage of hazardous and toxic chemicals will contaminate the soils	The Contractor shall • Strictly manage the wastes management plans proposed in ECP1 and storage of materials in ECP2 • Construct appropriate spill contaminant facilities for all fuel storage areas • Establish and maintain a hazardous materials register detailing the location and quantities of hazardous substances including the storage, use of disposals • Train personnel and implement safe work practices for minimizing the risk of spillage • Identify the cause of contamination, if it is reported, and contain the area of contamination. The impact may be contained by isolating the source or implementing controls around the affected site

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		Remediate the contaminated land using the most appropriate available method to achieve required commercial/industrial guideline validation results.
Construction material stock piles	Erosion from construction material stockpiles may contaminate the soils	The Contractor shall Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds.

ECOP 6: Erosion and Sediment Control

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Clearing of Construction sites	Cleared areas and slopes are susceptible for erosion of top soils that affects the growth of vegetation which causes ecological imbalance	The Contractor shall - Reinstate and protect cleared areas as soon as possible. - Mulch to protect batter slopes before planting - Cover unused area of disturbed or exposed surfaces immediately with mulch/grass turfs/tree plantations.
Construction activities and material stockpiles	The impact of soil erosion are (i) Increased run off and sedimentation causing a greater flood hazard to the downstream, (ii) destruction of aquatic environment in nearby lakes, streams, and reservoirs caused by erosion and/or deposition of sediment damaging the spawning grounds of fish, and (iii) destruction of vegetation by burying or gullyng.	The Contractor shall - Locate stockpiles away from drainage lines - Protect the toe of all stockpiles, where erosion is likely to occur, with silt fences, straw bales or bunds - Remove debris from drainage paths and sediment control structures - Cover the loose sediments and water them if required - Divert natural runoff around construction areas prior to any site disturbance - Install protective measures on site prior to construction, for example, sediment traps - Control drainage through a site in protected channels or slope drains - Install 'cut off drains' on large cut/fill batter slopes to control water runoff speed and hence erosion - Observe the performance of drainage structures and erosion controls during rain and modify as required.

ECOP 7: Top Soil Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Earthworks will impact the fertile top soils that are enriched with nutrients required for plant growth or agricultural development	The Contractor shall - Strip the top soil to a depth of 15 cm and store in stock piles of height not exceeding 2m. - Remove unwanted materials from top soil like grass, roots of trees and similar others. - The stockpiles will be done in slopes of 2:1 to reduce surface runoff and enhance percolation through the mass of stored soil. - Locate topsoil stockpiles in areas outside drainage lines and protect from erosion. - Construct diversion channels and silt fences around the topsoil stockpiles to prevent erosion and loss of topsoil. - Spread the topsoil to maintain the physico-chemical and biological activity of the soil. The stored top soil will be utilized for covering all disturbed area and along the

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		proposed plantation sites • Prior to the re-spreading of topsoil, the ground surface will be ripped to assist the bunding of the soil layers, water penetration and revegetation.
Transport	Vehicular movement outside ROW or temporary access roads will affect the soil fertility of the agricultural lands	The Contractor shall • Limit equipment and vehicular movements to within the approved construction zone • Construct temporary access tracks to cross concentrated water flow lines at right angles • Plan construction access to make use, if possible, of the final road alignment • Use vehicle-cleaning devices, for example, ramps or wash down areas.

ECoP 8: Topography and Landscaping

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Land clearing and earth works	Flood plains of the existing Project area will be affected by the construction of various project activities. Construction activities especially earthworks will change topography and disturb the natural rainwater/flood water drainage as well as will change the local landscape.	The Contractor shall • Ensure the topography of the final surface of all raised lands (construction yards, approach roads, access roads, bridge end facilities, etc.) are conducive to enhance natural draining of rainwater/flood water; • Keep the final or finished surface of all the raised lands free from any kind of depression that insists water logging • Undertake mitigation measures for erosion control/prevention by grass-turfing and tree plantation, where there is a possibility of rain-cut that will change the shape of topography. • Cover immediately the uncovered open surface that has no use of construction activities with grass-cover and tree plantation to prevent soil erosion and bring improved landscaping.

ECoP 9: Sand Extraction

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Sand extraction	Sand extraction can potentially impact the aquatic habitat, water quality, and key aquatic species and their food availability.	The Contractor shall • not extract sand from the river bed in long continuous stretches; alternate patches of river bed will be left undisturbed to minimize the potentially negative impacts on the aquatic habitat. • not collect large quantities of sand from any single location • not excavate deeper than 3 m at any single location. • not carry out sand extraction near chars that have sensitive Habitats • not carry out sand extraction during the night particularly near the chars • obtain approval from CSC before starting sand extraction from any location. • carry out sand extraction from sand bars to the extent

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		possible. - maintain record of all sand extraction (quantities, location shown on map, timing, any sighting of key species) - provide silt fences, sediment barriers or other devices around the extraction areas to prevent migration of sediment rich water in to the river channels. - refuel of barges and boats with a proper care to avoid any spills. - make available spill kits and other absorbent material at refueling points on the barges. - properly collect, treat and dispose the bilge water from of barges, and boats. - regularly service all waterborne plant as per the manufacturer's guidelines and be inspected daily prior to operation. CSC will: - carry out survey of the area prior to sand extraction - identify any sensitive receptors/habitats (eg, turtle nesting area, bird colony) at or near the proposed sand extraction locations. - determine 'no-go' areas for sand extraction, based upon the above survey, - monitor the activity to ensure that the contractor complies with the conditions described earlier. - survey the area after sand extraction to identify any leftover impacts.

ECoP 10: Air Quality Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Air quality can be adversely affected by vehicle exhaust emissions and combustion of fuels.	The Contractor shall - Fit vehicles with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition. - Operate the vehicles in a fuel-efficient manner - Cover haul vehicles carrying dusty materials moving outside the construction site Impose speed limits on all vehicle movement at the worksite to reduce dust emissions - Control the movement of construction traffic - Water construction materials prior to loading and transport - Service all vehicles regularly to minimize emissions - Limit the idling time of vehicles not more than 2 minutes.
Construction machinery	Air quality can be adversely affected by emissions from machinery and combustion of fuels.	The Contractor shall Fit machinery with appropriate exhaust systems and emission control devices. Maintain these devices in good working condition in accordance with the specifications defined by their manufacturers to maximize combustion efficiency and minimize the contaminant emissions. Proof or maintenance register shall be required by the

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		equipment suppliers and contractors/subcontractors • Focus special attention on containing the emissions from generators • Machinery causing excess pollution (e.g. visible smoke) will be banned from construction sites • Service all equipment regularly to minimize emissions • Provide filtering systems, duct collectors or humidification or other techniques (as applicable) to the concrete batching and mixing plant to control the particle emissions in all its stages, including unloading, collection, aggregate handling, cement dumping, circulation of trucks and machinery inside the installations
Construction activities	Dust generation from construction sites, material stockpiles and access roads is a nuisance in the environment and can be a health hazard.	The Contractor shall • Water the material stockpiles, access roads and bare soils on an as required basis to minimize the potential for environmental nuisance due to dust. Increase the watering frequency during periods of high risk (e.g. high winds). Stored materials such as gravel and sand shall be covered and confined to avoid their being wind-drifted • Minimize the extent and period of exposure of the bare surfaces • Reschedule earthwork activities or vegetation clearing activities, where practical, if necessary to avoid during periods of high wind and if visible dust is blowing off-site • Restore disturbed areas as soon as practicable by vegetation/grass-turfing • Store the cement in silos and minimize the emissions from silos by equipping them with filters. • Establish adequate locations for storage, mixing and loading of construction materials, in a way that dust dispersion is prevented because of such operations • Crushing of rocky and aggregate materials shall be wet-crushed, or performed with particle emission control systems.

ECoP 11: Noise and Vibration Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Noise quality will be deteriorated due to vehicular traffic	The Contractor shall • Maintain all vehicles in order to keep it in good working order in accordance with manufactures maintenance procedures • Make sure all drivers will comply with the traffic codes concerning maximum speed limit, driving hours, etc. • Organize the loading and unloading of trucks, and handling operations for the purpose of minimizing construction noise on the work site
Construction machinery	Noise and vibration may have an impact on people, property, fauna, livestock and the natural	The Contractor shall • Appropriately site all noise generating activities to avoid noise pollution to local residents • Use the quietest available plant and equipment

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	environment.	• Modify equipment to reduce noise (for example, noise control kits, lining of truck trays or pipelines) • Maintain all equipment in order to keep it in good working order in accordance with manufactures maintenance procedures. Equipment suppliers and contractors shall present proof of maintenance register of their equipment. • Install acoustic enclosures around generators to reduce noise levels. • Fit high efficiency mufflers to appropriate construction equipment • Avoid the unnecessary use of alarms, horns and sirens.
Construction activities	Noise and vibration may have an impact on people, property, fauna, livestock and the natural environment.	The Contractor shall • Notify adjacent landholders prior any typical noise events outside of daylight hours • Educate the operators of construction equipment on potential noise problems and the techniques to minimize noise emissions • Employ best available work practices on-site to minimize occupational noise levels • Install temporary noise control barriers where appropriate • Notify affected people if major noisy activities will be undertaken, e.g. pile driving • Plan activities on site and deliveries to and from site to minimize impact • Monitor and analyze noise and vibration results and adjust construction practices as required. • Avoid undertaking the noisiest activities, where possible, when working at night near the residential areas.

ECOP 12: Protection of Flora

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Vegetation clearance	Local flora is important to provide shelters for the birds, offer fruits and/or timber/fire wood, protect soil erosion and overall keep the environment very friendly to human living. As such damage to flora has wide range of adverse environmental impacts.	The Contractor shall • Reduce disturbance to surrounding vegetation • Use appropriate type and minimum size of machine to avoid disturbance to adjacent vegetation. • Get approval from supervision consultant for clearance of vegetation. • Make selective and careful pruning of trees where possible to reduce need of tree removal. • Control noxious weeds by disposing of at designated dump site or burn on site. • Clear only the vegetation that needs to be cleared in accordance with the plans. These measures are applicable to both the construction areas as well as to any associated activities such as sites for stockpiles, disposal of fill and construction of diversion roads, etc. • Do not burn off cleared vegetation – where feasible, chip or mulch and reuse it for the rehabilitation of affected areas, temporary access tracks or landscaping. Mulch provides a seed source, can limit embankment

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		erosion, retains soil moisture and nutrients, and encourages regrowth and protection from weeds. • Return topsoil and mulched vegetation (in areas of native vegetation) to approximately the same area of the roadside it came from. • Avoid work within the drip-line of trees to prevent damage to the tree roots and compacting the soil. • Minimize the length of time the ground is exposed or excavation left open by clearing and re-vegetate the area at the earliest practically possible. • Ensure excavation works occur progressively and revegetation done at the earliest • Provide adequate knowledge to the workers regarding nature protection and the need of avoid felling trees during construction • Supply appropriate fuel in the work caps to prevent fuel wood collection

ECOP 13: Protection of Fauna

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities	The location of construction activities can result in the loss of wild life habitat and habitat quality.	The Contractor shall • Limit the construction works within the designated sites allocated to the contractors • Check the site for animals trapped in, or in danger from site works and use a qualified person to relocate the animal.
	Impact on migratory birds, its habitat and its active nests	The Contractor shall • Not be permitted to destruct active nests or eggs of migratory birds • Minimize the tree removal during the bird breeding season. If works must be continued during the bird breeding season, a nest survey will be conducted by a qualified biologist prior to commence of works to identify and located active nests • Minimize the release of oil, oil wastes or any other substances harmful to migratory birds to any waters or any areas frequented by migratory birds.
Vegetation clearance	Clearance of vegetation may impact shelter, feeding and/or breeding and/or physical destruction and severing of habitat areas	The Contractor shall • Restrict the tree removal to the minimum required. • Retain tree hollows on site, or relocate hollows, where appropriate • Leave dead trees where possible as habitat for fauna • Fell the hollow bearing trees in a manner which reduces the potential for fauna mortality. Felled trees will be inspected after felling for fauna and if identified and readily accessible will be removed and relocated or rendered assistance if injured. After felling, hollow bearing trees will remain unmoved overnight to allow animals to move of their own volition.
Construction camps	Illegal poaching	The Contractor shall • Provide adequate knowledge to the workers

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		regarding protection of flora and fauna, and relevant government regulations and punishments for illegal poaching.

ECoP 14: Protection of Fisheries

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities in River and Marine Water	The main potential impacts to fisheries are hydrocarbon spills and leaks from riverine transport and disposal of wastes into the river and marine water	The Contractor shall • Ensure the riverine transports, vessels and ships are well maintained and do not have oil leakage to contaminate river water. • Contain oil immediately on river in case of accidental spillage from vessels and ships and in this regard, make an emergency oil spill containment plan to be supported with enough equipment, materials and human resources • Do not dump wastes, be it hazardous or non-hazardous into the nearby water bodies or in the river.
	The main potential impacts to aquatic flora and fauna River are increased suspended solids from earthworks erosion, sanitary discharge from work camps, and hydrocarbon spills	The Contractor shall • follow mitigation measures proposed in ECoP3 : Water Resources Management and EC4: Drainage Management
Construction activities on the land	Filling of ponds for site preparation will impact the fishes	The Contractor shall • Inspect any area of a water body containing fish that is temporarily isolated for the presence of fish, and all fish shall be captured and released unharmed in adjacent fish habitat • Install and maintain fish screens etc. on any water intake with drawing water from any water body that contain fish.

ECoP 15: Road Transport and Road Traffic Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction vehicular traffic	Increased traffic use of road by construction vehicles will affect the movement of normal road traffics and the safety of the road-users.	The Contractor shall • Prepare and submit a traffic management plan to the CSC for his approval at least 30 days before commencing work on any project component involved in traffic diversion and management. • Include in the traffic management plan to ensure uninterrupted traffic movement during construction: detailed drawings of traffic arrangements showing all detours, temporary road, temporary bridges temporary diversions, necessary barricades, warning signs / lights, and road signs. • Provide signs at strategic locations of the roads complying with the schedules of signs contained in the

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		Bangladesh Traffic Regulations. • Install and maintain a display board at each important road intersection on the roads to be used during construction, which shall clearly show the following information in Bangla: ○ Location: Village name ○ Duration of construction period ○ Period of proposed detour / alternative route ○ Suggested detour route map ○ Name and contact address/telephone number of the concerned personnel ○ Name and contact address / telephone number of the Contractor ○ Inconvenience is sincerely regretted.
	Accidents and spillage of fuels and chemicals	The Contractor shall • Restrict truck deliveries, where practicable, to day time working hours. • Restrict the transport of oversize loads. • Operate road traffics/transport vehicles, if possible, to nonpeak periods to minimize traffic disruptions. • Enforce on-site speed limit

ECoP 16: River Transport management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities in River	The presence of construction and dredging barges, pipe lines and other construction activities in the river can cause hindrance and risks to the river traffic.	The Contractor shall • Not obstruct other normal riverine transport while doing riverine transport and works • Identify the channel to be followed clearly using navigation aids such as buoys, beacons, and lighting • Provide proper buoyage, navigation lights and markings for bridge and dredging works to guide the other normal riverine transport • Keep regular and close contacts with Bangladesh Inland Water Transport Authority (BIWTA) regarding their needs during construction of the project • Plan the river transport and transportation of large loads in coordination with BIWTA to avoid traffic congestions. • Provide signage for river traffic conforming to the BIWTA requirements • Position the dredge and pipeline in such a way that no disruption to the channel traffic will occur
	Accidents	The Contractor shall • Prepare an emergency plan for dealing with accidents causing accidental sinking of the vessels and ships • Ensure sufficient equipment and staffs available to execute the emergency plans • Provide appropriate lighting to barges and construction vessels.

ECoP 17: Construction Camp Management

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Siting and Location of construction camps	Campsites for construction workers are the important locations that have significant impacts such as health and safety hazards on local resources and infrastructure of nearby communities.	The Contractor shall • Locate the construction camps at areas which are acceptable from environmental, cultural or social point of view. • Consider the location of construction camps away from communities in order to avoid social conflict in using the natural resources such as water or to avoid the possible adverse impacts of the construction camps on the surrounding communities. • Submit to the CSC for approval a detailed layout plan for the development of the construction camp showing the relative locations of all temporary buildings and facilities that are to be constructed together with the location of site roads, fuel storage areas (for use in power supply generators), solid waste management and dumping locations, and drainage facilities, prior to the development of the construction camps. • Local authorities responsible for health, religious and security shall be duly informed on the set up of camp facilities so as to maintain effective surveillance over public health, social and security matters
Construction Camp Facilities	Lack of proper infrastructure facilities, such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	The Contractor shall provide the following facilities in the campsites: • Adequate housing for all workers • Safe and reliable water supply. Water supply from deep tube wells of 300 m depth that meets the national standards • Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. Provide separate latrines and bathing places for males and females with total isolation by wall or by location. The minimum number of toilet facilities required is one toilet for every ten persons. • Treatment facilities for sewerage of toilet and domestic wastes • Storm water drainage facilities. Both sides of roads are to be provided with shallow v drains to drain off storm water to a silt retention pond which shall be sized to provide a minimum of 20 minutes retention of storm water flow from the whole site. Channel all discharge from the silt retention pond to natural drainage via a grassed swale at least 20 meters in length with suitable longitudinal gradient. • Paved internal roads. Ensure with grass/vegetation coverage to be made of the use of top soil that there is no dust generation from the loose/exposed sandy surface. Pave the internal roads of at least haring-bond bricks to suppress dusts and to work against possible muddy surface during monsoon. • Provide child crèches for women working construction site. The crèche shall have facilities for dormitory, kitchen, indoor and outdoor play area. Schools shall be attached to these crèches so that children are not deprived of education whose mothers are construction

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		workers • Provide in-house community/common entertainment facilities dependence of local entertainment outlets by the construction camps to be discouraged/prohibited to the extent possible.
Disposal of waste	Management of wastes is crucial to minimize impacts on the environment	The Contractor shall • Ensure proper collection and disposal of solid wastes within the construction camps • Insist waste separation by source; organic wastes in one pot and inorganic wastes in another pot at household level. • Store inorganic wastes in a safe place within the household and clear organic wastes on daily basis to waste collector. Establish waste collection, transportation and disposal systems with the manpower and equipment/vehicles needed. • Dispose organic wastes in a designated safe place on daily basis. At the end of the day cover the organic wastes with a thin layer of sand so that flies, mosquitoes, dogs, cats, rats, are not attracted. One may dig a large hole to put organic wastes in it; take care to protect groundwater from contamination by leachate formed due to decomposition of wastes. Cover the bed of the pit with impervious layer of materials (clayey or thin concrete) to protect groundwater from contamination. • Locate the garbage pit/waste disposal site min 500 m away from the residence so that peoples are not disturbed with the odor likely to be produced from anaerobic decomposition of wastes at the waste dumping places. Encompass the waste dumping place by fencing and tree plantation to prevent children to enter and play with. • Do not establish site specific landfill sites. All solid waste will be collected and removed from the work camps and disposed in approval waste disposal sites.
Fuel supplies for Cooking purposes	Illegal sourcing of fuel wood by construction workers will impact the natural flora and fauna	The Contractor shall • Provide fuel to the construction camps for their domestic purpose, in order to discourage them to use fuel wood or other biomass. • Made available alternative fuels like natural gas or kerosene on ration to the workforce to prevent them using biomass for cooking. • Conduct awareness campaigns to educate workers on preserving the protecting the biodiversity and wildlife of the project area, and relevant government regulations and punishments on wildlife protection.
Health and Hygiene	There will be a potential for diseases to be transmitted including malaria, exacerbated by inadequate health and safety practices. There will be an increased risk of work crews spreading	The Contractor shall • Provide adequate health care facilities within construction sites. • Provide first aid facility round the clock. Maintain stock of medicines in the facility and appoint fulltime designated first aider or nurse. • Provide ambulance facility for the laborers during

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	sexually transmitted infections and HIV/AIDS.	emergency to be transported to nearest hospitals. - Initial health screening of the laborers coming from outside areas - Train all construction workers in basic sanitation and health care issues and safety matters, and on the specific hazards of their work - Provide HIV awareness programming, including STI (sexually transmitted infections) and HIV information, education and communication for all workers on regular basis - Complement educational interventions with easy access to condoms at campsites as well as voluntary counseling and testing - Provide adequate drainage facilities throughout the camps to ensure that disease vectors such as stagnant water bodies and puddles do not form. Regular mosquito repellent sprays during monsoon. - Carryout short training sessions on best hygiene practices to be mandatorily participated by all workers. Place display boards at strategic locations within the camps containing messages on best hygienic practices
Safety	In adequate safety facilities to the construction camps may create security problems and fire hazards	The Contractor shall - Provide appropriate security personnel (police / home guard or private security guards) and enclosures to prevent unauthorized entry in to the camp area. - Maintain register to keep a track on a head count of persons present in the camp at any given time. - Encourage use of flameproof material for the construction of labor housing / site office. Also, ensure that these houses/rooms are of sound construction and capable of withstanding wind storms/cyclones. - Provide appropriate type of firefighting equipment suitable for the construction camps - Display emergency contact numbers clearly and prominently at strategic places in camps. - Communicate the roles and responsibilities of laborers in case of emergency in the monthly meetings with contractors
Site Restoration	Restoration of the construction camps to original condition requires demolition of construction camps.	The Contractor shall - Dismantle and remove from the site all facilities established within the construction camp including the perimeter fence and lockable gates at the completion of the construction work. - Dismantle camps in phases and as the work gets decreased and not wait for the entire work to be completed - Give prior notice to the laborers before demolishing their camps/units - Maintain the noise levels within the national standards during demolition activities - Different contractors shall be hired to demolish different structures to promote recycling or reuse of demolished material. - Reuse the demolition debris to a maximum extent.

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		Dispose remaining debris at the designated waste disposal site. • Handover the construction camps with all built facilities as it is if agreement between both parties (contractor and land-owner) has been made so. • Restore the site to its condition prior to commencement of the works or to an agreed condition with the landowner. • Not make false promises to the laborers for future employment in O&M of the project.

ECoP 18: Cultural and Religious Issues

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Construction activities near religious and cultural sites	Disturbance from construction works to the cultural and religious sites, and contractors lack of knowledge on cultural issues cause social disturbances.	The Contractor shall • Communicate to the public through community consultation and newspaper announcements regarding the scope and schedule of construction, as well as certain construction activities causing disruptions or access restriction. • Do not block access to cultural and religious sites, wherever possible • Restrict all construction activities within the foot prints of the construction sites. • Stop construction works that produce noise (particularly during prayer time) shall there be any mosque/religious/educational institutions close to the construction sites and users make objections. • Take special care and use appropriate equipment when working next to a cultural/religious institution. • Stop work immediately and notify the site manager if, during construction, an archaeological or burial site is discovered. It is an offence to recommence work in the vicinity of the site until approval to continue is given by the CSC/PMU. Provide separate prayer facilities to the construction workers. • Show appropriate behavior with all construction workers especially women and elderly people • Allow the workers to participate in praying during construction time • Resolve cultural issues in consultation with local leaders and supervision consultants • Establish a mechanism that allows local people to raise grievances arising from the construction process. • Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works so as to maintain effective surveillance over public health, social and security matters

ECoP 19: Worker Health and Safety

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
Best practices	Construction works may pose health and safety risks to the construction workers and site visitors leading to severe injuries and deaths. The population in the proximity of the construction site and the construction workers will be exposed to a number of (i) biophysical health risk factors, (e.g. noise, dust, chemicals, construction material, solid waste, waste water, vector transmitted diseases etc), (ii) risk factors resulting from human behavior (e.g. STD, HIV etc) and (iii) road accidents from construction traffic.	The Contractor shall - Implement suitable safety standards for all workers and site visitors which shall not be less than those laid down on the international standards (e.g. International Labor Office guideline on 'Safety and Health in Construction; World Bank Group's 'Environmental Health and Safety Guidelines') and contractor's own national standards or statutory regulations, in addition to complying with the national standards of the Government of Bangladesh (e.g. 'The Bangladesh Labor Code, 2006') - Provide the workers with a safe and healthy work environment, taking into account inherent risks in its particular construction activity and specific classes of hazards in the work areas, - Provide personal protection equipment (PPE) for workers, such as safety boots, helmets, masks, gloves, protective clothing, goggles, full-face eye shields, and ear protection. Maintain the PPE properly by cleaning dirty ones and replacing them with the damaged ones. - Safety procedures include provision of information, training and protective clothing to workers involved in hazardous operations and proper performance of their job - Appoint an environment, health and safety manager to look after the health and safety of the workers - Inform the local authorities responsible for health, religious and security duly informed before commencement of civil works and establishment of construction camps so as to maintain effective surveillance over public health, social and security matters.
	Child and pregnant labor	The Contractor shall not hire children of less than 14 years of age and pregnant women or women who delivered a child within 8 preceding weeks, in accordance with the Bangladesh Labor Code, 2006
Accidents	Lack of first aid facilities and health care facilities in the immediate vicinity will aggravate the health conditions of the victims	- Provide health care facilities and first aid facilities are readily available. Appropriately equipped first-aid stations shall be easily accessible throughout the place of work - Document and report occupational accidents, diseases, and incidents. - Prevent accidents, injury, and disease arising from, associated with, or occurring in the course of work by minimizing, so far as reasonably practicable, the causes of hazards. In a manner consistent with good international industry practice. - Identify potential hazards to workers, particularly those that may be life-threatening and provide necessary preventive and protective measures. - Provide awareness to the construction drivers to strictly follow the driving rules - Provide adequate lighting in the construction area and along the roads
Construction Camps	Lack of proper infrastructure facilities,	The Contractor shall provide the following facilities in the campsites to improve health and hygienic conditions as

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
	such as housing, water supply and sanitation facilities will increase pressure on the local services and generate substandard living standards and health hazards.	mentioned in ECoP 17 Construction Camp Management • Adequate ventilation facilities • Safe and reliable water supply. Water supply from deep tube wells that meets the national standards • Hygienic sanitary facilities and sewerage system. The toilets and domestic waste water will be collected through a common sewerage. • Treatment facilities for sewerage of toilet and domestic wastes • Storm water drainage facilities. • Recreational and social facilities • Safe storage facilities for petroleum and other chemicals in accordance with ECoP 2 • Solid waste collection and disposal system in accordance with ECP1. • Arrangement for trainings • Paved internal roads. • Security fence at least 2 m height. • Sick bay and first aid facilities
Water and sanitation facilities at the construction sites	Lack of Water sanitation facilities at construction sites cause inconvenience to the construction workers and affect their personal hygiene.	• The contractor shall provide portable toilets at the construction sites, if about 25 people are working the whole day for a month. Location of portable facilities shall be at least 6 m away from storm drain system and surface waters. These portable toilets shall be cleaned once a day and all the sewerage shall be pumped from the collection tank once a day and shall be brought to the common septic tank for further treatment. • Contractor shall provide bottled drinking water facilities to the construction workers at all the construction sites.
Other ECoPs	Potential risks on health and hygiene of construction workers and general public	The Contractor shall follow the following ECPs to reduce health risks to the construction workers and nearby community • ECoP 2: Fuels and Hazardous Goods Management • ECoP 4: Drainage Management • ECoP 10: Air Quality Management • ECoP 11: Noise and Vibration Management • ECoP 15: Road Transport and Road Traffic Management • ECoP 16: River Transport management
Trainings	Lack of awareness and basic knowledge in health care among the construction workforce, make them susceptible to potential diseases.	The Contractor shall • Train all construction workers in basic sanitation and health care issues (e.g., how to avoid malaria and transmission of sexually transmitted infections (STI) HIV/AIDS. • Train all construction workers in general health and safety matters, and on the specific hazards of their work Training shall consist of basic hazard awareness, site specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate. • Commence the malaria, HIV/AIDS and STI education campaign before the start of the construction phase and complement it with by a strong condom marketing, increased access to condoms in the area as well as to voluntary counseling and testing. • Implement malaria, HIV/AIDS and STI education campaign

Project Activity/ Impact Source	Environmental Impacts	Mitigation Measures/ Management Guidelines
		targeting all workers hired, international and national, female and male, skilled, semi- and unskilled occupations, at the time of recruitment and thereafter pursued throughout the construction phase on ongoing and regular basis. This shall be complemented by easy access to condoms at the workplace as well as to voluntary counseling and testing.

Annex G: Sample Social Screening Form

SOCIAL SCREENING FORMAT

General Information	1. Name of village:				
	2. Name of Union:				
	3. Name of Upazila:				
	4. Name of District:				
	5. Name of Component & sub-component:				
	6. Location:				
	7. Type of work Please Tick mark (✓):	New Construction		Reconstruction	
		Rehabilitation		Others (please specify)	
8. Objective of the proposed scheme and brief description:					
		Please Tick mark (✓)			
	9. Does the proposed scheme involve all types and classes of the people in the village	Yes	No	Not applicable	
B. Social Impact	1. Is there any chance of resettlement of people living in the land for the implementation of the scheme?	☐	☐	☐	
	2. Is there any chance of land acquisition from public for the implementation of the scheme?	☐	☐	☐	
	3. Is there any chance of destruction of homestead land?	☐	☐	☐	
	4. Is there any chance of resettlement of people living in the government land for the implementation of the scheme?	☐	☐	☐	
	5. Is there any chance of destruction of religion and cultural place?	☐	☐	☐	
	6. Is there any chance of loss of employment of the people of lower down the living standard for the implementation of the scheme?	☐	☐	☐	
	7. Is there any chance of destruction of cultural tradition of people?	☐	☐	☐	
	8. Mitigation Measure	☐	☐	☐	

C. Livelihood Impact	1. Is there any chance of losing access to the usual fishing area due to implementation of the scheme?	☐	☐	☐
	2. Is there any chance of losing means of livelihood due to the implementation of the scheme?	☐	☐	☐
	3. Is there any chance of losing private community-based fishing areas or similar facilities?	☐	☐	☐
	4. Is there any chance of losing existing social or financial safety network due to implementation of the scheme?	☐	☐	☐
	5. Is there any chance of being vulnerable to or come under the wrath of local elite due to fishers' association with this scheme?	☐	☐	☐
D. Small Ethnic Communities (Tribal People)	1. Is the scheme located in an area where Tribal people or small ethnic communities (SECs) live?			
	N.B. If yes, please answer the following questions			
	2. Are the tribal people involved in the planning and implementation of the scheme?	☐	☐	☐
	3. Is there any chance of tribal people be affected?	☐	☐	☐
	4. What are the feelings of tribal people to the schemes?	☐	☐	☐
	Positive	☐		
	Negative	☐		
	Not any one	☐		
	If the answer of the question number 4 is negative, please briefly describe the reason and mitigation measure:			
Other Information (if any)				
Name & Signature of the Assessor:				
Date:				

Annex H: Guideline for Conducting Participatory Identification of Beneficiaries (PIBs)

Conceptual Guidelines on ‘Participatory Identification of Beneficiaries (PIB)’ focusing Poverty, Vulnerability and Resilience

Participatory Identification of Beneficiaries (PIB) is a method which is able to capture multi-dimensional aspects of poverty because the process is in the hands of the people who have lived through poverty. The beneficiary community will take over the process of deciding who the poor are and can lead to social mobilization. Thus, PIB serves the purpose of identifying poor, measuring vulnerability of poor, addressing vulnerability through Vulnerable Reduction Funds and various entitlements, and leading them towards sustainable Resilience.

The poverty, vulnerability and Resilience have internal connections. The more different constraint to identify the vulnerable for two major reasons: 1) the vulnerable at the point of identification may not be poor but they are on the margins and can slip into poverty even with a marginal change in opportunity structure, 2) the poor who cross the margin of poverty because of aid and help can slip back into poverty. The Resilience strategy should ensure that no household slips into poverty once they cross it.

The comprehensive data has to be built with the help of the primary and secondary data. All the statistics and surveys can be consulted. Once the data is collected this data can be cross checked with the PIB data. During social mapping, it is required to have a set of questions to assess the Poverty, Vulnerability, and Resilience scenario of a village in general and a family in particular. The following aspects are to be covered in PIB practice:

- No. of earning members
- Worker dependent ratio and Per capita income and Type of house/rooms
- Land owner/ Landless -- and in case of land owner, area of land, type of land (irrigated/ un-irrigated/barren/ fertile)
- Assets other than land
- Loan taken other than formal sources, Loan outstanding and Purpose of loan
- No of elderly and other vulnerable people in the family/ Vulnerability type
- Disable members/ type of disability
- Average expenditure in health in last two years
- Number of drop out children and reason for that
- Members employed in hazardous occupation
- Migrant households/ family members, causes of migration
- Work done under welfare schemes by the whole family in last two years (No of days)
- Number and nature of open access resource bases around –whether they have adequate access to CPRs (common property resources)?

Identification of poor:

Activity - Ask the participants to make list of indicators to identify Below Poverty Line (BPL) people?

Possible indicators are:

- No land or less than 10 decimals of land
- No house or dilapidated house / No sanitation latrine
- Family without color television
- No regular employed person in the family
- No access to safe drinking water and No access to education
- Women-headed household or presence of widows or divorcee

- Most disadvantaged and marginalized like Scheduled Castes and Scheduled Tribes
- (SC/ ST) and households living in vulnerable circumstances e.g. mentally retarded or disabled member in the family.

Preparation of list of poor:

1. Preparation of BPL or Poorest of the Poor list
2. Approval in Village Development Committee
3. Appeal (to project social officer, if any)
4. Display of Final List.

As regards resilience the following aspects should be conceptualized by the respective project personnel:

- Nature of the Resilience also depends upon the nature of the employment. In case a laborer commuting for Informal employment from his/ her native and another laborer is commuting for the same set of job, the first one is more vulnerable than the other.
- Inter -generational patterns of mobility for the Resilience and sustainability of the Resilience can tell the historical aspect of the Resilience scenario of the village as well as the household.
- Information about comprehensive accounts of assets and liabilities can help to gauge the vulnerability of a family. Like- wise some other questions could be asked for better understanding of Resilience patterns in the different communities based on their current Resilience's and these data can be useful for the community to explore the other potential Resilience aspects with the help of facilitators.
- On the basis of this information village vulnerability report can be prepared and Resilience analysis and identification of local Resilience's opportunities can be done.
- Resilience planning, market analysis, Resilience resource mapping, assessment of resources, value chain gaps and identification of potential activities in agriculture, livestock, dairy etc. can be done.
- Community can prepare plan for sustainable agriculture which is distinctively pro – poor because of lower cost, lower risk and greater labor intensity.
- The Community can attempt to use community investment fund for Resilience and vulnerability reduction purpose.