Government of Peoples' Republic of Bangladesh
Ministry of Water Resources
Bangladesh Water Development Board

DRAFT

Comprehensive M&E Framework and Strategy

Contract Package No. CEIP-1/C2/S3

Coastal Embankment Improvement Project, Phase I (CEIP-I)

Third Party Monitoring & Evaluation (M&E) Of Overall Project Implementation

FEBRUARY 2016

SHELADIA Associates, Inc.
In association with BETS Consulting Services Ltd.

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Third Party M&E of Overall Project Implementation (CEIP-I)
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24 February 2016

Md. Delwar Hossain
Project Director
PMU, CEIP-I
BWDB, Dhaka, Bangladesh
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Contract: **Consultancy Services for Third Party Monitoring and Evaluation of Overall Project Implementation: Contract No. CEIP-I/C2/S3**

Subject: **Comprehensive M&E Framework and Strategy**

Our Ref: **5491-2016-003**

Dear Mr. Md. Delwar Hossain,

Please find attached six (6) copies of the Third Party M&E Consultants' Report entitled Comprehensive M&E Framework and Strategy as required by our Terms of Reference. This document will serve as a road map for the monitoring and evaluation of CEIP-1 overall. We will send the soft copies shortly.

We request your assistance in scheduling the M&E Framework and Strategy Workshop in the first week of March if possible as it is our intention to commence data collection in the middle of March.

With assurance of our best services,

Sincerely yours,

Jan. T. Twarowski
Team Leader and Economist
Third Party M&E Consultants – CEIP-I
Mobile: 01745-573470

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Acronyms and Abbreviations

ADB	Asian Development Bank
As	Arsenic
APHA	American Public Health Association
BDT	Bangladesh Taka
B-M-F	Baseline, Mid-Term and Final Evaluation
BBS	Bangladesh Bureau of Statistics
BoQ	Bill of Quantities
BWDB	Bangladesh Water Development Board
cc	Cubic centimeter
CC	Climate Change
Cd	Cadmium (element)
CEGIS	Center for Environment and Geographic Information Services
CEIP	Coastal Embankment Improvement Project
CER	Contingent Emergency Response
CERC	Contingent Emergency Response Component
CGI	Common Gateway Interface
CIF	Climate Investment Fund
Cl	Chlorine
cm	Centimeter
CPF	Country Partnership Framework (World Bank)
CUL	Compensation Under Law
CV	Climate Variation
DAE	Department of Agricultural Extension
DC	Deputy Commissioner
DLP	Defect Liability Period
DO	Dissolved oxygen
DOAE	Department of Agricultural Extension
DOF	Department of Forestry
DPHE	Department of Public Health Engineering
DPP	Development Project Proforma
DSC	Design and Supervision Consultants
eC	Electro-conductivity
ECRRP	Emergency 2007 Cyclone Recovery and Restoration Project
EA	Environmental Assessment
eC	
ECR	Environment Conservation Rules
eC	Electro-conductivity
EIA	Environment Impact Assessment
EMF	Environment Management Framework
EMP	Environmental Management Plan
EOI	Expression of Interest

EP	Entitled Person
ERR	Economic Rate of Return
EU	European Union
FCDI	Flood Control, Drainage and Irrigation
Fe	Iron
FGD	Focus Group Discussion
FO	Field Office
FY	Fiscal Year
FYP	Five-Year Plan
GAAP	Governance and Accountability Action Plan
GDP	Gross Domestic Product
GED	General Economics Division of Planning Commission
GIS	Geographic Information System
GoB	Government of Bangladesh
GPS	Global Positioning System
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
GTL	Grant to Cover Temporary Loss of Income
ha	hectare
HCG	House Construction Grant
HDA	Homestead Development Allowance
HH	Household
HIES	Household Income and Expenditure Survey
HQ	Headquarters
HTG	House Transfer Grant
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
HYV	High Yielding Variety
ICC	Intra-cluster correlation
ICR	Implementation Completion Report
ID	Identification
IDA	International Development Association
IE	Impact Evaluation
IGA	Income Generating Activities
IMED	Implementation Monitoring and Evaluation Division (Ministry of Planning)
IR	Intermediate Result
IRR	Internal Rate of Return
IPOE	Independent Panel of Experts
JCS	Joint Cooperation Strategy
JVC	Joint Valuation Committee
K	Potassium
kg	kilogram
KII	Key Informant Interview
KSA	Knowledge, Skills and Attitude

km	Kilometer
l	liter
LAP	Land Acquisition Plan
LA&R	Land Acquisition and Resettlement
Logframe	Logical Framework
m3	cubic meter
M&E	Monitoring and Evaluation
MEAG	M&E Advisory Group
mg	milligram
MIS	Management Information System
MoF	Ministry of Finance
MoWR	Ministry of Water Resources
MT	Metric tonne
MTE	Mid Term Evaluation
MTR	Mid Term Review
N	Nitrogen
NGO	Non-Governmental Organization
NOL	No Objection Letter
NPK	Nitrogen-Phosphorous-Potassium fertilizer
NPDM	National Plan for Disaster Management
NWMP	National Water Management Plan
OP	Operational Policy (World Bank)
O&M	Operation and Maintenance
PAD	Project Appraisal Document
PAH	Project Affected Household
PAP	Project Affected Person
PAVC	Property Assessment and Valuation Committee
Pb	Lead (element)
PC	Polder Committee
PCDP	Public Consultation and Disclosure Plan
PCMU	Planning Commission Monitoring Unit
PD	Project Director
PDO	Project Development Objective
PE	Performance Evaluation
PFS	Price of Fish Stock (market price)
pH	Parts Hydrogen (a measure of acidity / alkalinity)
PMIS	Project Management Information System
PMP	Performance Management Plan
PMU	Project Management Unit
PPCR	Pilot Program for Climate Resilience
ppt	Parts per thousand
PPS	Probability Proportional to Size
PRA	Participatory Rural Appraisal
PSC	Project Steering Committee

QC	Quality Control
RAP	Resettlement Action Plan
RBM	Results-Based Management
RF	Results Framework
RFP	Request for Proposal
RV	Replacement Value
SAP	Social Action Plan
SECU	Social, Environment and Communications Unit (of PMU)
SEMP	Social and Environmental Management Plan
SMRPF	Social Management and Resettlement Policy Framework
SOP	Standard Operating Procedures
SPCR	Strategic Program for Climate Resilience
SPSS	Statistical Package for Social Sciences (software)
SRDI	Soil Resource Development Institute (Bangladesh)
SS	Suspended Solids
SSG	Structure Strengthening Grant
SSMS	Social Safeguards Management Specialist
STG	Structure Transfer Grant
TA	Transition Allowance
TBD	To be determined
TCP/IP	Transmission Control Protocol / Internet Protocol
TDS	Total Dissolved Solids
TL	Team Leader
TLU	Tropical Livestock Unit
TOR	Terms of Reference
TSP	Total Suspended Particles
UFO	Upazila Fisheries Office
UNDP	United Nations Development Programme
UP	Upazila Parishad
US	Unites States
US-EPA	Unites States Environmental Protection Agency
USAID	The United States Agency for International Development
USD	US Dollar
WARPO	Water Resource Planning Organization
WB	World Bank
WHO	World Health Organization
WMO	Water Management Organization
XEN	Executive Engineer
z-score	Standard deviation, normalized to a value of 1

Executive Summary

The M&E Framework and Strategy is a resource designed to assist the CEIP-1 project team in setting up and managing the process of monitoring, analyzing, evaluating, and reporting progress toward achieving the development objectives, intermediate results and outputs of CEIP-1. This systematic framework enables the project team to collect comparable data over time and organizes performance management tasks and data over the life of the program.

The design and objectives of CEIP-1 continue to be highly relevant to the GoB's 7th Five-Year Plan (FYP) with its focus on agriculture, environment and climate change and monitoring and evaluation. It also focuses on the vulnerable and extremely poor.

With respect to M&E, quoting from the 7th FYP:

> "The central motivation underlying this move is to promote greater transparency and accountability in public spending as the GoB recognizes that an effective M&E system necessitates the use of a results oriented mind-set that facilitates greater use of information for evidence based decision making. Without a solid M&E capability, there is a risk that resources might get locked in over the medium-term into programs that are not working or relevant in the changing economic environment. A strong M&E capacity is therefore an urgent national priority."
>
> "…The Seventh Plan takes specific steps to move towards a results-based M&E and strengthen the process initiated during 6th FYP. … leading to improved performance, increased accountability and transparency, learning and knowledge….a results-based M&E is recognized as critical to helping the Government track and monitor progress with implementation of the respective targets and take corrective actions when major gaps or divergences emerge.

The Third Party Monitoring and Evaluation (M&E) consultants, are responsible for monitoring and evaluating:

(a) Project physical and financial progress and performance, project inputs, outputs, and outcomes, and impacts; and
(b) Environmental and social development and safeguard management aspects with respect to all project components of the CEIP-I.

The M&E consultancy firm has the following three primary responsibilities:

(i) Carrying-out independent M&E of project progress, inputs, outputs, processes, outcomes and impacts in relation to the various project works and activities
(ii) Carrying-out independent monitoring of project specific operational risks and mitigation measures
(iii) Providing independent and regular feed back to the Project Steering Committee on its evaluations of the above as well as on any other specific issue as directed by the PS

This M&E Framework and Strategy has several components, including:

- Impact and Outcome Assessment following establishment of the baseline situation;
- Progress Monitoring (outputs and inputs);
- Process Monitoring; and
- Knowledge Management

It describes the roles and responsibilities of all project stakeholders in the M&E process and the flow of M&E information between the field, PMU, PSC and development partners as well as the flow of feedback and information on results in the reverse direction.

The M&E Framework and Strategy details the Performance Management Plan, which includes a list of key indicators along with their data collection method, source of data, frequency of data collection, responsibility for data collection, data quality assurance, data limitations and actions to be taken to mitigate these limitations and management's use of the data.

It also contains an Evaluation Plan covering performance and impact evaluations and details the Impact Evaluation and Baseline Methodology.

Two major groups will be subject to evaluation – 1) the general polder population and 2) Project Affected Households (those suffering some sort of loss under the RAP).

The sampling methodology proposed gives priority to discerning the effects of CEIP-1 on the general polder population and the sample size has been set to allow statistically valid conclusions to be drawn with respect to this population. With an estimated population of more than 900,000 residents and 200,000 households who are to be affected to a greater or lesser extent by the embankment works, institutional strengthening of WMOs/PCs, and afforestation, evaluating the impact on the overall population is considered essential. This is especially true given that two additional phases of CEIP are being planned. Internal rates of return for the project must be assessed from empirical results to inform the design of these very substantial future investments.

Clearly, evaluating the impact of Project-induced resettlement on PAHs is also important. It is estimated that there will be about 18-20 thousand Project-Affected Households, which represents a bit less than 10% of the polder population. Although PAHs are a small proportion of the polder population, it must be recognized that they are affected more profoundly than the general population and that World Bank safeguards and BWDB commitment require an assessment of the impacts of resettlement.

Given the number of subcategories of PAHs, based on types of losses sustained (loss of land, loss of residence only, loss of business premises only, loss of both residential and business premises, etc.), to obtain statistically significant results, the sample size would need to be, in some case, over 50% of the PAHs. This is far beyond the resources available.

Therefore, the M&E Consultants have made the judgment that between 3% and 15% of the PAHs suffering a particular type of loss would be sampled and followed over time. The higher percentages would be applied where the numbers in the category are small and the lower percentages would be sampled where the number of PAHs in the category are large, in order to provide a sufficient number of observations with which to discern trends. While this level of sampling will not yield the power to prove statistically that changes are due to CEIP-1, it will allow tentative conclusions to be drawn. To improve the power of the sample, it is planned to survey the same sample over time (panel survey).

1. Introduction

The monitoring and evaluation (M&E) Framework and Strategy serves as a roadmap for tracking the performance, measuring the achievements and evaluating the approaches of the Coastal Embankment Improvement Project – Phase I. It lays out the process of tabulating, reporting and assessing progress towards achieving the development objectives of CEIP-I and the related Intermediate Results. It is a critical tool for planning, managing, and documenting how performance and impact evaluation data are collected and used and how their quality will be assured.

The M&E system (including the Project MIS) is a resource for the BWDB, PMU, PSC, DSC, RAP Consultants, implementing NGOs and World Bank to help plan and manage project implementation. The information generated by the M&E system provides the basis for evidence-based programming.

This M&E Framework and Strategy has been developed for CEIP-I, but it may be adapted for broader use by BWDB. It is meant to be updated and elaborated as Project and BWDB needs evolve.

The M&E Framework and Strategy begins with a results framework (RF), which serves as the foundation for how M&E will be conducted throughout the CEIP-I project. The results framework describes the chain of resources and results based on an implicit set of development hypotheses. It summarizes the range of interventions or inputs and activities that CEIP-I will provide as well as the expected outputs throughout the project area. The framework then links how these outputs will lead to intermediate results and longer term outcomes and impacts. Key performance indicators are tied to the inputs, outputs, and outcomes in the RF, with impact indicators developed for the anticipated impacts. Processes are not explicitly shown the RF because they are too numerous, but they are part of the monitoring and MIS system and have their own indicators.

Within the M&E Framework and Strategy, how and when data for the inputs, outputs, processes, intermediate results, outcomes, and impacts will be collected, analyzed, and reported is detailed in the performance monitoring plan or PMP. It also assigns the roles and responsibilities of the various members of the CEIP-I team in tracking and evaluating performance and taking action based on evidence.

The Performance Monitoring Plan (PMP) is a central element of the M&E Framework and Strategy. A PMP serves to:

- Define specific performance indicators for each PDO and Intermediate Result, determine baseline values and specify targets or benchmarks
- Plan and manage the data collection processes to meet quality standards
- Plan potential related evaluative work to measure longer term project outcomes and impacts
- Outline the M&E approach that will allow lessons to be distilled and programming to evolve based on evidence of performance.
- Communicate expectations to implementing agencies and partners as to the performance metrics.

The PMP contributes to the effectiveness of the M&E system by assuring that comparable data will be collected on a regular and timely basis. Using the PMP to sufficiently document indicator definitions, sources, and methods of data collection increases the likelihood that comparable data will be collected over time - even if personnel change at any level. The PMP will also support reliable data collection by documenting the frequency and schedule of data collection and assigning responsibilities.

2. CEIP-I Results Framework and Organization

2.1. CEIP–1 Results Framework

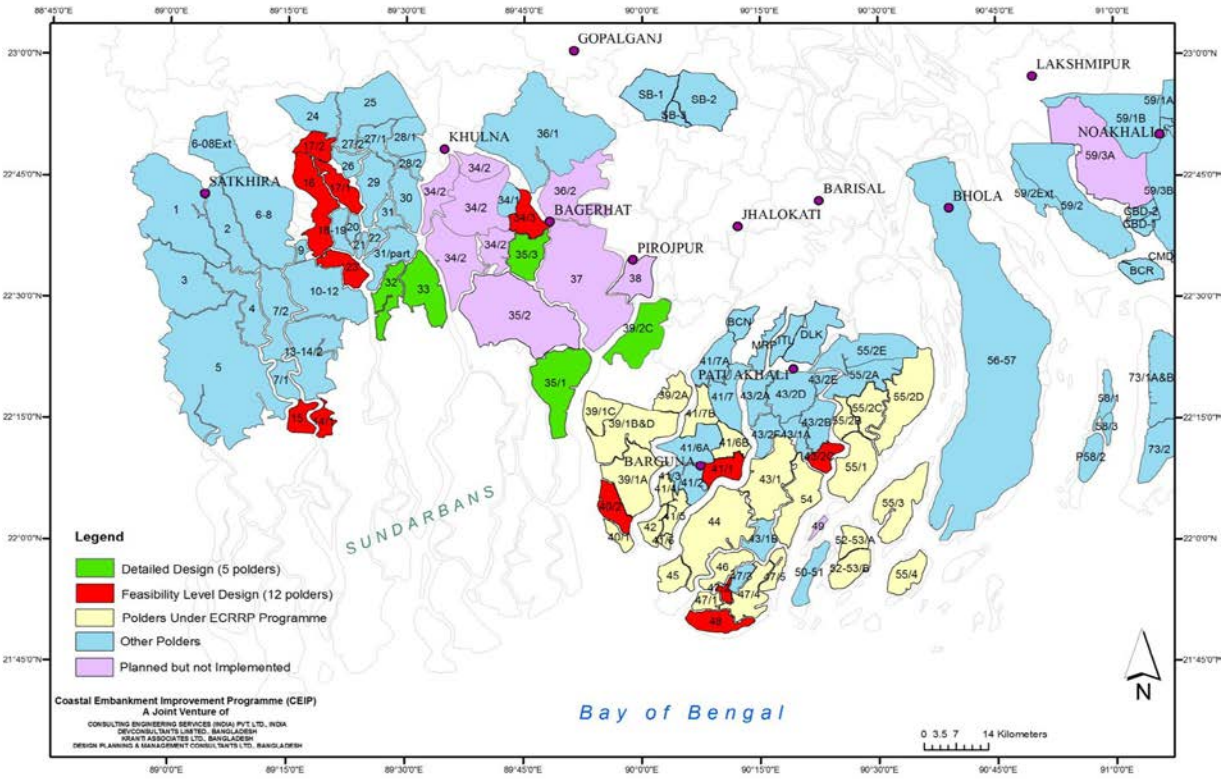
The main objective of the Coastal Embankment Improvement Project – Phase I (CEIP-1) is to rehabilitate polder embankments and strengthen their long-term durability through heightened embankments, improved drainage, and foreshore afforestation. The project aims at restoration of the agriculture sector within the polder areas and rehabilitation of infrastructure with "build back better" designs that can guard against both tidal flooding and frequent storm surges.

The project will pilot the mobilization of Water Management Organizations (WMOs) to provide coordination among the competing needs of various users and to ensure sustainability by assigning maintenance responsibility to the WMO.

The project will also provide long term monitoring of the coastal zone, technical assistance, and strategic studies and training to strengthen the role of the polder infrastructure in protection of human lives, physical assets, the environment and agricultural productivity. Most importantly it will support the initial implementation of the first slice of a fifteen to twenty year program for polder scheme rehabilitation and upgrading.

The Project covers 17 polders in the six coastal districts – Khulna, Bagerhat, Satkhira, Patuakhali, Barguna and Pirojpur (see Figure 1).

Figure 1: Map of the 17 CEIP-I Polders



Given Bangladesh's high level of vulnerability to natural disasters and climate change, and the large population residing in the coastal zone, this project is vital to its development.

The project was conceived by the BWDB and is being undertaken in partnership with the World Bank who are providing a loan of $375 million and the Pilot Program for Climate Resilience (PPCR) of the Climate Investment Fund (CIF) who provided a grant of $25 million.

While investments over the last 50 years usually addressed damage caused by previous disasters, CEIP is the first comprehensive program to address flooding and storm surge risk strategically.

The project development objectives (PDOs) as approved and agreed upon by the GoB and the World Bank are to:

> *"(a) increase the area protected in selected polders from tidal flooding, salinity intrusion and frequent storm surges, which are expected to worsen due to climate change;*
>
> *(b) improve agricultural production by reducing saline water intrusion in selected polders; and*
>
> *(c) improve the Government of Bangladesh's capacity to respond promptly and effectively to an eligible crisis or emergency."*

As stated, these objectives will be achieved by strengthening and upgrading embankments as part of an integrated approach to improve the polder system in the coastal area and through the building of local institutional arrangements to ensure the sustainable O&M of the polder schemes. The project also provides for assistance for any persons that must be resettled, with special livelihood restoration support for the vulnerable.

These PDOs have been adopted as a means to contribute to the higher level goal of improving the well-being of polder residents on a sustainable basis by preserving their lives, assets and livelihoods and improving resilience to climate and weather-related shocks.

The CEIP-I Results Framework is presented as Figure 2 on the following page. The Results Framework graphically depicts the theory of change behind the project design. It shows the chain of resources and results that are expected to be achieved if certain conditions and assumptions are met – as inputs are converted to outputs via particular processes and as outputs result in certain outcomes which constitute the project development objectives (PDO). Finally, the accomplishment of the PDOs is expected to contribute to the overarching goal to sustainably improve the well-being and resilience of the polder communities.

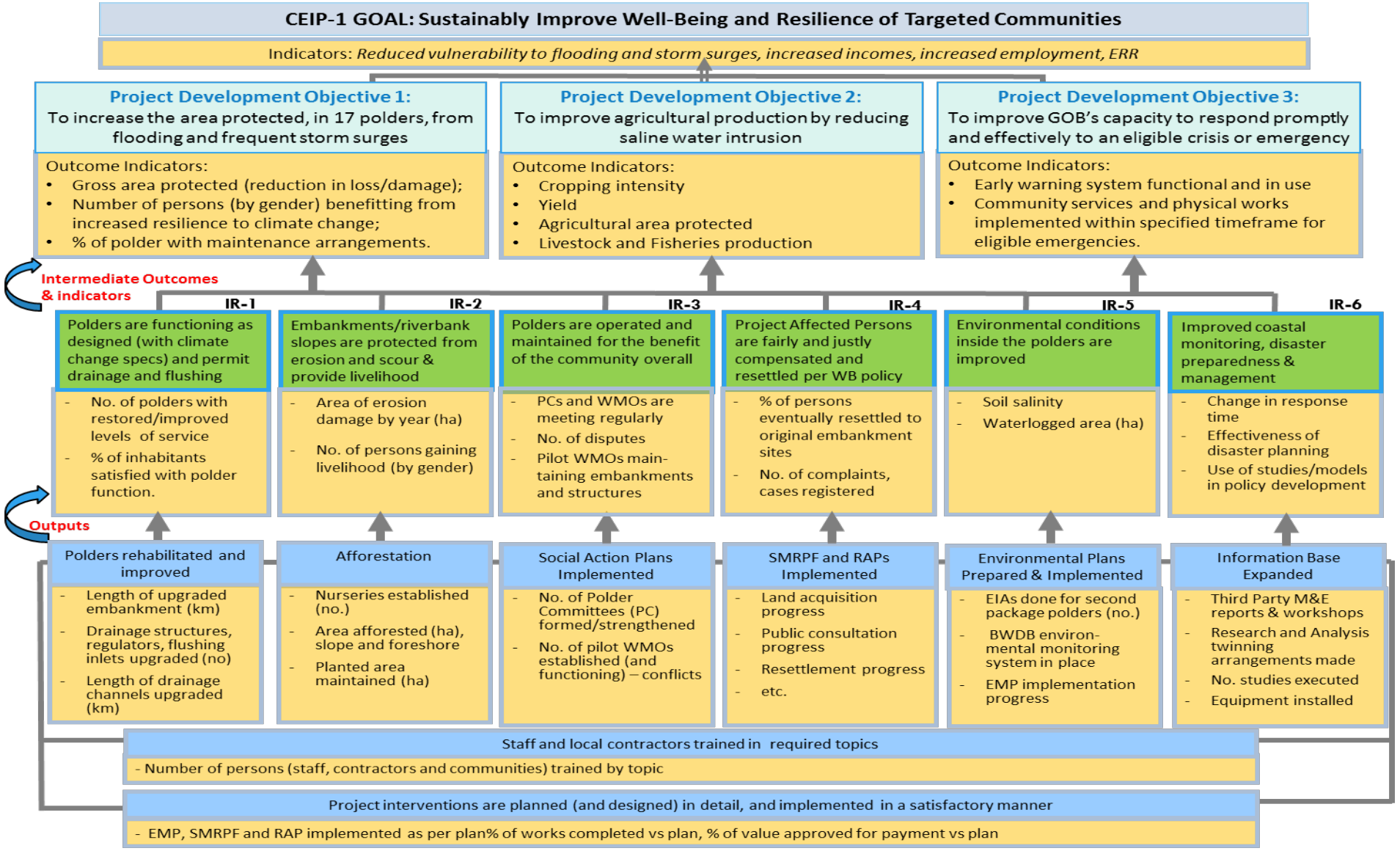


Figure 2. CEIP-1 Results Framework

CEIP-I has been designed to reflect this Results Framework and achieve the planned results via five components. Four components are related to the improvement of the polders and the knowledge base and the fifth is for emergency measures. Most components have some sub components, as shown below:

Component A – Rehabilitation and improvement of polders
A1: Rehabilitation and improvement of polders
A2: Afforestation

Component B – Implementation of Social & Environmental Management Frameworks and Plans
B1: Implementation of Social Action Plans
B2: Implementation of Social Management and Resettlement Policy Framework (SMRPF) and Resettlement Action Plans (RAPs)
B3: Implementation of EMF and EMPs

Component C – Construction Supervision, Monitoring and Evaluation of Project and Coastal Zone Monitoring
C1: Detailed Design and Construction Supervision
C2: Third Party Monitoring and Evaluation of Project
C3: Long Term Monitoring, Research and Analysis of Bangladesh Coastal Zone

Component D – Project Management, Technical assistance, Training and Strategic Studies

Component E – Contingent Emergency response

A brief overview of the project components of CEIP-1, as mentioned in the PAD, is given below.

The BWDB has engaged Sheladia Associates, Inc. (of USA) in association with BETS (of Bangladesh) as consultants for the Component C2 "Third Party Monitoring and Evaluation of Overall Project Implementation."

CEIP-1 Project Components
(as presented in PAD)

Component A – Rehabilitation and Improvement of Polders (US$291 million)

Component A1: Rehabilitation and Improvement of Polders (US$ 286 million). This component will finance activities that aim to increase community resilience to tidal flooding and storm surges. Investments include: (i) rehabilitation of critical portions of polder embankments including slope protection work, (ii) increasing embankment height in some stretches to improve resilience, (iii) repairing and upgrading drainage and flushing systems within polders, and (v) improving operations and maintenance. The reconstruction and rehabilitation works will be designed with improved standards so that protection is for both tidal and frequent storm surges. It is expected that about 17 polders will be rehabilitated under this component. Polders have been selected based on technical, environmental, social, economic and geographic criteria.

Component A2: Afforestation (US$5 million). Afforestation is important to the security of embankments and the livelihoods of communities as it provides protection from tidal flooding and storm surge. Planting selected mangrove and other salt tolerant species are planned on BWDB's land to demonstrate the important role of a protective belt on the tidal inundation zone on the riverside of the embankment. Planting a range of commercial wood, fruit and other shallow rooting social forestry tree species is proposed on the foreshore slopes of embankments. Plantings would commence after resolving land ownership and competing land-use (fish and shrimp ponds, rice paddies, livestock grazing, settlement, etc.) issues and the completion of needed earthworks on the embankments. The component will finance efforts to build the capacity of local institutions and communities in secondary maintenance schemes, foreshore and embankment afforestation, social forestry and protection of embankment toe against erosion.

Component B – Implementation of Social and Environmental Management Frameworks and Plans (US$56 million)

Component B1: Implementation of Social Action Plans (US$3 million). This component will support consultation with and strengthening of polder stakeholders and beneficiaries. Polder Committees will be strengthened or established in all polders to determine the competing needs and uses for water resources, and to decide on the operation of hydraulic infrastructure. Intensive social mobilization will be piloted in 4-6 polders to establish participatory WMOs that will be responsible for the operation and minor maintenance works of the polders. Social mobilization is expected to last around two years, during which time the WMOs will be established and trained in participatory planning, as well as in operation and minor maintenance activities. It is expected that where WMOs are piloted, the detailed design of polders will be discussed in a participatory manner with BWDB to ensure their full participation at an early stage. It is envisaged that this component, along with the social afforestation (Component A2) will be implemented through a well-established non-governmental organization.

Component B2: Implementation of Social Management and Resettlement Policy Framework (SMRPF) and Resettlement Action Plans (RAPs) (US$49 million). Polder scheme rehabilitation is a complex project that involves a variety of issues ranging from land acquisition, physical and economic displacement of people and other unanticipated impacts. A SMRPF has been prepared and has been disclosed in accordance with Bank guidelines. A draft RAP for the first package of investment has also been prepared and disclosed. This component will finance the implementation of the RAP, embankment monitoring and public consultation plans. The component will also finance land acquisition and the resettlement and rehabilitation of persons adversely affected by the project. It will also support the development of a system to computerize land acquisition and resettlement data with GPS reference and an independent institute to undertake surveys and verify field data in order to guard against improper targeting of beneficiaries and/or false delivery of benefits in the case of the RAP.

Component B3: Implementation of EMF and EMPs (US$4 million). An overall environmental assessment of the polder system; a draft Environmental Management Framework (EMF); and Environmental Impact Assessment (EIA) for polders targeted under the first package of investment have already been prepared and publically disclosed. This component will finance: (i) the preparation of EIAs for all remaining polders; (ii) the implementation of the Environment Management Plan EMP) and environmental mitigation and enhancement measures; and (iii) the establishment of an environmental monitoring system in BWDB to enable it to track continuous improvement in environmental performance of the polder system. Some items under EMP will be integrated with the civil works and included in the budget of Component A1.

Component C – Construction Supervision, Monitoring and Evaluation of Project and Coastal Zone Monitoring (US$32 million).

Component C1: Detailed Design and Construction Supervision (US$16 million). This component will cover consulting services for (i) surveys, designs of remaining polders to be included in the project (other than the 5 for which detailed designs have already been completed) and (ii) construction supervision of rehabilitation and improvement of coastal embankments.

Component C2: Third Party Monitoring and Evaluation of the Project (US$4 million). This component will cover consulting services for continuously monitoring project activities and providing feedback to the government and implementing agency on the project's performance. This includes supervising the implementation of the Governance and Accountability Action Plan, EMP and RAP.

Component C3: Long Term Monitoring, Research and Analysis of Bangladesh Coastal Zone (US$12 million). This component will support a comprehensive monitoring and morphological assessment of the Bangladesh Delta. A program to extend the current monitoring systems in Coastal Bangladesh is also essential to generate data, information and new knowledge for assessments of effects of improvement requirements. This work will be carried out by key institutions in Bangladesh, such as the Institute of Water Modeling, Center of Excellence for Geospatial Information Science, Dhaka University, and the BWDB among others in cooperation with international institutions.

Component D – Project Management Technical Assistance, Training and Strategic Studies (US$21 million).

This component will support BWDB in implementing the project through project management support and audits whereby a fully functioning Project Management Unit will be established and maintained; technical assistance and training; and providing resources for strategic studies and future planning.

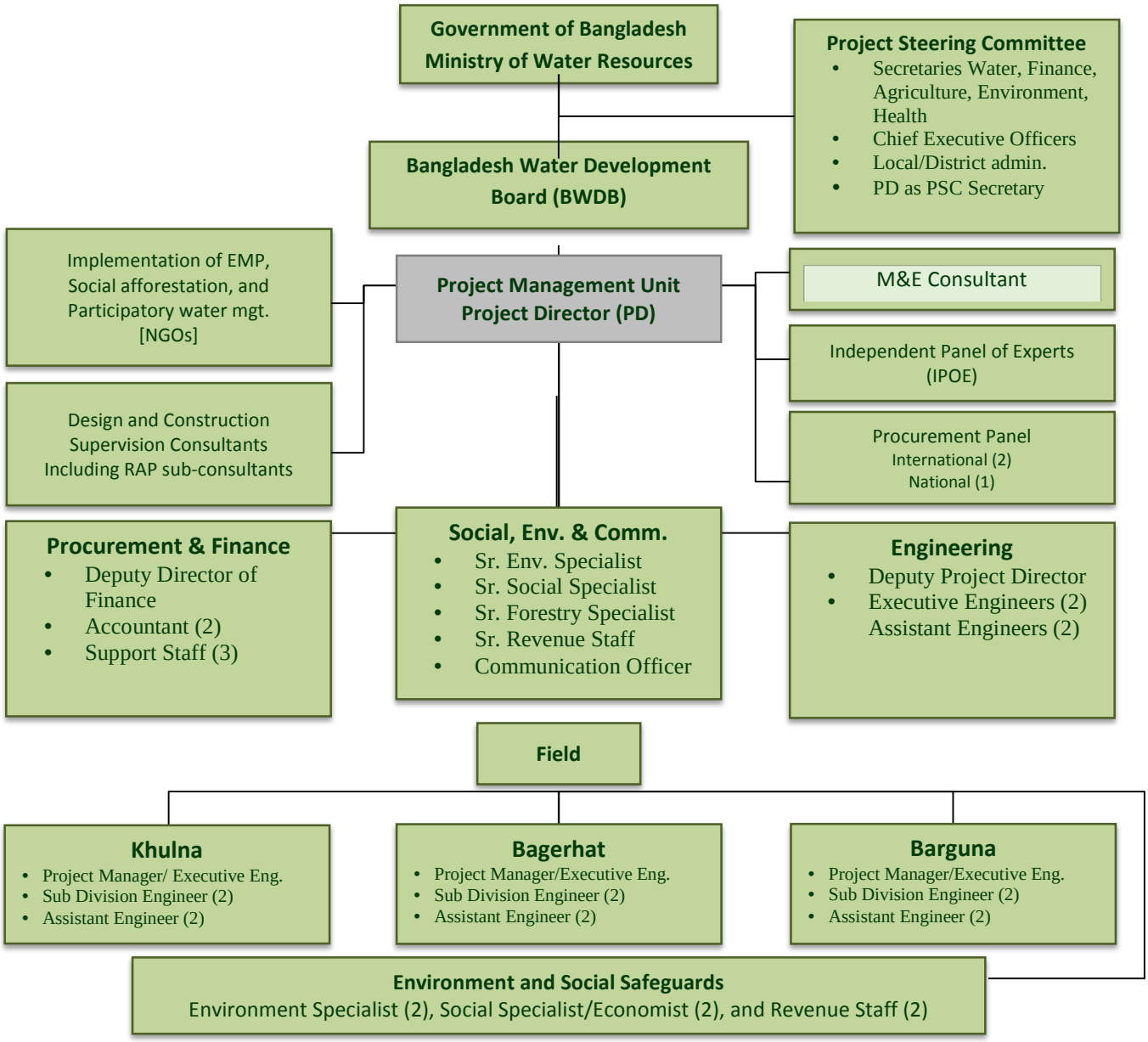
Component E – Contingent Emergency Response (US$0 million)

In case of a major natural disaster, the Government may request the Bank to re-allocate project funds to this component to support response and reconstruction.

2.2. Institutional Arrangements

The Government has overall responsibility for project management and coordination through its Ministry of Water Resources. The Project Steering Committee (PSC) provides a forum for overall guidance, policy advice and coordination of the project activities and addressing the inter-agency issues. The Bangladesh Water Development Board is the Project Implementing Agency and is responsible for the implementation of the Project through a Project Monitoring Unit (PMU). The PMU is led by a Project Director appointed by BWDB. It has a central project office located at the headquarters of BWDB in Dhaka. The PMU, in turn, has 3 subordinate units: (i) Engineering Unit; (ii) Procurement and Finance Unit; and (iii) Social, Environment and Communication Unit (SECU). The SECU will be established to supervise, among other things, the environmental screening, the EA, the EMPs, SAP, RAP and social mobilization and afforestation activities.

Figure 3: Organizational Chart of Institutional Arrangements (per PAD)



In addition to the central unit in Dhaka, there are 3 Field Level Offices (FO), each headed by an Executive Engineer, appointed by the BWDB. Two field offices – one at Khulna and other at Bagerhat – have been established and the third one, to be set up in Barguna, is under process. The role of the PMU is, therefore, largely to contract competent organizations, to carefully supervise their performance, to enable them to perform efficiently, and to ensure transparent and regular reporting to MoWR and BWDB.

2.3. CEIP-1 Project in Relation to GoB and Partner Development Strategies

2.3.1. Relation to the 7th Five-Year Plan of GoB

The 7th Five-Year Plan (FYP) of the Government of Bangladesh covers FY 2016 through FY 2020 which is the period July 2015 to June 2020. The design and objectives of CEIP-1 continue to be highly relevant to the GoB's plans with its focus on agriculture, environment and climate change and monitoring and evaluation. It also focuses on the vulnerable and extremely poor.

Agriculture in the 7th Five-Year Plan

In agriculture, the 7th FYP calls for, among other objectives: reducing instability of production; crop diversification; value addition; increasing resource use efficiency; reducing loss of arable land; minimizing yield gap; maintaining food security, safety and quality; expanding irrigation and farm mechanization through appropriate technology; and developing resilience to climate change impacts.

Environment and Climate Change in the 7th Five-Year Plan

In the environment and climate change area, the 7th FYP outlines a large raft of actions under three key themes: (i) Climate Change Management and Resilience (comprised of adaptation and mitigation) (ii) Environmental Management; and (iii) Disaster Management. Climate change adaptation includes protective works such as coastal embankment upgrading, while environmental management includes afforestation and protection of biodiversity.

M&E in the 7th Five-Year Plan

In the realm of monitoring and evaluation, the 7th FYP strongly addresses the need for results-based M&E as a means for accountability and evidence-based programming. It builds on the Sixth Five Year Plan which marked a decisive shift from the earlier approach of undertaking monitoring and evaluation (M&E) of the Plan and associated programs by tracking spending to a more results based M&E system which jointly assesses public spending and achievement of objectives.

Quoting from the 7th FYP:

> "The central motivation underlying this move is to promote greater transparency and accountability in public spending as the GoB recognizes that an effective M&E system necessitates the use of a results oriented mind-set that facilitates greater use of information for evidence based decision making. Without a solid M&E capability, there is a risk that resources might get locked in over the medium-term into programs that are not working or relevant in the changing economic environment. A strong M&E capacity is therefore an urgent national priority."

However, at present, there is a gap between intention and achievement. Quoting again from the 7th FYP:

> "…The Seventh Plan takes specific steps to move towards a results-based M&E and strengthen the process initiated during 6th FYP. This system is likely to bring about major political and cultural changes in the way governments and organizations operate- leading to improved performance, increased accountability and transparency, learning and knowledge. In the specific context of Vision 2021 and the Seventh Plan, a results-based M&E is recognized as critical to helping the Government track and monitor progress with implementation of the respective targets and take corrective actions when major gaps or divergences emerge. However, the lack of capacity and broad-based awareness of the importance of a results-based M&E is a major challenge. Data generation for the set of indicators and their useful analysis remains a formidable task. Most importantly, there is a clear lack of institutions and institutional coordination in terms of who will manage the overall M&E process which involves: (i) ensuring that the necessary data is generated in a timely and reliable fashion; (ii) the data is examined adequately to shed insights on the progress; (iii) the findings are disseminated to all relevant state and non-state actors so that better public policies are formulated and implemented to support the progress. Thus, to mitigate such institutional, structural and policy deficits, which undermines the overall state of results-based M&E system within the public sector, the principal strategy of the GoB will be to undertake major institutional reforms and implement a comprehensive set of activities that will create a conducive environment for an effective M&E culture."

On coordination with Development Partners, the GoB has instituted a Joint Cooperation Strategy (JCS) whose goal is to make aid in Bangladesh more effective by creating common platforms for national and sectoral dialogues as well as a country owned change process for improving delivery of aid. Development partners were involved in developing the results framework for both the Sixth and Seventh FYPs and participated in mid-term implementation review of the Sixth FYP, which attests to the partners' commitment to coordination.

Quoting from the 7th FYP:

> "The process, however, needs to be improved with stronger dialogue and input from the Development Partners on the RF with a view to making that sharper and more focused on areas of mutual interest. The Development Partners should also stand ready to support GED to improve the M&E effort with technical inputs in the areas of their competence as well as through financial support."

The Planning Commission has been designated as the focal point for M&E strategy. As such, the CEIP Third Party M&E Consultants have incorporated IMED formats into the CEIP-1 M&E Framework and Strategy, but have supplemented it with extensive reporting on results as well as processes.

2.3.2. Relation to World Bank–GoB Country Partnership Framework

The World Bank Group is following a new approach to country engagement - the Country Partnership Framework (CPF). Quoting from the World Bank website:

> "This new approach aims to make the Bank's country-driven model more systematic, evidence-based, selective and focused on the goals of ending extreme poverty and increasing shared prosperity in a sustainable manner. The CPF takes the place of the Country Assistance Strategy (CAS) and guides the Bank Group's support to a member country."

The emphasis on evidence-based programming makes clear the need for M&E.

The CPF with Bangladesh has three key focus areas which are consistent with the GoB's 7th Five-Year Plan[1]:

- Focus Area 1: Growth and Competitiveness
- Focus Area 2: Social Inclusion
- Focus Area 3: Climate and Environmental Management

Focus Area 3 is most relevant to CEIP-1 as can be seen from its three objectives:

3.1: Increased resilience to natural disasters (urban/coastal)

3.2: Improved water resource management for climate resilience

3.3: Increased adoption of sustainable agricultural practice

The CEIP-1 polders are in the coastal zone, vulnerable to storm surges, tidal flooding and now the effects of climate change. Also, in the polder area, agriculture (including livestock and fisheries) is main source of income. Nationally, the agricultural sector is a major driver of economic growth and poverty reduction, employing 62 percent of labor force and providing the main sources of livelihood for more than 70 percent of the rural population.

As reported by the World Bank[2], rapid growth enabled Bangladesh to cross the threshold to lower middle income country (LMIC) status of per capita GNI of $1,046 in FY14. Per capita income increased further in FY15 to US$1,220. GDP grew well above the average for developing countries in recent years, averaging 6.2 percent since 2010. While Bangladesh has achieved its ambition to reach middle-income-status by 2021 ahead of time, the challenge will be to further accelerate growth so that it moves well past the threshold and further up the income range of LMICs.

2.3.3. Relation to PPCR Results Framework

As a country most vulnerable to climate change, adaptation is a fundamental development priority. Bangladesh has one of the highest population densities in the world, about 24.8% of the population live below the poverty line[3], it has a low-lying delta where farmlands are susceptible to daily and seasonal flooding and there is an increasing frequency and intensity of natural climate related disasters including salt water intrusion.

The key challenges in tackling climate change as identified by the PPCR within its Strategic Program for Climate Resilience (SPCR) are ensuring food and water security, managing disaster risk, protecting lives, property and infrastructure, maintaining health and energy security, and tackling forced migration and overall environmental degradation. The PPCR Results Framework for Bangladesh, embedded in the regional and global framework is shown below.

[1] Dated December 2015 and released on the website of Planning Commission on 18 February 2016.

[2] *Bangladesh Proposed Country Partnership Framework FY2016 – 2020,* Executive Summary, World Bank, 2015.

[3] According to the World Bank's proposed CPF (2016-2020), projections using 2010 Household Income and Expenditure Survey (HIES) data (the latest available) indicate that the national poverty rate fell to 24.8 percent in 2015, less than half the 58.8 percent rate in 1991-92.

Figure 4: Bangladesh PPCR Results Framework Within the Regional/Global SPCR Framework

Global – **Final Outcome** (15-20 years)	Improved or Low Carbon, Climate-Resilient Development			
Country – **PPCR Transformative Impact** (10-15 years)	Improved quality of life of people living in the coastal region most affected by climate variation (CV) and climate change (CC)			
Country – **PPCR Catalytic Replication Outcomes** (5-10 years)	Adopted programmatic approaches, formalized participatory processes and established mechanisms for private sector involvement in comprehensive climate resilient development	Scaled-up climate-resilient investments in agriculture, coastal defense, water supply, connectivity, funding for individual housing project	Regional Level: Transfer of PPCR lessons to other SAARC countries	
Project/Program – **PPCR Outputs and Outcomes** (2-7 years)	Improved Capacity of MOEF to manage and coordinate investments and knowledge on climate resilient initiatives	Increased resilience of coastal infrastructure, agriculture and food security, water supply and connectivity	Access to information base on economically, environmentally and socially viable low cost storm and cyclone proof individual housing	CIF Program New and additional resources for adaptation projects
Project/Program – **PPCR Activities** (1-7 years)	Improved access of GoB/private sector/civil society/Devt Partners to knowledge on CV & CC effects and to database for planned and ongoing investments through creation and management of a repository	Investments in coastal infrastructure, agriculture and food security, water supply and connectivity	Increased learning and knowledge about climate variability and adaptation	Increased other public and private sources of finance and investment
	Capacity Building and Knowledge Management / Enabling Environment	Investments	Studies & Research	Leveraging
Program – **PPCR Inputs**	PPCR grant and loan to leverage additional funds from planned and ongoing interventions by the MDBs in the coastal zone. PPCR funds to complement other development partners' activities.			

PPCR seeks the following replicable outcomes of its Strategic Program for Climate Resilience:

- Programmatic approaches, formalized participatory processes and mechanisms for private sector involvement in comprehensive climate resilient development;
- Scaled-up climate resilient investments in agriculture, coastal defense, water supply, connectivity; and
- Regional collaboration and South-South Knowledge exchange.

CEIP-1 is clearly consistent with the PPCR objectives. The importance of investigating approaches to climate resilient development, use of participatory processes, building up a knowledge base and knowledge exchange is also in line with the M&E approach adopted herein with the support of BWDB.

2.3.4. GoB Policy Context

In addition to the 7th FYP, the Government of Bangladesh has in place a large number of policies and plans which CEIP-1 fits and supports. These include, among others, Delta Plan 2100, Water Policy,

Coastal Zone Policy, Coastal Development Strategy, Agricultural Policy, Fisheries Policy, Livestock Policy, Forestry Policy, Tourism Policy, Poverty Reduction Strategy and Gender Action Plan.

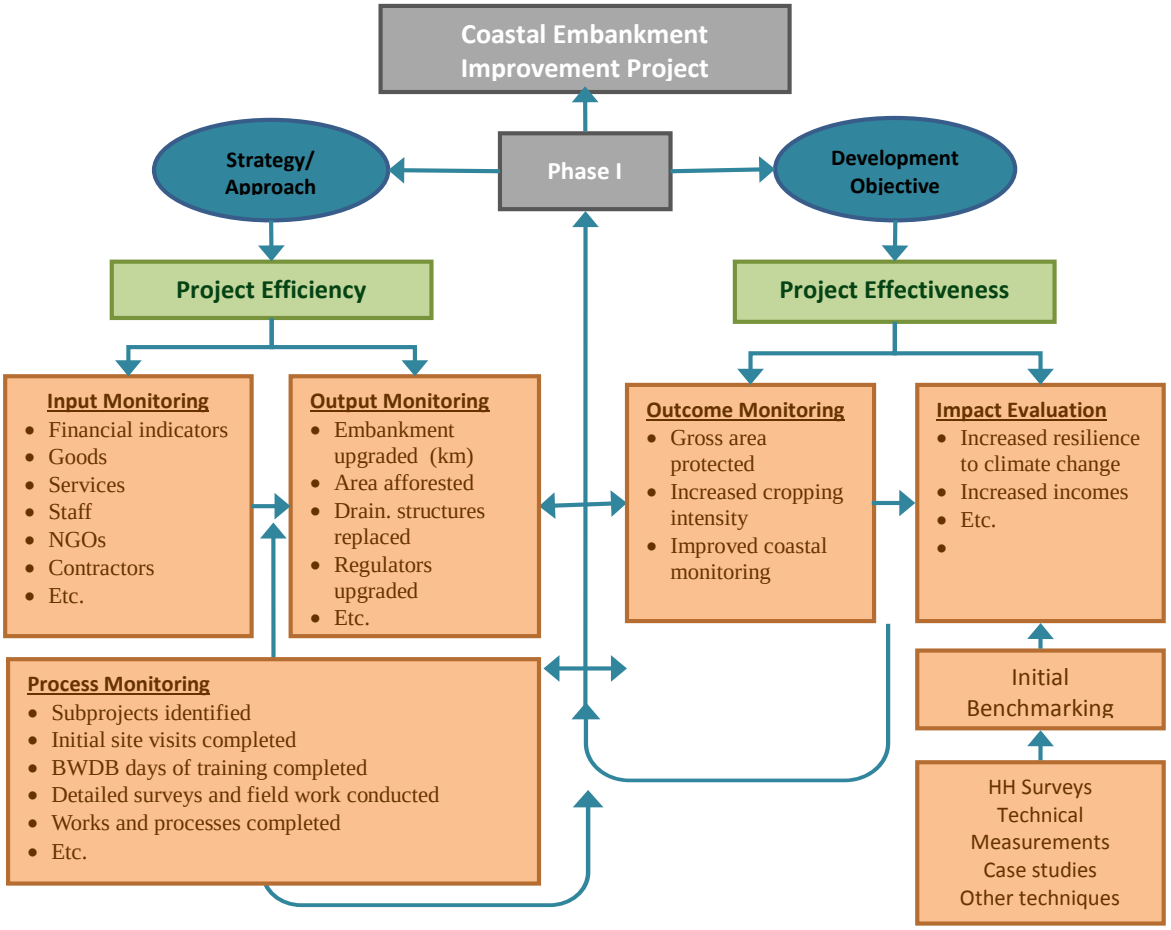
3. Approach to M&E

3.1. Scope of M&E

The M&E Consultants will monitor both project efficiency and project effectiveness which will be accomplished through input and output monitoring and outcome and impact evaluation of ongoing and completed activities. In addition, monitoring and evaluation procedures will be established for CEIP-I that will build on BWDB's existing systems while seeking to bring improved practices and effectiveness of M&E to BWDB itself. Coordination of information, data access and transfer on both the Project and subproject (polder or package) levels will be mediated by a user-friendly, web-based and computerized Project Management Information System (PMIS). In addition training and documentation for PMU, BWDB and other agency staff on usage and maintenance of all components of the M&E system including PMIS will be delivered as appropriate.

The interrelationships between monitoring and evaluation and their relationship to the Project's results framework are shown in the chart below:

Figure 5: Interrelationships between Monitoring and Evaluation and Their Relationship to the Project's Results Framework



The goal of M&E is to provide the owners (beneficiaries and implementers) of the project tools for measuring progress and results and thus provide a guide for achieving desired benefits, of both quality and quantity, in a timely manner, in a sustainable way, with a dynamic mechanism of corrective or remedial measures.

Monitoring is carried out in all project phases – i.e., project planning, implementation and O&M stages. Monitoring is a continuing activity that aims primarily to provide project management and stakeholders with early indications of progress, or lack thereof, in the achievement of outputs and intermediate results. It provides an opportunity to take corrective actions and steer the project towards the required results. Evaluation, with an emphasis on participatory evaluation, is the active and collective assessment and examination of a project by all stakeholders, usually at fixed points in time (mid-term, final or after completion of project), in which the project implementers/ beneficiaries become not just mere objects of evaluation within a project but active learners and agents of change. Evaluations focus not only on questions of efficiency and reasons for progress or lack of progress, but on reaching the desired socio-economic, environmental and resilience outcomes and impacts of the project. Thus, in short, monitoring focuses on the question “are we doing things right?” while evaluation focuses on “are we doing the right things?”

As outlined in the Consultant’s ToR, M&E activities are to provide continuous feedback to the PMU, PSC, implementing agencies, Government of Bangladesh and World Bank on the project’s performance and impact of its various components, so that corrective actions or scaling-up of successful approaches could be undertaken in a timely manner.

The M&E Consultant’s activities will cover, for example:

- creating a comprehensive monitoring and evaluation framework for the CEIP-I;
- developing baselines for the key project indicators for assessing project inputs, outputs, outcomes, and operational risks;
- tracking key indicators (input, output, outcome and impact) during project implementation;
- leading the data collection efforts;
- carrying out monitoring and evaluation of governance risks of the project (as identified in the project Governance and Accountability Action Plan);
- effectively using community knowledge and feedback to address delays in service delivery, or spotting contractor irregularities;
- developing a user-friendly, interactive, web-based computerized Project Monitoring Information System for monitoring CEIP-I activities;
- establishing and maintaining a comprehensive project information website that provide all project related information including outputs and impacts;
- if delays occur, recommending appropriate remedial actions to ensure timely implementation;
- supervising the implementation of the Environmental Management Plans (EMPs) and their compliance with the project Environmental Management Framework (EMF);
- supervising the implementation of the Resettlement Action Plans (RAPs) and their compliance with the project Social Management and Resettlement Policy Framework (SMRPF);
- reporting to PSC;
- preparing the Mid Term Review (MTR) Report;
- designing and implementing an Impact Evaluation program for the project;
- preparing the Implementation Completion Report; and
- training.

Training is viewed as an important component and Sheladia/BETS approaches all of its M&E services with the objective of building local competencies. Eventually, the M&E/PMIS/GIS system that is developed and put in place by the M&E Consultant must be effectively operated by the BWDB and specifically by the M&E Unit at BWDB headquarters. The consultant will strengthen the capacity of the project implementing agencies (BWDB, MoWR), including the PMU, to monitor project impacts and use the PMIS by providing on-the-job training, practical field exercises, workshops and focused seminars as appropriate.

3.2. Scope and Functions of Key Stakeholders and Partners with Respect to M&E

CEIP-1 is a complex and multi-faceted project that will require substantial coordination and collaboration among the different partners of CEIP-1 and across a variety of stakeholders. The M&E strategy mirrors and builds on this collaboration.

Project Implementers

SHELADIA in association with BETS will have principal responsibility for all M&E activities for CEIP-1. The Third Party M&E Consultants will provide overall leadership of CEIP-1 performance monitoring, process monitoring and project evaluation. In consultation with the PMU, BWDB and other key partners, the M&E Consultants will exercise their professional judgment on how M&E will be carried out as CEIP-1 is implemented, giving due attention to the Consultants' Terms of Reference.

PMU/BWDB will serve as principal counterpart for M&E, participating to the maximum practical extent in the M&E Consultants' planning, design and implementation of the M&E framework, strategy and system. Skills and technology transfer is to occur through close collaboration (on-the-job training) as well as specific training, workshops and seminars to be offered by the M&E Consultants. The M&E Consultants and BWDB recognize that the Consultants' input is of a limited duration and the M&E Strategy therefore explicitly plans for the Client to eventually take over M&E.

In addition to his broader role in managing the successful coordination and implementation of CEIP-1 overall, the **Project Director (PD)** will administer the contract of the M&E Consultants on behalf of the PSC and serves as Secretary to the PSC. PD will ensure the PMU staff, BWDB, various CEIP-1 Consultants and Contractors provide the necessary level of cooperation and collaboration required to fulfill the M&E Consultant's mandate. The PD will make use of the M&E information in tracking project progress and results and taking steps necessary to meet the project's objectives efficiently, timely and at a high level of quality.

The **Project Steering Committee (PSC)** will receive periodic reports from the PD and the M&E Consultants and review M&E briefings that report on progress, emerging issues and recommended actions. The PSC will ensure issues are being addressed and various agencies' roles in the project are fulfilled and their efforts are coordinated.

Certain BWDB offices are involved in the project at various levels with various roles and functions. BWDB headquarters offices with involvement in CEIP-1 include the Chief WMO, Chief Monitoring and M&E Director's offices. In the field, CEIP-1 Field Offices are intimately involved with project implementation and will facilitate access to the M&E Consultants to local government and local populations and will be a source of current information on field activities, issues, grievances and positive feedback from the communities.

The **Design and Supervision Consultants (DSC)** will provide detailed information on their plans, activities and progress with respect to engineering design, construction supervision, training, project management support, etc. via the MIS system being developed by the M&E Consultants, via routine reports and special requests for information as required. DSC records and field notes will be available to the M&E Consultants for spot-checking regarding quality and progress of works.

While the **RAP Consultants** are part of the DSC team, their role is similar. They will provide the M&E team and PMU information on plans, processes, progress and results of all aspects of resettlement such as census of PAPs, disclosure and consultation, grievances, property valuation, livelihood restoration, etc.

The **Civil Works Contractors** will provide information on the progress of physical works, data on quality control and testing, and evidence of site-level compliance with environmental management plans. They will also make their sites available to the M&E Consultants for planned as well as unannounced visits.

The **NGO for WMO Strengthening** will maintain records and report on the process and results of WMO formation and strengthening of the WMOs for operation and maintenance of the polders' water management and control structures. The WMO NGO will collaborate with the M&E Consultants and BWDB staff to review implementation on an ongoing basis and identify lessons for scaling-up.

The **NGO for SAP Implementation** will maintain records and report on the process and results of rehabilitation and livelihood restoration of PAPs. The SAP NGO will collaborate with the M&E Consultants and BWDB staff to review and improve implementation on an ongoing basis.

The **NGO for Afforestation** will maintain records and report on the process and results of foreshore afforestation and mangrove plantation. The Afforestation NGO will collaborate with the M&E Consultants and BWDB staff to review and improve implementation on an ongoing basis.

Communities, Beneficiaries and Affected Persons

Residents of the polders will be surveyed from time to time – individually, as group members (e.g., polder committees or WMOs) or in focus groups – to obtain their views and concerns as well as to assess the impacts of the project. Residents include households, enterprises, farmers, fish-farmers, shrimp farmers, fishermen, landless, businesses, community groups and resettled persons. Through participatory and inclusive evaluations, the project's implementation will be made more relevant and effective.

Project-affected persons will have access to the Grievance Redress Mechanism established by the Project to register any complaints. Local government, BWDB Field Offices and PMU will resolve these complaints. The M&E Consultants will monitor the nature of any complaints, the nature of the solutions and the time taken for resolution and will make recommendations as appropriate.

Local Government

Local government agencies provide necessary cooperation and mitigation of social concerns and provide information on these activities to PMU and M&E Consultants.

Stakeholder Agencies

Various Departments of the GoB will provide access to data as well as cooperation with project implementers in the field in provide oversight and support of project activities in their respective areas of responsibility. Examples of these departments include:

- Department of Forestry
- Department of Agricultural Extension

- Department of Livestock
- Department of Fisheries
- Department of Public Health Engineering

Other Projects/Initiatives

- Blue Gold
- ECRRP
- WARPO
- CEGIS
- Others

Development Partners

World Bank, as the lead financing agency, will review the performance and results of CEIP-1 and contribute to M&E by way of its Implementation Support Review Missions, Mid-Term Review Missions and Final Review Missions. The World Bank will review the project M&E reports and provide routine feedback and guidance. Lessons and experience in Phase I will be used in designing future phase of CEIP.

The Pilot Program for Climate Resilience (PPCR) will receive project M&E reports and will use lessons for program expansion in Bangladesh and the region.

Other Development Partners will share data and information with the M&E Consultants and will be invited to participate in certain knowledge sharing events. Certain M&E Reports should be shared, in turn, with other development partners. These partners include ADB, Government of the Netherlands, USAID, JICA, KfW and others.

3.3. Information Flows and Use of Information

The SHELADIA/BETS approach to M&E is that it is an important management and learning tool for the implementing team and not simply the domain of an M&E Consultants within the team. Therefore all members of the team will be engaged in M&E as summarized in the table below.

Table 1: Information Flows and Use of Information

Stakeholder	Role in M&E	Contribution to M&E Information by stakeholder	Use of M&E Information by stakeholder	Feed Forward (FF) & Feedback (FB) to:
Project Steering Committee	Review M&E Reports and Recommendations	NA	Resolve issues Develop Policies based on evidence	FF: GoB agencies FB: PD
IMED, Ministry of Planning	Review implementation against DPP	NA	Monitor physical and financial progress	FF: Office of PM FB: BWDB
BWDB HQ				
• Senior Management	Review M&E Reports and Recommendations	NA	Incorporate lessons in future projects	FF: Ministry of Water Resources FB: PD
• Chief WMO	Review M&E Reports and Recommendations re: WMOs	Confirms status of WMO formation	Incorporate lessons in ongoing/future projects	FF: DG of BWDB FB: PD
• Chief Monitoring	Review M&E Reports and Recommendations	Necessary suggestions to subsequent improvement in M&E report	Monitor physical and financial progress	FF: DG of BWDB FB: PD
• M&E Directorate	Participate in M&E as appropriate as counterpart to M&E Consultant	Suggestions to improve monitoring tools, data collection formats & M&E reports and issues constraints, if any	Preparing reports Identifying issues arising from evaluations	FF: Chief Monitoring FB: PD

Stakeholder	Role in M&E	Contribution to M&E Information by stakeholder	Use of M&E Information by stakeholder	Feed Forward (FF) & Feedback (FB) to:
• Computer Division	Appoint staff to operate the computerized MIS/GIS jointly with M&E Consultants and to serve as counterparts. Provide the hardware/software needed.	NA	Generation of thematic maps Adapting they MIS/GIS system to future requirements of BWDB	FF: M&E Directorate FB: M&E Consultants, PMU
CEIP-I PMU				
• PD	Ensure Project is implemented effectively and efficiently in compliance with DPP and World Bank guidelines. Administer M&E Consultant's contract Review reports of all Consultants and Contractors Submit consolidated Quarterly and Annual Reports to PSC and World Bank with assistance of M&E Consultants Organize PSC Meetings and serve as Secretary of PSC	All information available at PMU	Identify issues, instruct PMU staff to guide project implementers, oversee implementation of project including corrective actions	FF: PSC, World Bank, PPCR FB: CEIP-1 Consultants and Contractors, PMU staff, BWDB field staff in 6 districts
• PMU Staff, Dhaka	Provide project administration data Conduct field visits, sometimes with M&E Consultants	Provide data on procurement, finance, progress, contract issues of all contracts for inclusion in M&E reports. Report on GAAP.	Identify issues, guide project implementers, oversee implementation of project including corrective actions	FF: PD, M&E Consultants FB: CEIP-1 Consultants and Contractors, PMU field staff, BWDB field staff

Stakeholder	Role in M&E	Contribution to M&E Information by stakeholder	Use of M&E Information by stakeholder	Feed Forward (FF) & Feedback (FB) to:
• PMU Staff, Field Offices (XEN, SDE, etc.)	Serve as field presence to verify progress and quality of works and services in the field	Provide field visit and inspection reports on works and services	Identify issues, guide project implementers, oversee implementation of project including corrective actions	FF: PD, PMU Dhaka, M&E Consultants
Third Party M&E Consultants	Develop Comprehensive M&E Framework and Strategy Monitor Project Progress/Performance Undertake Baseline Survey, Mid-Term and Final Evaluations Develop and Implement Web-based MIS/GIS Consolidate and spot-check data from PMU, DSC, Contractors, NGOs in order to Prepare Quarterly, Annual and Special Reports Provide M&E Training/Capacity Building	Inputs, processes, outputs, outcomes and impacts via primary and secondary data sources on all project components, with special attention on RAP and EMP	Prepare reports on progress and performance, identify lessons for more efficient and effective implementation of CEIP-1 and for evidence-based programming of future projects.	FF: PD, PSC, World Bank FB: CEIP-1 Consultants and Contractors, PMU Staff, Communities
Local Government Bodies or Local/ District Administration	Provide necessary cooperation & mitigation social concerns	Provide necessary data/information & cooperation	Review M&E feedback	FF: CEIP-1 Consultants M&E Consultant and Contractors, PMU Staff, Communities FB: Community members
WMOs/Polder Committees	Keep WMO/PC records Participate in M&E Surveys	WMO/PC functioning	Benchmarking their performance, review of issues and possible solutions.	FF: PMU Field Staff FB: Members

Stakeholder	Role in M&E	Contribution to M&E Information by stakeholder	Use of M&E Information by stakeholder	Feed Forward (FF) & Feedback (FB) to:
Polder Residents, Beneficiaries and Project Affected Persons	Report any problems or issues through their local government bodies, BWDB field staff or Grievance Redress Mechanism Serve as independent monitors of RAP implementation Participate in M&E Surveys	Number and nature of conflicts and grievances Project outcomes and impacts	Raise awareness of community on issues and resolution process; awareness of CEIP-1 delivery of benefits Ensure transparency and accountability, and to mitigate against potential delays	FF: M&E Consultants, RAP Consultants, local government, PMU FB: Community Members
Independent Panel of Experts	Act as independent "peer reviewers" and undertake quality control functions of various technical output of the project.	Observations on quality of technical outputs of CEIP-1	Identify problem areas, corrective actions	FF: PD, M&E Consultants FB: DSC Team (incl RAP Consultants), Works Contractors, M&E Consultants
Design and Supervision Consultants	Report on design progress, physical progress, quality control, contract administration issues	Inputs, outputs, processes, quality	Identify problem areas, corrective actions	FF: PD, M&E Consultants FB: DSC Team (incl RAP Consultants), Works Contractors
RAP Consultants	Report on progress of RAP implementation process, quality control, land acquisition issues	RAP process Land acquisition progress Grievances – number, type, level where resolved, time taken to resolve	Identify problem areas, corrective actions	FF: DSC, PD, M&E Consultants FB: Project-Affected HHs, Local and District Administrations
Social Action Plan NGO (Livelihoods, WMO)	Report on livelihoods restoration activities for PAHs Report on WMO activities and accomplishments	Inputs, outputs, processes, quality, types of livelihood restoration activities	Identify problem areas, corrective actions, benchmarking	FF: PD, M&E Consultants, Depts of Fisheries, Livestock, Agriculture, Forestry FB: PAHs, WMOs

Stakeholder	Role in M&E	Contribution to M&E Information by stakeholder	Use of M&E Information by stakeholder	Feed Forward (FF) & Feedback (FB) to:
Afforestation NGO	Report on afforestation activities	Inputs, outputs, processes, quality and plant survival and maintenance	Assess objective /targets of the project	FF: PD, M&E Consultants, Dept of Forestry FB: Local and District Administrations
Other Government Departments (Forestry, Agricultural Extension, Livestock, Fisheries, etc.)	Statistics, Information and Access to field staff with local knowledge	Secondary data on production, yields, areas	Comment on results shown in M&E reports; Coordinate line agency work with CEIP-1	FF: PD FB: Agency field staff
Development Partners				
• World Bank	Review and comment on M&E Reports	Agreed Time-bound Action Plans	Discussion and facilitation of resolution of key implementation issues during missions; Time-bound Action Plans; Future project design based on lessons.	FF: World Bank management; PPCR FB: PSC, PD, M&E Consultants, all consultants, all contractors
• PPCR	Review and comment on M&E Reports	Sharing of results from other PPCR initiatives	Future project design based on lessons.	FF: PPCR partners FB: World Bank, M&E Consultants
• Others (ADB, USAID, JICA, KfW, Govt of Netherlands, etc.)	Knowledge sharing from similar efforts in Bangladesh	Selected data and information, maps, knowledge	Selected data and information, maps, knowledge	FF: Respective programs FB: M&E Consultants

3.4. Reports and Reporting Schedule

The framework for the reports for CEIP-1 is presented in Table 2.

Table 2: CEIP-1 Routine Reports

Responsible	Report Produced	Sources of Information Produced and Processed	Destination	Types of Information Transmitted
PMU	Monthly and Quarterly IMED Reports	PMU staff, DSC, M&E Consultants, NGOs	IMED	Physical and Financial Progress
DSC (incl. RAP Consultants); Contractors; NGOs	Monthly, Quarterly and Annual Reports	Project Records	PMU, M&E Consultants	Physical & Financial Progress, Process Status, Issues, Constraints and Recommendations.
PMU and M&E Consultants	Quarterly and Annual Overall Implementation Progress Reports	M&E Consultants, PMU and other Implementing Partners	World Bank, PSC	Physical & Financial Progress and Plans, Procurement Progress and Plans, Process Status, GAAP status, Qualitative and Quantitative Data on Results Obtained (including key indicator data), Issues, Constraints and Recommendations.
M&E Consultants	Baseline Survey; Mid-Term Evaluations; Final Evaluation	M&E Consultants, PMU and other Implementing Partners	World Bank, PSC, PMU	Qualitative and Quantitative Data on Results Obtained, Lessons, Issues, Constraints and Recommendations. Community/ stakeholder satisfaction Progress reports on indicators in the database
PMU and M&E Consultants	Implementation Completion Report of GoB	M&E Consultants, Project Records, Stakeholder Consultations	World Bank, PSC	A. Achievement of PDO, outcomes, outputs, Key Indicators B. Evaluation according to Criteria for ICR and IEG Evaluations C. Key Factors Affecting Implementation and Outcomes D. Economic and Financial Analysis E. Unplanned Effects F. Lessons and Recommendations

The planned reporting schedule is presented below.

Figure 6: M&E Reporting Schedule

	2015	2016				2017				2018				2019				2020		
Key Deliverables	Oct-Dec	Jan-Mar	Apr-Jun	Jul- Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul- Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul- Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul- Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul- Sep
Inception Report	■																			
M&E Framework and Strategy		■																		
Develop Web-Based MIS/GIS		■	■				■													
Operate Web-Based MIS/GIS			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Baseline Report - Package 01			■																	
Baseline Report - Package 02						■														
Baseline Report - Package 03										■										
Quarterly and Annual Reports	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Mid-Term Progress Report											■									
Mid-Term Evaluations					■						■									
Draft Final Evaluation																			■	
Final Evaluation Report/ICR																				■

4. Performance Monitoring Plan (PMP)

CEIP-1 is a large, complex project that relies on constant and engaged involvement from implementers, partners, local agencies, beneficiaries, and other stakeholders to ensure project activities achieve their intended objectives. This same level of involvement will be required in monitoring project performance and evaluating project outputs, outcomes, and impacts so that project leadership will be more informed in their management and decision-making.

To monitor progress and performance over the life of the project, this M&E Framework and Strategy includes a Performance Monitoring Plan (PMP) that has been developed to include indicators, definitions, data collection methods, and plans for performance monitoring. Subsequent sections also present designs for performance and impact evaluations in various stages of CEIP's timeline to measure outcomes and effects on beneficiaries.

4.1. Indicator Selection

The PMP includes a mix of quantitative and qualitative indicators to track program performance. Indicators have been selected and defined to be compliant to the greatest practical extent with the selection criteria outlined in Table 3 and compliant with QQT[4] specifications. Further, they have been selected, in the aggregate, such that they span the required areas of intervention and expected results without undue duplication, except for that which is prudent for triangulation. Finally, in deciding the

[4] QQT stands for Quality, Quantity and Time-bound. All indicators must be defined in such a way to specify the qualitative nature of the achievement, the quantity (target) and the timeframe.

scope and size of the indicator pool to be monitored, consideration was given to the data collection burden and cost.

Table 3: Criteria for Indicator Selection

Criterion	Definition	Example	Counter-example
Simple	The degree of calculation or data manipulation and transformation is minimal; that is, not difficult analytically and the data requirements of the indicator should not be excessive.	Income level - Percent of expenditures on non-food items as a proxy for income status	Income level – direct measure requires Gross margin from crop production (need cropping pattern, all costs of production by crop, yield and sales price of each crop), plus wages earned, remittances, etc.
Direct	Described by a single variable with an obvious connection to the intervention.	Yield of a particular crop at polder level – measured at farm or via household surveys	Yield of a particular crop at polder level – inferred through estimated increases in wholesale sales volume
Useful	It is of potential use—i.e., can result in some action--to policy makers, program implementers, beneficiaries. Even better, there exists a demand for the information.	Employment generated during construction in person-days by type of laborer	Employment generated during construction in person-days by individual name
Reliable	Measures as closely as possible the result we are trying to measure (e.g., impact of CEIP-I interventions) in an accurate way. That is, different observers following the same data collection methodology would get a similar value.	This is a matter of giving precise definitions to the indicator and specifying the precise data collection methodology. Number of Project Affected Households undergoing successful livelihood restoration requires a precise definition of "successful"	
Sensitive	Capable of picking up changes over time.	Change in incidence of malnutrition among children can be measured at the end of the project period	Change in life expectancy-can be measured only over a long period and not easily detected in small geographic localities
Relevant	Baseline and/or Stated Targets Exist or Should Exist	Number of households protected from flooding	Number of households with access to potable water (could be useful in another context, but not relevant to CEIP-I project objectives)

Progress towards increasing the resilience of the coastal population to climate-related hazards by improving and rehabilitating the embankment structures of the polders will be demonstrated by the following key indicators:

1. Gross areas protected against tidal flooding and storm surge in selected polders;
2. Coastal population with increased resilience against storm surges, which are expected to worsen due to climate change;

3. Increased cropping intensity inside the polder area; and
4. Quick availability of funds to execute emergency response operations (only to be triggered in the case of a major emergency).

These and other indicators make up the 15 indicators (at outcome, output and input level) that BWDB and World Bank have set as key and which are to be reported to their respective organizations' headquarters. These are included in the indicators of this M&E Framework.

In addition, Key Indicators to be tracked have been identified along the following dimensions:

- Key Indicators per PAD/DPP
- Agricultural Indicators
- Socio-Economic Indicators
- Financial Indicators
- Engineering Indicators
- Environmental Indicators
- Institutional Indicators

4.2. Data Collection Plan for Key Indicators

The data collection plan at impact, outcome and output levels is presented in Table 4 and Performance Indicator Reference Sheets (PIRS) for each of these indicators is compiled as Annex 1. The data collection plan summarizes the key features of the PIRS, indicating the manner in which the data will be collected, the frequency of data collection, the source of data, the types of disaggregation that will be presented, the result to which the indicator is linked and the baseline and target values when these are known.

The PIRS gives more detailed descriptions of each indicator including:

- The relation of the indicator to the results framework
- Precise definition so that there is no ambiguity as to what data is to be included, how the indicator is to be calculated and what it will mean
- Type of indicator (impact, outcome, output, input, process)
- Justification or management use to be made of the information
- Disaggregation (e.g., geographic, gender, PAH vs. non-PAH, etc.)
- Data Sources
- Data Collection Frequency/Timing
- Data Collection Responsibility
- Data Quality Assessment Schedule
- Known Data Limitations given the indicator definition and data collection plan
- Actions Planned to Address Data Limitations
- Plan for Data Analysis and Reporting

Table 4: Data Collection Plan for Key Indicators

S. No.	PDO Indicators per PAD/DPP	Disaggregation	Indicator Type	Result to Which Linked	Data Source/ Collection Methodology	Data Collection Frequency	Responsible	Units	Baseline Value	End of Project Target
1	Gross area protected	polder; package	outcome	PDO	DSC reports & field verification	Annual	M&E	1000 ha	0	100.8
2. PPCR core indic. A1.3	Direct beneficiaries from increased resilience to climate change (number) and % women	polder; package; gender	outcome -core	PDO	BWDB records (population in polder)	Annual	M&E	1000 persons	0	760 (50%)
3	Cropping intensity	package, gender, PAH vs non-PAH	outcome	PDO	HH survey	Annual	M&E	%	140	180
4	Contingent Emergency Appropriation	NA	input	PDO	PMU records	as required	M&E	USD/BDT	0	NA
S. No.	**Intermediate Results Indicators per PAD/DPP**									
5	Length of upgraded embankment	polder; package; type of embank-ment works	output	IR-1	DSC reports & field verification	Quarterly	M&E	kms	0	623
6	Drainage structures replaced and upgraded	polder	output	IR-1	DSC reports & field verification	Quarterly	M&E	No.	0	129
7	Regulators upgraded	polder	output	IR-2	DSC reports & field verification	Quarterly	M&E	No.	0	134
8	Flushing inlets upgraded	polder	output	IR-1	DSC reports & field verification	Quarterly	M&E	No.	0	244
9	Length of drainage channels upgraded	polder	output	IR-1	DSC reports & field verification	Quarterly	M&E	kms	0	794

S.No.	Intermediate Results Indicators per PAD/DPP	Disaggregation	Indicator Type	Result to Which Linked	Data Source/ Collection Methodology	Data Collection Frequency	Responsible	Units	Baseline Value	End of Project Target
10. PPCR core indic. B3	Area Afforested	polder	output - core	IR-2	DSC reports & field verification, Forestry Dept., NGO, M&E	Quarterly	M&E	ha	0	300
11	Water Management Organizations functioning (meeting regularly, operations, no. of disputes)	package, polder	**outcome**	IR-3	NGO reports & KII	Quarterly	M&E	No.	0	4
12	Water Management Organization (WMO) formed	polder	output	IR-3	NGO reports & KII	Quarterly	M&E/NGO	No.	0	4
13	Improved coastal monitoring - studies undertaken (as related to PPCR core indicator on the use of climate information in decision-making)		**output**	IR-6	???	Quarterly	M&E	No of studies	0	2
14	BWDB days of training provided	gender	output - core	All IRs	DSC reports; reports of all consultants, NGOs	Quarterly	M&E	No. of days (plus no. of pers-days)	0	160
15	Grievance Redress Committees (GRC) established	polder	**output**	IR-4	DSC/NGO reports	Quarterly	M&E/RAP Consultants	No.	0	17

S. No	Agricultural Indicators	Disaggregation	Indicator Type	Result to Which Linked	Data Source/ Collection Methodology	Data Collection Frequency	Responsible	Units	Baseline Value	End of Project Target
Agri-1	Volume and Value of Agricultural Production	package, gender, PAH vs non-PAH, crop type vs livestock vs fisheries	outcome	PDO-2	HH survey	B-M-F	M&E	Tons, BDT	TBD	track only
Agri-2	Yield (HYV rice, local rice, vegetables)	package, gender, PAH vs non-PAH	outcome	PDO-2	HH survey	B-M-F	M&E	tonnes/ha	TBD	track only
Agri-3	Percent of Cropped Area Planted to high yielding variety (HYV) of rice	package, gender, PAH vs non-PAH	outcome	PDO-2	HH survey	B-M-F	M&E	% of cropped area	TBD	track only
Agri-4	Percent of Cropped Area in High Value Crops	package, gender, PAH vs non-PAH	outcome	PDO-2	HH survey	B-M-F	M&E	% cropped area	TBD	track only
Agri-5	Expenditure per Farm Hectare on Chemical Fertilizer	package, gender, PAH vs non-PAH	outcome	PDO-2	HH survey	B-M-F	M&E	BDT/farm hectare	TBD	track only
Agri-6	Yield of Fish/Shrimp Production (Culture)	Species, type of fish-raising technology, Gender of cultivator, PAHs vs. Non-PAHs, Package	outcome	PDO-2	HH survey	B-M-F	M&E	tonnes/ha	TBD	track only
Agri-7	Fish Capture Tonnage	Species, Upazila	outcome	PDO-2	Fisheries Statistics, FGD, Local market survey	Annual, B-M-F	Fisheries Dept./ M&E	tonnes	TBD	track only
Agri-8	Average number of livestock per HH	package, gender, PAH vs non-PAH	outcome	PDO-2	HH survey	Annual	M&E	%	TBD	track only
Agri-9	Irrigated area - by source	polder	outcome	PDO-2	DAE data; FGD, HH survey	Annual	M&E	ha	TBD	track only

S. No.	Socio-Economic Indicators	Disaggregation	Indicator Type	Result to Which Linked	Data Source/ Collection Methodology	Data Collection Frequency	Responsible	Units	Baseline Value	End of Project Target
Soc-1	Household Income by Source (crop, livestock, fisheries, off-farm)	location (pkg), PAH vs non-PAH, vulnerable PAHs, gender, income source	impact	PDO-1; PDO-2	HH survey	B-M-F	M&E Consultants	BDT	TBD	track only
Soc-2	Percent of household expenditures on non-essential items	location (package), PAH vs non-PAH, gender, income source	impact	PDO-1; PDO-2	HH survey	B-M-F	M&E Consultants	%	TBD	track only
Soc-3	Mortality and Morbidity Rates	location (package), gender, age group	impact	PDO-1; PDO-2	GoB statistics; local hospital/health center data	B-M-F	M&E Consultants	% change	TBD	track only
Soc-4	Malnutrition: Percent Stunting, Underweight and Wasting Condition in Children	location (pkge), gender, age (6-23 mo & 24-59 mo)	impact	PDO-1; PDO-2	HH survey	B-M-F	M&E Consultants	%	TBD	track only
Soc-5	School enrollment rate	location (package), PAH vs non-PAH, gender, income source	impact	PDO-1; PDO-2	HH survey	B-M-F	M&E Consultants	%	TBD	track only
Soc-6	Number of shops that are in markets in the polders	location (package), PAH vs non-PAH, gender, income source	impact	PDO-1; PDO-2	Village survey	B-M-F	M&E Consultants	number	TBD	track only
Soc-7	Size of total landholding by category of household	location (package), PAH vs non-PAH (and squatter vs title holder), gender	impact	PDO-1; PDO-2	HH survey	B-M-F	M&E Consultants	hectares	TBD	track only

S. No.	Socio-Economic Indicators	Disaggregation	Indicator Type	Result to Which Linked	Data Source/ Collection Methodology	Data Collection Frequency	Responsible	Units	Baseline Value	End of Project Target
Soc-8	Size of farm landholding by category of household	location (package), PAH vs non-PAH (and squatter vs title holder), gender	impact	PDO-1; PDO-2	HH survey	B-M-F	M&E Consultants	hectares	TBD	track only
Soc-9	Land tenure pattern among polder residents	package, polder, gender	impact	PDO-1; PDO-2	HH survey	B-M-F	M&E Consultants	% of households	TBD	track only
Soc-10	Percent of physically resettled PAHs who are title holders	package, polder, gender, initial squatter vs initial title holder	impact	PDO-1; PDO-2; IR-4	HH panel	B-M-F	M&E Consultants	% of PAHs	0	track only
Soc-11	Percent of PAHs moving out of the polder areas	package, polder, gender, reason(s) for moving, temporary vs permanent move	impact	PDO-1; PDO-2; IR-4	HH panel; FGD; KII; local records	B-M-F	M&E Consultants	% of PAHs	TBD	track only
Soc-12	Local employment generated directly by the project	package, polder, gender, PAPs vs non-PAPs	outcome	IR-3	Contractor records; NGO records	Quarterly	M&E, RAP Cons, NGOs, Contractors,	person-years	0	track only
Soc-13	Quantity of land acquired versus plan from titled EP	package, polder, land ownership type (private, common, gov't), gender, type of land use	output	IR-4	PMU; RAP Consultant reports	Quarterly	M&E/RAP Consultants	hectares, number of PAPs	0	TBD
Soc-14	Number and percent of EP compensated compared to plan	package, polder, EP type, compens'n type, ownership categ.	output	IR-4	PMU; RAP Consultant reports	Quarterly	M&E/RAP Consultants	number of EP, percent of plan	0	100%

S. No	Financial Indicators	Disaggregation	Indicator Type	Result to Which Linked	Data Source/ Collection Methodology	Data Collection Frequency	Responsible	Units	Baseline Value	End of Project Target
Fin-1	Land Compensation paid to EPs	package (location), polder, gender, type of land use, ownership category	output	IR-4	PMU; RAP Consultant reports	Quarterly	M&E/RAP Consultants	BDT and percent, number of EP	0	TBD
Fin-2	Compensation of all types paid to EP compared to plan	package (location), polder, compensation type, EP type, gender, ownership category	output	IR-4	PMU; RAP Consultant reports	Quarterly	M&E/RAP Consultants	BDT and percent, number of EP	0	TBD
Fin-3	Value of damages/losses due to flooding events (whether river flooding or storm surges)	package (location), polder, loss type, event	outcome	PDO-3: IR-1; IR-6	BWDB and PMU records, assessments	Annually, only if an event occurs	M&E Consultants	BDT		NA
Fin-4	Payment Processing Lags	by step	process	All PDOs	PMU, DSC, Contractor records	Quarterly	M&E, DSC, Contractor, PMU	days	NA	NA
Fin-5	Appropriations for regular project operations		input	All PDOs						
Fin-6	Disbursements	package (goods, works, services)	input	All PDOs	PMU records	Quarterly	M&E, PMU	BDT and % of plan	0	
Fin-7	Pending Invoice Amounts	package (goods, works, services)	input	All PDOs	PMU records	Quarterly	M&E, PMU	BDT and % of plan	0	NA

S. No.	Engineering Indicators	Disaggregation	Indicator Type	Result to Which Linked	Data Source/ Collection Methodology	Data Collection Frequency	Responsible	Units	Baseline Value	End of Project Target
Eng-1	Embankment works: Bank revetment works	polder, package	output	IR-1	DSC and Works Contractor reports	Quarterly	M&E, DSC, Contractor	m3 and kms	0	
Eng-2	Embankment works: Slope protection of embankment	polder, package	output	IR-1	DSC and Works Contractor reports	Quarterly	M&E, DSC, Contractor	m3 and kms	0	
Eng-3	Drainage works: Re-excavation of drainage channels	package	output	IR-1	DSC and Works Contractor reports	Quarterly	M&E, DSC, Contractor	m3 and kms	0	
Eng-4	Drainage works: maintenance	package	output	IR-1	DSC and Works Contractor reports	Quarterly	M&E, DSC, Contractor	kms	0	
Eng-5	Concreting Works: Construction of flushing inlets	package	output	IR-1	DSC and Works Contractor reports	Quarterly	M&E, DSC, Contractor	number and m3 concrete	0	
Eng-6	Concreting Works: Repairing of sluices	package	output	IR-1	DSC and Works Contractor reports	Quarterly	M&E, DSC, Contractor	number	0	
Eng-7	Concreting Works: Repairing of flushing inlets	package	output	IR-1	DSC and Works Contractor reports	Quarterly	M&E, DSC, Contractor	number	0	
Eng-8	A crossdam in Nalian River		output	IR-1	DSC and Works Contractor reports	Quarterly	M&E, DSC, Contractor	number	0	1
Eng-9	Status of other works against work program	polder, package, work item	output & process	IR-1	DSC and Works Contractor report	Quarterly	M&E, DSC, Contractor	%	TBD	1
Eng-10	Quality Control Manual in place	package	process	IR-1	DSC and Works Contractor report	Quarterly	M&E Consultants	milestone	0	3

S. No.	Environmental Indicators	Disaggregation	Indicator Type	Result to Which Linked	Data Source/ Collection Methodology	Data Collection Frequency	Responsible	Units	Baseline Value	End of Project Target
Env-1	Percent of sites having surface water quality (chemical/physical) within acceptable standards	polder	outcome	IR-5	DPHE, Cluster Method	Semi-annually for campsites; Annually work sites; BMF polder	DPHE, M&E	DO (mg/l), **eC (mmoh/cm), pH, TDS (ppm)**, Cl (mg/l), **SS (mg/l)**, As (mg/l), Nitrates (mg/l)	TBD	within safe limits
Env-2	Percent of sites having ground water quality (chemical/physical) within acceptable standard	polder	outcome	IR-5	DOE , Cluster	Semi annually	DPHE, M&E	DO, eC (micro-ohms/cm), pH,TDS (ppm), Cl, SS, As, N	TBD	within safe limits
Env-3	The extent of land area with soil quality (pollution, waterlogging/ swamping, salinity and fertility) outside of acceptable standard	polder	outcome	IR-5	Dept. Ag Extension, Cluster Method	Semi Annually	M&E	pH, NPK (ppm), eC, depth in meters	TBD	track only
Env-4	Afforestation/Reforestation along river, house lots, canals	polder, PAHs vs. non-PAHs (for HH tree planting)	output	IR-5	Forestry Dept., NGO, Cluster methodology	Semi annually	M&E	ha	0	track only
Env-5	Surface Water Quality - biological	site, package	process (during construct-ion)	IR-5	DPHE, Cluster Method	Semi-annually for campsites	DPHE, M&E	Coliform bacteria (n/100 ml)	TBD	within safe limits
Env-6	Percent of borrow pits landscaped as per specifications	site, package	Process	IR-5	DSC, Cluster methodology	Quarterly	M&E, DSC	%	NA	100%
Env-7	Contractor Compliance with SEMPs	site, package	Process	IR-5	DSC reports, M&E spot checks	Quarterly	M&E, DSC	% rating	NA	100%

S. No.	Environmental Indicators	Disaggregation	Indicator Type	Result to Which Linked	Data Source/ Collection Methodology	Data Collection Frequency	Responsible	Units	Baseline Value	End of Project Target
Env-8	Min of Finance prepared and adopted CER Implementation Plan that is agreed with the WB		Milestone	IR-5	Ministry of Finance documents	Monitor quarterly until achieved	M&E	Y/N	No	Yes
Env-9	Disaster Management Capacity milestones achieved		Milestone	IR-5	M&E, MOE	B-M-F	DOE, M&E	rating or Y/N	No	Yes
Env-10	BWDB has prepared, adopted and disclosed safeguards instruments required as per WB guidelines.		Milestone	IR-5	BWDB documents	monitor quarterly until achieved	M&E	Y/N	No	Yes

S. No	Institutional Indicators	Disaggregation	Indicator Type	Result to Which Linked	Data Source/ Collection Methodology	Data Collection Frequency	Responsible	Units	Baseline Value	End of Project Target
Inst-1	Polder Committees functioning (meeting regularly, operations, no. of disputes)	package, polder	outcome	IR-3	NGO reports & KII	Quarterly	M&E	No.	0	4
Inst-2	M&E Capacity of BWDB	by function, gender	outcome	All PDOs	M&E institutional assessment	B-M-F	M&E, PMU	rating	TBD	Satis-factory
Inst-3	Polder committees formed	package, polder	output	IR-3	KII; project records	Quarterly	M&E, NGO	number	TBD	TBD
Inst-4	Number of persons trained in resettlement at BWDB	gender, trainee type	output	IR-4	PMU, DSC, RAP reports	Quarterly	DSC, RAP Consultants	number of persons	0	TBD
Inst-5	GRC functioning	package, polder	output	IR-4	Assessment tool	Annual	M&E; RAP Consultants	No. by level of perform-ance	0	17
Inst-19	Procurement Process Lags	package	Process	All PDOs	PMU records	Quarterly	M&E, PMU	days	NA	track only

4.3. Process Indicators

In addition to the indicators for which PIRS have been prepared, there are a large number of indicators spanning the required dimensions (engineering, financial, environmental, socio-economic, institutional, etc.) and indicators covering operational risks and risk mitigation measures which have been developed to monitor the processes leading up to the outputs. These process indicators are important for measuring progress, knowing whether procedures, steps, social safeguards, etc. have been followed, promoting beneficiary consultation, preventing fraud and corruption and assuring quality of works and services. Reporting formats have been prepared for capturing data on most of these indicators and both the data and data entry formats will eventually be computerized in the Project Management Information System (PMIS) which is currently under development. Examples of process indicators are presented in Table 5 and examples of data collection formats are provided in Annex 2.

Table 5: Examples of CEIP-1 Process Indicators

Socio-Economic Process Indicators

Number of RAP Consultations
Number of field visits by Social Specialists by agency (PMU, DSC, RAP Consultants, M&E Consultants)
Status of RAP development
Property Valuation & Joint verification Committee (PVC & JVC) in place
PVC & JVC functioning
RAP: Census and asset verification/quantification procedures in place and followed
Livelihood & Skills Dev. Training to PAPs
Effectiveness of compensation delivery system (in public place, or other specify, etc.)
LA & R Budget/funds placed to DC office
Resettlement & Rehabilitation Budget/funds finalization & placed to field office
No. of non-titled EPs identified
No. of ID Card issued to non-titled EPs
No. of titled EPs identified
No. of ID Cards issued to titled EPs
PAPs awareness level: LA&R Policy
PAPs awareness level: Process of obtaining Compensation & Resettlement benefits
PAPs awareness level: Process of submitting Grievance petition for redressal
Overall level of satisfaction with the PCDP procedure and results
Use of local labor, PAPs for works and afforestation program

Operational Risks and Risk Mitigation Indicators

Compliance with GAAP
Staffing Levels – Filled vs Vacant Positions
Community Monitoring and Participation
Management Findings by Auditors

Agricultural Indicators

Extent of Agricultural Extension Service Activity
Number of type of new technologies
Adoption rates of new technologies (percent of farm households)
Extent of technology adoption (percent of cropped area)
Use of IPM/IPNMS practices for the management of nutrient and pests of the crops will be promoted

Engineering Indicators

Compliance with Quality Standards and Specifications
Staffing Levels – Filled vs Vacant Positions
Efficiency of works (rate of output)
Status of Mobilization and Quality of Equipment
Designs completed against plan
Timeliness and quality of reports

Environmental Indicators

Loss of flood plain habitat (nursery ground) of aquatic species
Impact on fish migration and navigation
Flow diversion structures causing bank erosion and sedimentation further downstream
Loss of connection between the river and wetlands inside the project vs. Restoration of connectivity through regulators, excavation of connecting channels
Water and land pollution due to disposal of sewage and solid waste
Water pollution from leakage of oil and chemicals
Loss of agricultural land/forest/ wetland
Proper operation of regulators for retaining desired water level inside, establish sanctuaries
Fish pass structures and navigation gates
Community Monitoring and Participation

Institutional Indicators

BWDB M&E Needs Identified
Evidence of application of knowledge, skill and practices learned through training
WMO/Polder Committee meetings held
WMO/Polder Committee O&M fee collection rate
Adequacy of O&M arrangements
Social conflict with other occupational groups - farmers vs. fishers
Utility of Web-based M&E/PMIS

4.4. Computerized Project Management Information System

The computerized Project Management Information System (PMIS) will be a web-based user-friendly system which will present data on progress and performance of the project. It will allow data to be entered on-line and for stakeholders to view the data and get maps and data tables dynamically. Geo-referenced information will be available as appropriate.

The web-based PMIS application software will be developed to view, edit, query and generate reports using spatial data with the associated attribute data and to allow the user to generate a separate window for table, graphs, maps and photos.

Web based PMIS is an applications and a methodical process for collecting and using project information. This system will be an effective tool for BWDB, PSC, PMU, project managers, project engineers as it will contain both management information and information on results.

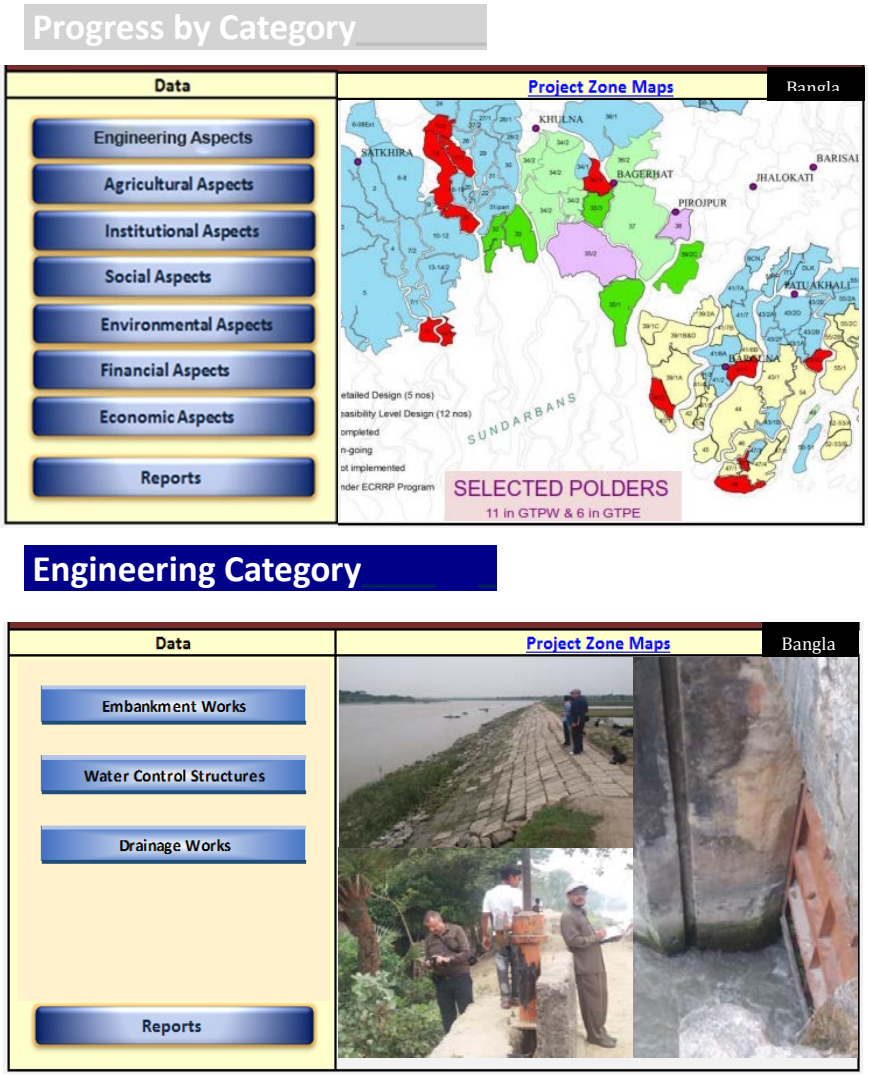
Aspects that will be captured in the PMIS/GIS database will include:

1. PDO Indicators per PAD/DPP
2. Intermediate results indicators per PAD/DPP
3. Agricultural Indicators
4. Financial Indicators
5. Engineering Indicators (including BoQ)

6. Environmental Indicators
7. Institutional Indicators

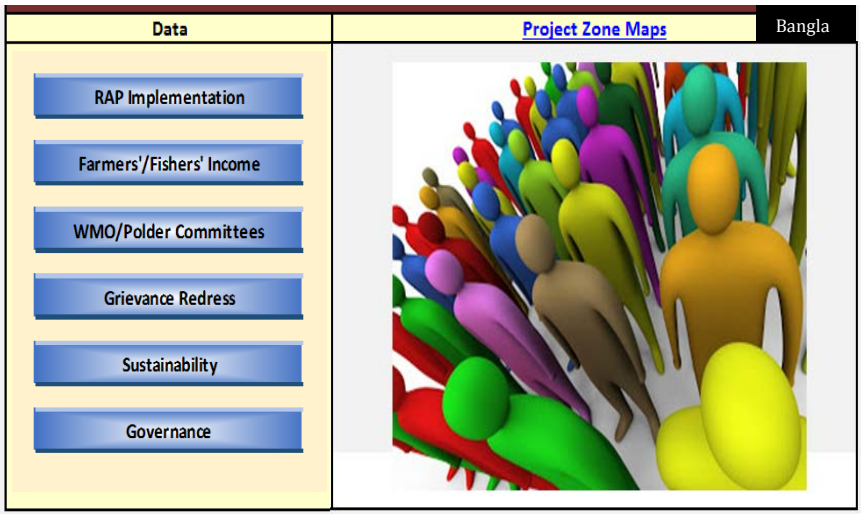
An example of how the first few screens of the web-based system may look follows:

Figure 7: Example of Web-based Tabs



Environmental Category

Social/Institutional Category



A web-based PMIS is being designed to operate based on the results framework, process indicators and BoQ using a web interface for operation through the Internet. It will automate storage, retrieval, analysis, and reporting of information for the monitoring and evaluation of CEIP-I activities, processes, works, outcomes and impacts.

The web based PMIS is a computerized system that delivers project monitoring information or tools to a user through Web browser like Internet Explorer, Google Chrome or Mozilla. The computer server that hosts the Web GIS based PMIS application is linked to the user's computer by a network with the Transmissions Control Protocol/ Internet Protocol (TCP/IP) protocol. The web-based PMIS definition can be extended such that a web-based PMIS includes a web-based GIS as a problem solver using a geographic data query/display/analysis process.

5. Evaluation Plan

In order to have the best available empirical evidence and the information from project implementation to generate new knowledge and have greater accountability, the Third Party M&E Consultants will undertake CEIP-1 performance and impact evaluations. These evaluations will measure the effectiveness, efficiency, and long-term impacts of project activities on beneficiaries and communities.

The SHELADIA / BETS Team believes that project evaluation should support innovation and so it should blend traditional and developmental approaches. Clearly, traditional evaluation techniques have their place given the need for accountability to Government and the development partners and this is particularly true for the periodic evaluations such as Mid Term Evaluations (MTE) and Final Evaluations. Yet, our approach will involve continuous monitoring and ongoing participatory evaluations, which will incorporate elements of developmental evaluation wherein project implementers and beneficiaries will be at the center of feedback, learning and adaptation.

Table 6: Characteristics of Traditional versus Development Evaluations

Traditional Evaluations	Developmental Evaluations
• Judge success or failure • Measure against fixed goals • External for objectivity • Linear cause/effect models • Accountability to external • Accountability for control, blame • Evaluator controls evaluation • Engender fear of failure	• Provide feedback for improvement • New measures as goals evolve • Internal, integrated, interpretive • Seek to capture system dynamics • Accountability to values, commitments • Understand & respond strategically • Evaluator matches process to context • Feed hunger for learning

Adapted from: Patton, Michael Q., 2006, "Evaluation for the Way We Work", The Nonprofit Quarterly, Spring issue.

Monitoring and evaluation will be **participatory** and **consultative**. Beneficiaries and stakeholders are knowledgeable and sometimes can provide more effective and realistic solutions than the "experts". Stakeholders must participate in all stages of a project – planning, feasibility study, design, implementation, operations & maintenance, **and M&E**. Stakeholders include the communities, local leaders, NGOs, consultants, government staff, policymakers and development partners.

5.1. Performance Evaluations

Performance evaluations (PEs) will use quantitative and qualitative data to determine the effectiveness and efficiency of the CEIP-1 program in terms of its implementation, management, and collaboration with other stakeholders. An activity or intervention is effective if it meets its objectives as stated in the CEIP-1 results framework. A CEIP-1 activity is efficient if the planned outputs were achieved using the allocated inputs needed (or even less) and there was no alternative less costly method (in terms of time or resources) to achieve those outputs. Efficiency also assesses the timeliness of execution.

To collect quantitative data for the evaluation, the M&E Consultants will conduct extensive household-level surveys covering demographics, agriculture and non-agriculture production, housing quality, asset ownership and other measures of economic well-being, , health and nutrition, social capital, and other measures of socio-economic conditions. For Project-Affected Households, the M&E Consultants will also collect information on the specific type(s) of assistance being received at the individual or

household levels. This will help triangulate information on program participation from RAP Consultant and project records.

The PE will also include qualitative evaluation activities at the individual, households and community levels to collect contextual information on perceptions towards CEIP-1 implementation and management.

5.2. Impact Evaluations

Impact evaluations (IEs) will rigorously measure the effects of CEIP-1 by comparing beneficiaries to a valid counterfactual. Comparing the intervention recipients to a valid counterfactual, or a group of non-recipients that have similar observable and unobservable characteristics, will allow the IE to attribute the (presumably positive) outcomes of the population in the 17 CEIP-1 polders to CEIP-1 because all other possible factors have been controlled for by the similarities between the beneficiary and non-beneficiary groups. That is, both groups are similar in all other aspects except for the CEIP-1 intervention.

5.3. Evaluation Objectives

To define the evaluation objectives, the M&E Consultants will consult with the PMU, World Bank and other stakeholders to identify the priority areas or questions that need to be evaluated or answered within the wide range of CEIP-1 activities. Such consultation will ensure that the direction and scope of the evaluation meets the needs of the BWDB and World Bank and that expectations and approach are made mutually consistent. Because of the different scope and approaches between the PE and IE, each evaluation will have a different set of questions that will serve as objectives. PEs assess the more programmatic dimensions of the project. For the PE, an illustrative list of evaluation questions would include:

- Was CEIP-1 effective in implementing its interventions within its timelines (i.e. were outputs met as planned and as scheduled)?
- Was CEIP-1 efficient in rolling out all planned interventions? Which ones were not and why?
- How was CEIP-1 received in terms of the contractors' and various consultants' approaches to working with the local government, communities, partners, and other stakeholders?
- What are the local perceptions towards the different CEIP-1 activities and how could the project implementation be improved?

IEs measure the longer-term effects of the CEIP-1 activities on beneficiaries. IEs also are designed to measure specific interventions or packages of interventions rather than assessing overall program effects. An illustrative list of IE questions would include:

- What is the impact of the livelihood restoration training program on incomes of PAHs?
- What is the impact of CEIP-1 on the production levels and cropping intensity of crop producers? Impact on production levels of shrimpers?
- Did the WMOs prove effective in equitable management of water allocation and management of the brackish versus fresh water regimen?
- Did the landless persons/households that were resettled under CEIP-1 maintain, improve or experience deteriorated economic status?
- What is the state of resilience of households inside the project polders compared to non-project households in nearby polders with respect to income level, productive assets, diversified income sources, perceived vulnerability to flooding, degree and extent of soil salinity and waterlogging, etc?

- How does this differ by gender and initial vulnerability status?
- Are O&M arrangements in place? What is the evidence of sustainability with respect to O&M?
- Did the physical works reduce the frequency and extent of required emergency works? The frequency of flooding?

5.4. Evaluation Designs

The PE will be a mixed methods evaluation using quantitative and qualitative techniques. Quantitative data will be drawn from HH survey results, CEIP-1 project records, and secondary data from the statistical agencies and/or relevant government units. Qualitative findings will be drawn from key informant interviews and focus group discussions and will complement findings, conclusions, and recommendations drawn from the quantitative evaluation. Case studies will be employed to explore in-depth questions of why and how changes take place. Performance evaluations will thus report on standard indicators, but also be formative in nature.

The IE design is discussed in the next section. It is understood that a randomized control trial (RCT), also known as an experimental design, will not be an option because all households and PAHs within the polders will benefit systematically according to the category of their loss per the RAP and it would not be ethical to withhold benefits from any entitled persons. Thus, a quasi-experimental design has been developed which relies on project (treatment) households and non-project (control) households. The M&E Consultants will apply randomization techniques within the quasi-experimental design where feasible to have as much methodological rigor as possible.

5.5. Outline of Steps for the Baseline and Evaluation Studies

The sampling methodology for the CEIP-1 baseline, mid-term and final evaluations is presented in the next chapter. The steps required in the preparation and execution of the baseline and subsequent evaluations are outlined below:

Step 1. Develop the sampling frame and select the sample

As the first step in preparing for the studies, a sampling frame must be developed. Since polders do not correspond to any administrative boundaries and no prior list or map of villages by polder exists, the M&E Consultants invested a great deal of effort to finalize the list of villages. The data on number of households and population in these villages was then drawn from the BBS census of 2011 to arrive at the total number of households in the CEIP-1 polders.

Once the full list of villages inside the Project's 17 polders is knows, a sample of villages is selected randomly with probability proportional to size (PPS). Now the sampling frames for each of these randomly selected villages must be prepared. This entails gathering a list of all households by name in each selected village.

Once the full list of households in the selected villages is prepared, the final step is to randomly select the households to be interviewed – again based on the principle of PPS.

Step 2. Design and pre-test the survey

The next step in the process will be to draft the contents of the survey instruments based on indicators to be tracked and other required information. Using the CEIP-1 PMP, the M&E Consultants will develop structured questions to capture information on all indicators as prescribed in the PIRS. All questions will be grouped into modules based on the common themes or components to ensure that the administration of the survey will have a clear and logical flow and that it complies with other proven survey design principles.

Copies of the draft survey instruments will be forwarded to PMU for review. Any feedback will be sent to the M&E teams to incorporate in the survey. The finalized versions of the survey instruments will then be translated in Bengali and back-translated to confirm that questions remain clear and it retains all original meanings and contexts to capture the required information.

In developing the instruments, the following survey design principles will be followed:

1. Always begin with an informed consent form
2. Questions should be clear and concise
3. Only one topic per question
4. For categorical questions, answer options should generally be mutually exclusive
5. For categorical questions, answer options should be exhaustive[5]
6. Questions/sections should be ordered from easiest to answer to the hardest
7. Questionnaires should not be too long to avoid survey fatigue
8. A unique identifier to be assigned for each survey

Instruments will be developed for specific types of data collection methods.

Step 3. Hire and train enumerators, and supervisors and field test survey instruments

Enumerators and supervisors will be hired and trained. The training will involve a series of sessions before going to the field in which the M&E Consultants will explain how each question of the survey should be asked, when to skip questions based on responses received to earlier questions and what protocol to follow if someone does not wish to participate or is not available. Participants will be allowed to ask clarifications or give feedback based on prior experience or knowledge of local conditions. The training will also include mock surveys and similar exercises so that enumerators will be more familiar with the instruments. Following the classroom-type sessions, the M&E and survey teams will then pilot test the instruments on a small sample of respondents with a similar profile to the actual survey sample. This will allow the testing of "skips", confirm the intent of the questions is understood, catch and correct ambiguities and ensure important nuances are conveyed. The pilot test will provide an initial assessment of the questions, responses, instructions, and administration times of the entire survey.

Step 4. Collect the data

This phase of the study involves the actual administration of the surveys. The M&E Consultants will oversee all day-to-day activities to ensure all tasks are carried out according to the design. The M&E Consultants will conduct initial check-ins with survey supervisors and managers to assess how the first days of data collection are rolling out and to collect early field-based data. Supervisors and managers will then give regular updates to the senior M&E team on how the survey is progressing.

The M&E Consultants will also oversee the data entry on a rolling basis to verify that data entry systems are being followed. Initial data results will also give the M&E team an idea of how well data is being collected by field staff.

Step 5. Enter and validate/clean data

The M&E Consultant's Information Management Specialist and Data and Information Analysts will conduct logic checks and other quality assurance tasks to review the data prior to the analysis phase.

A data entry team will develop data templates where survey returns will be entered as they come in from the field. The team will enter returns on a periodic basis so that errors can be caught and corrected early and will implement processes, such as double entry, to minimize and capture errors early. The survey manager and supervisors will conduct field audits and random spot checks of surveys

[5] Answer options may include "Other, please specify" but the frequency of this response is expected to be low.

as a quality control measure. The data entry team will then conduct the necessary tasks such as coding and running tests to develop validated data sets. All raw files, codebooks, logs, and other files used to create the cleaned sets will be kept with the M&E Consultants for documentation and record keeping.

Step 6. Analyze results

The M&E Consultants, in collaboration with M&E counterparts of BWDB as available, will conduct the analyses of the validated data to identify significant findings and results. Analysis of all indicators will be done as prescribed in the PIRS and PMP such as gender disaggregation, comparison between types of PAHs, package, polder, and all other sub-group analyses.

Step 7. Develop and finalize the study reports

The M&E Consultants will develop the draft report and will present findings and recommendations based on survey results. This will allow free discussion and contributions to the analysis through participatory evaluation methods as stakeholders become involved in the interpretation of results. The draft report will be revised, incorporating stakeholders' comments and feedback.

Step 8. Disseminate findings and lessons

In line with the results-based approach and evidence-based programming supported by both the GoB and the World Bank, the findings and lessons captured in the studies will be discussed with implementing partners (CEIP-1 contractors, consultants and NGOs), beneficiaries and other stakeholders and development partners. Reports will be made available on the project website and lessons learned workshops will be conducted.

5.6. Evaluation Priorities

Two major groups will be subject to evaluation – 1) the general polder population and 2) Project Affected Households (those suffering some sort of loss under the RAP).

The sampling methodology described in the next chapter gives priority to discerning the effects of CEIP-1 on the general polder population and the sample size has been set to allow statistically valid conclusions to be drawn with respect to this population. With an estimated population of more than 900,000 residents and 200,000 households who are to be affected to a greater or lesser extent by the embankment works, institutional strengthening of WMOs/PCs, and afforestation, the impact on the overall population is considered essential. This is especially true given that two additional phases of CEIP are being planned. Internal rates of return for the project must be assessed from empirical results to inform the design of these very substantial future investments.

Clearly, evaluating the impact of Project-induced resettlement on PAHs is also important and the M&E Consultants' TOR specifically states:

> "The baseline survey will establish the pre-project socio-economic conditions of Affected Persons (APs) and the affected villages against which subsequent changes can be evaluated. Again, the baseline survey should give the complete socioeconomic profile of sampled affected persons (APs) with gender-disaggregated data and details related to the project results indicator and potential benefit from the project. The Consultant is expected to use this as the base document for the development of project specific M&E framework, if necessary, by adjusting and find tuning the indicators and targets."

The number of PAHs in Package 2 is recently shown to be 6,817 and the old RAP for Package 1 (currently under revision) provided an estimate of over 4,400 PAHs. With Package 3 polder population one-third larger than Packages 1 and 2, we may estimate the total number of CEIP-1 PAHs to be around 18-20

thousand, which represents a bit less than 10% of the polder population. Although PAHs are a small proportion of the polder population, it must be recognized that they are affected more profoundly than the general population and that World Bank safeguards and BWDB commitment require an assessment of the impacts of resettlement.

Given the number of subcategories of PAHs, based on types of losses sustained (loss of land, loss of residence only, loss of business premises only, loss of both residential and business premises, etc.), to obtain statistically significant results, the sample size would need to be, in some case, over 50% of the PAHs. This is far beyond the resources available.

Therefore, the M&E Consultants have made the judgment that between 3% and 15% of the PAHs suffering a particular type of loss would be sampled and followed over time. The higher percentages would be applied where the numbers in the category are small and the lower percentages would be sampled where the number of PAHs in the category are large, in order to provide a sufficient number of observations with which to discern trends. While this level of sampling will not yield the power to prove statistically that changes are due to CEIP-1, it will allow tentative conclusions to be drawn. To improve the power of the sample, it is planned to survey the same sample over time (panel survey).

6. Impact Evaluation and Baseline Methodology

6.1. Household Survey of General Population of CEIP-1 Polders and Control (non-Project) Polders

The foundation for impact evaluation is a properly designed baseline survey. Given that the project works have been organized into three packages with works likely to commence in early 2016 for package W-01, late 2016 for package W-02 and late 2017 for package W-03, a series of three baselines is highly recommended. Baseline surveys must be conducted just before works commence in order to accurately establish the pre-project conditions. This is especially true in the coastal polders since an intervening monsoon season can drastically alter physical, environmental and socio-economic conditions in the project area.

In addition, the 17 polders span a great variety of conditions so conducting a baseline only on Package 1 polders and then relying on just Package 1 data for evaluation could produce misleading results. Although the CEIP-I polders are clustered mainly in the South West Region, they exhibit almost every type of major physical problem that affects the polder system. The types of problems span:

- Drainage congestion within the polders due to siltation of peripheral rivers
- Vulnerability to storm surges and river inundation due to high tides
- Low, medium and high risk zones
- Deteriorated embankments
- Poor condition of drainage structures
- Sedimentation in drainage khals
- Riverbank erosion
- Embankment erosion due to wave action
- Unauthorized cuts in embankments
- Conflicts among fisheries (especially shrimp), agriculture and other users of the land and water resources
- Ineffective maintenance

- Lack of equitable operational rules
- Authorized and unauthorized settlements on embankments that will likely need to be disturbed during embankment improvement
- Others

Furthermore, the 17 polders also exhibit great variability in their land use, cropping systems and level of economic activity. Some of the polders, for example, have extensive irrigation, groundwater sources and high cropping intensity, while others have much more limited irrigation and a lower cropping intensity. The polders also vary as to the incidence of vulnerable populations.

Since the three packages will be commenced at three different times, each separated by nearly a year, the sample size has been selected to allow each package to serve as a stratum for analysis. That means that we expect to be able to reach statistically valid conclusions about observed changes in each of the three groups of polders. We will also be able to make conclusions about the CEIP-1 impacts overall by combining the data for all polders (i.e., all packages), though the first package is expected to show impacts earlier than the other packages so segregating its results is advantageous for learning lessons early.

One innovation we are proposing, given that this is a flood protection project at its core, is that the baseline will be conducted across all 17 polders (and control households in non-project polders) during each baseline round (early 2016, early 2017, early 2018). Why would this be useful? The reason is that the principle benefit to a flood protection project is the avoidance of losses, rather than increases in production and incomes (though this is also expected to occur with the reduction in salinity problems and the increased investment that might come with reduced risk and uncertainty). With data in hand for one year before package 2 is implemented and 2 years before package 3 is implemented, we capture a record of the without project scenario which will be strong evidence of project benefit when compared with the improved conditions in the package 1 polders. While this is a more data-intensive approach, we will not find a better comparison group than the later phase polders within CEIP-1.

To establish the minimum sample size for each stratum, we use the well-known formulas below. Equation 1 applies for variables we are measuring in terms of proportions (e.g., percent of cropped area planted to HYV rice) while Equation 2 applies for variables we are measuring in terms of means or absolute values such as incomes or yields.

Equation 1: Sample Size Determination for Proportions

$$n = D\,[(Z_a + Z_b)^2 * (P_1\,(1 - P_1) + P_2\,(1 - P_2))\,/(P_2 - P_1)^2]$$

where

n = required minimum sample size per survey round or comparison group

D = design effect

P_1 = the estimated level of an indicator measured as a proportion at the time of the first survey round or control area

P_2 = the expected level of the indicator either at some future date or for the project area such that the quantity (P2 - P1) is the size of the magnitude of change it is desired to be able to detect

Z_{alpha} = the Z-score corresponding to the degree of confidence with which it is desired to be able to conclude that an observed change of size (P2 - P1) would not have occurred by chance (alpha — the level of statistical significance), and

Z_{beta} = the Z-score corresponding to the degree of confidence with which it is desired to be certain of detecting a change of size (P2 - P1) if one actually occurred (beta — statistical power).

Z_a and Z_b have "standard" values depending on the reliability desired. These are provided below. Note that the higher the percentage, the more certain the program will be of its conclusions.

Table 7: Z-scores at Different Levels of Confidence (Alpha) and Power (Beta)

α	Z_α	β	Z_β
.90	1.282	.80	0.840
.95	1.645	.90	1.282
.975	1.960	.95	1.645
.99	2.326	.975	1.960
		.999	2.320

Equation 2: Sample Size Determination for Means or Totals

$$n = D\,[(Z_a + Z_b)^2 * (sd_1^2 + sd_2^2) / (X_2 - X_1)^2]$$

where

n = required minimum sample size per survey round or comparison group

D = design effect

X_1 = the estimated level of an indicator measured as a proportion at the time of the first survey round or control area

X_2 = the expected level of the indicator either at some future date or for the project area such that the quantity (X_2 - X_1) is the size of the magnitude of change it is desired to be able to detect

sd_1 and sd_2 = expected standard deviations for the indicators for the respective survey rounds

Z_{alpha} = the Z-score corresponding to the degree of confidence with which it is desired to be able to conclude that an observed change of size (X_2 - X_1) would not have occurred by chance (alpha — the level of statistical significance), and

Z_{beta} = the Z-score corresponding to the degree of confidence with which it is desired to be certain of detecting a change of size (X_2 - X_1) if one actually occurred (beta — statistical power).

Given our sampling methodology, which employs a large number of clusters with small number of households within each cluster, we take D to be equal to 1.5[6]. We assign a value of 95% for confidence level (the probability that a change we conclude is due to the project is actually due to the project) and 80% for statistical power (meaning there is a 20% probability that we will wrongly conclude a change did not occur, when it did in fact occur). After assessing several of the more challenging indicators with respect to sample size requirements using the above formulas, the sample size required to satisfy the most demanding indicator is household income and percent of area planted to high-valued crops which require an estimated 567 and 588 households respectively. Taking the number of

[6] The parameter D equals one for strictly adhered simple random sampling (no design effect) and it increases as clustering increases since household in a cluster are likely to be similar to each other (intra-cluster correlation). With clusters of 30 households, D is usually taken to be 2.0. Our methodology is very robust in that there will be a large number of clusters and a small number of households per cluster.

588 households and adding about 10% for non-response or incomplete data, the minimum sample size per package is set to be 640 households.

Given the indicators that will be measured by HH survey, the expected effect on those indicators of the project and the sampling design, the sample size for each stratum is set at a minimum of 640, but since the sampling methodology requires that the probability of selection be proportional to size (PPS), this number applies only to the smallest (household number-wise) package which is Package 1. The sample size for the other packages will be increased proportionally. The Table below shows the number of households (HHs) in the project area by package and by polder.

Table 8: Population and Number of Households of CEIP-1 Area – Comparing PAD Estimate with M&E Consultants Estimate

Package	PAD (2013) population	PAD (2013) households	M&E Team estimate (BBS 2011) population	M&E Team estimate (BBS 2011) households	% variance in population	More than 50% variance	Household Distribution M&E Team (BBS 2011)
Package -1	230,959	48,584	265,438	63,581	15%		29%
Package -2	213,743	43,672	293,422	69,818	37%	Polder 40/2, 41/1, 48	32%
Package -3	318,258	61,967	363,541	86,104	14%	Polder 34/3	39%
Total	762,960	154,223	922,401	219,503	21%		100%

The reader will note there are two sets of estimates for population in the project area. The original Project Appraisal relied on the feasibility study conducted in 2011-2012 which used data from the BBS 2001 census and added an assumed population growth factor to establish estimates of the population in the 17 CEIP-1 polders. The M&E Consultants have used the 2011 BBS census data after painstakingly attempting to identify which villages fall within CEIP-1 polder boundaries (see Annex 3 which are maps of selected polders and Annex 4 which contains the list of CEIP-1 villages). We used satellite images and existing shape files to identify the Upazilas, Union Parishads and mouzas partially or completely in the polders and then listed all the villages under each mouza. These village lists and mouzas where segregated as being within or outside the polder through extensive consultations with PMU, XEN/Khulna and a number of chairmen of mouzas and wards. The population and household number were then drawn from the 2011 BBS census data for this final list of villages. It should be noted that these numbers have not been adjusted by any estimated population growth factor (or in-migration or out-migration estimate), so they represent the 2011 situation.

Given the population distribution among packages and assuming the polder sizes have stayed the same relative to one another since 2011, Package W-01 will have 640 households in the sample, Package W-02 will have 703 and Package 3 will have 867.

Table 9: Target Sample Size for Household Survey by Package

Package	Target Household Sample Size	Distribution of Sample Households
Package -1	640	29%
Package -2	703	32%
Package -3	867	39%
Total	2,210	100%

Table 10: Package 01 Population and Sample Size

S. No.	Polder No.	Location	No. of total villages	No. of total HH	No. of sample clusters	No. of HH per cluster	Target No. of sample HH	Rounded No. of sample HH
1	32	Dacope	18	11,022	9	12	111	108
2	33	Dacope	43	14,285	12	12	144	144
3	35/1	Sharankhola/ Morelganj	55	30,711	26	12	309	312
4	35/3	Rampal/ Bagerhat Sadar	27	7,563	7	12	76	84
		TOTAL Package 1	143	63,581	54	12	640	648

Table 11: Package 02 Population and Sample Size

S. No.	Polder No.	Location	No. of total villages	No. of total HH	No. of sample clusters	No. of HH per cluster	Target No. of sample HH	Rounded No. of sample HH
5	40/2	Patharghata	26	15,816	13	12	159	156
6	41/1	Barguna Sadar	38	13,690	11	12	138	132
7	39/2C	Matbaria	23	23,348	20	12	235	240
8	43/2C	Galachipa	11	4,557	4	12	46	48
9	47/2	Kalapara	14	3,019	5	6[7]	30	30
10	48	Kalapara	43	9,388	8	12	94	96
		TOTAL Package 2	155	69,818	61	12	703	702

Table 12: Package 03 Population and Sample Size

S. No.	Polder No.	Location	No. of total villages	No. of total HH	No. of sample clusters	No. of HH per cluster	Target No. of sample HH	Rounded No. of sample HH
11	14/1	Koyara	17	4,898	4	12	49	48
12	15	Shyamnagar	16	6,762	6	12	68	72
13	16	Paikgacha, Tala	78	29,368	24	12	296	288
14	17/1	Dumuria	45	4,801	4	12	48	48
15	17/2	Dumuria	15	10,749	9	12	108	108
16	23	Paikgacha	34	5,793	5	12	58	60
17	34/3	Bagerhat Sadar	69	23,733	20	12	239	240
		TOTAL Package 3	274	86,104	72	12	867	864

Given the clustering approach, the actual sample size by package is adjusted. The distribution stays substantially the same as can be seen in the table below.

Table 13: Adjusted Sample Size for Household Survey by Package

Package	Adjusted Household Sample Size	Distribution of Sample Households
Package -1	648	29%
Package -2	702	32%
Package -3	864	39%
Total	2,214	100%

[7] Due to the small size of the population in this polder, the number of HHs per cluster is halved and the number of clusters is increased proportionally to ensure greater representativeness in the sample (i.e., to reduce error due to sampling). The PPS principle is respected since the total number of HHs remains as per target.

A control sample of approximately 700-800 HHs will be drawn from nearby non-project polders in order to provide a sufficiently large non-project pool to establish a comparison group. The control polders will be selected based on the following criteria:

- Adjacent to CEIP-1 polders
- Similar location with respect to the coast to maximum possible extent
- No embankment rehabilitation/upgrading program
- Span the six CEIP-1 districts

6.2. Survey of Project Affected Households (PAH)

In addition to the general polder population household survey which will be used to gauge project impacts broadly across the polders, the M&E Consultants are proposing an innovation. We suggest a survey of PAHs would be conducted. The PAH survey will be needed to assess the impact and efficacy of resettlement and the RAP policy and to confirm that the policy was followed. While it is possible that a number of HHs will fall within the general survey as well as the PAH survey, their numbers would not be sufficiently high to reach any conclusions about this important subgroup of the population.

In case a PAH is randomly selected for both the general survey and the PAH survey, nothing precludes the PAH from serving in both samples. The PAH version of the survey instrument will be used exclusively in such cases assuming it contains all the information in the general survey plus additional PAH-specific questions.

As an example of the sampling that will be done, let us look at Package 2. The M&E Consultants will randomly select PAHs from lists (sampling frame) made available by the RAP Consultants through the Design and Supervision Consultants. The sampling frame will be broken down into strata such as title holders versus non-title holders, PAHs losing residence, PAHs losing business, PAHs losing both residence and business, etc. as summarized for Package 2 polders in the table below. In addition to the strata shown, other strata segregating the vulnerable PAHs will be introduced once the data is available.

In order to ensure that a sufficient number of PAHs are drawn from each stratum without requiring a very large sample, we depart from the principle of Probability Proportional to Size (PPS). Instead, we make sure that each stratum has a sufficiently large sample to allow trends to emerge – though they will not, at the level of a single stratum, provide results that are statistically significant for many of the questions (variables) being asked. Important PAH strata (categories of losses) such as those losing residence, business or both will have larger samples drawn compared to strata such as loss of only trees or only secondary structure or only part of one's land.

The M&E Consultants will also specifically study the impact of the Project on vulnerable households within the PAHs. Vulnerable households are defined as those households that may suffer disproportionately or face the risk of being marginalized from the effects of resettlement and specifically include: (i) female headed households with dependents, (ii) disabled headed households with dependents, (iii) nationally designated poor households, (iv) elderly headed households with no means of support and landlessness, and (v) poor indigenous peoples or ethnic minorities[8].

[8] The project area, as reported in the PAD and by the RAP Consultants, has no indigenous peoples or ethnic minorities.

Table 14: Example of PAH sampling for Package 2 Polders

Total PAHs (title plus non-title holders) - Package 2 Polders (a + b)

Category of loss by PAHs	Polder 39/2C	Polder 40/2	Polder 41/1	Polder 43/2C	Polder 47/2	Polder 48	Total	Sample Size non-vulnerable	Sample Size vulnerable	Total Sample Size	Sampling percent
PAHs losing land	0	1	11	63	11	2	88	7	7	14	15%
PAHs losing residence	461	826	355	194	42	466	2344	35	35	70	3%
PAHs losing business premises	168	665	401	260	64	554	2112	32	32	64	3%
PAHs losing both residential and business premises	26	140	55	38	3	44	306	23	23	46	15%
PAHs losing only tree	756	2	20	5	0	54	837	13	13	26	3%
PAHs losing secondary structure	56	362	307	57	50	298	1130	17	17	34	3%
Total PAHs	1467	1996	1149	617	170	1418	6817	127	127	254	

Breakdown by title versus non-title holders - Package 2 Polders

(a) Affected title holders

Category of losses	Polder 39/2C	Polder 40/2	Polder 41/1	Polder 43/2C	Polder 47/2	Polder 48	Total	Sample Size non-vulnerable	Sample Size vulnerable	Total Sample Size	Sampling percent
PAHs losing land	0	1	11	63	11	2	88	7	7	14	15%
PAHs losing residence	446	30	39	15	7	3	540	8	8	16	3%
PAHs losing business premises	150	10	22	4	0	3	189	3	3	6	3%
PAHs losing both residential and business premises	26	8	7	2	1	1	45	3	3	6	15%
PAHs losing only tree	723	0	0	0	0	0	723	11	11	22	3%
PAHs losing secondary structure	55	4	51	3	3	1	117	2	2	4	3%
Total	1400	53	130	87	22	10	1702	34	34	68	

(b) Affected non-title holders

Category of losses	Polder 39/2C	Polder 40/2	Polder 41/1	Polder 43/2C	Polder 47/2	Polder 48	Total	Sample Size non-vulnerable	Sample Size vulnerable	Total Sample Size	Sampling percent
PAHs losing residence	15	796	316	179	35	463	1804	27	27	54	3%
PAHs losing business premises	18	655	379	256	64	551	1923	29	29	58	3%
PAHs losing both residential and business premises	0	132	48	36	2	43	261	20	20	40	15%
PAHs losing only tree	33	2	20	5	0	54	114	2	2	4	3%
PAHs losing secondary structure	1	358	256	54	47	297	1013	15	15	30	3%
Total	67	1943	1019	530	148	1408	5115	93	93	186	

Drawing from the draft RAP[9] for package 2:

> *"…Among the affected population, 77% are women. Almost half of the women are housewives. There are 1346 widows, 184 abandoned and 62 divorced women identified among the affected population in the six polders. In terms of women's employment, 442 women in the 6 polders are involved in different economic activities like day labor, business, service, fishing, and tailoring. Moving out to new places will be challenging for women especially for the widows, singled and divorced women. The employed women, at their present location, have established their connection and social acceptance to work outside of their home. These women will find themselves in temporary isolation if relocated out of their current proximity."*

[9] These numbers are indicative, given the source document is in draft.

The M&E Consultants will include vulnerable strata in the sampling frame and make sure that an adequate representation of vulnerable classes is captured in the sample. In our proposed sampling scheme above, vulnerable PAHs will be sampled in equal numbers to the non-vulnerable group.

While the foregoing discussion was based on Package 2, the same sampling methodology will be applied in the case of Packages 1 and 3. It is our intention to follow the same PAH sample over time – i.e., it will be a panel – so that the smaller sample will still permit a good understanding of the impact of resettlement and where applicable, livelihood restoration, on Project Affected Households.

6.3. Village-Level Surveys

Village-Level PRA and FGD will be conducted at each of the villages selected for household sampling. There will be 187 sampling clusters in the project area as shown above - 54, 61 and 72 for packages 1, 2 and 3 respectively. Since some villages (the larger ones) may contain multiple clusters, the number of project villages may be about 150. Similarly, the number of villages in the non-project polders is expected to be about 50.

The objective of the village-level surveys will be to understand the general socio-economic, environmental and institutional conditions at the village-level and polder level as well as to triangulate some of the data collected at household level. Special attention will be given to villages that have been particularly affected by resettlement.

6.4. Key Informant Interview Protocols

The structure of key informant interviews will be guided by protocols or discussion agendas to be developed by the evaluation team. Because this will be a qualitative data collection task, questions will be topical and will allow for open-ended responses. The targeted respondents will include leadership and key staff with in-depth knowledge on the implementation and management of the CEIP-1 activities and components.

6.5. Focus Group Discussion (FGD) Agendas

Community-level information will be collected through focus group discussions and the evaluation team will develop agendas so that each FGD remains structured while allowing for a wide range of feedback from participants. FGDs will be conducted to collect data on community-level perceptions on CEIP-1 performance overall as well as on specific activities.

6.6. Case Studies

Exploratory case studies to analyze underlying factors of significant project outcomes will also be done. Samples of beneficiary groups will be examined that are especially responsive or non-responsive to the specific CEIP-1 activity based on multiple perception interviews which explore predictors, inhibitors, and mechanisms of change. This will allow the analysis to disentangle some of the contextual factors of project success.

6.7. Secondary data

Data from secondary sources, including local government, line agencies of GoB, WMO/PC records, etc., will be used to capture information such as area irrigated in the polder, performance and functioning

of local institutions, level of business activity, extent of losses due to natural disasters and so on. The indicators which will secondary sources of data can be found by consulting the PIRS.

6.8. Technical measurements

Technical measurements such as water quality, soil quality, depth to water table, and others will be undertaken jointly between the Works Contractors, DSC and M&E Consultants as appropriate.

6.9. Direct observation

The DSC, RAP Consultants, Afforestation NGO, WMO and Livelihood Restoration NGO and M&E Consultants will monitor implementation of the project through first-hand direct observation and visual inspection.

6.10. Satellite imagery

The M&E Consultants will explore the use of satellite imagery as a means of independent verification of certain indicators covering outputs and impacts – e.g., extent of mangrove afforestation (planting and surviving), extent of waterlogging/salinity, extent of damages after major natural disasters, etc.

6.11. Videography

The Third Party M&E Consultants will make a videographic record of the polder embankment conditions prior to the works and then again after the works are completed. Still photographs will be taken on a sample basis of specific works in progress.

6.12. Quantitative and Qualitative Data

To collect timely, accurate, reliable, and verifiable information on the progress of CEIP-1, quantitative and qualitative data will be collected on the project indicators. Quantitative data will provide discrete and measurable information on project outputs and outcomes. Qualitative data will be a valuable source in-depth, local knowledge that will give contextual information on evaluation findings.

6.12.1. Quantitative data collection

For some indicators, quantitative data will be collected for methodological and/or administrative reasons. Some indicators, such as area afforested and crop volume produced, are inherently measured using discrete and observable metrics. For other indicators, such as the extent of environmental impacts, collection of responses are more efficiently and conveniently done using scaled values instead of qualitative responses. This allows the evaluation team to standardize responses for easier analysis.

6.12.2. Qualitative data collection

Some indicators must be tracked via semi-structured surveys, in-depth interviews, focus group discussions, site observations, and other qualitative techniques. These special methods will be applied in case studies or rapid assessments designed to answer specific and immediate questions concerning the effectiveness of certain activities or development hypotheses such as member satisfaction with pilot WMOs, the value/impact of training or effectiveness of livelihood restoration interventions, for example. They will be decided based on emerging information and or questions. In many cases,

quantitative results are strengthened by contextual information gathered from qualitative data collection exercises.

6.13. Data Quality Assurance

To ensure the accuracy of project data, several methods of verification will be used to cross-check for accuracy and to ensure the proper functioning of the project's M&E systems including the mechanisms for data collection and archiving as well as the accuracy of the actual documentation itself.

During all data collection rounds, the CEIP-1 M&E Consultant evaluation teams will implement data quality measures to identify and correct any errors or inconsistencies immediately. The evaluation teams will conduct intensive training on data entry and cleaning with the enumerators as part of the overall training of the entire survey team before the start of data collection. The evaluation team will also work with the data entry staff to develop templates and to establish processes of how data will be entered as survey returns come in (e.g., double entry). During the actual survey periods, random spot checks and field audits will be conducted to determine if surveys are being administered as designed. At the end of each data collection round, the M&E Consultants will oversee the entry and cleaning of data to ensure the agreed-upon processes are being carried out.

The M&E Consultants will conduct an internal DQA on key indicators as outlined in the PIRS. An Internal DQA ensures that methodical data collection, entry, archiving are in place and are followed and if the data that is being reported is accurate and fully auditable. In addition to the internal DQA, the M&E team will conduct additional impromptu spot audits at regular intervals with project partners. As part of the DQA and spot audits, the M&E staff will visit activity sites, and interview project beneficiaries.

7. Knowledge Management

7.1. Data Management and Analysis

Once quantitative data have been cleaned and qualitative data have been reviewed and coded, final data sets will be constructed so the M&E Consultants and counterpart M&E staff of BWDB can conduct a range of analyses to answer the agreed evaluation questions. For quantitative data, the analyses will include descriptive statistics to measure the outcomes of key indicators. Simple pre-post comparisons of outcome indicators can be conducted in the IE provided that the sampling procedure obtained a valid counterfactual. However, regressions can also be done improve the precision of the analysis. Data will always be disaggregated where applicable to identify any significant outcomes between men and women. Other sub-group analyses will also be done provided sample sizes are sufficient to report any statistically significant findings. Qualitative data will be reviewed to identify common themes and patterns among responses. These results will give evaluators the contextual understandings that underlie the different evaluation outcomes.

At the end of each data collection period, validated data files will be forwarded to the Data Information Analyst/Database Administrator for uploading into the PMIS. Tests will be done to determine if files were entered seamlessly and if it was appended and/or merged to existing files if required. Operational exercises will then be conducted, such as querying or creating outputs (e.g. tables or charts), to confirm that the upload was done successfully. If necessary, the M&E Consultants may conduct brief training sessions on the data management and analysis with each update.

7.2. Learning Plan – Reporting, Communications, Feedback

To foster transparency and an environment of information sharing and knowledge management within the CEIP-1 community, the M&E Consultants will implement a range of communication and dissemination plans and activities at various stages of the project. These activities aim to help achieve progress towards CEIP-1 objectives by continuous learning through the analyses of data and information from multiple sources and by multiple stakeholders. CEIP-1 implementers, partners, and all stakeholders can both learn and share new learning, best-fitting practices, and collected observations to support project implementation and strategy. This vision is consistent with the GoB's 7th Five-Year Plan of how the M&E supports the program cycle by providing evidence-based, contextually relevant information shared by a broad range of stakeholders.

7.2.1. Reports and Deliverables

The M&E Consultants will submit all reports and deliverables to the PSC, World Bank and PMU and will post final accepted reports on the project website linked to the web-based PMIS. Selected findings will be shared with other stakeholders including implementing partners, local counterparts, and community leaders.

7.2.2. M&E Workshops

The M&E Consultants will conduct workshops with various groups at different stages of the project. Before the baseline data collection stage, the M&E Consultants will conduct a workshop to present this M&E Framework and Strategy discuss evaluation designs, methodologies, and plans so that all relevant organizations have clear expectations of what the M&E tasks should accomplish. At the end of the midterm and final evaluations, the M&E team will also conduct workshops with BWDB, World Bank, implementing partners and others to present preliminary findings. Lessons learned workshops will be conducted as and when appropriate, calling together stakeholders to share their experience and perspectives as part of formative evaluation wherein changes in approach can be made when necessary or advantageous.

7.2.3. Community Engagement

To ensure sustained participation and buy-in from the local communities, the evaluation team members will conduct communication and outreach events prior to data collection. Communities might have certain expectations when participating in various data collection activities so the evaluation team will coordinate with community leaders to have a forum to discuss the objectives of the evaluation. This will be particularly important when the evaluation team conducts activities in non-project areas.

7.2.4. Project Website Portal

The Project website will provide the public with information on the progress of the project, its accomplishments, issues and impacts. It will provide access to data and reports and a mechanism to share views, add comments and ask questions.

Annex 1 – Performance Indicator Reference Sheets

Annex 1 – Performance Indicator Reference Sheets

PAD/DPP Indicators

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 3**: To improve GoB's capacity to respond promptly and effectively to an eligible crisis or emergency
INDICATOR NAME PAD/DPP 1: Gross area protected
DESCRIPTION
Precise Definition: The **gross area protected** means the actual protected area from flood /and or salinity intrusion. This value is taken to be the same as that of the area within the polder, when all the works in a given polder are completed. However, closing the creeks (khals) temporarily and also emergency reconstruction of the breached portion of the embankment, (even not up to the design height)/or through construction of the ring bunds may give temporary protection to the project area, but this will not count. There is a clear distinction between the temporary protected area and the gross area protected. **Indicator type:** Outcome
Unit of Measure: Hectare in thousand(1000 ha)
Disaggregated by: Polder, package
Justification/Management Utility: Through this indicator comparison between the desired (set) project objective and the actual achievement can be compared.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Progress reports of DSC and Contractor. Qualitative comments will be included based on BWDB reports on flooding/salinity problems, as well as spot checking of works and any flood occurrences by M&E Consultants.
Data Source(s): Secondary sources (DSC, contractor, BWDB); Spot checking
Data Collection Frequency /Timing: Quarterly, Annually and Final Annual measures will give an indication of the temporary and partial level of achievements.
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: January 2018
Known Data Limitations and Significance (if any): The indicator does not directly measure the level of protection. As long as the works are completed as per specifications, the entire area of the polder is assumed to be protected. The results cannot be taken as attestation of the claimed benefit.
Actions Taken or Planned to Address Data Limitations: The M&E Consultants will supplement the indicator with qualitative comments based on spot-checking in the field, including community consultations, and capturing BWDB reports on flooding incidence or emergency repairs. The BWDB may intensify their monitoring activities and evaluate the project at least one year after its completion.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress and the pace of progress will be analyzed and reported. Any urgent issues/deviation from the target, (which needs immediate attention) will be flagged.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion **PDO 3**: To improve GoB's capacity to respond promptly and effectively to an eligible crisis or emergency
INDICATOR NAME PAD/DPP 2: Direct beneficiaries from increased resilience to climate change (number) and % women
DESCRIPTION
Precise Definition: 1. The number of people who receives direct economic benefit or improved security from flooding, due to the implementation of the project, are considered as **direct beneficiaries**. 2. The **direct beneficiaries** include persons who: a. live inside the polder (whether landowner, sharecropper, fisherman, landless – no restriction) or b. do not live in the polder, but have land inside the polder, or c. do not live in the polder, but have a business enterprise/activity in the polder. The operational definition, will be the number of people living within the polders and they will be counted when all the works in a given polder are completed. Any non-residents of the polder who have land or economic activity in the polder can be counted, if identified. **Indicator type**: Outcome
Unit of Measure: Number of persons, % of total CEIP-1 target population in the 17 polders that is benefitting
Disaggregated by: Gender, polder, package
Justification/Management Utility: Through this indicator, comparison between the desired (set) project objective and the actual achievement can be compared. The distribution of project benefits can be calculated.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Progress reports of DSC and Contractor. Qualitative comments will be included based on BWDB reports on flooding/salinity problems, as well as spot checking of works and any flood occurrences by M&E Consultants.
Data Source(s): Secondary sources (DSC, contractor, BWDB); Spot checking
Data Collection Frequency /Timing: Quarterly, Annually and Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: January 2018
Known Data Limitations and Significance (if any): 1. The indicator assumes all residents of the polder will be benefitted in the form of increased resilience. As long as the works are completed as per specifications, the entire population of the polder is assumed to have increased resilience to climate change. At a basic level, this is undoubtedly valid provided that the extent and design of engineering works effectively protect the polders from storm surges, flooding, and major embankment breaches. The more complex definition (reflecting various aspects of resilience) would be to count those whose economic activities /or income increased /and or sense of security against specified natural calamities increased, due to the implementation of the project. 2. The data will be collected up to the end of the project. The analysis of data will give the picture of partial benefits accrued up to the reporting period. The real (sustained) benefits and the beneficiaries can be identified during evaluation of the project conducted after the completion of the project; i.e. in the O&M phase of the project cycle.
Actions Taken or Planned to Address Data Limitations:

1. The M&E consultants will undertake HH Surveys to evaluate changes in income, reduction in losses and sense of security. 2. The BWDB may intensify their monitoring activities and evaluate the project after at least one year of its completion and continue to collect data yearly as a regular task of monitoring.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress and the pace of progress will be analyzed and reported.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME PAD/DPP 3: Cropping Intensity
DESCRIPTION
Precise Definition: The total area planted in the crop year divided by the total farm size. The same hectare can be counted multiple times - as many times as it is planted in a given crop year. Sugarcane, tree crops (orchards) and vineyards are counted only once per year even though it grows over multiple seasons. The crop year is January through December so rabi season followed by kharif-1 and kharif-2 count as being planted in the survey year, but crops planted towards the end of the year (rabi again) that will not be harvested before the end of December are not counted in the current year. **Indicator type**: Outcome
Unit of Measure: percent
Disaggregated by: Gender, PAHs vs. Non-PAHs, Package
Justification/Management Utility: One of the key benefits of embankment protection and the establishment of Water Management Organizations is a reduction in saline water intrusion, which would allow greater production of crops. Also, cropping intensity is an important element of the benefit stream which was used to justify the investment under CEIP-I so it must be evaluated.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through sample HH baseline survey, which will be compared by conducting follow-up mid-term and final surveys. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports.
Data Source(s): HH survey
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): i) Respondents may not keep records and will have to rely on recollection and estimates. The effect on the results is not expected to be significant given the large sample size. ii) Intercropping (planting of two crops intermingled on a single plot of land) will complicate the calculation of cropping intensity.
Actions Taken or Planned to Address Data Limitations: i) Secondary data will be consulted for cross-checking if available, for example, from DAE. ii) The survey will request information on intercropping, including the relative share of an intercropped area dedicated to each of the two crops.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: Technical team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 3: To improve GoB's capacity to respond promptly and effectively to an eligible crisis or emergency
IR 6. Improved coastal monitoring, disaster preparedness and management
INDICATOR NAME PAD/DPP 4: Contingent Emergency Appropriation and Disbursement
DESCRIPTION
Precise Definition During the project's duration, if there occurs any emergency situation such as catastrophic natural calamities or events of extreme nature or otherwise requiring emergency attention/works/extension of services, etc., which complies with the covenants listed below, some funds will be allocated to meet the cost of mitigation of such situation by re-appropriation of the original project fund, as agreed by the BWDB and the World Bank is called **Contingent Emergency Appropriation.** The covenants are: 1. In case of a major natural disaster, the Government may request the Bank to re-allocate project funds to this component (which presently carries a zero allocation) to support response and reconstruction[10]. 2. Disbursements under an Contingent Emergency Response Component (CERC) will be contingent upon the fulfillment of the following conditions: (i) the Government of Bangladesh has determined that an eligible crisis or emergency has occurred and the Bank has agreed and notified the Government; (ii) the Ministry of Finance has prepared and adopted the Contingent Emergency Response (CER) Implementation Plan that is agreed with the Bank; (iii) Bangladesh Water Development Board has prepared, adopted, and disclosed safeguards instruments required as per Bank guidelines for all activities from the CER Implementation Plan for eligible financing under the CERC. 3. Disbursements would be made either against a positive list of critical goods and/or against the procurement of works, and consultant services required to support the immediate response and recovery needs of the Government of People's Republic of Bangladesh (GoB). All expenditures under this component, should it be triggered, will be in accordance with OP 8.0 and will be appraised, reviewed and found to be acceptable to the Bank before any disbursement is made. **Indicator type**: Input
Unit of Measure: BDT in lac/USD in million
Disaggregated by: polder, contract/package, emergency event (if more than one)
Justification/Management Utility: This indicator will allow tracking and monitoring the fund flow and also the financial progress and utilization of funds. This may also be used in the financial analysis for calculation of the actual cost benefit and IRR of the project and to compare the same with the project's target objective.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary sources – project and Client reports
Data Source(s): Documents/Progress reports of BWDB, DSC, Contractor and World Bank
Data Collection Frequency /Timing: Quarterly, Annual and Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: Not Applicable
Known Data Limitations and Significance (if any): There may be some time gaps between the Release of fund by one agency and Receipt of fund by the other. Hence reporting should be done carefully.

[10] Such a reallocation would not constitute a formal Project Restructuring.

Actions Taken or Planned to Address Data Limitations: 1. The data acquisition format will be designed in such a way that this will capture the data of fund 'Release' and 'Receipts' as well as those (invoice/request) which are under process/ (pending). 2. If such Re-appropriation (contingent emergency appropriation) is made, then the entire schedule of works both physical and financial, will have to be revised by the BWDB to be agreed by the other parties (Contractor/ DSC/ M&E Consultants) as they relate to their part of works,
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Expenditure against re-appropriated amount will be reported.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1. Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
INDICATOR NAME PAD/DPP 5: Length of upgraded embankment
DESCRIPTION
Precise Definition The stretch of embankment will be counted when it is reported as accepted as completed by the DSC, presumably having passed quality testing. It is the linear length in kilometers. 1. An **embankment** is a wide wall of earth or stones built to stop water from flooding an area, or to support a road or railway. 2. In Bangladesh an **embankment** is an earthen bank extending generally parallel to the stream course and designed to protect the area behind it from overflow by flood waters 3. **Upgraded embankment** is defined as Repair and Re-sectioning of the existing embankment or construction of new embankment according to the (new) design and specification given to the contractor. The length upgraded shall be the linear length of the embankment and reported by DSC as having been completed to a satisfactory standard. 4. **Retired embankments** are constructed at distance from the river edge behind the existing embankment as a second line of defense. Usually a flood control embankment is constructed keeping a setback distance from the river/sea. If the river banks erode and the river channel comes close to the toe of the embankment, or the embankment is threatened to be damaged/breached, then a second embankment is constructed at a distance behind the existing one, and is known as Retired Embankment. 5. **Forwarding embankments** are constructed at distance from the river/sea edge in front of the existing embankment; so as to protect additional area (which may be a newly accreted area).In such cases the original/existing embankment act as a second line of defense. 6. **A Sea dyke** is an embankment constructed to prevent flooding, keep out the sea, etc. In Bangladesh, sea facing embankments are known as sea dykes. **Indicator type**: Output
Unit of Measure: km
Disaggregated by: Polder, Package, type of embankments works
Justification/Management Utility: Monitoring the physical progress of works, this may be tagged with payments of the contractor.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Review of Progress reports of DSC, Contractor, and spot checking
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual and Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): Since data will be collected from secondary sources (the progress reports of the contractor, DSC and the BWDB as well) on quarterly basis and also on spot checking, as such the results cannot be taken as attestation of the BoQ.
Actions Taken or Planned to Address Data Limitations:

The DSC is responsible for monitoring contractor activities and compliance with specifications. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.

BASELINE and TARGETS

Baseline is zero for all categories of embankments in all polders. Targets for Package 1 are finalized and presented below, while targets for Package 2 are under development. Targets for Package 3 are not yet known as the design is only getting started.

Polder No.:	***32***	***33***	***35/1***	***35/3***	***Total***
Pkg W=01: Embankment Works	km	km	km	km	km
Re-sectioning of embankment	44.8	48	49.7	35	177.5
Construction of retired embankment	3.5	1.5	6.3	5.05	16.35
Forwarding of embankment, Sea dyke	0.5	Nil	6.5	Nil	7
Interior dyke	Nil	Nil	11	Nil	11

VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1. Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
INDICATOR NAME PAD/DPP 6: Drainage structures (sluices) replaced and upgraded
DESCRIPTION
Precise Definition The drainage structure will be counted when it is reported as accepted as completed by the DSC, presumably having passed operational testing. 1. Drainage structure means the **sluices** used for drainage of water from the polder area. 2. A **sluice** is a water channel controlled at its head by a gate. 3. In case of heavily damaged (which is beyond economic repair) or ineffective sluices, new sluices are constructed which take care of the functions of the previous sluices and are called the **replaced sluices**. 4. Whereas repair and improvement of the existing sluice as per new design/specification (given to the contractor) is termed as **upgrading of the sluice**. **Indicator type**: Output
Unit of Measure: Number
Disaggregated by: Polder, Package
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: January 2017
Known Data Limitations and Significance (if any): The data shows the number of structures only. The quality of construction cannot be judged.
Actions Taken or Planned to Address Data Limitations: The DSC is responsible for monitoring contractor activities and compliance with specifications. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1. Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
INDICATOR NAME PAD/DPP 7: Regulators upgraded
DESCRIPTION
Precise Definition The regulators will be counted when it is reported to be accepted by the DSC as completed, presumably having passed operational testing. 1. A **cross regulator** or simply called **regulator** is a structure constructed across a canal to regulate the water level in the canal upstream of itself and the discharge passing downstream of it for one or more of the following purposes: i) To feed off taking canals located upstream of the cross regulator. ii) To help water escape from canals in conjunction with escapes. iii) To control water surface slopes in conjunction with falls for bringing the canal to regime slope and section iv) To control discharge at an outfall of a canal into another canal or lake. 2. A **cross regulator** is generally provided downstream of an off taking channel so that the water level upstream of the regulator can be raised, whenever necessary, to enable the off taking channel draw its required supply even if the main channel is carrying low supply. The need of a cross regulator is essential for all irrigation systems which supply water to distributaries and field channels by rotation and, therefore, require to provide full supplies to the distributaries even if the parent channel is carrying low supplies 3. In this project **regulators** are water control structures constructed at the mouth of the off taking canals (from the main river course) and is used to protect intrusion of saline water in to the project area (through the canals) during high tides, use the stored water for irrigation and also to drain out impounded water from the canals during low tides. Repair and improvement of the existing regulator as per new design/ specification (given to the contractor) is termed as upgrading of the regulator. **Indicator type**: Output
Unit of Measure: Number
Disaggregated by: Polder, Package
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: January 2017
Known Data Limitations and Significance (if any): The data shows the number of structures only. The quality of construction cannot be judged.
Actions Taken or Planned to Address Data Limitations:

The DSC is responsible for monitoring contractor activities and compliance with specifications. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1. Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
INDICATOR NAME PAD/DPP 8: Flushing Inlets upgraded
DESCRIPTION
Precise Definition The flushing inlets will be counted when it is reported to be accepted by the DSC as completed, presumably having passed operational testing. 1. **Flushing inlets are sluices** mainly used for irrigation purposes to allow water to enter into the project area/ field. 2. A **sluice** is a water channel controlled at its head by a gate. 3. Repair and improvement of the **existing flushing inlets** as per new design/ specification (given to the contractor) is termed as **upgrading** of the **flushing inlets.** **Indicator type**: Output
Unit of Measure: Number
Disaggregated by: Polder, package
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: January 2017
Known Data Limitations and Significance (if any): The data shows the number of structures only. The quality of construction cannot be judged.
Actions Taken or Planned to Address Data Limitations: The DSC is responsible for monitoring contractor activities and compliance with specifications. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1. Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
INDICATOR NAME PAD/DPP 9: Length of drainage channels upgraded
DESCRIPTION
Precise Definition The length upgraded shall be the linear length of the channel completed and reported by DSC. A channel whether open, covered, or enclosed, natural or artificial, or partly natural and partly artificial, which is designed, intended or used to facilitate drainage of water is called a **drainage channel**. Where **drainage** is the natural or artificial removal of surface and sub-surface water from an area by gravity or pumping **Upgraded drainage channel** is defined as Repair and Re-sectioning of the existing channel according to the (new) design/ specification given to the contractor. **Indicator type**: Output
Unit of Measure: km
Disaggregated by: Polder, package
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): The data shows the quantum of achievement only. The quality of construction cannot be judged.
Actions Taken or Planned to Address Data Limitations: The DSC is responsible for monitoring contractor activities and compliance with specifications. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 2: Embankments/riverbank slopes are protected from erosion and scour and provide livelihood
INDICATOR NAME PAD/DPP 10: **Area Afforested: Mangroves**
DESCRIPTION
Precise Definition: The indicator measures the number of hectares afforested initially and number of hectares continuing to survive after planting throughout the project period. Mangrove afforestation is the establishment of a mangrove forest or stand of these trees in an area where there was no forest. Normally, mangrove trees or shrubs which grow in tidal condition, chiefly tropical, coastal swamps, having numerous aerobic roots that grow above the ground and form dense ideal fish habitat. **Indicator type**: output
Unit of Measure: hectares
Disaggregated by: package, polder, planted vs. continuing to survive, possibly track by species
Justification/Management Utility: Mangrove afforestation protects the coastal embankment from erosion, and thus possible losses due to flooding, due to cyclones and storm surges. It can increase and protect the existing landforms, fish and other aquatic resources. It can ameliorate the environment from degradation and improve biodiversity. Mangroves will increase resilience through afforestation and community adaptation against adverse impact of climate change. For the above reasons, the mangrove afforestation program is essential to sustain and enrich the project. Monitoring the activity and survival of mangrove plantation provides needed information on performance against plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Records of NGOs and Forestry Department, direct observation
Data Source(s): Forestry Department, NGO Reports, possibly satellite images
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants, NGO
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2017
Known Data Limitations and Significance (if any): Measurement of area of mangroves continuing to survive may not be easy to distinguish if new plantation is contiguous with old mangrove.
Actions Taken or Planned to Address Data Limitations:
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 3. Polders are operated and maintained for the benefit of the community overall
INDICATOR NAME PAD/DPP 11: Water Management Organizations Functioning
DESCRIPTION
Precise Definition: WMOs are being formed and strengthened with the objective of these institutions fairly representing the interests various stakeholders in the polders with respect to water management and O&M (minor maintenance only) of the polder system. The WMO will be deemed as functioning if it satisfies the following criteria: • It meets as per bylaws, with at least one General Assembly meeting per year; • Key officeholders in place – Chairman, Water Management Specialist and Secretary/Accountant • Registers in place and maintained – members, assets, water allocations/schedules, fees, disputes with disposition • It maintains and operates the polder water management structures as per bylaws; • It is effectively and equitably resolving disputes; and • Other criteria, to be developed. **Indicator type**: Outcome
Unit of Measure: number of organizations functioning
Disaggregated by: package, gender representation
Justification/Management Utility: The formation of WMOs is a pilot activity under CEIP-1 to be implemented in 4-6 polders. Polder Committees already exist, but are inactive for the most part and so are being strengthened. These organizations will mediate the demands for polder residents for freshwater for crops versus saltwater (or brackish water) for shrimp and the needs of irrigation and drainage. Whether or not they function effectively will affect the project's expected benefits.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: The WMO will be assessed annually using a scorecard, which will be completed jointly by the M&E Consultants and a FGD process, supplemented by KII. Also direct observation of WMO office (if one exists), registers. Information on member satisfaction with WMO/PC will also be collected through sample HH baseline survey, which will be compared by conducting follow-up mid-term and final surveys.
Data Source(s): FGD, KII, WMO records and HH survey
Data Collection Frequency /Timing: Annually for FGD, KII and direct observation; Baseline, Mid-Term, Final for HH survey on satisfaction levels.
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2017
Known Data Limitations and Significance (if any): FGD may not easily elicit the minority views or the views of the less powerful or articulate.
Actions Taken or Planned to Address Data Limitations: Special efforts will be made to detect the views of the less powerful (by conducting several individual interviews or conducting FGDs with members and stakeholders in stages, for example, without officers of the organizations first round) and KII. In addition, the HH surveys will include questions about the value and functioning of the WMOs.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Technical team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 3. Polders are operated and maintained for the benefit of the community overall
INDICATOR NAME PAD/DPP 12: Number of Water Management Organizations (WMO) formed
DESCRIPTION
Precise Definition: WMO is considered formed when the community agrees by a General Assembly to adopt the bylaws and the MOWR/PD approves the document. If it must be gazette, then this step will be concluded before the WMO is deemed to have been formed. One WMO is supposed to be formed at each polder and 4-6 pilot polders will initially be covered by WMOs. **Indicator type**: Output
Unit of Measure: Number
Disaggregated by: Polder, Package, Gender percentage (composition of WMO members)
Justification/Management Utility: The WMO are to play a key role with the objective of fairly representing the interests various stakeholders in the polders with respect to water management and O&M (minor maintenance only) of the polder system and resolving disputes. Since this is a pilot activity, it must be tracked and lessons drawn. Of course, WMO formation is only the first step in ultimately having an institution that functions effectively, but another indicator addresses that concern.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected from the reports of the NGO looking after WMO formation and strengthening by M&E consultant.
Data Source(s): From the Quarterly and Annual Progress Reports of WMO NGO.
Data Collection Frequency /Timing: Quarterly
Data Collection Responsibility: M&E Consultant
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: January 2017
Known Data Limitations and Significance (if any): Formation of WMOs does not measure their efficacy or efficiency.
Actions Taken or Planned to Address Data Limitations: Other indicators have been included to measure efficacy and efficiency and M&E Consultants will interview Key Informants and WMO members periodically. HH surveys will inquire polder residents as to their satisfaction with the WMOs.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion **PDO 3**: To improve GoB's capacity to respond promptly and effectively to an eligible crisis or emergency
IR 6. Improved coastal monitoring, disaster preparedness and management
INDICATOR NAME PAD/DPP 13: Improved coastal monitoring - studies undertaken (as related to PPCR core indicator on the use of climate information in decision-making)
DESCRIPTION
Definition: The number of studies undertaken by CEIP-1 for coastal monitoring by the Consultants that are being recruited for this purpose. For a study to count, a report must be submitted to PMU. **Indicator type**: Output
Unit of Measure: Number of studies
Disaggregated by: NA
Justification/Management Utility: Such studies will form an important knowledge base that will improve BWDB's capacity to take pro-active steps in planning, designing and implementing both structural and non-structural measures to protect lives and property in the coastal zone.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Review of PMU and Long-Term Monitoring Study Consultants Reports.
Data Source(s): PMU and Long-Term Monitoring Study Consultants Reports.
Data Collection Frequency /Timing: Quarterly
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): The preparation of reports does not automatically mean that their content is useful.
Actions Taken or Planned to Address Data Limitations: For CEIP-1, there is a peer review process wherein major submissions are reviewed. This includes an Independent Panel of Experts and workshop presentations to senior officials and technical staff of BWDB.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: M&E consultant will list the major studies prepared in the M&E reports.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion **PDO 3**: To improve GoB's capacity to respond promptly and effectively to an eligible crisis or emergency
IR1, IR2, IR3, IR4, IR5, IR6
INDICATOR NAME PAD/DPP 14: BWDB days of training
DESCRIPTION
Definition: The number of days of formal training sponsored by CEIP-1 directly or through its consultants is counted. To be a formal training, there must be a course outline giving training objective(s) and program/outline of the training content that matches the objectives as well as a qualified trainer or facilitator. If the training is international, travel time is included. In addition to days of training, the indicator will also report the number of person-days of training, which captures the reach of the training in terms of participant numbers. **Indicator type**: Output
Unit of Measure: days of training and person-days of training
Disaggregated by: Gender, Level of Trainees
Justification/Management Utility: The staffs from BWDB who are involved in the project are expected to have their skills, knowledge and practices strengthened for the benefit of project implementation as well as for institutional strengthening for BWDB more generally.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Review of BWDB and PMU records of training.
Data Source(s): BWDB and PMU records.
Data Collection Frequency /Timing: Quarterly
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): Participants at a training may not be present for the entire training.
Actions Taken or Planned to Address Data Limitations: Daily sign-in sheets will be instituted for multi-day trainings.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: Presentation of data through chart/tables.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 4. Project-Affected Persons are fairly and justly compensated, resettled and have livelihoods restored as applicable per World Bank policy
INDICATOR NAME PAD/DPP 15: Number of Grievance Redress Committees (GRC) formed
DESCRIPTION
Precise Definition: GRC is considered formed when MOWR/PD approves the nominated members by name and designation. (GRC committee comprises of a certain number of members/persons among different stakeholders of the project, and is to function locally to resolve the grievances of the PAPs locally in connection with undervaluation, ownership disputes, etc. of acquired land and properties due to the project works. One GRC is supposed to be formed at each Union under the project/polders. Each polder includes a numbers of Unions. **Indicator type**: Output
Unit of Measure: Number
Disaggregated by: Polder, Package, Gender (composition of GRC members) percentage
Justification/Management Utility: The GRC are to play a pivotal role to resolve the grievances of PAPs connection to undervaluation, ownership disputes, etc. of acquired land and properties due to the project's development activities. So, timely formation/establish GRC before starting of compensation payment is necessary.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected from the reports of DSC and RAP Consultants by M&E consultant. Records also will be monitored and PMIS to be maintained to summarized results in each quarter.
Data Source(s): From the Quarterly and Annual Progress Reports of DSC and RAP Consultants.
Data Collection Frequency /Timing: Quarterly
Data Collection Responsibility: Social Safeguard Management Specialists (SSMS) of M&E Consultant
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): Formation of GRCs does not measure their efficacy or efficiency.
Actions Taken or Planned to Address Data Limitations: Other indicators have been included to measure efficacy and efficiency and M&E Consultants will interview PAHs periodically.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Annex 1 – Performance Indicator Reference Sheets

Socio-Economic Indicators

Performance Indicator Reference Sheet

STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.

PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges

PDO 2: To improve agricultural production by reducing saline water intrusion

INDICATOR NAME Socio-Econ 1: HH Income by Source (crop, livestock, fisheries and off-farm)

DESCRIPTION

Precise Definition: Income is gross revenue minus cost of production/business expense. Members of HHs earn income from different sources such as crop production, livestock production, fish farming, shrimp farming, wages, remittances, employment, business, etc.

Income will be the income earned by all members of the HH during the full calendar year preceding each survey round from all sources. Income will expressed in BDT of the base year, using the World Bank's GDP deflator in future years.

Vulnerable households will received livelihood restoration assistance as per the table below. A sample of these households will be monitored as a subgroup of the general PAH household sample.

Livelihood Restoration Options

1. Eligible members of poor households earning maximum BDT 87,000 per year to be relocated from the project right of way.	1.1 Short-term: Compensation for structure, shifting allowance, reconstruction assistance, and priority in employment in construction. 1.2 Long-term: Needs and capacity identification, human development and skill training on IGA.
2. Eligible members from poor female headed households having no adult male members.	2.1 Short-term: In addition to support as 1.1, additional subsistence allowance. 2.2 Long-term: As 1.2 above.

Indicator type: Impact

Unit of Measure: BDT

Disaggregated by: Polder, PAHs vs. Non-PAHs, vulnerable PAHs, Gender, income source

Justification/Management Utility:
Monitoring the expected increases (or maintenance) of income is an important element of the benefit stream to justify the investment under CEIP-I.

PLAN FOR DATA ACQUISITION

Method / Approach of Data Collection or Calculation: Information to be collected through sample HH baseline survey, which will be compared by conducting follow-up mid-term and final surveys. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports.

Data Source(s): HH survey

Data Collection Frequency /Timing: Baseline, Mid-Term, Final

Data Collection Responsibility: M&E Consultants

DATA QUALITY ISSUES

Date of Initial Data Quality Assessment: NA

Known Data Limitations and Significance (if any): Usually people have tendency to hide their income for various reasons and it is likewise unlikely to get reliable information on income from official sources

Actions Taken or Planned to Address Data Limitations: Other indicators are included in the M&E plan, such as expenditures on non-essential items, to cross-check the results.

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Socio-Econ 2: Percent of household's expenditures of non-essential items
DESCRIPTION
Precise Definition: Ability of an individual or family to purchases non-essential goods (Radio, TV, electronics, watch, mobile phone, furniture, non-essential travel, etc.). This usually happens when level of income of an individual/HH rise to the extent that he is able to make some savings after fulfilling his/her family's basic/essential needs such as food, cloths/shelter, medicine, etc. **Indicator type**: Impact
Unit of Measure: Number
Disaggregated by: PAH vs. non-PAH, gender of HH head, package, polder
Justification/Management Utility: This indicator helps explain the extent that the project development objective is achieved due to implementation of the project.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through base line, which to be compared by conducting follow up , mid-term and final survey, FGD, KII, etc. and other official records of local Government functionaries. PMIS to be maintained to preserve data/information and to be summarized results in each annual/Biannual reports
Data Source(s): From base line survey, follow up survey, FGD, KII, etc. and other official records of local Government functionaries
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: Social safeguard Management Specialists (SSMS) of M&E Consultant
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): Some households/persons may feel compelled to purchase non-essential goods, e.g. mobile phone, watch etc. despite their income not having increased. This happens due to demonstration effect or peer pressure.
Actions Taken or Planned to Address Data Limitations: All other things equal, however, increased purchases of non-essential items likely indicate increased affluence. KII and FGD will be used to elicit the strength of this effect. Also, since we will be measuring changes over time, the demonstration effect/peer pressure effect will have already been captured in the baseline.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members & data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Socio-Econ 3: Percent Stunting, Underweight and Wasting in Children
DESCRIPTION
Data on children 6-23 months of age and 24-59 months of age in the project area will be monitored using the lowest geographic level for which data are available (preferably mouza, then Union Parishad and finally Upazila if required). Stunting is height for age, underweight is weight for age and wasting is weight for height. The data is normally compared to the WHO norms using standard tables to determine baseline z-scores (standard deviations) and these measurements will be monitored over time and compared to non-CEIP-1 zones in order to track changes in percentage of stunted, underweight and wasted children (z <= -2) in the CEIP-1 target communities. Note: It is standard procedure to take children suffering from swollen bellies (edema) to be in the underweight category of z <= -2 automatically, regardless of their weight. **Indicator type:** Impact
Unit of Measure: Percent of children
Disaggregated by: Polder, gender, age group (6-23 months and 24-59 months)
Justification/Management Utility: CEIP-1 is expected to improve production and incomes, which may lead to improved nutritional outcomes for polder residents. Such changes would be most pronounced among children so this data may be sensitive to improvements within the timeframe of the project. The health of the children in the project area is an important outcome in itself.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Review of official GoB statistics at lowest available geographic level.
Data Source(s): GoB Statistics.
Data Collection Frequency /Timing: Baseline, Mid-Term, Final Report
Data Collection Responsibility: Social Safeguard Management Specialists (SSMS) of M&E Consultant
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: TBD
Known Data Limitations and Significance (if any): Secondary data may not be available at the level of geographic disaggregation that will allow calculation precisely of the value of the indicators for the project polders.
Actions Taken or Planned to Address Data Limitations: None possible, but trends may still be discernible.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members & data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Socio-Econ 4: Mortality and morbidity rates
DESCRIPTION
Precise Definition: The number of persons reported to be ill or deceased in the prior 12 month period (January to December) in the sample health centers and local hospitals. **Indicator type**: Impact
Unit of Measure: Number
Disaggregated by: gender, age group, nature of illness (if available)
Justification/Management Utility: Once the project objective achieved, there is expected to be a reduction in the loss of life due to flooding and also an increase in income which would, in turn, improve nutrition and access to sanitation as well as health care services by the people. The expected decreases in mortality and morbidity may be considered an important element of the benefit stream to justify the investment under CEIP-I and lay the groundwork for additional phases of CEIP.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected from secondary sources at Mouza level if available (otherwise at a higher level). Alternatively, a sampling of clinics, health centers and local hospitals will be polled. Questions may be asked via HH survey to triangulate the data.
Data Source(s): Official records of local hospitals, clinics, health centers at Mouza level; HH survey
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: TBD
Known Data Limitations and Significance (if any): i) Official record keeping system may not be properly/regularly maintained in the local hospitals/medical centers, medicine shops ii) Some households/persons may get their treatment out of the locality - i.e., Divisional or capital city even outside the country.
Actions Taken or Planned to Address Data Limitations: Since it will not be possible to get 100% complete information from one source, data will be crosschecked from different sources to improve confidence and accuracy.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Socio-Econ 5: School enrollment rate
DESCRIPTION
Precise Definition: Number of school-aged children member of the HH regularly attending school for education divided by the total number of school-aged children in the sample households. Or, if from secondary data, then enrollment figures as per the statistical definition given. School-age children are those who would be expected to be enrolled in primary or secondary school. **Indicator type**: Impact
Unit of Measure: Number
Disaggregated by: Gender, PAHs, Non-PAPS, Polder, Package
Justification/Management Utility: The project may have an impact on school enrollment rates through improved incomes and this would be an added benefit that should be captured to inform project evaluation and design of future project phases. School enrollment rates are positively correlated with improved socio-economic conditions.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through base line, which to be compared by conducting follow up , mid-term and final survey. PMIS to be maintained to preserve data/information.
Data Source(s): HH survey, secondary sources
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: TBD
Known Data Limitations and Significance (if any):
Actions Taken or Planned to Address Data Limitations:
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Socio-Econ 6: Number of shops that are in markets in the polders
DESCRIPTION
Precise Definition: Shops are temporary or permanent structures constructed in the polders, including on the embankments, for operating trade and business with the aim of earning income. A shop may be attached to or operated out of a house, but should be in the market area to be counted. Primary production of crops, livestock or fisheries does not constitute a shop, though a primary producer who makes retail sales of his product out of a fixed location in a market will count. **Indicator type**: Impact
Unit of Measure: Number of shops
Disaggregated by: package, polder
Justification/Management Utility: Keeping record of the total number of shops (in the sample) at the beginning will be a benchmark for impact evaluation and monitoring purpose in future to assess the increase /decrease of income and economic activity after project implementation. The expected increases in economic activity may be considered an important element of the benefit stream to justify the investment under CEIP-I.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through census of sample villages, supplemented by questions in HH survey to be done on sample basis. Baseline data will be compared by conducting follow-up mid-term and final surveys. Secondary data may be used if available from other official records of local offices etc. PMIS to be maintained to preserve data/information and to be summarized results in the baseline, mid-term and final reports.
Data Source(s): Census of sample villages, RAP Consultant, UP records, HH survey
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: TBD
Known Data Limitations and Significance (if any): i) Number of shops is a proxy for economic activity since it does not capture the size (in revenue or employment terms) of the enterprise; ii) small number of sampling units (villages) means that actual extent of changes may be obscured by sampling error.
Actions Taken or Planned to Address Data Limitations: i) other indicators such as population numbers and other income proxies such as yields and expenditures on non-essential items are included in the M&E plan; ii) These data may be collected from a variety of sources to improve accuracy.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members & data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Socio-Econ 7: Size of total landholding by category of household
DESCRIPTION
Precise Definition: Total land owned by HH who are currently resident in the polder or who were resident PAHs in the polder at the time of the baseline. Respondents will be asked for their landholdings in whatever units they are accustomed to (e.g., decimal, acre, other) and the conversion will be made by the M&E Consultants after confirming the appropriate conversion factor. **Indicator type**: Impact
Unit of Measure: hectare
Disaggregated by: PAH vs. non-PAH (and squatter vs. land title holder), gender, location (specific polder plus outside the polders)
Justification/Management Utility: Keeping a record of the total land holding of HHs at the beginning of the Project will be a benchmark for impact evaluation and monitoring purpose in future to assess changes in this key productive asset. It will also serve as the basis for assessing other changes via other indicators in land use, increase in production, cropping intensity and consequently increase or decrease income of HHs. The increase or decrease of income may be considered an important element of the benefit stream (whether positive or negative) to assess the rate of return of investment under CEIP-I.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through HH baseline survey, which will be compared by conducting follow-up mid-term and final survey. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports.
Data Source(s): HH survey and RAP consultants.
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): i) Respondents may not reveal their true landholdings for some reason and it is quite difficult to get this information from official sources. The bias in the data of the general polder population may be consistent at each survey round so changes over time will be detected and the data limitation is not expected to be significant. Data provided by the physically resettled persons, if biased in subsequent rounds, will be compared to the thoroughly assessed and unbiased baseline condition. This could lead to understatement of landholdings after relocation.
Actions Taken or Planned to Address Data Limitations: i) RAP consultant data and any official data available will be used on a sample basis as available to cross-check the data reported by respondents to the HH survey.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Socio-Econ: Size of farm land holding by category of household
DESCRIPTION
Precise Definition: Land owned by HH who are currently resident in the polder or who were resident PAHs in the polder at the time of the baseline that is in productive use for crops (including tree crops), livestock or fisheries. **Indicator type**: Impact
Unit of Measure: hectare
Disaggregated by: PAH vs. non-PAH (and squatter vs. land title holder), gender, location (specific polder plus outside the polders)
Justification/Management Utility: Keeping a record of the farm land holding of HHs at the beginning of the Project will be a benchmark for impact evaluation and monitoring purpose in future to assess changes in this key productive asset. It will also serve as the basis for assessing other changes via other indicators in land use, increase in production, cropping intensity and consequently increase or decrease income of HHs. The increase or decrease of income may be considered an important element of the benefit stream (whether positive or negative) to assess the rate of return of investment under CEIP-I.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through baseline, which will be compared by conducting follow-up mid-term and final survey. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports.
Data Source(s): HH survey and RAP consultants.
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): i) Respondents may not reveal their true landholdings for some reason and it is quite difficult to get this information from official sources. The bias in the data of the general polder population may be consistent at each survey round so changes over time will be detected and the data limitation is not expected to be significant. Data provided by the physically resettled persons, if biased in subsequent rounds, will be compared to the thoroughly assessed and unbiased baseline condition. This could lead to understatement of farm landholdings after relocation.
Actions Taken or Planned to Address Data Limitations: i) RAP consultant data and any official data available will be used on a sample basis as available to cross-check the data reported by respondents to the HH survey. Also, other questions in the HH survey ask details of productive use (cropping pattern) and this may reduce under-reporting of area.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Socio-Econ 9: Land Tenure Pattern among polder residents
DESCRIPTION
Precise Definition: The percent distribution of HHs in the project area by type of land tenure. Types of tenure include landowners, tenants, sharecroppers and landless. **Indicator type**: Impact
Unit of Measure: Percent of HHs by tenure type
Disaggregated by: Gender, polder
Justification/Management Utility: Understanding the changes in land tenure provides guidance for future policy.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through sample HH baseline survey, which will be compared by conducting follow-up mid-term and final surveys. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports.
Data Source(s): HH survey
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): None
Actions Taken or Planned to Address Data Limitations: NA
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 4. Project-Affected Persons are fairly and justly compensated, resettled and have livelihoods restored as applicable per World Bank policy
INDICATOR NAME Socio-Econ 10: Percent of physically resettled PAHs who are title holders
DESCRIPTION
Precise Definition: The number of physically resettled PAHs who are title holders of land divided by the total number of physically resettled PAHs. **Indicator type**: Impact
Unit of Measure: Percent
Disaggregated by: Initial squatter vs. initial land title holder, gender, location (specific polder plus outside the polders)
Justification/Management Utility: Understanding whether the RAP policy results in more or fewer title holders among physically resettled PAHs provides guidance for future policy.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: HH panel survey of physically resettled PAHs. Information to be collected through baseline, which will be compared by conducting follow-up mid-term and final survey. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports.
Data Source(s): HH panel survey of physically resettled PAHs and RAP consultants.
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): None
Actions Taken or Planned to Address Data Limitations: NA
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 4. Project-Affected Persons are fairly and justly compensated, resettled and have livelihoods restored as applicable per World Bank policy
INDICATOR NAME Socio-Econ 11: Percent of PAH's moving out of the polder areas
DESCRIPTION
Precise Definition: Number of sample PAHs moving out the polders divided by the number of PAHs in the sample, expressed as a percentage. A single member of a PAH (an individual PAP) moving out will not be counted unless the individual constitutes a PAH by virtue of being alone. Temporary moves will be distinguished from permanent moves. Temporary moves are those in which the PAH states their likely intention to return to the polder within the next 12 months. Moving out of the polder permanently may denote lack of opportunity or land in the polder, better livelihood or proper income earning opportunities elsewhere, insecure livelihood and living condition due to adverse climatic/natural condition, etc. **Indicator type**: Impact
Unit of Measure: Percent of PAHs
Disaggregated by: Gender by polder, Reason(s) for moving, temporary vs. permanent move outside the polder.
Justification/Management Utility: This indicator could justify the extent of development objective achieved due to implementation of the project and may give insight in the programming of resettlement policy.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Sample HHs will be surveyed from among the PAHs by telephone as to their plans at baseline and annually thereafter. Information on the general population of the polder may be collected as well for comparison purposes. FGD, KII and other official records of local Government functionaries will be used to cross-check the data. PMIS to be maintained to preserve data/information and to be summarized results in each annual/Biannual reports
Data Source(s): From baseline survey of PAHs, annual follow up surveys, FGD, KII and other official records of local Government functionaries
Data Collection Frequency /Timing: Annually
Data Collection Responsibility: Social Safeguard Management Specialists (SSMS) of M&E Consultant
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: TBD
Known Data Limitations and Significance (if any): i) PAH intentions may not be acted upon so temporary versus permanent move as reported by respondents may not represent the reality; ii) some PAHs may not be reachable by phone after they are resettled.
Actions Taken or Planned to Address Data Limitations: i) re-contacting the sample PAHs annually by telephone is designed to confirm actual status as opposed to intentions, though some may not be reachable as their phone numbers change or they may not have a phone in the first place; ii) a large enough sample will be selected initially to allow for loss in the sample over time.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 3. Polders are operated and maintained for the benefit of the community overall
INDICATOR NAME Socio-Econ 12: Local employment generated directly by the project
DESCRIPTION
Precise Definition: Number of full-time equivalent (person-years) of employment for residents of the polders during the construction work, afforestation and other activities due to CEIP. **Indicator type**: Outcome
Unit of Measure: Person-years
Disaggregated by: Gender, PAPs vs. Non-PAPs, Polder
Justification/Management Utility: The expected employment of people one element of the benefit stream to justify the investment under CEIP-I.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected from contractor and NGO reports. Employment shall be calculated in person-years. If someone is employed for less than a year such as for seasonal employment or short-term work, then the number of months worked shall be divided by 12 months to arrive at the person-years of employment.
Data Source(s): Works Contractor reports; NGO reports
Data Collection Frequency /Timing: Quarterly, Annual
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): Records may not be kept carefully so the indicator would be under-reported.
Actions Taken or Planned to Address Data Limitations: Data format will be provided to contractors and NGOs
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members & data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 4. Project Affected Persons are fairly and justly compensated, resettled and provided livelihood restoration as applicable per World Bank policy
INDICATOR NAME Socio-Econ 13: Quantity of land acquired
DESCRIPTION
Total land area acquired by the project and ownership pattern (e.g. private, Government, community), its use (residential, commercial, crop production, fishery, waterbodies, fallow etc.) **Indicator type:** Output
Unit of Measure: hectares
Disaggregated by: Package, Polder, gender, type of land use, ownership category, number of PAPs
Justification/Management Utility: Collection of updated and accurate data on quantity of land is vital for preparation and implementation of RAP and is tracked to monitor progress against plan and to allow projection for future packages and phases of CEIP.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected from the reports of DSC and RAP Implementing Agency by M&E consultant. Records also will be monitored and CMIS to be maintained to summarized results in each quarter
Data Source(s): From the Quarterly Progress Reports of BWDB/DSC and RAP Implementing Agency.
Data Collection Frequency /Timing: Quarterly
Data Collection Responsibility: Social safeguard Management Specialists (SSMS) of M&E Consultant
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: TBD
Known Data Limitations and Significance (if any): i) Lack of proper land documents may hamper accurate quantification, type & use of land etc. and number of PAPs
Actions Taken or Planned to Address Data Limitations: i) appropriate measures to collect proper land documents might overcome the above limitations.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 4. Project Affected Persons are fairly and justly compensated, resettled and provided livelihood restoration as applicable per World Bank policy
INDICATOR NAME Socio-Econ 14: Number and % of entitled persons (EP) compensated compared to plan
DESCRIPTION
Compensated shall mean that payment has been received by recipient. The percent compensated shall be the number of persons compensated divided by the total number of EPs expressed as a percentage. Entitled persons are persons that will sustain a loss of assets or who are eligible for certain additional payments under the LAP/RAP. An EP is an individual or a member of an eligible PAH. One PAH may have more than one EP depending on the fulfillment of criteria spelled out in the resettlement policy. EPs will include: • Titled and non-titled persons • Vulnerable households which include - female-headed households - disabled-headed households - poor households (<84,000 BDT/year household income) Types of compensation include: • land (for titled persons) • structures • crops/trees/fisheries losses • transfer grant for moving structure • structure reconstruction grant • subsistence for loss of business • subsistence for loss of income by wage earner • grant for vulnerable household • loss of usufruct rights for mortgaged/leased in properties Ownership category includes private (EP), Government, community Asset use includes residential, commercial, office, community use etc. **Indicator type:** Output
Unit of Measure: Number of EPs, Percent
Disaggregated by: Package, Polder, EP type, compensation type, ownership category
Justification/Management Utility: Collection of updated and accurate data on the progress of compensation is vital for monitoring the implementation of LAP/RAP since construction work depends on clearing the embankments of settlements and project success requires that project affected persons are treated fairly and with sensitivity.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected from the reports of DSC and RAP Implementing Agency by M&E consultant. Records also will be monitored and PMIS to be maintained to summarize results in each quarter.

Data Source(s): From the Quarterly Progress Reports of DSC and RAP Implementing Agency.
Data Collection Frequency /Timing: Quarterly
Data Collection Responsibility: Social safeguard Management Specialists (SSMS) of M&E Consultant
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): i) Lack of proper land documents may hamper accurate quantification, type and use of land etc. and number of PAPs
Actions Taken or Planned to Address Data Limitations: i) M&E Consultants will monitor any such issues being raised by the RAP Consultants.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Annex 1 – Performance Indicator Reference Sheets

Agricultural (Crop, Livestock and Fisheries) Indicators

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Agri-1: Volume (and Value) of Agricultural Production
DESCRIPTION
Precise Definition: The volume and value of agricultural production will include crops, livestock, fish culture and fish capture. • Crop production volumes will be estimated in metric tons compared to the base year without the CEIP-1 project. The production of field crop volumes will be the sum of production (in MT) of all crops. Crop production includes all production – whether sold, stored of auto-consumed. The crop year will be from January through December. • Livestock production will be proxied by sales during the year. • Fisheries production includes all production – whether sold, stored of auto-consumed. • Fish capture will also be included, using the sales volume and value. Household respondents will be asked to recall their production during the past year in local units of measurement (e.g., sacks, boxes, etc.) and these will be converted into kilograms by the interviewers after consulting key informants on the conversion factors to be used. Households will also be asked to recall the areas planted to each crop and these will be converted (if necessary) into hectares. Since it is not useful to add tonnes of rice to tons of vegetables or tons of shrimp or livestock sold, the total volume of agricultural production will be calculated in monetary terms (USD or BDT) using base year prices in order to minimize the effect of price on this "quantity"-based indicator. For the value of production, current prices (contemporary) shall be used. **Indicator type**: Outcome
Unit of Measure: metric tons/hectare by crop converted to USD or BDT
Disaggregated by: Crop type vs. Livestock vs. Fisheries, Gender, PAHs vs. Non-PAHs, Package
Justification/Management Utility: Monitoring the expected increases (or maintenance) of production is an important element of the benefit stream to justify the investment under CEIP-I and it is tied directly to the well-being of the polder residents.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through sample HH baseline survey, which will be compared by conducting follow-up mid-term and final surveys. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports.
Data Source(s): HH survey
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): i) Respondents may not keep records and will have to rely on recollection. The effect on the results is not expected to be significant. ii) Livestock sales is not the same as livestock production (similarly for fisheries, but fish are not kept for long periods). Production may include fattened animals that have not yet been sold as well as animal births so sales would underestimate production. Sales, on the other hand, may be an overestimate of production if animal stocks are being liquidated to cover urgent financial needs, or conversely an underestimate if animals are being purchased/retained in times of abundance.

Actions Taken or Planned to Address Data Limitations: i) Secondary data will be consulted if available. ii) No action, since with a large sample size, the overestimation and underestimation is expected to be roughly offsetting.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Agri 2: Yield of key crops
DESCRIPTION
Precise Definition: Crop yield is defined as kilograms of production per hectare planted during the season. Field crop yields will be measured for the main crops including HYV rice, local rice, vegetables, pulses, oilseeds, potatoes and others. Vegetable crop yields will be measured for all vegetable crops as a whole by summing total vegetable production and dividing by total area planted to these crops. Household respondents will be asked to recall their production during the past crop year in local units of measurement (e.g., sacks, boxes, etc.) and these will be converted into kilograms by the interviewers after consulting key informants on the conversion factors to be used. Households will also be asked to recall the areas planted to each crop and these will be converted (if necessary) into hectares. **Indicator type**: Outcome
Unit of Measure: metric tons/hectare
Disaggregated by: Crop, Gender, PAHs vs. Non-PAHs, Package
Justification/Management Utility: Monitoring the expected increases (or maintenance) of yields is an important element of the benefit stream to justify the investment under CEIP-I and ties directly to the well-being of the polder residents.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through sample HH baseline survey, which will be compared by conducting follow-up mid-term and final surveys. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports.
Data Source(s): HH survey
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): i) Respondents may not keep records and will have to rely on recollection and estimates. The effect on the results is not expected to be significant given the large sample size. ii) Yield values for the consolidated "all vegetables" category are highly vulnerable to changes that are due only to changes in cropping patterns, even without productivity changes since a mere shift to a crop having a higher base yield will increase the value of the indicator. iii) Average yields may conceal important variations across regions and type of production/ irrigation system. iv) Recollection of quantities produced may be imprecise, but the effect is expected to be minor. v) Intercropping (planting of two crops intermingled on a single plot of land) will complicate the calculation of yield somewhat, but it is not common in the coastal polders.
Actions Taken or Planned to Address Data Limitations: i) Secondary data will be consulted if available. ii) This level of aggregation ("all vegetables") may be subdivided so that one or two key vegetable crops may be segregated for yield measurement. Data on vegetable crops will be collected during the baseline and, if one or two additional vegetables are deemed significant, the indicator can be disaggregated to include these additional crops. iii) Multiple baselines at greater levels of disaggregation may be used when averages fail to represent actual conditions. iv) Interviewers will be trained to prompt respondents to sharpen their recollection. v) The survey will request infor-mation on intercropping, including the relative share of an intercropped area dedicated to each of the two crops.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Technical team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Agri 3: Percent of Area Planted in HYV Rice
DESCRIPTION
Precise Definition: The average area planted in high yielding variety of rice divided by the total area planted in a given crop year, expressed in percentage terms. The crop year is January through December starting with rabi and followed by kharif-1 and kharif-2. **Indicator type**: Outcome
Unit of Measure: percent
Disaggregated by: Gender, PAHs vs. Non-PAHs, Package
Justification/Management Utility: One of the key benefits of embankment protection is the reduction in saline water intrusion, which would allow greater production of HYV rice. Monitoring shifts to HYV rice production could be an important element of the benefit stream to justify the investment under CEIP-I and ties directly to the well-being of the polder residents.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through sample HH baseline survey, which will be compared by conducting follow-up mid-term and final surveys. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports.
Data Source(s): HH survey
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): i) Respondents may not keep records and will have to rely on recollection and estimates. The effect on the results is not expected to be significant given the large sample size.
Actions Taken or Planned to Address Data Limitations: i) Secondary data will be consulted if available, for example, from DAE.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: Technical team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Agri 4: Percent of Area Planted in High Value Crops
DESCRIPTION
Precise Definition: The average area planted in high value crops divided by the total area planted in a given crop year, expressed in percentage terms. The crop year is January through December on a harvest basis. High value crops include, among others: Cauliflower, Cabbage, Carrot, Broccoli, Tomato, oilseeds, spices, fruit trees, etc. A hectare that is intercropped is counted as only one hectare and only the estimated share of the hectare allocated to high value crops will be counted. **Indicator type**: Outcome
Unit of Measure: percent
Disaggregated by: Gender, PAHs vs. Non-PAHs, Package
Justification/Management Utility: One of the key benefits of embankment protection is the reduction in saline water Intrusion, which would allow greater production of high-valued crops. Monitoring shifts to high-valued crop production could be an important element of the benefit stream to justify the investment under CEIP-I and ties directly to the well-being of the polder residents.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through sample HH baseline survey, which will be compared by conducting follow-up mid-term and final surveys. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports.
Data Source(s): HH survey
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): i) Respondents may not keep records and will have to rely on recollection and estimates. The effect on the results is not expected to be significant given the large sample size. ii) Intercropping (planting of two crops intermingled on a single plot of land) will complicate the calculation of area planted to high-value crops. iii) Some locally important High Value crops may be missed because they are not grown more broadly, but the trend of yield changes will be evident even without coverage of each and every High Valued Crop.
Actions Taken or Planned to Address Data Limitations: i) Secondary data will be consulted if available, for example, from DAE. ii) The survey will request information on intercropping, including the relative share of an intercropped area dedicated to each of the two crops; iii) Additional key High Value crops may be added if found to be important during the baseline survey. Secondary data sources will be consulted before the baseline to minimize late additions of High Value crops.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: Technical team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Agri 5: Expenditure per Farm Hectare on Chemical Fertilizers
DESCRIPTION
Precise Definition: The expenditure of a farm household during the previous year (rabi, followed by kharif-1 and kharif-2) on chemical fertilizers will be divided by the total farm size (minus any fish production area). Farm size will not include fallow areas or arable land that was out of production. The rate of use of Urea, TSP and other chemical fertilizers per hectare varies considerably from farmer to farmer depending on soil fertility, cropping pattern and financial ability. The major fertilizer used in this area is urea. Farmers have opined that that higher prices, low quality and lack of supply affect their use of these fertilizers. Urea is used abundantly compared to others and compared to organic fertilizer which would improve the soil health and also the yield. **Indicator type**: Outcome
Unit of Measure: BDT/farm hectare
Disaggregated by: PAHs vs. Non-PAHs, gender, Package
Justification/Management Utility: Greater purchases of fertilizer indicate greater security with respect to availability of water supply of an appropriate quality and protection from flood. It also indicates a greater level of income availability.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through sample HH baseline survey, which will be compared by conducting follow-up mid-term and final surveys. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports.
Data Source(s): HH survey
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): i) Respondents may not keep records and will have to rely on recollection and estimates. The effect on the results is not expected to be significant given the large sample size.
Actions Taken or Planned to Address Data Limitations: i) None.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: Technical team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Agri 6: Yield of Fish/Shrimp Production (Culture)
DESCRIPTION
Precise Definition: Fish/shrimp yield is defined as metric tonnes of production harvested per hectare farmed during the year (January through December). Household respondents will be asked to recall their production during the past crop year in local units of measurement (e.g., boxes, trays, sacks, bushels, etc.) and these will be converted into kilograms by the interviewers after consulting key informants on the conversion factors to be used. The culture fish habitats will include homestead culture fish ponds, commercial fish farms, shrimp ghers (farm lands converted into ponds with low dykes and used for cultivation of shrimp/prawn/fish) and rice-fish polyculture. Aquaculture practice is expanding gradually in the polder area. Various types of fish culture systems have been adopted by the local people including mono, poly, and mix-culture. Estimated area under culture fisheries in the package 1 polders is 6,734 ha according to the Package 1 EIAs of CEIP-1 (2012). Most of these ponds are traditional in nature. The total fish habitat in the polder area is reported in 2012 as 8,561 ha. Out of this, capture fish habitat of the polder area is 1,827 ha, which is distributed in internal river and khal, borrow pit and floodplain. **Indicator type**: Outcome
Unit of Measure: metric tons/hectare
Disaggregated by: Species, type of fish-raising technology (fish culture, rice-fish culture, shrimp culture), Gender of cultivator, PAHs vs. Non-PAHs, Package
Justification/Management Utility: Monitoring the expected increases (or maintenance) of yields is an important element of the benefit stream to justify the investment under CEIP-I and ties directly to both the physical works and the WMOs as well as the well-being of the polder residents.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data will be collected from Upazila Fisheries Officers (UFO) during baseline survey and in subsequent years. Primary data will be collected using FGD from the fishermen community and fishermen households and local key informants as well as through the sample HH surveys at baseline, mid-term and final periods.
Data Source(s): Department of Fisheries; FGD; HH survey
Data Collection Frequency /Timing: Baseline, Mid-Term, Final for primary data; Annually for secondary data
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): i) Respondents may not keep records and will have to rely on recollection and estimates.
Actions Taken or Planned to Address Data Limitations: i) Secondary data will be consulted if available.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: Technical team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
BASELINE AND TARGETS
In the polder area the total cultivable land is 79,881 ha out of which total fisheries resources area as wetland, is 50,545 ha. Potential fisheries resources available in all the polder are found in khal, pond, floodplain, borrow pit canals, flood control drainage and irrigation canals (FCDI), Bagda and Galda ghers. The total presser fish and shrimp/prawn production is about 20,696 MT. Source: *CEIP-1 EIA Studies for package 1 polders, 2012.*
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Agri 7: Fish Capture Tonnage
DESCRIPTION
Precise Definition: Fish capture tonnage is the volume of fish in metric tonnes recorded by the Department of Fisheries in the Upazilas being studied (CEIP-1 and non-CEIP-1). The capture fish habitats include the river and coastal zone and, inside the polders, khal, floodplain, borrow pit, and beel (a natural depression, which generally retain water throughout the year in some cases seasonally connected to the river system). **Indicator type**: Outcome
Unit of Measure: metric tons
Disaggregated by: Major species, upazilas in project area
Justification/Management Utility: Monitoring the fish catch allows an assessment of any environmental and biodiversity changes. While fish catch is not expected to be affected substantially by CEIP-1, the introduction of mangrove and hardening of polder embankments will have some effect.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data will be collected from Upazila Fisheries Officers (UFO) during baseline survey and also statistical yearbook of the Department of Fisheries. Some information will be collected through sample HH baseline survey will be compared by conducting follow-up mid-term and final surveys.
Data Source(s): Secondary data will be collected from local UFO, s and annual statistical yearbook of the Department of Fisheries; Primary data, on household basis, will be collected by M&E survey.
Data Collection Frequency /Timing: Annual for secondary data; Baseline, Mid-Term, Final for HH survey
Data Collection Responsibility: Dept of Fisheries, M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): i) Statistical data from Department of Fisheries is available only at upazila level, which boundaries do not coincide with polder boundaries. Also, rivers separate the polders so capture may be due to activity of residents of non-project polders. Furthermore, fish capture is mobile so the capture location and place of sale may differ. In sum, this means that the absolute tonnage attributable to the polders will not be accurate.
Actions Taken or Planned to Address Data Limitations: i) The M&E Consultants will sum up the data from the upazilas that are mostly of fully within the polders to establish the baseline. These same upazilas will be tracked over time to observe trends, making the accuracy of the absolute numbers largely irrelevant.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: Technical team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
BASELINE AND TARGETS
In the polder area the total cultivable land is 79,881 ha out of which total fisheries resources area as wetland, is 50,545 ha. Potential fisheries resources available in all the polder are found in khal, pond, floodplain, borrow pit canals, flood control drainage and irrigation canals (FCDI), Bagda and Galda ghers. The total presser fish and shrimp/prawn production is about 20,696 MT. Source: *CEIP-1 EIA Studies for package 1 polders, 2012.*
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders. Economic development and livelihood condition of people of the project polder areas sustainably maintained or improved
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Agri 8: Average number of livestock per HH
DESCRIPTION
Precise Definition: The number of livestock in Tropical Livestock Units per HH at the close of the survey year (end of December prior year). One Tropical Livestock Unit (TLU) = 250 kg liveweight of domestic ruminant (Jhanke 1982 - *Livestock production systems and livestock development in tropical Africa,* Kieler Wissenschaftsverlag Vauk, Kiel, Germany). Standard conversion factors are: cattle = 0.7, sheep = 0.1, goats = 0.1, chicken = 0.01. Factors taken mostly from http://www.lrrd.org/lrrd18/8/chil18117.htm , except for cattle. Also see HarvestChoice, 2011. "Total livestock population (TLU) (2005)." International Food Policy Research Institute, Washington, DC., and University of Minnesota, St. Paul, MN. Available online at http://harvestchoice.org/node/4788. **Indicator type**: Outcome
Unit of Measure: TLU
Disaggregated by: Gender, PAHs vs. Non-PAHs, Package, animal type
Justification/Management Utility: One of the key benefits of embankment protection is protection of assets such as livestock from catastrophic flooding. Estimating the livestock losses avoided or even increase in livestock numbers will be required during evaluation and for programming additional phases of CEIP.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through sample HH baseline survey, which will be compared by conducting follow-up mid-term and final surveys. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports. Secondary data will also be collected from Upazila Livestock Offices.
Data Source(s): HH survey, secondary data from Upazila Livestock Offices.
Data Collection Frequency /Timing: Baseline, Mid-Term, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): i) Respondents may not keep records and will have to rely on recollection and estimates. The effect on the results is not expected to be significant given the large sample size.
Actions Taken or Planned to Address Data Limitations: i) Secondary data will be consulted for cross-checking if available, for example, from Upazila Livestock Offices.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: Technical team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders. Economic development and livelihood condition of people of the project polder areas sustainably maintained or improved
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
INDICATOR NAME Agri 9: Irrigated Area by Source
DESCRIPTION
Precise Definition: The number of hectares irrigated within the project area during each season in the survey year, by source of irrigation. Irrigation sources are: • Surface water • Pumped Ground water (Shallow well, Deep well) • Conjunctive use **Indicator type**: Outcome
Unit of Measure: hectares
Disaggregated by: polder
Justification/Management Utility: Estimating the area irrigated by source is a key element in evaluating the internal rate of return of the project since costs and production will differ between irrigated and non-irrigated areas and by type of irrigation.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected through sample HH baseline survey and FGD which will be compared by conducting follow-up mid-term and final surveys. Statistical data set to be maintained to preserve data/information and results to be summarized in the periodic reports. Secondary data will also be collected from BWDB field offices and Upazila DAE Offices.
Data Source(s): HH survey, FGD; secondary data from local BWDB or DAE offices.
Data Collection Frequency /Timing: Baseline, Mid-Term, Final for primary data; Annually for secondary data
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): None known.
Actions Taken or Planned to Address Data Limitations: NA
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: Technical team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Annex 1 – Performance Indicator Reference Sheets

Financial Indicators

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 4. Project Affected Persons are fairly and justly compensated, resettled and provided livelihood restoration as applicable per World Bank policy
INDICATOR NAME Fin-1: Land compensation paid to EPs
DESCRIPTION
Payment of compensation to Entitled Persons against total land area acquired by the project by ownership pattern (e.g. private, Government, community), land category (residential, commercial, crop production, fishery, waterbodies, fallow etc.). Payment shall mean actual disbursement of funds to the recipient. **Indicator type:** Output
Unit of Measure: BDT
Disaggregated by: Package, Polder, gender, type of land use, ownership category, number of EPs
Justification/Management Utility: Collection of updated and accurate data on land compensation payment to PAPs is avital issue during implementation of RAP
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected from the reports of DSC and RAP Implementing Agency by M&E consultant. Records also will be monitored and PMIS to be maintained to summarized results in each quarter.
Data Source(s): From the Quarterly Progress Reports of DSC and RAP Implementing Agency.
Data Collection Frequency /Timing: Quarterly
Data Collection Responsibility: Social safeguard Management Specialists (SSMS) of M&E Consultant
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): None
Actions Taken or Planned to Address Data Limitations: NA
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 4. Project Affected Persons are fairly and justly compensated, resettled and provided livelihood restoration as applicable per World Bank policy
INDICATOR NAME Fin-2: Compensation paid to Entitled Persons (EP) compared to plan
DESCRIPTION

Compensation paid shall mean that payment has been received by recipient. The amount of compensation paid is the amount paid in BDT. The percent of compensation paid shall be the amount paid divided by the total amount allocated expressed as a percentage.

Entitled persons are persons that will sustain a loss of assets or who are eligible for certain additional payments under the LAP/RAP. An EP is an individual or a member of an eligible PAH. One PAH may have more than one EP depending on the fulfillment of criteria spelled out in the resettlement policy. EPs will include:

- Titled and non-titled persons
- Vulnerable households which include
  - female-headed households
  - disabled-headed households
  - poor households (<84,000 BDT/year household income)

Types of compensation include:

- land (for titled persons)
- structures
- crops/trees/fisheries losses
- transfer grant for moving structure
- structure reconstruction grant
- subsistence for loss of business
- subsistence for loss of income by wage earner
- grant for vulnerable household
- loss of usufruct rights for mortgaged/leased in properties

Ownership category includes private (EP), Government, community

Asset use includes residential, commercial, office, community use etc.

Specific table of compensation types and levels is provided below:

1.	***Loss of land (agricultural, commercial, homestead, fish pond and others)***
1. Compensation under law (CUL), which includes 50% premium on current market price, or replacement value (RV), whichever is higher. Where CUL will be less than RV, the differentials will be paid by BWDB. 2. Transition allowance (TA) for income loss from agri-lands at the rate of Bangladesh Taka (BDT) 1000 per decimal to persons losing more than 20% of their productive land holding.	
2.	***Loss of houses/structures used for living & commercial activities***
1. Legal owners a. CUL which includes 50% premium, or the RV, whichever is higher. b. House Construction Grant (HCG) at the rate of 10% of RV of structure.	

c. Vulnerable and female headed households will get one time special cash assistance @ BDT 5000 per household.

d. All house/structure owners are permitted to retain the salvageable building materials.

2. Squatters/Encroachers

a. RV of structures determined by PAVC.

b. House transfer grants (HTG) @ 5% of RV and HCG @ 10% of RV of structures.

c. Structure transfer grant (STG) for shifting of temporary structures on legs @ 5% of RV of structure.

d. Homestead development allowance (HDA) for land development or house platforms @ BDT 50 per sft of affected structures.

e. Structure strengthening grant (SSG) for temporary relocation of landless squatters @ 10% of RV of structure.

f. Vulnerable and female headed households will get one-time special cash assistance for relocation @ BDT 5000 per household.

g. All house/structure owners are permitted to retain the salvageable building materials.

3. **Tenants**: Tenants will be given advance notice and assisted with finding alternative accommodation and be given shifting grant for goods and belongings (SGB) @ 5% of RV of structure.

3.	***Loss of timber and fruit tress***

1. Compensation will be determined based on the following principles:

   (a) Net Present Value or
   (b) Current age, life span, productivity and current market price of output

2. Compensation will be shared with partners for trees grown under public/Non-governmental Organization (NGO) sponsored program.

3. Owners will be permitted to fell and retain the trees and fruits.

4.	***Loss of standing crops and fish stock***

1. Advance notice to be issued in time to harvest the standing crop. If not possible the value of the crop at full harvest price is to be paid to the cultivator (owner cultivator or tenants).

2. Compensation (market price) for fish stock (PFS) to affected titled owners of pond and gher if they cultivate themselves. In otherwise the tenants will be entitled for PFS. In any case, the cultivator will be allowed to harvest the fish stock.

5.	***Loss of business income from displaced commercial premises***

1. Compensation for loss of business/trading income equivalent to 45 days income for fully displaced premises.

2. Affected business squatters/encroachers opting for temporary relocation will receive compensation for the actual number of days the businesses remain closed or needed to complete the civil works not exceeding 45 days.

3. Partially affected business owners will receive compensation for the number of days needed to repair and reopen the businesses not exceeding 45 days.

4. Compensation for loss of rental income from rented-out premises on the right of way equivalent to three months' rent to owner of the rented out premises to owners of affected private land and squatters/encroachers on the embankments.

6.	***Temporary loss of income (wage earners in commerce & industry)***

1. Grant to cover temporary loss of income (GTL) from wage employment to employees of affected business and commerce.
2. GTL will be equivalent to 90 days wage at the rate of daily wage at current market price determined by PAVC.
3. Minor children of the business owners, who assist on a part time basis, are not eligible for this grant.

7.	***Loss of usufruct rights in mortgaged-in, leased-in and khai-khalashi lands***

1. CUL by DC for loss of rights constituted through legal agreements to the rights holder.
2. Compensation for loss of rights established under verbal agreement will be shared by the legal owner upon receipt of CUL from the DCs as per the agreement.
3. Where CUL is smaller than RV, legal owner will get the top- up from BWDB (i) if all liabilities are already paid up; (ii) if not, the legal owner will get the residual after all liabilities are paid up. If the liability exceeds the amount to be paid by the BWDB, the landowner will pay it.

8.	***Loss of access to VNR property***

1. Agricultural Land: Three times the estimated value of all crops produced in the acquired land in the year or preceding year of acquisition.
2. Homestead Land: (a) if only a portion of the land is acquired, the user is allowed to live on the remaining land and assisted to relocate his/her houses with HTG and HCG as stipulated for Loss of Houses/structures.

   (b) If the land is fully affected and the households needs to relocate elsewhere, six month's rental allowance (RA) @ BDT 1000 per month for comparable living accommodations to owner users of lands under vested property status without lease.

Indicator type: Output

Unit of Measure: BDT, Percent

Disaggregated by: Package, Polder, EP type, compensation type, ownership category

Justification/Management Utility: Collection of updated and accurate data on the progress of compensation is vital for monitoring the implementation of LAP/RAP since construction work depends on clearing the embankments of settlements and project success requires that project affected persons are treated fairly and with sensitivity.

PLAN FOR DATA ACQUISITION

Method / Approach of Data Collection or Calculation: Information to be collected from the reports of DSC and RAP Implementing Agency and PMU by M&E consultant. Records also will be monitored and PMIS to be maintained to summarize results in each quarter.

Data Source(s): From the Quarterly Progress Reports of DSC and RAP Implementing Agency and PMU financial records.

Data Collection Frequency /Timing: Quarterly

Data Collection Responsibility: Social Safeguard Management Specialists (SSMS) of M&E Consultant

DATA QUALITY ISSUES

Date of Initial Data Quality Assessment: June 2016

Known Data Limitations and Significance (if any): None

Actions Taken or Planned to Address Data Limitations: NA

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion **PDO 3:** To improve GoB's capacity to respond promptly and effectively to an eligible crisis or emergency
IR 1. Polders are functioning as designed (with climate change specifications) and permit drainage and flushing **IR 6.** Improved coastal monitoring, disaster preparedness and management
INDICATOR NAME Fin-3: Value of damages/losses due to flooding events (whether river flooding or storm surges)
DESCRIPTION
The type of damages/losses include, among others: • Crops • Fisheries • Livestock • Trees/Mangroves and Forest products • Non-agricultural sectors • Embankments and embankment structures • Roads, Jetties, Landings • Property • Lives The value shall be as assessed by the GoB. **Indicator type:** Outcome
Unit of Measure: BDT
Disaggregated by: Package, Polder, loss type, event
Justification/Management Utility: Collection of data on losses (inside and outside the project area) will provide evidence of the benefit of CEIP-1 provided that the project area experiences a reduction in such losses. This is a test of the fundamental basis underpinning the project.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Review of GoB estimates after flooding events.
Data Source(s): GoB estimates (BWDB)
Data Collection Frequency /Timing: Annually, only if an event occurs.
Data Collection Responsibility: M&E Consultant
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: As events occur.
Known Data Limitations and Significance (if any): Not known at this time.
Actions Taken or Planned to Address Data Limitations: NA
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: M&E team members and Data Analyst of M&E consultant will analyze the data. Presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion **PDO 3**: To improve GoB's capacity to respond promptly and effectively to an eligible crisis or emergency
INDICATOR NAME Fin 5: Appropriation for regular project operation
DESCRIPTION
Precise Definition 1. **Appropriation** means the act of setting aside money for a specific purpose within a specified period. A company or a government appropriates funds in order to delegate cash for the necessities of its business operations. This may occur for any of the functions of a business, including setting aside funds for employee salaries, research and development, construction and consultancy costs, dividends and all other uses of cash. Central Funds must be **appropriated** each year for government programs. 2. For government purposes **Appropriation** means 'authorization' by an act of parliament to permit government agencies to incur obligations, and to pay for them from the treasury. **Appropriation** does not mean actual setting aside of cash, but represents the prescribed limit on spending within a specified period. 3. For the purpose of this project three types of **Appropriations** have been considered namely (i) Government release of fund for the project (ii) BWDB release of fund and (iii) World Bank release of fund. However, the project will have its own **Appropriation**, meaning distribution of funds to several specific accounts so as to meet its different costs such as establishment, payment of contractors, payments of consultants and other procurements. **Indicator type**: Input
Unit of Measure: BDT in Lac/USD in million
Disaggregated by: Government level, contract, package
Justification/Management Utility: This indicator will allow tracking and monitoring the fund flow and also the financial progress and utilization of funds. This may also be used in the financial analysis for calculation of the actual cost benefit and IRR of the project and to compare the same with the project's target objective.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary Data - BWDB, Consultant and Contractor records/reports
Data Source(s): Documents/Progress reports of BWDB, DSC, Contractors, Service Providers and World Bank
Data Collection Frequency /Timing: Quarterly, Annual and Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: Only when any discrepancy arises.
Known Data Limitations and Significance (if any): There may be some time gaps between the Release of fund by one agency and Receipt of fund by the other. Hence reporting should be done carefully.
Actions Taken or Planned to Address Data Limitations: The data acquisition format will be designed in such a way that this will capture the data of fund 'Release' and 'Receipts' as well as those (invoice/request) which are under process/ (pending).
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Absolute amount of disbursements and disbursement against plan.
VERSION DATE: 15 February 2016

Annex 1 – Performance Indicator Reference Sheets

Engineering Indicators

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1: Polders are functioning as designed (with climate change specifications) and permit drainage and flushing **IR 2:** Embankments/riverbank slopes are protected from erosion and provide livelihood
INDICATOR NAME Eng 1: Bank Revetment works
DESCRIPTION
Precise Definition The length of **revetment**, / or quantity of cc block/boulders shall be the linear length completed /or quantity of materials used and reported by DSC. 1. **Revetment** is a method of erosion protection placed directly on a river bank or exposed slope. The river bank consists of the upper (above the Lowest water level or LWL) and lower sections (Below the LWL).In the case of strong current, river banks may be protected by pitching using stone/boulders, concrete blocks, sand filled geo-bags/geo-mattress. The bank pitching is provided along with the launching apron to prevent the scouring under the water and the consequent fall of pitching. 2. **Revetments** are sloping structures placed on banks or cliffs in such a way as to absorb the energy of incoming water. River or coastal revetments are usually built to preserve the existing uses of the shoreline and to protect the slope, as defense against erosion. The purpose of bank protection may be training of river, protection of adjacent land and properties, protection of nearby hydraulic structures like embankments etc. Generally, bank protection works are auxiliary to river training works and expensive. Because of the high costs involved, all available materials are used. In Bangladesh the most common practice is to use cement concrete blocks, boulders and sand filled geo-bags. **Indicator type**: Output
Unit of Measure: Number of blocks, m^3, Meter/Km
Disaggregated by: Polder, package
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): The data shows the quantum of achievement only. The quality of construction cannot be judged.
Actions Taken or Planned to Address Data Limitations: The DSC is responsible for monitoring contractor activities and compliance with specifications. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.

BASELINE and TARGETS

Baseline is zero in all polders. Target for Package 1 is finalized and presented below, while target for Package 2 is under development. Target for Package 3 is not yet known as the design is only getting started.

Polder No.:	***32***	***33***	***35/1***	***35/3***	***Total***
Pkg W=01:	km	km	km	km	km
Bank revetment works	1.5	1.45	Nil	1.7	4.65

VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1: Polders are functioning as designed (with climate change specifications) and permit drainage and flushing **IR 2:** Embankments/riverbank slopes are protected from erosion and provide livelihood **IR 4.** Project-Affected Persons are fairly and justly compensated, resettled and have livelihoods restored as applicable per World Bank policy
INDICATOR NAME Eng 2: Slope protection of embankment
DESCRIPTION
Precise Definition The length of **slope protection** of embankment shall be the linear length of the (protected) embankment completed / or quantity of cc block/boulders or vegetative cover used and reported by DSC. The vegetative cover may include trees and shrubs that are appropriate for social forestry that would benefit the local population. The term **"Slope protection"** can be defined as "the protection of an embankment slope against wave action or erosion". Different protective measures which are commonly employed to protect the slope of embankment are: (a) Revetment/mattressing to protect against erosive action of river. (b) Spurs/groynes to deflect/dampen high velocity attacking the embankment (c) Different grade control measures to tame a river flowing in steep terrain. (d) Improving shear strength of embankment soil by growing shallow rooted vegetation Properly designed slope protection and stabilization has to include two components: a vegetation-biological and a mechanical-structural component. For maximum effect, both components should be integrally planned prior to construction of the embankment. **Indicator type**: Output
Unit of Measure: Number of blocks, m^3 of boulders, kms of embankment slope
Disaggregated by: Polder, package
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): The data shows the quantum of achievement only and does not attest to the BoQ quantities. The quality of construction cannot be judged.
Actions Taken or Planned to Address Data Limitations: The DSC is responsible for monitoring contractor activities and compliance with specifications and measuring works achieved. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.

PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.

BASELINE and TARGETS

Baseline is zero in all polders. Target for Package 1 is finalized and presented below, while target for Package 2 is under development. Target for Package 3 is not yet known as the design is only getting started.

Polder No.:	***32***	***33***	***35/1***	***35/3***	***Total***
Pkg W=01:	km	km	km	km	km
Slope protection of embankment	3.3	6	17.25	0.9	27.45

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PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1: Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
IR 1: Polders are functioning as designed (with climate change specifications) and permit drainage and flushing **IR 2:** Embankments/riverbank slopes are protected from erosion and provide livelihood
INDICATOR NAME Eng 3: Drainage works: Re-excavation of drainage channels
DESCRIPTION
Precise Definition The length and volume of re-excavation shall be the linear length of the channel completed and the volume of earth dredged/excavated and reported by DSC. 1. A channel whether open, covered, or enclosed, natural or artificial, or partly natural and partly artificial, which is designed, intended or used to facilitate drainage of water is called a **drainage channel**. Where **drainage** is the natural or artificial removal of surface and sub-surface water from an area by gravity or pumping. 2. **Re-excavation of drainage channel** is defined as re-sectioning of the existing drainage channel through dredging/excavation (by mechanical or manual means), in accordance with the (new) design/ specification given to the contractor. **Indicator type**: Output
Unit of Measure: Meter/Km
Disaggregated by: Polder, package
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): The data shows the quantum of achievement only and does not attest to the BoQ quantities. The quality of construction cannot be judged.
Actions Taken or Planned to Address Data Limitations: The DSC is responsible for monitoring contractor activities and compliance with specifications and measuring works achieved. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1: Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
INDICATOR NAME Eng 4: Drainage works: maintenance
DESCRIPTION
Precise Definition 1. **Maintenance** activities relate to maintenance of cross section, repair, replacement, and clearing of drainage channels and other drainage structures including sluices, regulators etc. Protective measures such as soil stabilization using vegetation or rock on stream banks, slopes, benches or ditches are also part of the these activities. 2. Channels and drainage ditches are **maintained** to avoid obstruction and maintain flow. **Ditch cleaning** includes use of equipment for cleaning and reshaping of ditches including loading, hauling, and disposing of excess materials. Vegetation located in the ditch is removed during cleaning. Material is removed to an appropriate location for disposal or storage. Subtasks include vehicle operation, mechanically cleaning, and stockpiling and disposal of removed material. Fill material may be imported to repair eroded channel walls. **Indicator type**: Output
Unit of Measure: Meter/Km /number
Disaggregated by: Polder,
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): The data shows the quantum of achievement only and does not attest to the BoQ quantities. The quality of construction cannot be judged.
Actions Taken or Planned to Address Data Limitations: The DSC is responsible for monitoring contractor activities and compliance with specifications and measuring works achieved. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1: Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
INDICATOR NAME Eng 5: Flushing Inlets constructed/rehabilitated
DESCRIPTION
Precise Definition The number of flushing inlets for which demolition is complete as reported by DSC. 1. **Flushing inlets are sluices** mainly used for irrigation purposes to allow water to enter into the project area/ field. 2. A **sluice** is a water channel controlled at its head by a gate. **Indicator type**: Output
Unit of Measure: Number
Disaggregated by: Polder, package
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): The data shows the quantum of achievement only and does not attest to the BoQ quantities. The quality of construction cannot be judged.
Actions Taken or Planned to Address Data Limitations: The DSC is responsible for monitoring contractor activities and compliance with specifications and measuring works achieved. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1: Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
INDICATOR NAME Eng 6: Concreting works: Repairing of sluices
DESCRIPTION
Precise Definition The indicator counts each sluice for which repair/upgrading of concreting works is completed as reported by DSC. 1. **Sluices** used for drainage of water from the polder area are called **drainage sluices**. 2. A **sluice** is a water channel controlled at its head by a gate. 3. Repair and improvement of the **existing sluices** as per new design/specification (given to the contractor) is termed as **repair/upgrading** of the **sluices.** It includes repair of the main body as well as of the gates (repair and replacement if required) **Indicator type**: Output
Unit of Measure: Number
Disaggregated by: Polder, package
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): The data shows the quantum of achievement only and does not attest to the BoQ quantities. The quality of construction cannot be judged.
Actions Taken or Planned to Address Data Limitations: The DSC is responsible for monitoring contractor activities and compliance with specifications and measuring works achieved. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1: Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
INDICATOR NAME Eng 7: Concreting works: Repairing of Flushing Inlets
DESCRIPTION
Precise Definition The indicator counts each flushing inlet for which repair/upgrading of concreting works for flushing inlets is completed as reported by DSC. 1. **Flushing inlets are sluices** mainly used for irrigation purposes to allow water to enter into the project area/ field. 2. A **sluice** is a water channel controlled at its head by a gate. 3. Repair and improvement of the **existing flushing inlets** as per new design/specification (given to the contractor) is termed as **repair/upgrading** of the **flushing inlets.** It includes repair of the main body as well as of the gates (repair and replacement if required) **Indicator type**: Output
Unit of Measure: Number
Disaggregated by: Polder, package
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): The data shows the quantum of achievement only and does not attest to the BoQ quantities. The quality of construction cannot be judged.
Actions Taken or Planned to Address Data Limitations: The DSC is responsible for monitoring contractor activities and compliance with specifications and measuring works achieved. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1: Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
INDICATOR NAME Eng 8:. A cross dam constructed in Nalian river
DESCRIPTION
Precise Definition The Nalian River cross-dam will be counted as constructed when all construction is completed as reported by DSC. 1. A **cross dam (also known as closure dam)** is a barrier constructed across (small) rivers/streams to stop the flow of the stream to flow to its original course thus hold back water and raise its level, forming a reservoir usually used for irrigation. 2. **Cross dams** are also constructed for controlling tidal floods and salinity intrusion as well as land reclamation. 3. In Bangladesh**, Cross dams** are commonly constructed at the mouth (intake/off take) of small streams for closing the stream and keeping continuity of an **embankment** built along the main rivers. In the coastal polders they have been used for controlling tidal flood and salinity intrusion. 4. There are also **very big cross dams/ closure** dams in Bangladesh e.g. Meghna Cross Dam no 1 (14 km long, land accretion of 207 Sq Km, constructed in 1957), Meghna Cross Dam no 2 (16 km long, land accretion of 725 Sq Km, constructed in 1963-64), Feni River Closure dam,(1200m long, land accretion of 4000ha , constructed in 1985) 5. **Dams** are massive barriers built across rivers and streams to confine and utilize the flow of water for human purposes such as irrigation and generation of hydroelectricity. This confinement of water creates lakes or reservoirs. 6. An **embankment** is a wide wall of earth or stones built to stop water from flooding an area, or to support a road or railway. In Bangladesh an **embankment** is an earthen bank extending generally parallel to the stream course and designed to protect the area behind it from overflow by flood waters. **Indicator type**: Output (milestone)
Unit of Measure: Number
Disaggregated by: Polder/Package
Justification/Management Utility: Monitoring the physical progress of works, that may be tagged with payments of the contractor. Also, to gauge achievement of the project compared to plan.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Secondary data and direct observation in field on sample basis
Data Source(s): Progress reports of DSC, Contractor, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual, Final
Data Collection Responsibility: M&E Consultants, DSC
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: January 2017
Known Data Limitations and Significance (if any): The data shows the quantum of achievement only and does not attest to the BoQ quantities. The quality of construction cannot be judged.

Actions Taken or Planned to Address Data Limitations: The DSC is responsible for monitoring contractor activities and compliance with specifications and measuring works achieved. For monitoring the quality of construction works, DSC and BWDB may also take samples by themselves and get those tested in the laboratories.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Progress will be assessed against the plan. Any urgent issues that need immediate attention will be flagged.
VERSION DATE: 15 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 1: Polders are functioning as designed (with climate change specifications) and permit drainage and flushing
INDICATOR NAME Eng 10: Quality Control Manual in place
DESCRIPTION
Precise Definition The Quality Control Manual will be deemed to be in place if it fulfills the requirements listed below and it is accepted by the Client. 1. **Quality control (QC)** is a procedure or set of procedures intended to ensure that a manufactured product or performed service adheres to a defined set of quality criteria or meets the requirements of the client or customer. 2. In order to implement an effective **QC program**, an enterprise must first decide which **specific standards** the product or service must meet. Then the **extent of QC actions** must be determined (for example, the percentage of units to be tested from each lot). Next, **real-world data** must be collected (for example, the percentage of units that fail) and the results reported to management personnel. After this, corrective action must be decided upon and taken. 3. **Quality Control Manual** is an official document produced by an organization/project/business that details how its quality management system operates. 4. A typical **quality control manual** will include the organization's quality policy and goals, specific and measurable 'quality objectives', as well as documents, such as standard operating procedures (SOPs) which gives a detailed description of its quality control system that might include staff roles and relationships, procedures, systems and any other resources that relate to producing high quality goods or services. 5. The **quality documentation** can follow any format it chooses, including flow charts, wikis, checklists, media or hard copy, provided it contains all of the minimum mandatory requirements. 6. Persons performing the **quality control functions** must have well-defined responsibility and authority. 7. The well-defined **quality control manual for construction contractor** must cover the following items: i. Organization chart ii. Construction Drawing iii. Material Control iv. Examination and Inspection Program v. Correction of Non-Conformities vi. Quality Control Manual for Contractors – Construction vii. Codes and standards Required Examination and Tests viii. Calibration of Measuring Tools ix. Record Retention x. Quality Control Manual for Contractors - Sample Forms **Indicator type:** Process (milestone)
Unit of Measure: number
Disaggregated by: Package

Justification/Management Utility: The existence of a QC Manual is a necessary (though not sufficient) step to ensure the quality of works.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Review of QC Manual of Contractors and DSC, and spot checking
Data Source(s): Review of QC Manual of Contractors and DSC, and spot checking
Data Collection Frequency /Timing: Quarterly, Annual
Data Collection Responsibility: DSC, Contractor, M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): The existence or absence of a QC Manual is obvious. What is more subjective is to assess whether it contains all the required elements. Finally, the implementation of the QC procedures are more important than the existence of the manual.
Actions Taken or Planned to Address Data Limitations: Monitoring the quality control measures by the contractor according to the manual will help ensure the desired quality of works and the contractors will be able to give the quality assurance to the client.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Whether the contractor has an effective quality control manual and is following it or not will be reported. Any urgent issues that need immediate attention/ redress will be flagged.
VERSION DATE: 15 February 2016

Annex 1 – Performance Indicator Reference Sheets

Environmental Indicators

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges PDO 2: To improve agricultural production by reducing saline water intrusion
IR 5: Environmental conditions inside the polders are improved
INDICATOR NAME Env 1: Percent of sites having surface water quality (chemical/physical) within acceptable standards
DESCRIPTION
Precise Definition: The indicator will be monitored on a periodic basis at each camp site, a sampling of the construction sites on each polder and at sample sites at key locations within the polder (for salinity particularly). Water salinity monitoring within the polder is needed only where the area is very close to the embankment, and particularly close to sluice gates, and susceptible to salt-water intrusion. The percent will be calculated each year; if a site falls outside the acceptable standards at any time during the year, it is not counted as being within acceptable standard. Laboratory/field testing records of test results of surface water quality will be maintained before, during and after construction and compared with safe values. Surface Water quality refers to the chemical and physical parameters of water considered safe for humans, animals and plants. The most common standards used to assess water quality are related to health and safety for humans and the environment, based on WHO, EPA (US) and Ministry of Environment (Bangladesh) standards and guidelines. **Indicator type**: outcome
Unit of Measure: percent of sites
Disaggregated by: polder and quality characteristic – namely, DO(mg/L), EC (mho/cm), Cl^- (mg/L), TDS (mg/L), SS (mg/L), Nitrate (mg/L), Nitrite (mg/L), PO_4 (mg/L), pH as needed
Justification/Management Utility: CEIP-1 Project is meant to improve surface water quality inside the polders. However, construction and rehabilitation activities and sea water intrusion may lead to temporary degradation of surface water quality. Such pollution can be harmful and toxic to biotic environment including humans. Tracking of this indicator will allow unsafe parameters to be flagged for PMU/BWDB and mitigated to a safer value as quickly as possible. It will also allow evaluation of the efficacy of the project in controlling salt-water intrusion. Following "Guideline to Contractors", the Contractors must take measures to avoid or mitigate any pollution problems. A careful monitoring of ground water quality will ensure a safe environment. Expected test results must remain within the safe standards of environmental norms recognized by International Water Quality Standards and guidelines from WHO, US-EPA, WB, Ministry of Environment (Bangladesh) and ECR '97 (Environmental Conservation Rules 1997).
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Within the project area, primary and secondary data collection are required for Surface Water quality compliance monitoring by laboratory tests from recognized institution. Water sampling, preservation and analytical procedures recognized by WHO, US-EPA, WB, DPHE are to be applied. Contractors must follow "Site Environmental Management Plan (SEMP)" before starting the construction work. As part of "Compliance Monitoring", testing should be done throughout construction process. Collection and monitoring of surface water samples will be done semi-annually (before, during and after the construction and rehabilitation), for five years of CEIP-1 implementation. The PMIS (Project Monitoring Information System) will be taken as record keeping and monitoring mechanism.
Data Source(s): Primary data from Work Contractors, DSC for construction camps/work sites; Primary data from M&E Consultants on salinity and other parameters inside the polders; primary and secondary data from DPHE
Data Collection Frequency /Timing: Baseline, semiannually for camp site and annually for worksites as detailed in the Site Environmental Management Plan (SEMP).

Data Collection Responsibility: DSC and Works Contractors for construction camps/work sites; M&E Consultants for salinity levels at key locations within the polders.
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): Reliability of the water quality test results depends on following proper procedures and protocols for testing, sampling, sample preservation and analysis.
Actions Taken or Planned to Address Data Limitations: M&E Consultants will occasionally participate in joint primary data collection including standard samplings, preservation, analytical test and data analysis required to monitor and confirm reported readings/levels.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 5: Environmental conditions inside the polders are improved
INDICATOR NAME Env 2: Percent of sites having ground water quality (chemical/physical) within acceptable standard
DESCRIPTION
Precise Definition: The indicator will be monitored on a periodic basis at each camp site and at sample sites at key locations within the polder (for salinity particularly). Water salinity monitoring within the polder is needed only where the area is very close to the embankment, and particularly close to sluice gates, and susceptible to salt-water intrusion. The percent will be calculated each year; if a site falls outside the acceptable standards at any time during the year, it is not counted as being within acceptable standard. Laboratory/field testing records of test results of ground water quality will be maintained before, during and after construction and compared with safe values. Ground Water quality refers to the chemical and physical parameters of water considered safe for humans, animals and plants. The most common standards used to assess water quality are related to health and safety for humans and the environment, based on WHO, EPA (US) and Ministry of Environment (Bangladesh) standards and guidelines. **Indicator type**: outcome
Unit of Measure: polder, pollutant
Disaggregated by: polder and quality characteristic – namely, pH, EC (mho/cm), Cl^- (mg/L), TDS (mg/L), SS (mg/L), As (mg/L), Nitrite(mg/L), Nitrate (mg/L) , Fe (mg/L), Pb (mg/L), Cd (mg/L) as needed
Justification/Management Utility: The effect of sea water intrusion and CEIP-1 Project activities especially construction and rehabilitation may lead to pollution of ground water which could be harmful to the biotic environment including human health. Tracking of this indicator will allow unsafe parameters to be flagged for PMU/BWDB and mitigated to a safer value as quickly as possible. It will also allow evaluation of the efficacy of the project in controlling salt-water intrusion. Following "Guideline to Contractors", the Contractors must take measures to avoid or mitigate any pollution problems. A careful monitoring of ground water quality will ensure a safe environment. Expected test results must remain within the safe standards of environmental norms recognized by International Water Quality Standards and guidelines from WHO, US-EPA, WB, Ministry of Environment (Bangladesh) and ECR '97 (Environmental Conservation Rules 1997).
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Within the project area, primary and secondary data collection are required for Ground Water quality compliance monitoring by laboratory tests from recognized institution. Water sampling, preservation and analytical procedures recognized by WHO, US-EPA, WB, DPHE are to be applied. Contractors must follow "Site Environmental Management Plan (SEMP)" before starting the construction work. As part of "Compliance Monitoring", testing should be done throughout construction process. Collection and monitoring of surface water samples will be done semi-annually (before, during and after the construction and rehabilitation), for five years of CEIP-1 implementation. The PMIS (Project Monitoring Information System) will be taken as record keeping and monitoring mechanism.
Data Source(s): Primary data from Work Contractors, DSC for construction camps/work sites; Primary data from M&E Consultants on salinity and other parameters inside the polders; primary and secondary data from DPHE
Data Collection Frequency /Timing: Baseline, semiannually for camp site and annually for worksites as detailed in the Site Environmental Management Plan (SEMP).

Data Collection Responsibility: DSC and Works Contractors for construction camps/work sites; M&E Consultants for salinity levels at key locations within the polders.
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): Reliability of the water quality test results depends on following proper procedures and protocols for testing, sampling, sample preservation and analysis.
Actions Taken or Planned to Address Data Limitations: M&E Consultants will occasionally participate in joint primary data collection including standard samplings, preservation, analytical test and data analysis required to monitor and confirm reported readings/levels.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges PDO 2: To improve agricultural production by reducing saline water intrusion
IR 5: Environmental conditions inside the polders are improved
INDICATOR NAME Env 3: **The extent of land area with soil quality (pollution, waterlogging/swamping, salinity and fertility) outside of acceptable standard**
DESCRIPTION
Precise Definition: The total area with waterlogging/swamping as reported semi-annually, area that is saline, area with fertility problems, area with pollutants. Soil quality refers to the chemical and physical parameters of soil considered fertile and non-saline for plant growth and non-toxic to humans. The most common standards used to assess safe soil quality related to health and safety for humans and environment will be based on the guidelines of WHO, EPA (US) and Ministry of Environment-Bangladesh. Waterlogging/swamping is when the groundwater table is less than 1.0 m from the surface. Using the Institute of Water Modeling classification (F0 through F4), inundated is Class F0 and shallow water table is F1. **Indicator type**: outcome
Unit of Measure: hectares
Disaggregated by: polder, technical parameter- pH, EC (mho/cm), N(%), P (mg/Kg), K (mg/Kg), Salinity (ppt), groundwater level less than 1.0 m in depth (class F0 and F1), as appropriate.
Justification/Management Utility: Effect of sea water intrusion and storm surges may affect CEIP-1 Project areas. This will lead to saline soil which are toxic to plants and the environment including humans. The project is designed to prevent flooding and therefore is expected to improve the environment making the tracking of this indicator important to assess whether the intended impacts are realized. Also, Project works, especially construction and operational works, can lead to undesirable change of soil quality which is harmful for biotic environment including human beings. To escape the pollution that may result from works and negligence of environmental protection, contractors should take the necessary environmental measures. Monitoring the environmental impacts and compliance of the project and ensuring the documentation of the test results of the soil quality parameters will permit assessment of environmental conditions during after project implementation. Following "Guideline to Contractors", the Contractors must take measures to avoid or mitigate any pollution problems. A careful monitoring of ground water quality will ensure a safe environment. Expected test results must remain within the safe standards of environmental norms recognized by International Water Quality Standards and guidelines from WHO, US-EPA, WB, Ministry of Environment (Bangladesh) and ECR '97 (Environmental Conservation Rules 1997).
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Within the project area, primary and secondary data collection are required for soil quality compliance monitoring by laboratory tests from recognized institution. Soil sampling, preservation and analytical procedures recognized by APHA (1995) are to be applied. Contractors must follow "Site Environmental Management Plan (SEMP)" before starting the construction work. To know the baseline concentration of soil pollutants/nutrient concentrations, contractor/supervision consultants should determine the relevant soil quality parameters in the area susceptible to contamination for project activities before starting the construction work. The baseline concentration of soil

nutrients will be compared by conducting semiannual or annual and final investigation. As part of "Compliance Monitoring", testing should be done throughout construction process. Collection and monitoring of soil samples will be done semi-annually (before, during and after the construction and rehabilitation), for five years of CEIP-1 implementation. The PMIS (Project Monitoring Information System) will be taken as record keeping and monitoring mechanism.
Data Source(s): Primary data from Work Contractors, DSC for construction camps/work sites; Primary data from M&E Consultants on salinity and other parameters inside the polders; primary and secondary data from DPHE
Data Collection Frequency /Timing: Baseline, semiannually for camp site and semi-annually for worksites as detailed in the Site Environmental Management Plan (SEMP).
Data Collection Responsibility: DSC and Works Contractors for construction camps/work sites; M&E Consultants for waterlogging and salinity levels at key locations within the polders.
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): Reliability of the soil quality test results depends on following proper procedures and protocols for testing, sampling, sample preservation and analysis.
Actions Taken or Planned to Address Data Limitations: M&E Consultants will occasionally participate in joint primary data collection including standard samplings, preservation, analytical test and data analysis required to monitor and confirm reported readings/levels.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges PDO 2: To improve agricultural production by reducing saline water intrusion
IR 2: Embankments/riverbank slopes are protected from erosion and scour and provide livelihood IR 4: Project Affected Persons are fairly and justly compensated, resettled and livelihoods restored as applicable per World Bank policy
INDICATOR NAME Env 4: **Area Afforested/Reforested along the embankment slopes, river, households, canals**
DESCRIPTION
Precise Definition: The indicator measures the area afforested or reforested due to CEIP-1 efforts. This could be works contractor effort or NGO-assisted afforestation/reforestation in connection with livelihood restoration for PAPs. **Reforestation** is the natural or intentional restocking of existing forests and woodlands that have been depleted, usually through deforestation. **Afforestation** is the planting of trees in previously non-forest areas. Afforestation/reforestation is a part of the global warming solution. The program of planting trees in house lots, polders and along canals aims to provide vital products and amenities to the project's farmers. The house lot may also include garden crops, including quality fruits and timber for villagers as part of the livelihood restoration program for PAPs. This activity improves biodiversity and mitigation of climate change, protects villages and communities, clean water, aesthetic benefits, and recreational opportunities for the populations. **Indicator type**: outcome
Unit of Measure: hectares
Disaggregated by: polder, PAHs vs. non-PAHs (for HH tree planting)
Justification/Management Utility: Plantation of trees can be used to improve the quality of human life via fruit trees and high value timber. A small kitchen garden may be part of planning for livelihood restoration activities. This will rebuild natural habitats and ecosystems, mitigate global warming since forests facilitate bio-sequestration of atmospheric carbon dioxide, and judicial resources harvest, particularly timber for house construction. The monitoring of this indicator permits understanding the correlation of reforestation with socio-economic and environmental improvement.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation:
Data Source(s): HH survey, DSC, Forestry Department, NGO
Data Collection Frequency /Timing: Semiannually for secondary data, Baseline-Mid-Term-Final HH survey
Data Collection Responsibility: DSC, NGO for routine reporting, M&E Consultants for HH survey
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2017
Known Data Limitations and Significance (if any): No significant data limitations
Actions Taken or Planned to Address Data Limitations:
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: Assess the value of surface water quality parameters (biological) to observe the project impacts on surface water quality in or near to project boundary.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges PDO 2: To improve agricultural production by reducing saline water intrusion
IR 5: Environmental conditions inside the polders are improved
INDICATOR NAME Env 5: Surface water quality (biological)
DESCRIPTION
Precise Definition: Surface Water quality including biological makeup refers to the biological, chemical and physical characteristics of water. It is a measure of the condition of water relative to the requirements of one or more biotic species and or to any human need or purpose. It is most frequently used by reference to a set of standards against which compliance can be assessed. The most common standards used to assess water quality relate to health of ecosystems and safety of human contact. Biological indicators are aquatic plant and animal life that are susceptible to specific types and levels of pollutants. Fecal-indicator bacteria (*Escherichia coli*) in water samples is one of the biological indicators for surface water quality. **Indicator type**: process (during construction)
Unit of Measure: coliform bacteria (n/100ml)
Disaggregated by: site, package
Justification/Management Utility: Project works, especially construction and operational works, can lead to undesirable change of surface water quality (especially biological) which is harmful for biotic environment including human beings. To escape the pollutants results from unplanned works and negligence of environmental protection, contractors should take the necessary environmental measures for overcoming the problem. To monitor the environmental impacts and compliance of the project, the documentation of the test results of the biological surface water quality parameters will be a benchmark in future for assessing environmental condition after project implementation. Expected test results, remaining within the standard limits, may be satisfied the environmental safeguards recognized by ECR'97(Environmental Conservation Rules) and shown in a positive trend of good environmentally-friendly works of the project.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Within the project area, primary data collection is the best for determination of Surface Water quality parameters especially biological portion through laboratory test. Water samplings, preservation and analytical procedure should be followed as described by APHA (1995). Number of bacteria concentrations in samples will be comparable to the standard. To know the baseline concentration of biological water pollutants, contractor/supervision consultants should determine the relevant biological water quality parameters in the area susceptible to contamination for project activities before starting the construction work. The baseline concentration of biological water pollutants will be compared by conducting semiannual, annual and final investigation. The PMIS will maintain the preserved data and summarize the results in each report.
Data Source(s): Primary data from Work Contractors, DSC for construction camps/work sites; Primary data from M&E Consultants on salinity and other parameters inside the polders; primary and secondary data from DPHE
Data Collection Frequency /Timing: Baseline, semiannually for camp site and annually for worksites as detailed in the Site Environmental Management Plan (SEMP).
Data Collection Responsibility: DSC and Works Contractors for construction camps/work sites
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): Reliability of the water quality test results depends on following proper procedures and protocols for testing, sampling, sample preservation and analysis.
Actions Taken or Planned to Address Data Limitations: M&E Consultants will occasionally participate in joint primary data collection including standard samplings, preservation, analytical test and data analysis required to monitor and confirm reported readings/levels.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet

STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.

PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges

IR 5: Environmental conditions inside the polders are improved

INDICATOR NAME Env 6: Percent of borrow pits landscaped as per specifications

DESCRIPTION

Precise Definition:

In construction and civil engineering, a borrow pit, also known as a sand box, is an area where material (usually soil, gravel or sand) has been dug for use at another location. It has common usages as the polder construction for the project. There are three types of borrow excavations: landscape, dugout and back slope.

The following are general management principles for borrow pits and landscape requirements. The works Contractors should abide by the specifications laid out in their contracts, but giving attention to these concerns:

- Borrow pits shall be rectangular in shape with one side parallel to the center line of the road and generally maintain the form of the land;
- No borrow pits shall be dug within 5 m of the toe of the final section of the embankment;
- Borrow pits shall be dug continuously. Ridges of not less than 8m width shall be left at intervals not exceeding 300m and small drains should be cut through the ridges to facilitate drainage;
- To ensure efficient drainage, the bed level of the borrow pits shall, as far as possible, slope down progressively towards the nearest cross drain, if any, and shall not be lower than the bed of the cross-drain;
- When it becomes necessary to borrow earth from temporarily acquired cultivable lands, the depth of borrow pits shall not exceed 45 cm. The topsoil to a depth of 15 cm shall be stripped and stockpiled for later rehabilitation of the pit. Thereafter, soil may be dug out to a further depth not exceeding 30 cm and used in forming the embankment. Once the borrow pit is no longer required, the stockpiled top soil shall then be spread back on the land;
- Borrow pits shall not be located within 500m of any identified archaeological, religious or cultural sites.
- Haulage of material to embankments, or other areas of fill, shall proceed only after sufficient spreading and compaction plant is operating at the place of deposition;
- Recommended mitigation measures for rehabilitation and restoration of borrow areas are:
  - if used for agriculture, stockpiled topsoil should be returned to the borrow pit;
  - if used as a fish pond, the banks should be stabilized by compaction and any additional excavated material disposed of in accordance with good operating practice
  - for all other uses, stockpiled topsoil should be returned to the borrow pit and all worked areas stabilized through re -vegetation using local plants.
- Sediment shall be controlled at each site by ensuring that the base of the borrow pit drains into a sediment trap prior to discharging from the site.

Indicator type: process

Unit of Measure: %

Disaggregated by: site, package

Justification/Management Utility:

To preserve the environment, ensure public safety and protect the CEIP-1 investment, the above precautions and standards are recommended. Compliance with the contracts with respect to borrow pits must be assured.

PLAN FOR DATA ACQUISITION

Method / Approach of Data Collection or Calculation: Review of DSC and contractor reports; direct visual inspection on sample basis.

Data Source(s): HH survey, Supervision consultants, SRDI, Land Ministry, NGO

Data Collection Frequency /Timing: Quarterly

Data Collection Responsibility: DSC, M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): M&E Consultants will only spot check on sample basis.
Actions Taken or Planned to Address Data Limitations: DSC is required to ensure compliance and has a team of resident engineers and other technical staff in the field for supervision purposes.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges
IR 5: Environmental conditions inside the polders are improved
INDICATOR NAME Env 7: **Contractor Compliance with SEMPs**
DESCRIPTION
Precise Definition: Rating scheme and precise definition to be developed. Contractors must abide by the "**Guideline to Contractors" and make every effort to understand and obey the requirement.** For all work sites, Contractors must follow Site Environmental Management Plan (SEMP) which are site-specific plans developed to ensure that all necessary measures are identified and implemented in order to protect the environment and social safeguards required for the project. The SEMP provides guidance on how to establish the labor Camps, with kitchen, dining facility, toilets with sewage facility, waste collection and management, equipment, trucks and bulldozer garage, machine rooms, shower and washing facility with safety and security arrangement. Construction location should be well secured and managed. Petroleum products and other corrosive materials should be secured and well protected. The contractor is responsible for cleaning the labor camps work sites including landscaping of "Borrow Pits" and any kind of excavation made for construction work. The types of environmental issues that must be addressed may include: • Environmentally sensitive areas (trees, wildlife, fish, agricultural land, soil erosion, etc.) • Physical cultural resources (historical sites, archaeological sites, religious monuments, cemeteries/graves, etc.) • Buildings • Drinking water • Dust • Noise • Air emissions • Safety • Infrastructure/Road Damage • Traffic/mobility • Impact of in-migration of labor • Disease transmission • Etc.
Indicator type: process
Unit of Measure: % rating
Disaggregated by: site, package
Justification/Management Utility: The SEMP is required to comply with the environmental and social safeguards.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Supervision and direct observation/key informant interviews during spot checks
Data Source(s): DSC reports, direct observation
Data Collection Frequency /Timing: Quarterly
Data Collection Responsibility: D&S Consultants, M&E Consultants, NGO
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: n/a
Known Data Limitations and Significance (if any): TBD
Actions Taken or Planned to Address Data Limitations: TBD
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 3: To improve GoB's capacity to respond promptly and effectively to an eligible crisis or emergency
IR 6: Improved coastal monitoring, disaster preparedness and management
INDICATOR NAME Env 8: **Ministry of Finance prepared and adopted CER implementation plan that is agreed with the WB**
DESCRIPTION
Precise Definition: To be triggered only in case of a major disaster event. The plan will be counted upon World Bank no objection. **Indicator type**: process
Unit of Measure: milestone (Yes/No)
Disaggregated by:
Justification/Management Utility:
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Review of PMU correspondence
Data Source(s): PMU records
Data Collection Frequency /Timing: ongoing
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: n/a
Known Data Limitations and Significance (if any):
Actions Taken or Planned to Address Data Limitations:
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 3: To improve GoB's capacity to respond promptly and effectively to an eligible crisis or emergency
IR 6: Improved coastal monitoring, disaster preparedness and management
INDICATOR NAME Env 9: Disaster management capacity milestones achieved
DESCRIPTION
Precise Definition: Disaster management capacity is to be improved by CEIP-1. One of the main objectives of disaster management is to raise awareness of disaster risks at the community level, but it also combines physical (structural) mitigation measures, such as building polder embankments, with softer (non-structural) measures, such as early warning, contingency planning, and risk mapping. This indicator will track the project-sponsored capacity building efforts on disaster management such as: • awareness programs, • trainings, • preparing contingency plan, • risk mapping, etc. **Indicator type**: process
Unit of Measure: milestone
Disaggregated by: NA
Justification/Management Utility: Disaster management capacity is essential to make disaster management planning and organizational preparedness which includes the ability to predict and plan for disasters in order to mitigate their impact on vulnerable communities, and to respond to and effectively cope with their consequences. It also includes ensuring sufficient capacity in skilled human resources, financial and material capacity for effective disaster management. It also work to increase the self-reliance of individuals and communities to reduce their vulnerability to disasters, to improve their livelihoods and to raise public awareness on risk reduction – for example through tree planting and road safety. This includes improving the disaster response capacity to meet the immediate needs of people affected by disasters, and improving the capacity to restore or improve pre-disaster living conditions and reduce the risk of future disasters.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: review of reports
Data Source(s): PMU records
Data Collection Frequency /Timing: Quarterly
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any):
Actions Taken or Planned to Address Data Limitations:
VERSION DATE: 16 February 2016

Annex 1 – Performance Indicator Reference Sheets

Institutional Indicators

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 3. Polders are operated and maintained for the benefit of the community overall
INDICATOR NAME Inst 1: Polder Committees Functioning
DESCRIPTION
Precise Definition: Polder Committees are being strengthened, assuming they exist, with the objective of having these organizations fairly representing the interests various stakeholders in the polders with respect to water management in the polder system. The PC will be deemed as functioning if it satisfies the following criteria: • It meets as per bylaws, with at least one General Assembly meeting per year; • Key officeholders in place – Chairman, Water Management Specialist and Secretary/Accountant • Registers in place and maintained – members, assets, water allocations/schedules, fees, disputes with disposition • It operates the polder water management structures as per bylaws; • It is effectively and equitably resolving disputes; and • Other criteria, to be developed. **Indicator type**: Outcome
Unit of Measure: number of organizations functioning
Disaggregated by: package, gender representation
Justification/Management Utility: The formation of WMOs is a pilot activity under CEIP-1 to be implemented in 4-6 polders. Polder Committees may already exist, but are inactive for the most part and so are being strengthened. These organizations will mediate the demands for polder residents for freshwater for crops versus saltwater (or brackish water) for shrimp and the needs of irrigation and drainage. Whether or not they function effectively will affect the project's expected benefits.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: The PC will be assessed annually using a scorecard, which will be completed jointly by the M&E Consultants and a FGD process, supplemented by KII. Also direct observation of PC office (if one exists), registers. Information on member satisfaction with PC will also be collected through sample HH baseline survey, which will be compared by conducting follow-up mid-term and final surveys.
Data Source(s): FGD, KII, PC records and HH survey
Data Collection Frequency /Timing: Annually for FGD, KII and direct observation; Baseline, Mid-Term, Final for HH survey on satisfaction levels.
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2017
Known Data Limitations and Significance (if any): FGD may not easily elicit the minority views or the views of the less powerful or articulate.
Actions Taken or Planned to Address Data Limitations: Special efforts will be made to detect the views of the less powerful (by conducting several individual interviews or conducting FGDs with members and stakeholders in stages, for example, without officers of the organizations first round) and KII. In addition, the HH surveys will include questions about the value and functioning of the PCs.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING

Data Analysis: Technical team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion **PDO 3**: To improve GoB's capacity to respond promptly and effectively to an eligible crisis or emergency
IR1, IR2, IR3, IR4, IR5, IR6
INDICATOR NAME Inst 2: M&E Capacity of BWDB
DESCRIPTION
Definition: Training and tools will be provided to PMU and to concerned staff of BWDB to improve capacity for monitoring and evaluation. Training will include on-the-job training, mentoring of counterpart staff and formal training/seminars delivered by the M&E Consultant's team. An assessment tool will be developed and implemented to benchmark BWDB M&E capacity and assess needs for training. **Indicator type**: Output
Unit of Measure: Number of persons
Disaggregated by: Gender, Level of Trainees
Justification/Management Utility: Building the BWDB capacity in M&E will permit the organization to more effectively implement not just CEIP-1 but other projects in the Water Development Board's portfolio. M&E methods and tools permit the distilling of lessons and implementation of mid-course corrections or design of new projects to improve efficiency, cost-effectiveness and sustainability.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: A simple assessment of M&E capacity and needs will be undertaken at baseline and reassessed at project end.
Data Source(s): BWDB
Data Collection Frequency /Timing: B-M-F
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: NA
Known Data Limitations and Significance (if any): None
Actions Taken or Planned to Address Data Limitations: NA
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: The capacity assessment will be tracked over time.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 3. Polders are operated and maintained for the benefit of the community overall
INDICATOR NAME Inst 3: Polder Committees formed
DESCRIPTION
Precise Definition: A Polder Committee is considered formed when the community agrees by a General Assembly to adopt the bylaws and the MOWR/PD approves the document. If it must be gazetted, then this step will be concluded before the PC is deemed to have been formed. A PC that already exists, but that has not been functioning for more than one year as per the criteria under that indicator shall not be considered as existing unless either a General Assembly has been convened or a minuted meeting of the PC took place in the last 12 months. **Indicator type**: Output
Unit of Measure: Number
Disaggregated by: Polder, Package, Gender percentage (composition of WMO members)
Justification/Management Utility: The formation of WMOs is a pilot activity under CEIP-1 to be implemented in 4-6 polders. Polder Committees may already exist, but are inactive for the most part and so are being strengthened. These organizations will mediate the demands for polder residents for freshwater for crops versus saltwater (or brackish water) for shrimp and the needs of irrigation and drainage. Whether or not they function effectively will affect the project's expected benefits.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected from the reports of the NGO looking after WMO formation and strengthening by M&E consultant. Also, the M&E Consultants will interview PC and communities (KII) in the polders to assess whether PCs exist.
Data Source(s): From the Quarterly and Annual Progress Reports of WMO NGO as well as primary data collection from PCs and KII
Data Collection Frequency /Timing: Quarterly from reports; B-M-F for primary data collection
Data Collection Responsibility: M&E Consultant
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: January 2017
Known Data Limitations and Significance (if any): Existence of PCs does not measure their efficacy or efficiency.
Actions Taken or Planned to Address Data Limitations: Other indicators have been included to measure efficacy and efficiency and M&E Consultants will interview Key Informants and PC members periodically. HH surveys will inquire polder residents as to their satisfaction with the PCs.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: Presentation of data through chart/tables.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 4. Project Affected Persons are fairly and justly compensated, resettled and provided livelihood restoration as applicable per World Bank policy
INDICATOR NAME Inst 4: Number of persons receiving resettlement capacity building training
DESCRIPTION
Definition: Training to concerned staffs of BWDB and GRC members counts if it covers different aspect of land acquisition and resettlement including resettlement planning, implementation and monitoring RAP implementation. If a participant does not participate in the training for its entire duration, the trainer(s) must assess whether the level of participation warrants considering the person trained. **Indicator type**: Output
Unit of Measure: Number of persons
Disaggregated by: Gender, Level of Trainees
Justification/Management Utility: The staffs from different agencies involved in the project particularly in connection with social safeguards play a vital role for the project with respect to land acquisition and resettlement including resettlement planning, implementation and monitoring RAP implementation. Such a training will give staffs/participants clear understanding about their roles and responsibilities to enable them to implement the resettlement program properly and timely in an efficient manner with full satisfaction of the policy and safeguards. Such a training will also enable participants to resolve the grievances of PAPs, if any in connection to under valuation of properties.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: BWDB, DSC, RAP implementation agency to keep records of training provided to concerned agencies staffs/ personnel and to incorporate in their progress reports that to be produced at different periods.
Data Source(s): Progress reports of DSC and RAP Consultants, BWDB
Data Collection Frequency /Timing: Quarterly
Data Collection Responsibility: M&E Consultants
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): Participants at a training may not be present for the entire training.
Actions Taken or Planned to Address Data Limitations: Daily sign-in sheets will be instituted for multi-day trainings.
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Performance Indicator Reference Sheet
STRATEGIC OBJECTIVE: To sustainably improve the socio-economic well-being and resilience of the population in the selected polders.
PDO 1: To increase the area protected in 17 polders from flooding and frequent storm surges **PDO 2:** To improve agricultural production by reducing saline water intrusion
IR 4. Project Affected Persons are fairly and justly compensated, resettled and provided livelihood restoration as applicable per World Bank policy
INDICATOR NAME Inst 5: GRC functioning
DESCRIPTION
Precise Definition: GRC is considered functioning when it convenes its first minuted "meeting" or takes its first action to resolve grievances received from the PAPs. A meeting may be done virtually via email or other medium. **Indicator type**: Output
Unit of Measure: Number (GRC is supposed to form at each Union under the project/polders e.g A polder covers numbers of Unions, so, in every Union, there will be one GRC)
Disaggregated by: Package, Polder, percentage
Justification/Management Utility: The GRC are to play a pivotal role to resolve the grievances of PAPs connection to undervaluation, ownership disputes, etc. of acquired land and properties due to the project's development activities. So, timely formation/establish GRC before starting of compensation payment is necessary.
PLAN FOR DATA ACQUISITION
Method / Approach of Data Collection or Calculation: Information to be collected from the reports of DSC and RAP Implementing Agency by M&E consultant. Records also will be monitored and PMIS to be maintained to summarize results in each quarter
Data Source(s): From the Quarterly Progress Reports of DSC and RAP Implementing Agency.
Data Collection Frequency /Timing: Quarterly
Data Collection Responsibility: Social safeguard Management Specialists (SSMS) of M&E Consultant
DATA QUALITY ISSUES
Date of Initial Data Quality Assessment: June 2016
Known Data Limitations and Significance (if any): No significant data limitations
Actions Taken or Planned to Address Data Limitations: NA
PLAN FOR DATA ANALYSIS, REVIEW, & REPORTING
Data Analysis: SSMS, team members and Data Analyst of M&E consultant and presentation of data through chart/tables to incorporate in the report.
VERSION DATE: 16 February 2016

Annex 2 – Initial Data Formats

Coastal Embankment Improvement Project – Phase I
Reporting Period _____

Results Framework and Monitoring

Project Development Objectives															
Indicator Name	**Core**	**Unit of Measure**	**Base line**	**Cumulative Target Values**								**Fre-quency**	**Data Source/ Meth.**	**Responsible for Data Collection**	**Remarks**
				YR1	**YR2**	**YR3**	**YR4**	**YR5**	**YR6**	**YR7**	**End Target**				
Gross area protected		1000 x ha	-	-	-	-	36.5	67.7	77.9	100.8	100.8	Annual	BWDB	M&E	
Achievement				-	-										
Direct project beneficiaries from increased resilience to climate change (number) of which female (percentage) %	**X**	1000 x person	0	0	0	0	230	480	530	760	760 (50%)	Annual	BWDB	M&E	
Achievement				0	0										
Increase cropping intensity		(%)	140	-	-	-	155	167	171	180	180	Annual	BWDB	M&E	
Achievement				-	-										
Contingent Emergency Appropriation		Triggered, if requested [Y/N]	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	BWDB	NA	
Achievement				NA	NA										

Coastal Embankment Improvement Project – Phase I
Reporting Period _____

Intermediate Results Indicators															
Indicator Name	**Core**	**Unit of Measure**	**Base line**	**Cumulative Target Values**								**Fre-quency**	**Data Source/ Meth.**	**Responsible for Data Collection**	**Remarks**
				YR1	**YR2**	**YR3**	**YR4**	**YR5**	**YR6**	**YR7**	**End Target**				
Length of upgraded embankment		km	0	-	20	121	309	452	551	623	623	Annual	BWDB	M&E	
Achievement				-	0										Emergency works for 150m underway
Drainage structures replaced and upgraded		No.	-	-	3	23	59	89	113	129	129	Annual	BWDB	M&E	
Achievement				-	0										
Regulators upgraded		No.	-	-	4	28	73	106	123	134	134	Annual	BWDB	M&E	
Achievement				-	0										
Flushing inlets upgraded		No.	0	-	9	52	127	178	214	244	244	Annual	BWDB	M&E	
Achievement				-	0										
Length of Drainage Channels upgraded		Km	0	-	27	157	381	540	681	794	794	Annual	BWDB	M&E	
Achievement				-	0										
Area restored re/afforested	**X**	ha	-	-	-	-	-	100	200	300	300	Annual	BWDB	M&E	
Achievement				-	-										
Water Management Organization (WMO)		Nb.	0	-	-	-	1	2	3	4	4	Annual	BWDB	M&E/NGO	
Achievement				-	-										

Coastal Embankment Improvement Project – Phase I
Reporting Period _____

Improved coastal monitoring		Studies	Ltd. data					1		2	2	Annual	BWDB	M&E	
Achievement				-	-										
BWDB days of training provided	**X**	No.	0	20	40	60	80	100	120	140	160	Annual	BWDB		Project total needs to be 140 (or PY7 should be 160).
Achievement					33 (341 pers-days)										Reported duration in days (plus person-days)
Client days of training provided - Female	**X**	No.	0								60	Annual	BWDB		
Achievement					33 (66 pers-days)										Reported duration in days (plus person-days)
Grievance Redress Committee (GRC)		No.	0		4		10	13	17			Annual	BWDB	M&E/NGO	
Achievement															GRC formation under process in Polders 32, 33, 35/1 and 35/3

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Government of the People's Republic of Bangladesh
Ministry of Planning
Implementation Monitoring and Evaluation Division

Project Monitoring Form: IMED 02/2003 (Revised) (Page 1 of 2)
(Yearly Target)
ADP: 20 - __ __ __ __

A. Component-wise Physical and Financial Target for Current Year

Code

A.1 **a) Project Title**: Coastal Embankment Improvement Project -I
b) Ministry: Ministry of Water Resources
c) Division: .....
d) Agency: Bangladesh Water Development Board

A.2 Quarterly Physical and Financial Target (As per yearly Allocation):

(in lakh Taka)

Sl. No.	Name of the Component (As per Table E-1 of PP) or (As per Part E (32) of TAPP)	Total Target			First Quarter Target			Second Quarter Target			Third Quarter Target			Fourth Quarter Target			Remarks
		Physical		Financial	Physical		Financial	Physical		Financial	Physical		Financial	Physical		Financial	
		Unit	Qtty		Qtty	%		Qtty	%		Qtty	%		Qtty	%		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	Total																

A.3 Is the project targeted for completion in this financial year		Yes		No

নোট ঃ

১. ২ নং কলামে শুধুমাত্র ঐ সকল অংগের নাম উল্লেখ করতে হবে যে সকল অংগ বাস্তবায়নের জন্য বর্তমান অর্থ বছরে লক্ষ্যমাত্রা স্থির করা হয়েছে।
২. কারিগরী সহায়তা প্রকল্পের ক্ষেত্রে এর অংগ যথা রিপোর্ট, প্রশিক্ষণ ইত্যাদি লিপিবদ্ধ করতে হবে।
৩. পরিমাপযোগ্য বাস্তব লক্ষ্যমাত্রা নির্ধারন সম্ভব হলে % দেওয়ার বিষয়টি প্রযোজ্য হবে না (কলাম-৭, ১০, ১৩ ও ১৬)। তবে বিবেচনাধীন সময়ে কাজের লক্ষ্যমাত্রা নির্ধারন করা সত্ত্বেও যে সকল অংগের বাস্তব কাজের লক্ষ্যমাত্রা সংখ্যা/ একককে পরিমাপযোগ্য হবে না, শুধুমাত্র সে ক্ষেত্রে % ব্যবহার করতে হবে। উক্ত অংগের পুরো প্রকল্পকালীন সময়ের তুলনায় সংশ্লিষ্ট সময়ের লক্ষ্যমাত্রার % দিতে হবে। ১৮ নং কলামে % ব্যবহারের কারণ লিপিবদ্ধ করতে হবে।
৪. যদি কোন অংগের ক্ষেত্রে সংস্থার নিজস্ব সম্পদ থেকে বরাদ্দ থাকে, তাহলে তা Financial কলামে অন্যান্য হিসাবের সাথে যোগ করে দেখাতে হবে।

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(Yearly Target)
ADP: 20 - __ __ __ __

B. Upazila-wise Target of Current Year and Progress of Last Year

Code

B.1 Project Title: Coastal Embankment Improvement Project -I

B.2 Upazila-wise Target of Current Year and Progress of Last Year

(Amount in Lakh Taka)

Sl. No.	District	Upazila	Cumulative Expenditure Upto Last Year	Expenditure of Last Year	Financial Target of Current Year
Total:					

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সংস্থার নিজস্ব সম্পদ থেকে যদি প্রকল্পে অর্থায়ন করা হয়, তাহলে লক্ষ্যমাত্রা ও অগ্রগতি/ব্যয়ের ঘরে উহা অন্তর্ভুক্ত করতে হবে।

Project Director/
Authorized Signature
Date:

Head of the Agency/
Authorized Signature
Date:

Secretary/Head of the Planning Wing/Branch
Authorized Signature
Date:

Coastal Embankment Improvement Project – Phase I
Bangladesh Water Development Board

Financial Progress (Expenditures) – Engineering Works

Period: _____

Works Package/Polder[1]	Unit (lakh Taka)	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks[2]
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan[3]	Project Target[4]		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

The footnotes below apply to all the formats in this group.

[1] Column 1 will always follow the project works or components as mentioned in the DPP or TAPP.
[2] Problems or reasons for delay, if any.
[3] Year-to-date achievement as % of current year´s plan.
[4] Inception-to-date achievement as % of total project target.

Coastal Embankment Improvement Project – Phase I

Bangladesh Water Development Board

Financial Progress (Expenditures) – Consulting Services

Period: _____

Services Package/ Major items of action	Unit (lakh Taka)	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan	Project Target		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

Financial Progress (Expenditures) – Goods Procurement

Period: _____

Major items of action	Unit (lakh Taka)	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan	Project Target		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

Coastal Embankment Improvement Project – Phase I

Bangladesh Water Development Board

Financial Progress (Expenditures) – Establishment/Administrative Costs (PMU)

Period: _____

Major items of action	Unit (lakh Taka)	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan	Project Target		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

Coastal Embankment Improvement Project – Phase I

Bangladesh Water Development Board

Physical Progress – Engineering Works

Contract Reference No: _____ **Period:** _____

Polder/Package _____

Major items of action	Unit	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks On Progress and Quality
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan	Project Target		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

Coastal Embankment Improvement Project – Phase I

Bangladesh Water Development Board

Physical Progress – Consulting Services

Contract Reference No: _____ **Period:** _____

Polder/Package _____

Major items of action	Unit	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks On Progress and Quality
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan	Project Target		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

Coastal Embankment Improvement Project – Phase I

Bangladesh Water Development Board

Physical Progress – Goods Procurement

Contract Reference No: _____ **Period:** _____

Polder/Package _____

Major items of action	Unit	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan	Project Target		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

Physical Progress – Establishment/Administrative Items

Reference: _____ **Period:** _____

Major items of action	Unit	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan	Project Target		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

Physical Progress and Process Monitoring – RAP/LAP/SAP

Contract Reference No: _____ **Period:** _____
Polder/Package _____

Major milestones/steps	Unit	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks On Progress and Quality
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan	Project Target		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

Coastal Embankment Improvement Project – Phase I

Bangladesh Water Development Board

Physical Progress and Process Monitoring – EMP

Contract Reference No: _____ **Period:** _____

Polder/Package _____

Major milestones/steps	Unit	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks On Progress and Quality
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan	Project Target		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

Physical Progress and Process Monitoring – WMO formation

Contract Reference No: _____ **Period:** _____
Polder/Package _____

Major milestones/steps	Unit	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks On Progress and Quality
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan	Project Target		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

Coastal Embankment Improvement Project – Phase I

Bangladesh Water Development Board

Physical Progress and Process Monitoring – Afforestation

Contract Reference No: _____ **Period:** _____

Polder/Package _____

Major milestones/steps	Unit	Project Target	Planned for the current year					Progress			Achieved (%)		Alert	Remarks On Progress and Quality
			Current year	Q-1	Q-2	Q-3	Q-4	Cum Last Quarter	Current Quarter	Cum this Quarter	Year's Plan	Project Target		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total														

Implementation Problems Summary (brief and specific)

Period: _____

S.N.	Type of Problem	Description of Problem	Measures Suggested	Actions Taken

RAP Process Monitoring

Major items of action	Item weight (%)	Specific action steps (sub-items)		Sub-Item weight (%)	Unit	Project Period	Planned for the current year					Progress			Achieved (%)		Alert	Remarks
							Current year	Q1	Q2	Q3	Q4	Cum Last Quarter	Current Quarter	Cum This Quarter	Year's Plan	Total Target		
1) Recruitment, training and deployment	3	i)	Setting up Offices	30	Nos.													
		ii)	Deploying professional personnel & support staff	20	No.													
		iii)	Recruitment, training and deployment of field staff	30	No.													
		iv)	Yearly refreshers	20	No. RWs													
2) Assist in Land Acquisition Activities	2	i)	Assist BWDB in preparation of LAP	20	No.													
		ii)	Ensure issuance of notice u/s 3, 6 & 7	20	No.													
		iii)	Assist EPs in receiving Compensation	30	No.													
		iv)	Maintain close liaison with DCs for LA & payments	30	No.													
3) Preparation and Updating RPs	3	i)	Designing the survey instrument	10	No.													
		ii)	Field survey and collection of data	25	No.													
		iii)	Computerization of field data	25	No.													
		iv)	Data analysis and report generation	25	No.													
		v)	Updating RPs and RP Budget	15	No.													

Major items of action	Item weight (%)	Specific action steps (sub-items)		Sub-Item weight (%)	Unit	Project Period	Planned for the current year					Progress			Achieved (%)		Alert	Remarks
							Current year	Q1	Q2	Q3	Q4	Cum Last Quarter	Current Quarter	Cum This Quarter	Year's Plan	Total Target		
4) Participate in Joint Verification	3	i)	Participation in joint verification with DCs	30	No.													
		ii)	Participation in Joint Verification with JVT	30	No.													
		iii)	Generation of database	40	No.													
5) Property Assessment and Valuation	3	I)	Formation of PVAT	15	No.													
		ii)	Planning for the assessment and valuation	15	No.													
		iii)	Communication and collection of data	40	No.													
		iv)	Reporting and Recommendation	15	No.													
		v)	Approval of PVAT price by PMO	15	No.													
6) Information campaign	5	i)	Distribute information brochure	40	EP													
		ii)	Personal contacts	20	EP													
		iii)	Carry out Public consultation meetings	20	Times													
		iv)	Feedback on problems and constraints	20	Times													
7) Assist APs in Relocation	15	i)	Mobilization/Motivation of APs for relocation	30	EP													
		ii)	Payment of Transfer Grant	50	EP													
		iii)	Assist APs in the process of relocation	20	EP													

Major items of action	Item weight (%)	Specific action steps (sub-items)		Sub-Item weight (%)	Unit	Project Period	Planned for the current year					Progress			Achieved (%)		Alert	Remarks
							Current year	Q1	Q2	Q3	Q4	Cum Last Quarter	Current Quarter	Cum This Quarter	Year's Plan	Total Target		
8) Identification of EPs	15	i)	Collection of award books	20	EP													
		ii)	Data processing and assigning ID numbers	20	EP													
		iii)	Photographing of EPs	20	EP													
		iv)	Issuance of ID cards	30	EP													
		v)	Distribution of ID cards	10	EP													
9) Participate in GRCs	3	i)	Formation of GRC/RAC	10	Nos.													
		ii)	Representation from the APs to GRC	20	Nos.													
		iii)	Receive grievances from the APs	20	Nos.													
		iv)	Arrange GRC sessions for redressing grievances	50	Nos.													
		v)	Conveying GRC decisions to APs	50	AP													
10) Technical services	15	i)	Finalization of resettlement budget	10	No.													
		ii)	Preparation and printing of brochure/leaflet	10	No.													
		iii)	Develop ID numbering system	10	No.													
		iv)	Designing ID card, EP file and EC	10	No.													
		v)	Computerization of award data	10	EP													

Major items of action	Item weight (%)	Specific action steps (sub-items)		Sub-Item weight (%)	Unit	Project Period	Planned for the current year					Progress			Achieved (%)		Alert	Remarks
							Current year	Q1	Q2	Q3	Q4	Cum Last Quarter	Current Quarter	Cum This Quarter	Year's Plan	Total Target		
		vi)	Development of software for EP file & EC	20	No.													
		vii)	Development of software for CMIS	20	%													
11) Assist EPs in the Process of Resettlement	25	i)	Preparation (printing) of EP files & Ecs	20	EP													
		ii)	Payment of entitlement as per policy of RP	40	EP													
		iii)	Assist vulnerable EPs in resettlement	40	EP													
12) Monitoring and Supervision	8	i)	Conduct surveys for monitoring	20	Nos.													
		ii)	Internal Coordination meeting	20	Times													
		iii)	BWDB-NGO coordination meeting	20	Month													
		iv)	Reporting	40	Month													
Total Progress	100																	

Sl	Name of Zone/ Project	Requirement of land and expenditure according to the latest approved DPP		Land acquisition and expenditure up to June 201b		Land acquisition program for the year 201b-201c					Approval							Remarks
		Area (ha)	Cost (Tk in Lac)	Area (ha)	Cost (Tk in Lac)	Arrear of 201a-201b Area (ha)	Pro-gram of 201b-201c Area (ha)	Total Program Area (ha) (7+8)	Esti-mated Expend-iture (Tk. in Lac)	Proposal for land sub-mitted to the DC Area (ha)	DLC/ CLC	Min-istry of Land	Re-ceived esti-mate of land (ha)	Fund re-leased for land (ha)	Re-ceived possess-ion of land (ha)	Expend-iture upto (month) of FY 201 b-c	Proposal of Land acquisiti on now lying with DC/MoL/ BWDB	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Zone																		

Procurement Process Tracking Report
Consulting Services

Reporting Period _____

S. No.	Milestone	Package _____		Package _____		Package _____		Package _____	
		Date	Lag (days)	Date	Lag (days)	Date	Lag (days)	Date	Lag (days)
1	Publication of Notice for EOI								
2	EOI deadline								
3	SL submitted to WB								
4	Shortlist gets WB NOL								
5	RFP issued								
6	Deadline for proposals								
7	Technical Evaluation Report completed								
8	Technical Evaluation Report submitted to WB								
9	WB gives NOL on tech evaluation								
10	Financial proposal opening								
11	Financial evaluation and combined Tech/Fin evaluation report completed								
12	Combined Evaluation Report submitted to WB								
13	WB gives NOL on combined evaluation								
14	GOB Purchasing Committee approval								
15	Negotiation								
16	Negotiated draft contract sent to WB								
17	WB gives NOL on draft contract								
18	GOB Purchasing Committee approval								
19	Contract signed								
20	Commencement of Services								

Procurement Process Tracking Report
Consulting Services

Reporting Period _____

S. No.	Milestone	Package _____		Package _____		Package _____		Package _____	
		Date	Lag (days)	Date	Lag (days)	Date	Lag (days)	Date	Lag (days)
1	Tender Docs Submitted to PMU								
2	Tender Docs Submitted to World Bank								
3	Tender Docs Approved by World Bank								
4	Tender floated								
5	Deadline tenders								
6	Tender analysis & selection sent to WB								
7	WB gives NOL on evaluation								
8	Negotiation								
9	negotiated draft contract sent to WB								
10	WB gives NOL on draft contract								
11	GOB Purchasing Committee approval								
12	Contract signed								
13	Commencement of Services								

Governance and Accountability Action Plan (GAAP) *– Actual Report Example*

Coastal Embankment Improvement Project – Phase I
10 December 2015

Issues/Risks/ Objective	Actions	Agency responsible	Timeline - Plan	Early Warning Indicators to Trigger Additional Action	Timeline - Actual	Remarks
Institutional Risks						
Need to **strengthen capacity** to handle large volume procurement, financial management, contract management, communications, and monitoring functions	Establish PMU with internally or externally hired staff as per the agreed Organogram.	BWDB	Key staff recruited 3-6 months after project effectiveness.	Delays in conduct of procurement, execution of contracts and processing of payments.	Effectiveness date Nov 2013. PD – Dec 2013 Procurement Spec – Nov 2013 Financial Mgt Spec- March 2015 Environment Spec –April 2015 Sr. Social Spec – October 2014 signed Sr. Revenue Officer – August 2014 signed Communication Spec – Fresh EOI Jan 2016. <u>Deferred to 2016</u>: Sr. Forestry Spec. Social Spec./Econ (Field) Environment Spec. (Field)	Most of PMU staff are in place and the few remaining positions will be recruited in 2016, in line with the volume of work as the project ramps up.
	Retain existing consultants or engage new consultants for design, construction supervision	BWDB	Contracted 1st year;		DSC contracted PY2 (January 2015)	
	Contract Third Party M&E functions	BWDB	Contracted 2nd year		M&E Consultant contracted PY2 (October 2015)	
	Increase frequency of Bank supervision missions, especially during the first 2 years.	WB	At least twice a year		PY1 – 2 missions PY2 – 1 mission	
Need for proactive provision of **information** and enhanced transparency	Appoint a Communication Specialist as part of the PMU to act as RTI officer (until BWDB engages an RTI	BWDB	3 -6 months after project effectiveness	Lack of information officer or frequent replacement	Communications Specialist position being re-advertised.	

	officer) in accordance with the RTI act. Quarterly Reporting on Project Implementation by PMU Set up a website and provide regular information on project performance as well as procurement information	 BWDB BWDB	 Quarterly Website set up by end of Year 1. Website regularly updated	 Delays in establishment of website/ publishing information	 First Quarterly Report being prepared for period ending Dec 2015. From inception, notices and procurement results being posted on BWDB website and CPTU website (Ministry of Planning). New, easier-to-navigate BWDB website is under development.	
Procurement Risks						
Reduce risk of corruption in **procurement**.	Retain design of few contracts processed in Dhaka to enhance scrutiny Publish/agree detailed mapping of procurement processes, including finite list of who has access to documents when in the process Enforce ICB procurement guidelines for documentation, timelines, and transparency Appoint a Procurement Panel Enhance complaints mechanism with reporting established and follow-up guidelines	BWDB BWDB BWDB, Bank BWDB BWDB	On-going On-going On-going 3-6 months after project effectiveness On-going	Procurement red flags in ex ante and ex post review Inconsistencies with 'need to know' principles in procurement mapping, evidence of unauthorized access to information Panel members not recruited Nature and frequency of complaints	Procurement packages have been aggregated in size to facilitate scrutiny. Documentation and mapping of processes will be completed December 2015. ICB guidelines are enforced. Int'l Proc. Expert – Nov 2013 Nat'l Proc. Expert – Nov 2013 Int'l Technical Exp. – 2013, with replacement in April 2015 GRM is in process. CEIP-I XEN has requested UP in Package 01 polders to nominate members to the GRCs; expected to be confirmed in Dec 2015.	 PMU understands and follows procedures that safeguard procurement processes. Replacement needed after expert did not renew contract.
Potential for or reduce risks of **conflict of interest** among	Declarations of no conflict of interest by BWDB personnel, including members of PP and bidders	BWDB	BWDB personnel by effectiveness; bidders at submission		Complied on ongoing basis.	

participants in procurement	Review statements of financial interests encompassing key project staff Require bidders' statements concerning agents and other possible connections to persons involved with procurement.	BWDB BWDB	Within one month of submission At bidding stage		Not a separate declaration from COI above. Complied on ongoing basis.	Periodic renewal of COI declaration may be considered.
Contract Execution and Project Management Risks						
Avoid collusion of parties involved and ensure transparent management of contracts	BWDB website includes information on contract execution (e.g. gross estimate of completion of works etc.) Establish enhanced complaints mechanism, including ICT Numerous level of scrutiny: - PD serve as Employer's representative - Construction Supervision Consultant as Engineer - Nominate Resident Engineers at the site - M&E Consultant to oversee project performance	BWDB BWDB Construction Consultants, M&E	As information becomes available By project effectiveness	Website does not include updated information	Complied on ongoing basis, as information is available. Please see bwdb.gov.bd website. In process of being developed. In place: PD – Nov 2013 DSC – Jan 2015 REs nominated – Jan 2015 M&E – Nov 2015	
Fraud and Corruption in Delivery of RAP Benefits						
Potential for improper targeting of beneficiaries and/or false delivery	Contract out implementation of RAP to experienced NGOs, with reputable track record for similar programs Ensure third party monitoring by the M&E Consultants Conduct survey among beneficiaries Enhance complaints mechanism, including use of ICT	NGOs M&E M&E M&E	Contract in place Contract in place Unit in place by effectiveness or before	Reviewers (BWDB, WB) receive plausible complaints borne out by frequency or other corroboration Survey results identify improprieties	DSC has KMC on its team, charged with looking after the RAP implementation (since Jan 2015). M&E Consultants in place Nov 2015 and developing a Comprehensive M&E Strategy. Baseline survey planned for first quarter 2016. In process of being developed.	

	Suo moto disclosure of information	BWDB	Designated office in place by effectiveness, begin implementing expanded disclosure plan three months after effectiveness		Communication Specialist REOI being re-advertised in January 2016.	It would be appropriate to have this individual will also serve as M&E Consultant´s counterpart.

Issues Brief Format
Project Steering Committee Meeting No. _____ **Date _____**

I. New Matters (in brief here, with background material provided if needed as attachment)

S. No.	Problem/Issue/Agenda	Recommendation	Significance and Implication of Issue	Actions to be Taken	Responsible	Target Date

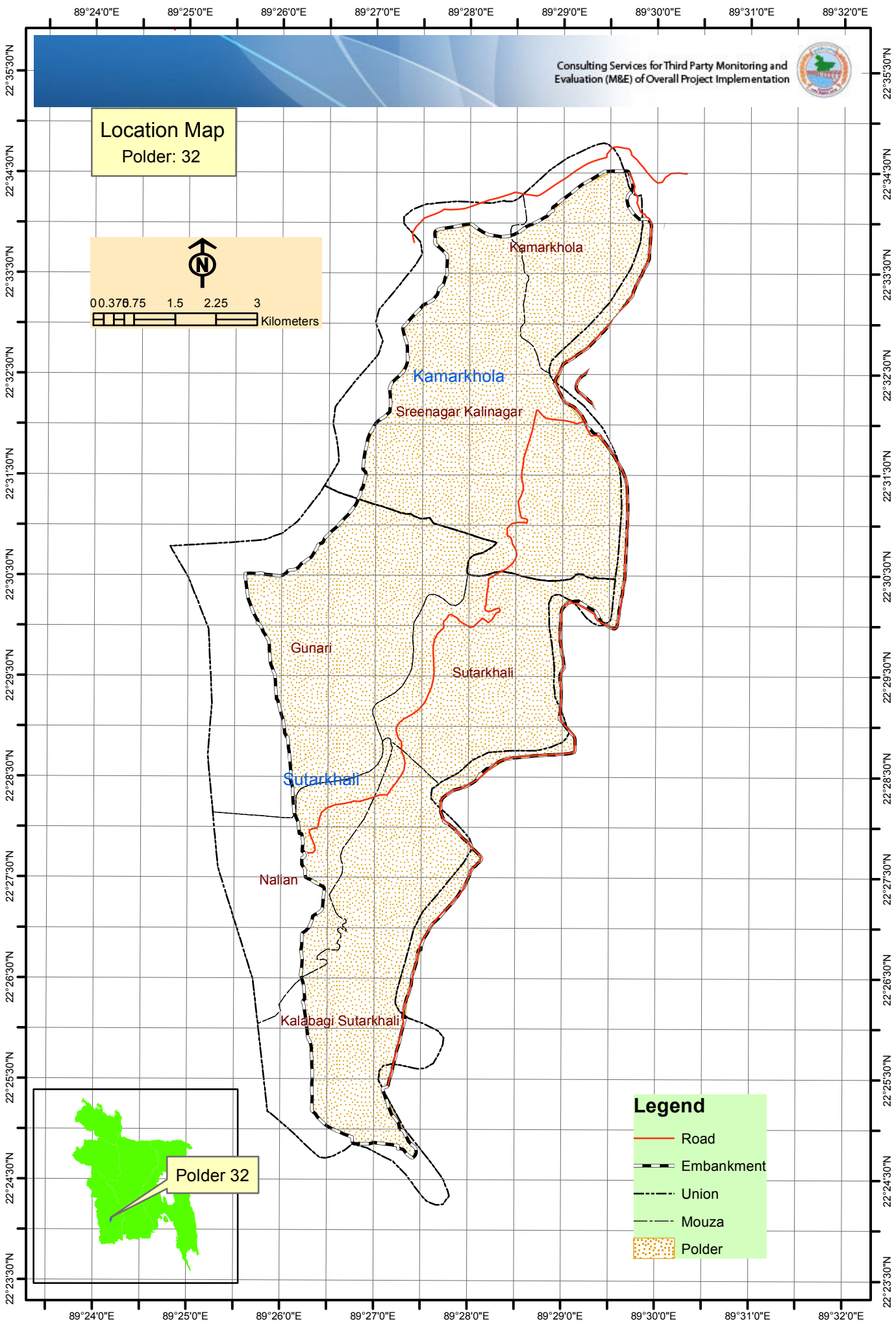
II. Matters Resolved Since Last Meeting (these are to be removed once they are reported to PSC)

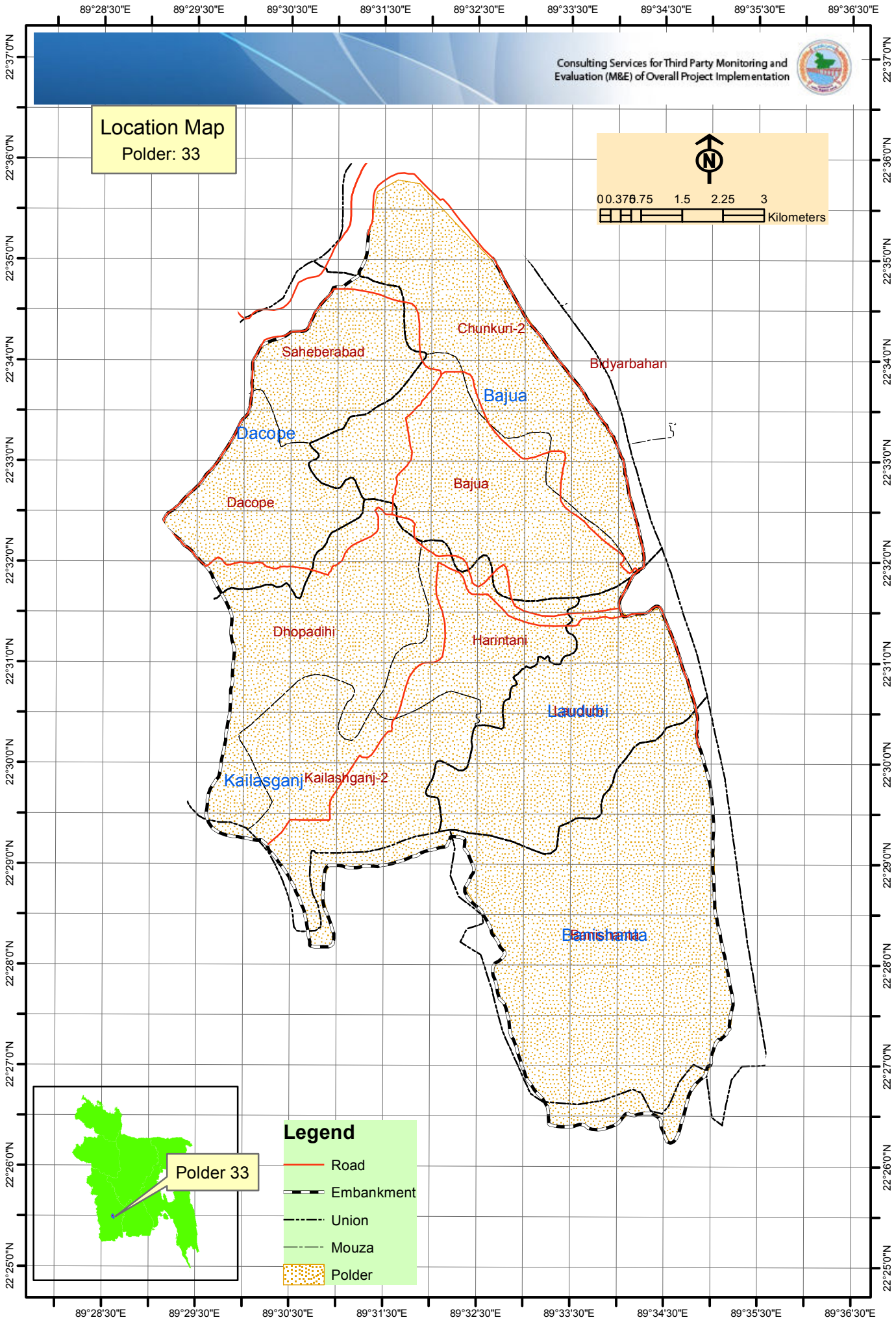
S. No.	Problem/Issue/Agenda	Recommendation	Significance and Implication of Issue	Date First Raised	Update on Status/ Action Plan

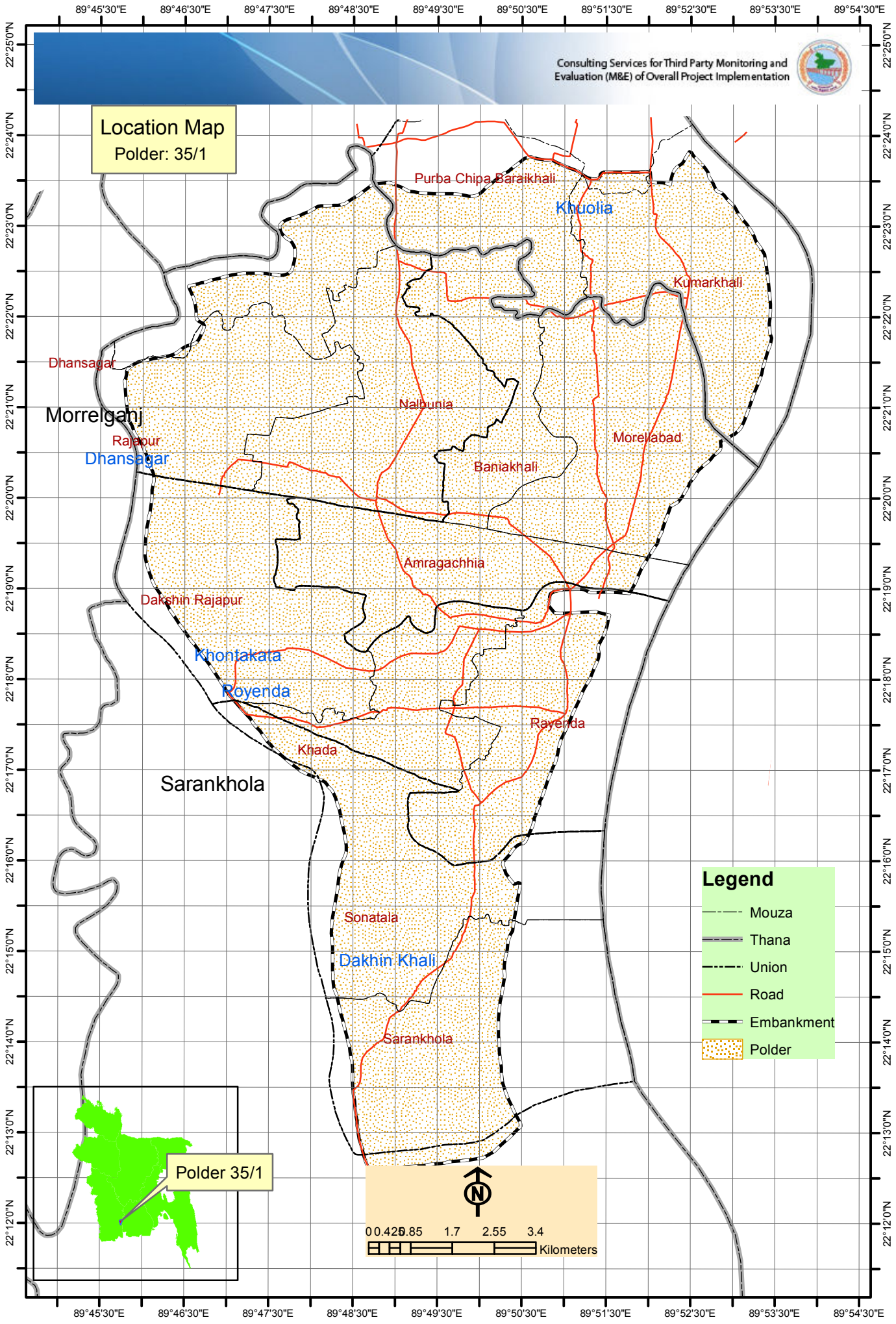
III. Matters Resolved Since Last Meeting (these are to be removed once they are reported to PSC)

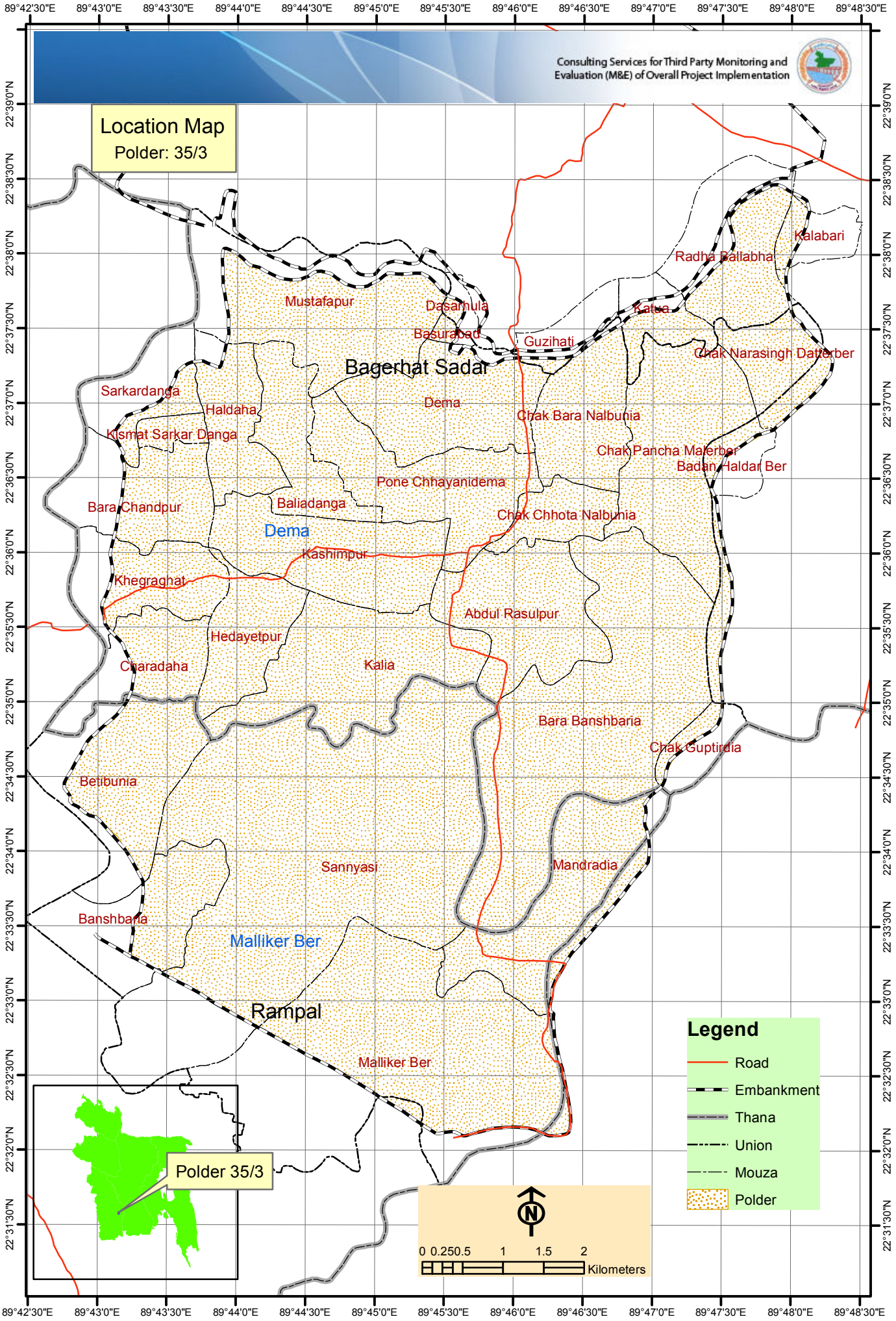
S. No.	Problem/Issue/Agenda	Recommendation	Significance and Implication of Issue	Date First Raised	Update on Status/ Action Plan

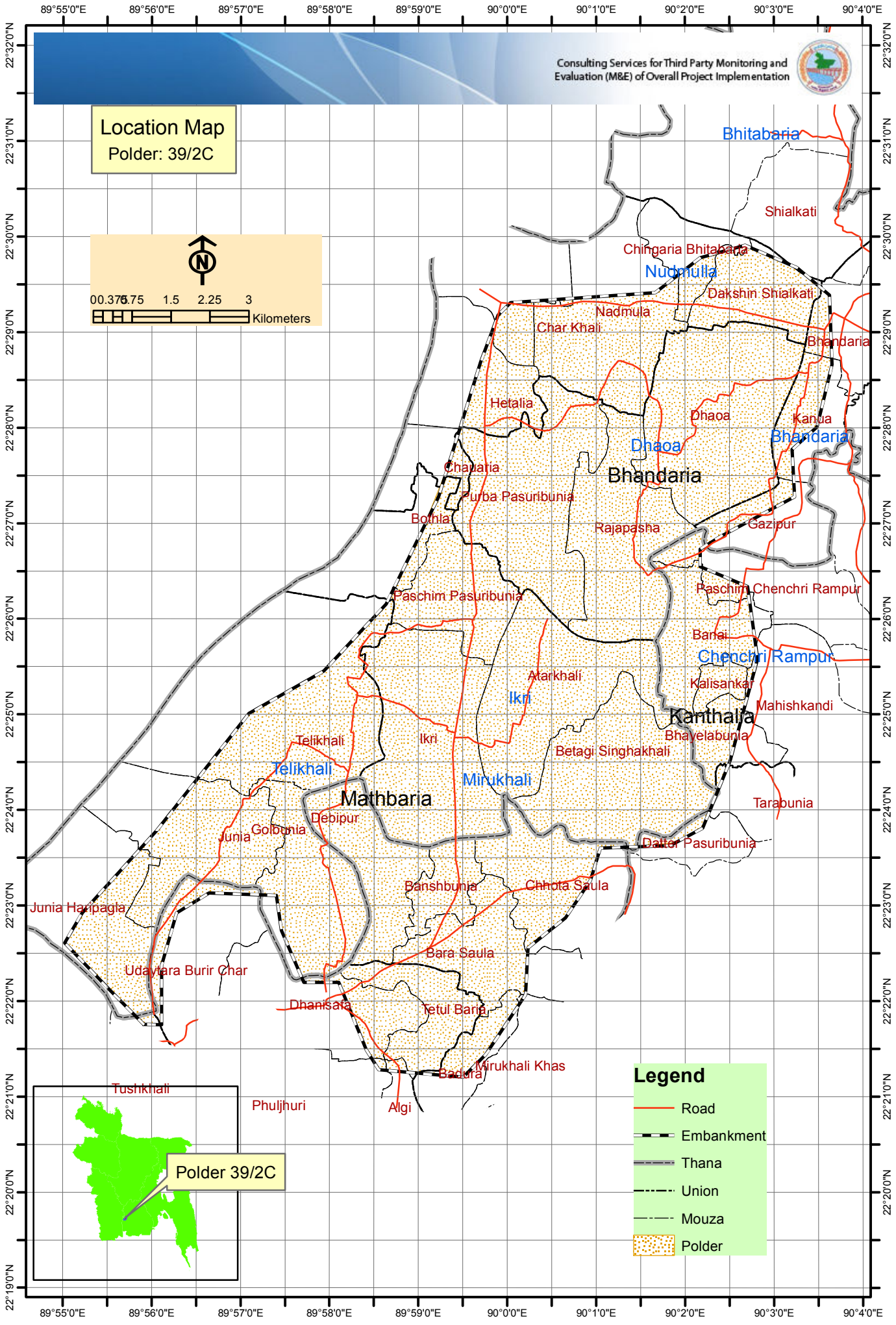
Annex 3 – Selected Polder Maps Showing Union Parishad and Mouzas


Consulting Services for Third Party Monitoring and Evaluation (M&E) of Overall Project Implementation
Location Map
Polder: 32
N
0 0.375 0.75 1.5 2.25 3
Kilometers
Kamarkhola
Kamarkhola
Sreenagar Kalinagar
Gunari
Sutarkhali
Sutarkhali
Nalian
Kalabagi Sutarkhali
Polder 32
Legend
Road
Embankment
Union
Mouza
Polder
89°24'0"E
89°25'0"E
89°26'0"E
89°27'0"E
89°28'0"E
89°29'0"E
89°30'0"E
89°31'0"E
89°32'0"E
22°35'30"N
22°34'30"N
22°33'30"N
22°32'30"N
22°31'30"N
22°30'30"N
22°29'30"N
22°28'30"N
22°27'30"N
22°26'30"N
22°25'30"N
22°24'30"N
22°23'30"N


Consulting Services for Third Party Monitoring and Evaluation (M&E) of Overall Project Implementation
Location Map
Polder: 33
0 0.375 0.75 1.5 2.25 3
Kilometers
Chunkuri-2
Saheberabad
Bidyarbahan
Bajua
Dacope
Bajua
Dacope
Dhopadihi
Harintani
Laudubi
Kailasganj
Kailashganj-2
Banishanta
Polder 33
Legend
Road
Embankment
Union
Mouza
Polder
89°28'30"E
89°29'30"E
89°30'30"E
89°31'30"E
89°32'30"E
89°33'30"E
89°34'30"E
89°35'30"E
89°36'30"E
22°37'0"N
22°36'0"N
22°35'0"N
22°34'0"N
22°33'0"N
22°32'0"N
22°31'0"N
22°30'0"N
22°29'0"N
22°28'0"N
22°27'0"N
22°26'0"N
22°25'0"N


Consulting Services for Third Party Monitoring and Evaluation (M&E) of Overall Project Implementation
Location Map
Polder: 35/1
Purba Chipa Baraikhali
Khuolia
Kumarkhali
Dhansagar
Morrelganj
Nalbunia
Rajapur
Dhansagar
Morelabad
Baniakhali
Amragachhia
Dakshin Rajapur
Khontakata
Royenda
Rayenda
Khada
Sarankhola
Sonatala
Dakhin Khali
Sarankhola
Legend
Mouza
Thana
Union
Road
Embankment
Polder
Polder 35/1
N
0 0.425 0.85 1.7 2.55 3.4
Kilometers
89°45'30"E
89°46'30"E
89°47'30"E
89°48'30"E
89°49'30"E
89°50'30"E
89°51'30"E
89°52'30"E
89°53'30"E
89°54'30"E
22°25'0"N
22°24'0"N
22°23'0"N
22°22'0"N
22°21'0"N
22°20'0"N
22°19'0"N
22°18'0"N
22°17'0"N
22°16'0"N
22°15'0"N
22°14'0"N
22°13'0"N
22°12'0"N


Consulting Services for Third Party Monitoring and Evaluation (M&E) of Overall Project Implementation
Location Map
Polder: 35/3
Bagerhat Sadar
Rampal
Mustafapur
Dasarhula
Basuradad
Guzihati
Kalabari
Radha Ballabha
Katua
Chak Narasingh Datterber
Sarkardanga
Haldaha
Kismat Sarkar Danga
Dema
Chak Bara Nalbunia
Chak Pancha Malerber
Badar Haldar Ber
Pone Chhayanidema
Bara Chandpur
Baliadanga
Dema
Chak Chhota Nalbunia
Kashimpur
Khegraghat
Abdul Rasulpur
Hedayetpur
Charadaha
Kalia
Bara Banshbaria
Chak Guptirdia
Betibunia
Sannyasi
Mandradia
Banshbaria
Malliker Ber
Malliker Ber
Polder 35/3
Legend
Road
Embankment
Thana
Union
Mouza
Polder
N
0 0.250.5 1 1.5 2
Kilometers
89°42'30"E
89°43'0"E
89°43'30"E
89°44'0"E
89°44'30"E
89°45'0"E
89°45'30"E
89°46'0"E
89°46'30"E
89°47'0"E
89°47'30"E
89°48'0"E
89°48'30"E
22°39'0"N
22°38'30"N
22°38'0"N
22°37'30"N
22°37'0"N
22°36'30"N
22°36'0"N
22°35'30"N
22°35'0"N
22°34'30"N
22°34'0"N
22°33'30"N
22°33'0"N
22°32'30"N
22°32'0"N
22°31'30"N


Consulting Services for Third Party Monitoring and Evaluation (M&E) of Overall Project Implementation
Location Map
Polder: 39/2C
N
0 0.375 0.75 1.5 2.25 3
Kilometers
Bhitabaria
Shialkati
Chingaria Bhitabaria
Nudmulla
Dakshin Shialkati
Nadmula
Char Khali
Bhandaria
Hetalia
Dhaoa
Kanda
Bhandaria
Dhaoa
Chandaria
Bhandaria
Purba Pasuribunia
Bothla
Rajapasha
Gazipur
Paschim Pasuribunia
Paschim Chenchri Rampur
Barai
Chenchri Rampur
Atarkhali
Ikri
Kalisankar
Mahishkandi
Kanthalia
Telikhali
Ikri
Bhavelabunia
Betagi Singhakhali
Telikhali
Mirukhali
Mathbaria
Tarabunia
Debipur
Golbunia
Junia
Dattar Pasuribunia
Banshbunia
Chhota Saula
Junia Haripagla
Bara Saula
Udaytara Burir Char
Dhanisafa
Tetul Baria
Mirukhali Khas
Badura
Tushkhali
Phuljhuri
Algi
Polder 39/2C
Legend
Road
Embankment
Thana
Union
Mouza
Polder
89°55'0"E
89°56'0"E
89°57'0"E
89°58'0"E
89°59'0"E
90°0'0"E
90°1'0"E
90°2'0"E
90°3'0"E
90°4'0"E
22°32'0"N
22°31'0"N
22°30'0"N
22°29'0"N
22°28'0"N
22°27'0"N
22°26'0"N
22°25'0"N
22°24'0"N
22°23'0"N
22°22'0"N
22°21'0"N
22°20'0"N
22°19'0"N

Annex 4 – Villages Inside CEIP-1 Polders and Their Population Numbers

Summary of population of all 17 polders							
Polder#	District	Upazila	Population	Household	HH size	Sources	Ratio BBS to PAD
Package-1							
32	Khulna	Dacope	43957	11022	4.0	Source: Khulna XEN, January 2016	
			38397	9700	4.0	Source: According to PAD	1.14
33	Khulna	Dacope	61144	14285	4.3	Source: Khulna XEN, January 2016	
			62305	14354	4.3	Source: According to PAD	0.98
35/1	Bagerhat	Sharankhola/Morelgo	128920	30711	4.2	Source: Khulna XEN, January 2016	
			99182	17783	5.6	Source: According to PAD	1.30
35/3	Bagerhat	Rampal/Bagerhat Sada	31417	7563	4.2	Source: Khulna XEN, January 2016	
			31075	6747	4.6	Source: According to PAD	1.01
Package-2							
40/2	Barguna	Patharghata	62058	15816	3.9	Source of BBS	
			41317	10360	4.0	Source of PAD/In inception report	1.50
41/1	Barguna	Barguna Sadar	58696	13690	4.3	Source of BBS	
			41051	9301	4.4	Source of PAD/In inception report	1.43
39/2C	Pirojpur	Mathbaria	99669	23348	4.3	Source of BBS	
			84853	18486	4.6	Source of PAD/In inception report	1.17
43/2C	Patuakhali	Galachipa	20095	4557	4.4	Source of BBS	
			14851	3596	4.1	Source of PAD/In inception report	1.35
47/2	Patuakhali	Kalapara	10921	3019	3.9	Source of BBS	
			5411	1285	4.2	Source of PAD/In inception report	2.02
48	Patuakhali	Kalapara	41983	9388	4.5	Source of BBS	
			26260	644	40.8	Source of PAD/In inception report	1.60
Package-3							
14/1	Khulna	Koyra	21028	4898	4.3	Source of BBS	
			20578	4468	4.6	Source of PAD/In inception report	1.02
15	Satkhira	Shyamnagar	31115	6762	4.6	Source of BBS	
			31788	5755	5.5	Source of PAD/In inception report	0.98
16	Khulna/Satkhira	Paikgachha/Tala	119801	29368	4.1	Source of BBS-2011	
			118616	19472	6.1	Source of PAD/In inception report	1.01
17/1	Khulna	Dumuria	20854	4801	4.3	Source of BBS	
			23919	5461	4.4	Source of PAD/In inception report	0.87
17/2	Satkhira	Dumuria	45745	10749	4.3	Source of BBS	
			34070	7554	4.5	Source of PAD/In inception report	1.34
23	Khulna	Paikgachha	25528	5793	4.4	Source of BBS	
			23888	5605	4.3	Source of PAD/In inception report	1.07
34/3	Bagerhat	Bagerhat sadar	99470	23733	4.2	Source of BBS	
			65399	13652	4.8	Source of PAD/In inception report	1.52

Annex-4 (Polder# 32)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
32	Khulna	Decope	Kamarkhola	*Kamarkhola	*Kamarkhola	3017	763	4.0
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Channir Chak	509	144	3.5
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Jaliakhali	770	228	3.4
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Sreenagar	1506	378	4.0
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Satgharia	791	206	3.8
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Bhitabhanga	782	192	4.1
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Shibnagar	403	104	3.9
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Joynagar	1646	400	4.1
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Saharabad	777	199	3.9
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Rajnagar	170	45	3.8
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Kalinagar	1372	372	3.7
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Par Joynagar	1791	437	4.1
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Rekhamari	214	54	4.0
32	Khulna	Decope	Kamarkhola	*Sreenagar Kalinagar	Fakirdanga	149	37	4.0
32	Khulna	Decope	Sutarkhali	*Gunari	*Gunari	6089	1526	4.0
32	Khulna	Decope	Sutarkhali	*Kalabagi Sutarkhali	*Kalabagi Sutarkhali	10219	2486	4.1
32	Khulna	Decope	Sutarkhali	*Nalian	*Nalian	6653	1641	4.1
32	Khulna	Decope	Sutarkhali	*Sutarkhali	*Sutarkhali	7099	1810	3.9
					Total	**43957**	**11022**	**4.0**

Source: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*

Annex-4 (Polder# 33)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
33	Khulna	Dacope	Bajua	*Bajua	Paschim Bajua	2540	558	4.6
33	Khulna	Dacope	Bajua	*Bajua	Purba Bajua	5032	1112	4.5
33	Khulna	Dacope	Bajua	*Bajua	Bererkhali	711	155	4.6
33	Khulna	Dacope	Bajua	*Bajua	Chand Para	583	130	4.5
33	Khulna	Dacope	Bajua	*Chunkuri-2	*Chunkuri-2	6887	1622	4.2
33	Khulna	Dacope	Banishanta	*Banishanta	Paschim Banishanta	697	150	4.6
33	Khulna	Dacope	Banishanta	*Banishanta	Uttar Banishanta	1005	237	4.2
33	Khulna	Dacope	Banishanta	*Banishanta	Andhar Manik	464	103	4.5
33	Khulna	Dacope	Banishanta	*Banishanta	Jharkhali	424	103	4.1
33	Khulna	Dacope	Banishanta	*Banishanta	Kakra Bunia	731	167	4.4
33	Khulna	Dacope	Banishanta	*Banishanta	Purba Amtala	1561	329	4.7
33	Khulna	Dacope	Banishanta	*Banishanta	Paschim Amtala	1352	292	4.6
33	Khulna	Dacope	Banishanta	*Banishanta	Dakshin Banishanta	1416	328	4.3
33	Khulna	Dacope	Banishanta	*Banishanta	Banishanta Bazar	390	90	4.3
33	Khulna	Dacope	Banishanta	*Banishanta	Purba Banishanta(Pross)	273	120	2.3
33	Khulna	Dacope	Banishanta	*Banishanta	Purba Dangmari	1304	331	3.9
33	Khulna	Dacope	Banishanta	*Banishanta	Purba Bhojankhali	522	129	4.0
33	Khulna	Dacope	Banishanta	*Banishanta	Paschim Bhojankhali	359	93	3.9
33	Khulna	Dacope	Banishanta	*Banishanta	Purba Khejuria	1331	305	4.4
33	Khulna	Dacope	Banishanta	*Banishanta	Paschim Khejuria	1270	281	4.5
33	Khulna	Dacope	Banishanta	*Banishanta	Patikhata	334	80	4.2
33	Khulna	Dacope	Banishanta	*Banishanta	Paschim Dangmari	1173	260	4.5
33	Khulna	Dacope	Laudubi	*Laudubi	Khuthakhali Bazar	1271	285	4.5
33	Khulna	Dacope	Laudubi	*Laudubi	Khuthakhali	2142	431	5.0
33	Khulna	Dacope	Laudubi	*Laudubi	Laudubi Pasharer Dhar	1106	240	4.6
33	Khulna	Dacope	Laudubi	*Laudubi	Laudubi	1646	393	4.2
33	Khulna	Dacope	Laudubi	*Laudubi	Kalikabati	1051	228	4.6
33	Khulna	Dacope	Laudubi	*Laudubi	Barabak	959	219	4.4
33	Khulna	Dacope	Laudubi	*Laudubi	Burir Dabar	506	120	4.2
33	Khulna	Dacope	Laudubi	*Laudubi	Harintani	541	126	4.3
33	Khulna	Dacope	Dacope	*Dacope	Dacope-2	1259	289	4.4
33	Khulna	Dacope	Dacope	*Dacope	Singjora	406	97	4.2
33	Khulna	Dacope	Dacope	*Dacope	Madia	498	115	4.3
33	Khulna	Dacope	Dacope	*Dacope	Chhota Bunia	510	120	4.3
33	Khulna	Dacope	Dacope	*Dacope	Dakshin Dacope	431	113	3.8
33	Khulna	Dacope	Dacope	*Saheberabad	Saheberabad	2691	706	3.8
33	Khulna	Dacope	Dacope	*Saheberabad	Odabunia	635	193	3.3
33	Khulna	Dacope	Dacope	*Saheberabad	Bhadla Bunia	286	90	3.2
33	Khulna	Dacope	Dacope	*Saheberabad	Kakrabunia	331	102	3.2
33	Khulna	Dacope	Kailasganj	*Dhopadihi	Dhopadihi	2824	691	4.1
33	Khulna	Dacope	Kailasganj	*Dhopadihi	Ramnagar	3334	811	4.1
33	Khulna	Dacope	Kailasganj	*Harintani	*Harintani	3525	786	4.5
33	Khulna	Dacope	Kailasganj	*Kailashganj-2	*Kailashganj-2	4833	1155	4.2
					Total	**61144**	**14285**	**4.3**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*

Annex-4 (Polder# 35/1)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
35/1	Bagerhat	Morelganj	Khuolia	*Chalitabunia	Chailtabunia	2379	579	4.1
35/1	Bagerhat	Morelganj	Khuolia	*Chalitabunia	Pashuribunia	1510	335	4.5
35/1	Bagerhat	Morelganj	Khuolia	*Chalitabunia	Sannyashi	1902	444	4.3
35/1	Bagerhat	Morelganj	Khuolia	*Kumarkhali	Kumarkhali	1969	468	4.2
35/1	Bagerhat	Morelganj	Khuolia	*Kumarkhali	Khajurbaria	1602	374	4.3
35/1	Bagerhat	Morelganj	Khuolia	*Kumarkhali	Manikjor	856	190	4.5
35/1	Bagerhat	Morelganj	Khuolia	*Kumarkhali	Amtali	1686	394	4.3
35/1	Bagerhat	Morelganj	Khuolia	*Purba Chipa Baraikhali	Purba Chipa Baraikha	2266	561	4.0
35/1	Bagerhat	Morelganj	Khuolia	*Purba Chipa Baraikhali	Bara Pani	2339	556	4.2
35/1	Bagerhat	Morelganj	Khuolia	*Purba Chipa Baraikhali	Chhota Pani	734	182	4.0
35/1	Bagerhat	Morelganj	Khuolia	*Purba Chipa Baraikhali	Baniakhali	1322	336	3.9
35/1	Bagerhat	Sharankhola	Dhansaga	*Dhansagar	Dhansagar	2924	732	4.0
35/1	Bagerhat	Sharankhola	Dhansaga	*Dhansagar	Dhansagar Khajurbari	851	194	4.4
35/1	Bagerhat	Sharankhola	Dhansaga	*Nalbunia	Nalbunia	2436	567	4.3
35/1	Bagerhat	Sharankhola	Dhansaga	*Nalbunia	Dakshin Badal	1818	427	4.3
35/1	Bagerhat	Sharankhola	Dhansaga	*Nalbunia	Malsa	456	106	4.3
35/1	Bagerhat	Sharankhola	Dhansaga	*Nalbunia	Kalibari	397	99	4.0
35/1	Bagerhat	Sharankhola	Dhansaga	*Nalbunia	Hagalpati	749	195	3.8
35/1	Bagerhat	Sharankhola	Dhansaga	*Nalbunia	Shaylabunia	499	114	4.4
35/1	Bagerhat	Sharankhola	Dhansaga	*Nalbunia	Amragachia	1300	304	4.3
35/1	Bagerhat	Sharankhola	Dhansaga	*Nalbunia	Nalbunia Dhansagar	1084	252	4.3
35/1	Bagerhat	Sharankhola	Dhansaga	*Nalbunia	Uttar Badal	994	231	4.3
35/1	Bagerhat	Sharankhola	Dhansaga	*Rajapur	*Rajapur	7313	1669	4.4
35/1	Bagerhat	Sharankhola	Khontakata	*Amragachhia	Amragachhia	2618	656	4.0
35/1	Bagerhat	Sharankhola	Khontakata	*Amragachhia	Golbunia	2271	527	4.3
35/1	Bagerhat	Sharankhola	Khontakata	*Amragachhia	Nalbunia	1340	333	4.0
35/1	Bagerhat	Sharankhola	Khontakata	*Amragachhia	Rajoir	4427	1017	4.4
35/1	Bagerhat	Sharankhola	Khontakata	*Amragachhia	Jiban Duari	972	255	3.8
35/1	Bagerhat	Sharankhola	Khontakata	*Baniakhali	Baniakhali	1594	361	4.4
35/1	Bagerhat	Sharankhola	Khontakata	*Baniakhali	Janar Para	1257	298	4.2
35/1	Bagerhat	Sharankhola	Khontakata	*Baniakhali	Dhansagar	1174	306	3.8
35/1	Bagerhat	Sharankhola	Khontakata	*Baniakhali	Baniakhali Nalbunia	2015	481	4.2
35/1	Bagerhat	Sharankhola	Khontakata	*Morellabad	Morellabad	5625	1367	4.1
35/1	Bagerhat	Sharankhola	Khontakata	*Morellabad	Khontakata	8657	2021	4.3
35/1	Bagerhat	Sharankhola	Royenda	*Dakshin Rajapur	Dakshin Rajapur	3903	895	4.4
35/1	Bagerhat	Sharankhola	Royenda	*Dakshin Rajapur	Malia	2621	647	4.1
35/1	Bagerhat	Sharankhola	Royenda	*Dakshin Rajapur	Uttar Rajapur	4039	917	4.4
35/1	Bagerhat	Sharankhola	Royenda	*Khada	Khada	4012	909	4.4
35/1	Bagerhat	Sharankhola	Royenda	*Khada	Uttar Tafalbari	2686	603	4.5
35/1	Bagerhat	Sharankhola	Royenda	*Rayenda	Rayenda (Kadamtala)	10301	2418	4.3
35/1	Bagerhat	Sharankhola	Royenda	*Rayenda	Chailtabunia	434	105	4.1
35/1	Bagerhat	Sharankhola	Royenda	*Rayenda	Madhya Rayenda	1516	370	4.1
35/1	Bagerhat	Sharankhola	Royenda	*Rayenda	Lakurtala	535	129	4.1
35/1	Bagerhat	Sharankhola	Royenda	*Rayenda	Rajeshwar	1392	338	4.1
35/1	Bagerhat	Sharankhola	Royenda	*Rayenda	Jilbunia	1165	270	4.3
35/1	Bagerhat	Sharankhola	Dakhin Khali	*Sarankhola	Dakshin Saudkhali	2436	660	3.7
35/1	Bagerhat	Sharankhola	Dakhin Khali	*Sarankhola	Uttar Saudkhali	1685	400	4.2
35/1	Bagerhat	Sharankhola	Dakhin Khali	*Sarankhola	Bogi	1780	455	3.9
35/1	Bagerhat	Sharankhola	Dakhin Khali	*Sarankhola	Chalitabunia	2445	635	3.9
35/1	Bagerhat	Sharankhola	Dakhin Khali	*Sarankhola	Khuriakhali	3277	752	4.4
35/1	Bagerhat	Sharankhola	Dakhin Khali	*Sonatala	Sonatala	4783	1132	4.2
35/1	Bagerhat	Sharankhola	Dakhin Khali	*Sonatala	Bakultala	2308	584	4.0
35/1	Bagerhat	Sharankhola	Dakhin Khali	*Sonatala	Uttar Tafalbari	2193	570	3.8
35/1	Bagerhat	Sharankhola	Dakhin Khali	*Sonatala	Dakshin Tafalbari	1900	439	4.3
35/1	Bagerhat	Sharankhola	Dakhin Khali	*Sonatala	Rayenda	2173	552	3.9
					Total	**128920**	**30711**	**4.2**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*
Union of Khuolia all villages name collected by Union/Upazila Chairman (2016)

Annex-4 (Polder# 35/3)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
35/3	Bagerhat	B.Sadar	Dema*	*Mostofapur	Mostofapur	950	206	4.6
35/3	Bagerhat	B.Sadar	Dema*	*Halda	Halda	890	198	4.5
35/3	Bagerhat	B.Sadar	Dema	*Abdul Rasulpur	*Abdul Rasulpur	785	194	4.0
35/3	Bagerhat	B.Sadar	Dema	*Baliadanga	*Baliadanga	338	84	4.0
35/3	Bagerhat	B.Sadar	Dema	*Bara Banshbaria	*Bara Banshbaria	1692	419	4.0
35/3	Bagerhat	B.Sadar	Dema	*Bara Chandpur	*Bara Chandpur	359	96	3.7
35/3	Bagerhat	B.Sadar	Dema	*Basurabad	*Basurabad	74	18	4.1
35/3	Bagerhat	B.Sadar	Dema	*Chak Bara Nalbunia	*Chak Bara Nalbunia	199	47	4.2
35/3	Bagerhat	B.Sadar	Dema	*Chak Chhota Nalbunia	*Chak Chhota Nalbunia	173	43	4.0
35/3	Bagerhat	B.Sadar	Dema	*Chak Narasingh Datterber	*Chak Narasingh Datterber	102	22	4.6
35/3	Bagerhat	B.Sadar	Dema	Malerber	Malerber	340	83	4.1
35/3	Bagerhat	B.Sadar	Dema	*Dema	*Dema	2015	464	4.3
35/3	Bagerhat	B.Sadar	Dema	*Hedayetpur	*Hedayetpur	987	249	4.0
35/3	Bagerhat	B.Sadar	Dema	*Kalia	*Kalia	2333	580	4.0
35/3	Bagerhat	B.Sadar	Dema	*Kashimpur	*Kashimpur	1923	461	4.2
35/3	Bagerhat	B.Sadar	Dema	*Khegraghat	*Khegraghat	1821	425	4.3
35/3	Bagerhat	B.Sadar	Dema	Chhayanidema	Chhayanidema	2354	570	4.1
35/3	Bagerhat	B.Sadar	Dema	*Sarkardanga	*Sarkardanga	282	70	4.0
35/3	Bagerhat	B.Sadar	Kara Para	*Guzihati	*Guzihati	267	63	4.2
35/3	Bagerhat	B.Sadar	Kara Para	*Katua	*Katua	289	68	4.3
35/3	Bagerhat	B.Sadar	Kara Para	*Mirzapur	*Mirzapur	1756	391	4.5
35/3	Bagerhat	B.Sadar	Kara Para	*Radha Ballabha	*Radha Ballabha	1140	252	4.5
35/3	Bagerhat	Rampal	Malliker Ber	*Banshbaria	*Banshbaria	761	200	3.8
35/3	Bagerhat	Rampal	Malliker Ber	*Betibunia	*Betibunia	286	75	3.8
35/3	Bagerhat	Rampal	Malliker Ber	*Malliker Ber	*Malliker Ber	3885	961	4.0
35/3	Bagerhat	Rampal	Malliker Ber	*Mandradia	*Mandradia	972	243	4.0
35/3	Bagerhat	Rampal	Malliker Ber	*Sannyasi	*Sannyasi	4444	1081	4.1
					Total	**31417**	**7563**	**4.2**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*
Union of Karapara all villages name collected by Union/Upazila Chairman (2016)
**Dema union villages name/population collected by Union Chairman (2016)*

Annex 4 (Polder# 40/2)

Polder	District	Name of Upazila	Union/Ward Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
40/2	Barguna	Patharghata	Ward No-02	*Patharghata (Part)	*Patharghata (Part)	1779	444	4.0
40/2	Barguna	Patharghata	Ward No-03	*Patharghata (Part)	*Patharghata (Part)	2173	535	4.1
40/2	Barguna	Patharghata	Ward No-04	*Baraitola (Part)	*Baraitola (Part)	1788	473	3.8
40/2	Barguna	Patharghata	Ward No-05	*Patharghata (Part)	*Patharghata (Part)	1627	417	3.9
40/2	Barguna	Patharghata	Ward No-06	*Baraitola (Part)	*Baraitola (Part)	2363	569	4.2
40/2	Barguna	Patharghata	Ward No-08	*Gotabacha (Part)	*Gotabacha (Part)	1898	544	3.5
40/2	Barguna	Patharghata	Ward No-09	*Gotabacha (Part)	*Gotabacha (Part)	2103	527	4.0
40/2	Barguna	Patharghata	Char Duanti	*Char Duanti	Uttar Char Duanti	3,324	909	3.7
40/2	Barguna	Patharghata	Char Duanti	*Char Duanti	Dakshin Char Duanti	3,511	850	4.1
40/2	Barguna	Patharghata	Char Duanti	*Chhota Tengra	*Chhota Tengra	1,971	593	3.3
40/2	Barguna	Patharghata	Char Duanti	*Dakshin Jhan Para	*Dakshin Jhan Para	3,590	897	4.0
40/2	Barguna	Patharghata	Char Duanti	*Gabbaria	*Gabbaria	940	255	3.7
40/2	Barguna	Patharghata	Char Duanti	*Hogla Pasha	Uttar Hogla Pasha	1,402	397	3.5
40/2	Barguna	Patharghata	Char Duanti	*Hogla Pasha	Dakshin Hogla Pasha	1,647	478	3.4
40/2	Barguna	Patharghata	Char Duanti	*Matherkhal	*Matherkhal	2,413	672	3.6
40/2	Barguna	Patharghata	Char Duanti	*Saherabad	*Saherabad	2,692	732	3.7
40/2	Barguna	Patharghata	Char Duanti	*Tafalbaria	*Tafalbaria	3,073	793	3.9
40/2	Barguna	Patharghata	Kataltoli*	Kalibari	Kalibari	2,278	495	4.6
40/2	Barguna	Patharghata	Kataltoli*	Charduari	Charduari	4,585	996	4.6
40/2	Barguna	Patharghata	Patharghata	*Bara Tengra	*Bara Tengra	1,911	463	4.1
40/2	Barguna	Patharghata	Patharghata	*Baraitala(Part)	*Baraitala(Part)	364	92	4.0
40/2	Barguna	Patharghata	Patharghata	*Char Lathimara	*Char Lathimara	4,140	1,036	4.0
40/2	Barguna	Patharghata	Patharghata	*Haritana	*Haritana	3,235	811	4.0
40/2	Barguna	Patharghata	Patharghata	*Koralia	*Koralia	1,117	289	3.9
40/2	Barguna	Patharghata	Patharghata	*Padma	*Padma	3,284	826	4.0
40/2	Barguna	Patharghata	Patharghata	*Rohita	*Rohita	2,850	723	3.9
					Total	**62058**	**15816**	**3.9**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*
Union of Patharghata all villages name collected by Union/Upazila Chairman (2016)
**Kataltoli union all villages name collected by PMU (2016)*

Annex 4 (Polder# 41/1)

Polder	District	Name of Upazila	Union/ Ward Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
41/1	Barguna	B.Sadar	*Ward No-01	Madhya Karaitala/*Paschim Char Colony	Sonatola	800	173	4.6
41/1	Barguna	B.Sadar	*Ward No-02	*Paschim Karaitala/ *Paschim Maitha	Golbunia/ Manikkali/ Utar boro lobongula	3,000	652	4.6
41/1	Barguna	B.Sadar	Ward No-03	*Purba Char Colony	*Purba Char Colony	973	229	4.2
41/1	Barguna	B.Sadar	Ward No-03	*Purba Karaitala	*Purba Karaitala	1,440	312	4.6
41/1	Barguna	B.Sadar	Ward No-03	*Purba Maitha	*Purba Maitha	544	77	7.1
41/1	Barguna	B.Sadar	Ward No-03	*Sonakhali	*Sonakhali	1,315	286	4.6
41/1	Barguna	B.Sadar	*Ward No-06	*Dakshin Barguna	Dokkin/ uttar borir char	1,300	282	4.6
41/1	Barguna	B.Sadar	Ayla Patakata	*Ayla Patakata	*Ayla Patakata	2,310	592	3.9
41/1	Barguna	B.Sadar	Ayla Patakata	*Gabtali	Gabtali	819	186	4.4
41/1	Barguna	B.Sadar	Ayla Patakata	*Gabtali	Pakurgachhia	2,165	527	4.1
41/1	Barguna	B.Sadar	Ayla Patakata	*Gabtali	Purba Keorabunia	364	90	4.0
41/1	Barguna	B.Sadar	Ayla Patakata	*Itabaria	Uttar Itabaria	1,216	283	4.3
41/1	Barguna	B.Sadar	Ayla Patakata	*Itabaria	Badhu Thakurani	1,253	311	4.0
41/1	Barguna	B.Sadar	Ayla Patakata	*Itabaria	Lemua	2,249	516	4.4
41/1	Barguna	B.Sadar	Ayla Patakata	*Itabaria	Kadamtala	1,328	321	4.1
41/1	Barguna	B.Sadar	Ayla Patakata	*Itabaria	Khejurtala	364	93	3.9
41/1	Barguna	B.Sadar	Ayla Patakata	*Jangalia	*Jangalia	2,296	558	4.1
41/1	Barguna	B.Sadar	Ayla Patakata	*Porakata	Porakata	1,139	264	4.3
41/1	Barguna	B.Sadar	Ayla Patakata	*Porakata	Purba Keorabunia	1,789	411	4.4
41/1	Barguna	B.Sadar	Ayla Patakata	*Porakata	Dakshin Jtbaria	1,562	373	4.2
41/1	Barguna	B.Sadar	Ayla Patakata	*Porakata	Langalkata	402	88	4.6
41/1	Barguna	B.Sadar	Ayla Patakata	*Porakata	Khajurtala	526	117	4.5
41/1	Barguna	B.Sadar	Burir Char	*Bara Labangola	Bara Labangola	1,940	454	4.3
41/1	Barguna	B.Sadar	Burir Char	*Bara Labangola	Manik Khali	773	178	4.3
41/1	Barguna	B.Sadar	Burir Char	*Bara Labangola	Sonbunia	581	136	4.3
41/1	Barguna	B.Sadar	Burir Char	*Bara Labangola	Maitha	2,016	483	4.2
41/1	Barguna	B.Sadar	Burir Char	*Bara Labangola	Uttar Bara Labongola	1,700	401	4.2
41/1	Barguna	B.Sadar	Burir Char	*Burir Char	*Burir Char	4,871	1,152	4.2
41/1	Barguna	B.Sadar	Burir Char	*Char Charak Gachhia	Charak Gachhia	2,664	633	4.2
41/1	Barguna	B.Sadar	Burir Char	*Char Charak Gachhia	Keorabunia	2,391	546	4.4
41/1	Barguna	B.Sadar	Burir Char	*Char Charak Gachhia	Sonakhali	1,713	387	4.4
41/1	Barguna	B.Sadar	Burir Char	*Char Charak Gachhia	Paschim Charak Gachhia	2,075	499	4.2
41/1	Barguna	B.Sadar	Burir Char	*Chhota Labangola	*Chhota Labangola	2,759	673	4.1
41/1	Barguna	B.Sadar	Burir Char	*Napitkhali	Napitkhali	636	143	4.4
41/1	Barguna	B.Sadar	Burir Char	*Napitkhali	Hazar Bigha	1,633	356	4.6
41/1	Barguna	B.Sadar	Burir Char	*Napitkhali	Paschim Burir Char	1,617	389	4.2
41/1	Barguna	B.Sadar	Burir Char	*Sonatala	Sonatala	1,123	256	4.4
41/1	Barguna	B.Sadar	Burir Char	*Sonatala	Royer Tabak	1,050	263	4.0
						58,696	**13,690**	**4.3**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*
**Ward-1,2,6 villages name/population collected by Union Chairman (2016)*

Annex 4 (Polder# 39/2c)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
39/2C	Jhalokati	Kanthalia	Chenchri Rampur	*Banai	*Banai	3415	792	4.3
39/2C	Jhalokati	Kanthalia	Chenchri Rampur	*Bhayelabunia	*Bhayelabunia	1316	322	4.1
39/2C	Jhalokati	Kanthalia	Chenchri Rampur	*Kalisankar	*Kalisankar	581	129	4.5
39/2C	Jhalokati	Kanthalia	Chenchri Rampur	*Paschim Chenchri Rampur	*Paschim Chenchri Rampur	2858	674	4.2
39/2C	Pirojpur	Bhandaria	Dhaoa	*Dhaoa	*Dhaoa	8939	2008	4.5
39/2C	Pirojpur	Bhandaria	Dhaoa	*Purba Pasuribunia	*Purba Pasuribunia	5381	1244	4.3
39/2C	Pirojpur	Bhandaria	Dhaoa	*Rajapasha	*Rajapasha	5161	1128	4.6
39/2C	Pirojpur	Bhandaria	Ikri	*Atarkhali	*Atarkhali	4697	1171	4.0
39/2C	Pirojpur	Bhandaria	Ikri	*Betagi Singhakhali	*Betagi Singhakhali	4711	1208	3.9
39/2C	Pirojpur	Bhandaria	Ikri	*Bothla	*Bothla	1716	403	4.3
39/2C	Pirojpur	Bhandaria	Ikri	*Ikri	*Ikri	7106	1714	4.1
39/2C	Pirojpur	Bhandaria	Ikri	*Paschim Pasuribunia	*Paschim Pasuribunia	2840	687	4.1
39/2C	Pirojpur	Bhandaria	Nudmulla	*Char Khali	*Char Khali	3206	674	4.8
39/2C	Pirojpur	Bhandaria	Nudmulla	*Chingaria Bhitabaria	*Chingaria Bhitabaria	2559	596	4.3
39/2C	Pirojpur	Bhandaria	Nudmulla	*Dakshin Shialkati	*Dakshin Shialkati	4624	1213	3.8
39/2C	Pirojpur	Bhandaria	Nudmulla	*Hetalia	*Hetalia	3834	871	4.4
39/2C	Pirojpur	Bhandaria	Nudmulla	*Nadmula	*Nadmula	6753	1699	4.0
39/2C	Pirojpur	Bhandaria	Telikhali	*Golbunia	*Golbunia	4759	1149	4.1
39/2C	Pirojpur	Bhandaria	Telikhali	*Junia	*Junia	5297	1172	4.5
39/2C	Pirojpur	Bhandaria	Telikhali	*Junia Haripagla	*Junia Haripagla	6036	1239	4.9
39/2C	Pirojpur	Bhandaria	Telikhali	*Telikhali	*Telikhali	7610	1783	4.3
39/2C	Pirojpur	Mathbaria	Mirukhali	*Bara Saula	*Bara Saula	2982	690	4.3
39/2C	Pirojpur	Mathbaria	Mirukhali	*Chhota Saula	*Chhota Saula	3288	782	4.2
						99669	**23348**	**4.3**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*

**Chenchri Rampur/Nudmulla/Mirukhali union villages name/population collected from PMU/ Union Chairman (2016)*

Annex 4 (Polder# 43/2c)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
43/2C	Patuakhali	Galachipa	Golkhali	*Badarpur	*Badarpur	1186	267	4.4
43/2C	Patuakhali	Galachipa	Golkhali	*Bara Gabua	*Bara Gabua	3066	665	4.6
43/2C	Patuakhali	Galachipa	Golkhali	*Bhadachar	*Bhadachar	347	91	3.8
43/2C	Patuakhali	Galachipa	Golkhali	*Chhota Gabua	*Chhota Gabua	1544	457	3.4
43/2C	Patuakhali	Galachipa	Golkhali	*Golkhali	*Golkhali	4346	912	4.8
43/2C	Patuakhali	Galachipa	Golkhali	*Haridevpur Char	*Haridevpur Char	1622	353	4.6
43/2C	Patuakhali	Galachipa	Golkhali	*Kalir Char	*Kalir Char	1791	415	4.3
43/2C	Patuakhali	Galachipa	Golkhali	*Purba Golkhali	*Purba Golkhali	3812	856	4.5
43/2C	Patuakhali	Galachipa	Golkhali	*Suhari (1st Part I)	*Suhari (1st Part I)	462	103	4.5
43/2C	Patuakhali	Galachipa	Golkhali	*Suhari (2nd Part)	*Suhari (2nd Part)	1009	226	4.5
43/2C	Patuakhali	Galachipa	Golkhali	*Suhari Nijchar	*Suhari Nijchar	910	212	4.3
						20095	**4557**	**4.4**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*
** Golkhali union villages name collected from PMU/Union Chairman (2016)*

Annex 4 (Polder# 47/2)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
47/2	Potuakhali	Kalapara	Dalbuganj	*Dalbuganj	Payerpur	859	224	3.8
47/2	Potuakhali	Kalapara	Dalbuganj	*Dalbuganj	Jamalpur	289	86	3.4
47/2	Potuakhali	Kalapara	Dalbuganj	*Dalbuganj	Meherpur	943	297	3.2
47/2	Potuakhali	Kalapara	Dalbuganj	*Dalbuganj	Rasulpur	344	96	3.6
47/2	Potuakhali	Kalapara	Dalbuganj	*Dalbuganj	Fulbunia	818	201	4.1
47/2	Potuakhali	Kalapara	Dalbuganj	*Dalbuganj	Nurpur	277	81	3.4
47/2	Potuakhali	Kalapara	Dalbuganj	*Dalbuganj	Dalbuganj	827	295	2.8
47/2	Potuakhali	Kalapara	Dalbuganj	*Dalbuganj	Ramjanpur	363	101	3.6
47/2	Potuakhali	Kalapara	Dalbuganj	*Dalbuganj	Mirpur	597	189	3.2
47/2	Potuakhali	Kalapara	Dalbuganj	*Dalbuganj	Purbo Dalbuganj	808	209	3.9
47/2	Potuakhali	Kalapara	Dalbuganj	*Harendrapur	Harendrapur	1448	429	3.4
47/2	Potuakhali	Kalapara	Dalbuganj	*Harendrapur	Surdugi	452	112	4.0
47/2	Potuakhali	Kalapara	Dalbuganj	*Manasatali	Manasatali	1986	480	4.1
47/2	Potuakhali	Kalapara	Dalbuganj	*Manasatali	Barkatia	910	219	4.2
					Total	**10921**	**3019**	**3.6**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*

Annex 4 (Polder# 48)

Polder	District	Name of Upazila	Union/ Ward Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
48	Patuakhali	Kalapara	Dhulasar	*Char Chapli	Char Chapli	1932	417	4.6
48	Patuakhali	Kalapara	Dhulasar	*Char Chapli	Paschim Char Chapli	1224	273	4.5
48	Patuakhali	Kalapara	Dhulasar	*Char Chapli	Nutan Para	1375	295	4.7
48	Patuakhali	Kalapara	Dhulasar	*Gangamati	Gangamati	1246	290	4.3
48	Patuakhali	Kalapara	Dhulasar	*Kawar Char	*Kawar Char	1994	415	4.8
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Tulatali	834	183	4.6
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Mambi Para	1137	256	4.4
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Achalat Para	709	173	4.1
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Pauragoza	345	83	4.2
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Misri Para	1030	240	4.3
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Naya Misri Para	917	222	4.1
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Danku Para	523	115	4.5
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Panau Para	437	93	4.7
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Maitbhanga	1030	236	4.4
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Azimpur	1029	238	4.3
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Tajpara	418	88	4.8
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Lakshmi Para	315	80	3.9
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Biuramkhola	2308	517	4.5
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Gora Amkhola Para	446	107	4.2
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Reserve Forest	390	83	4.7
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Thobashi Para	585	119	4.9
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Kachopkhali	1014	228	4.4
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Thanju Para	686	162	4.2
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Naya Para	670	161	4.2
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Kalachan Para	715	160	4.5
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Ali Pur	2273	501	4.5
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Khanabad	938	204	4.6
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Tulatali-2	377	83	4.5
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Sarifpur	566	120	4.7
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Fashi Para	913	197	4.6
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Nayuri Para	835	193	4.3
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Khazura	3529	810	4.4
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Mothey Para	491	106	4.6
48	Patuakhali	Kalapara	Lata Chapli	*Lata Chapli	Kalai Para	465	114	4.1
48	Patuakhali	Kalapara	Ward No-01 (Kuakata)	*Nabinpur	*Nabinpur	737	163	4.5
48	Patuakhali	Kalapara	Ward No-02	*Panju Para	*Panju Para	752	175	4.3
48	Patuakhali	Kalapara	Ward No-03	*Kuakata (Part)	*Kuakata (Part)	1831	326	5.6
48	Patuakhali	Kalapara	Ward No-05	*Huichan Para	*Huichan Para	918	211	4.4
48	Patuakhali	Kalapara	Ward No-06	*Kerani Para	*Kerani Para	1613	376	4.3
48	Patuakhali	Kalapara	Ward No-07	*Mela Para	*Mela Para	317	81	3.9
48	Patuakhali	Kalapara	Ward No-07	*Panchaet Para	*Panchaet Para	68	20	3.4
48	Patuakhali	Kalapara	Ward No-08	*Musuliabad (Part)	*Musuliabad (Part)	962	230	4.2
48	Patuakhali	Kalapara	Ward No-09	*Musuliabad (Part)	*Musuliabad (Part)	1089	244	4.5
						41983	**9388**	**4.5**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*
**Dhulasar union villages name collected from PMU/Union Chairman (2016)*

Annex 4 (Polder# 14/1)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Bara Angtihara	2360	520	4.5
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Jorsing	3345	803	4.2
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Golkhali	1895	386	4.9
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Matiabhanga	1483	325	4.6
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Gharilal	1396	312	4.5
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Choramukha	762	183	4.2
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Patakhali	844	199	4.2
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Halbunia	361	105	3.4
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Binapani	1435	357	4.0
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Chhota Angtihara	724	195	3.7
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Maider Char	653	145	4.5
14/1	Khulna	Koyra	Dakshin Bedkashi	Dakshin Bedkashi	Dakshin Bedkasi	1497	351	4.3
14/1	Khulna	Koyra	Uttar Bedkashi	Uttar Bedkashi	Barabari	2231	541	4.1
14/1	Khulna	Koyra	Uttar Bedkashi	Uttar Bedkashi	Patharkhali	1094	233	4.7
14/1	Khulna	Koyra	Uttar Bedkashi	Uttar Bedkashi	Gatir Ghereu	463	120	3.9
14/1	Khulna	Koyra	Uttar Bedkashi	Uttar Bedkashi	Shakbaria	340	87	3.9
14/1	Khulna	Koyra	Uttar Bedkashi	Uttar Bedkashi	Gubbunia	145	36	4.0
					Source of BBS	**21028**	**4898**	**4.3**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*
**Uttar Bedkashi union villages name collected from Union Chairman (2016)*

Annex 4 (Polder# 15)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
15	Satkhira	Shyamnagar	Gabura	Dumuria	Dumuria	2840	600	4.7
15	Satkhira	Shyamnagar	Gabura	Dumuria	Sora	5593	1191	4.7
15	Satkhira	Shyamnagar	Gabura	Gabura	Gabura	2963	628	4.7
15	Satkhira	Shyamnagar	Gabura	Gabura	Kolpatua	2218	454	4.9
15	Satkhira	Shyamnagar	Gabura	Gabura	Jhalakhali	689	155	4.4
15	Satkhira	Shyamnagar	Gabura	Gabura	Char Jhalakhali	647	124	5.2
15	Satkhira	Shyamnagar	Gabura	Gabura	Nabu Bunia	449	99	4.5
15	Satkhira	Shyamnagar	Gabura	Khalisha Bunia	Lakshmikhali	462	108	4.3
15	Satkhira	Shyamnagar	Gabura	Khalisha Bunia	Central Khalisha Bunia	2009	452	4.4
15	Satkhira	Shyamnagar	Gabura	Khalisha Bunia	Chakbara	2428	551	4.4
15	Satkhira	Shyamnagar	Gabura	Khalisha Bunia	Khalisha Bunia	1944	425	4.6
15	Satkhira	Shyamnagar	Gabura	Parshemari	Gagramari	366	81	4.5
15	Satkhira	Shyamnagar	Gabura	Parshemari	Parshemari	2391	511	4.7
15	Satkhira	Shyamnagar	Gabura	Parshemari	Napitkhali	1363	283	4.8
15	Satkhira	Shyamnagar	Gabura	Parshemari	Chandnimukha	2678	636	4.2
15	Satkhira	Shyamnagar	Gabura	Parshemari	10 No-Sora	2075	464	4.5
						31115	**6762**	**4.6**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*

Annex 4 (Polder# 16)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
16	Khulna	Paikgachha	Paikgaccha prsva	Ward No-01	*Gopalpur (Part)	1099	254	4.3
16	Khulna	Paikgachha	Paikgaccha prsva	Ward No-02	*Gopalpur (Part)	1060	265	4.0
16	Khulna	Paikgachha	Paikgaccha prsva	Ward No-03	*Bandikhali (Part)	800	195	4.1
16	Khulna	Paikgachha	Paikgaccha prsva	Ward No-03	*Saral (Part)	490	115	4.3
16	Khulna	Paikgachha	Paikgaccha prsva	Ward No-04	*Saral (Part)	2661	612	4.3
16	Khulna	Paikgachha	Paikgaccha prsva	Ward No-05	*Saral (Part)	2856	686	4.2
16	Khulna	Paikgachha	Paikgaccha prsva	Ward No-06	*Batikhali (Part)	1989	495	4.0
16	Khulna	Paikgachha	Paikgaccha prsva	Ward No-07	*Batikhali (Part)	1796	409	4.4
16	Khulna	Paikgachha	Paikgaccha prsva	Ward No-08	*Batikhali (Part)	1134	268	4.2
16	Khulna	Paikgachha	Paikgaccha prsva	Ward No-09	*Batikhali (Part)	1402	339	4.1
16	Khulna	Paikgachha	Paikgaccha prsva	Ward No-09	*Siberbati (F)	730	150	4.9
16	Khulna	Paikgachha	Gadaipur	*Baisarabad	*Baisarabad	70	20	3.5
16	Khulna	Paikgachha	Gadaipur	*Bandikati	*Bandikati	1014	244	4.2
16	Khulna	Paikgachha	Gadaipur	*Boyra	*Boyra	62	22	2.8
16	Khulna	Paikgachha	Gadaipur	*Britti Gopalpur	*Britti Gopalpur	330	83	4.0
16	Khulna	Paikgachha	Gadaipur	*Char Malai	*Char Malai	526	134	3.9
16	Khulna	Paikgachha	Gadaipur	*Chenchua	*Chenchua	1348	312	4.3
16	Khulna	Paikgachha	Gadaipur	*Gadaipur	*Gadaipur	2922	753	3.9
16	Khulna	Paikgachha	Gadaipur	*Ghosal	*Ghosal	1247	293	4.3
16	Khulna	Paikgachha	Gadaipur	*Gopalpur	*Gopalpur	3607	895	4.0
16	Khulna	Paikgachha	Gadaipur	*Hitampur	*Hitampur	1858	421	4.4
16	Khulna	Paikgachha	Gadaipur	*Mathbari	*Mathbari	2372	590	4.0
16	Khulna	Paikgachha	Gadaipur	*Melek Puraikati	*Melek Puraikati	1254	264	4.8
16	Khulna	Paikgachha	Gadaipur	*Puraikati	*Puraikati	1883	463	4.1
16	Khulna	Paikgachha	Gadaipur	*Takia	*Takia	1176	308	3.8
16	Khulna	Paikgachha	Haridhali	Dargah Mahal	Dargah Mahal	537	129	4.2
16	Khulna	Paikgachha	Kapilmuni	*Baruidanga	*Baruidanga	856	223	3.8
16	Khulna	Paikgachha	Kapilmuni	*Bhairabghata	*Bhairabghata	106	25	4.2
16	Khulna	Paikgachha	Kapilmuni	*Birasi	*Birasi	2865	724	4.0
16	Khulna	Paikgachha	Kapilmuni	*Chinamala	Chinamala	237	70	3.4
16	Khulna	Paikgachha	Kapilmuni	*Chinamala	Sreephaltala	250	81	3.1
16	Khulna	Paikgachha	Kapilmuni	*Goal Bathan	*Goal Bathan	394	91	4.3
16	Khulna	Paikgachha	Kapilmuni	*Hauli	*Hauli	1012	256	4.0
16	Khulna	Paikgachha	Kapilmuni	*Kanaidanga	*Kanaidanga	39	10	3.9
16	Khulna	Paikgachha	Kapilmuni	*Kashimnagar	*Kashimnagar	5669	1372	4.1
16	Khulna	Paikgachha	Kapilmuni	*Kapilmuni	*Kapilmuni	1560	374	4.2
16	Khulna	Paikgachha	Kapilmuni	*Maloth	*Maloth	2641	644	4.1
16	Khulna	Paikgachha	Kapilmuni	*Nasirpur	*Nasirpur	4252	1012	4.2
16	Khulna	Paikgachha	Kapilmuni	*Ramchandra Nagar	Partapkati	1944	487	4.0
16	Khulna	Paikgachha	Kapilmuni	*Ramchandra Nagar	Naba	858	207	4.1
16	Khulna	Paikgachha	Kapilmuni	*Ramchandra Nagar	Salua	743	197	3.8
16	Khulna	Paikgachha	Kapilmuni	*Ramchandra Nagar	Kazimucha	2073	542	3.8
16	Khulna	Paikgachha	Kapilmuni	*Ramchandra Nagar	Gucchagram	130	37	3.5
16	Khulna	Paikgachha	Kapilmuni	*Ramnagar	*Ramnagar	2079	543	3.8
16	Khulna	Paikgachha	Kapilmuni	*Rejakpur	*Rejakpur	1124	271	4.1
16	Khulna	Paikgachha	Kapilmuni	*Silemanpur	Silemanpur	1671	414	4.0
16	Khulna	Paikgachha	Kapilmuni	*Silemanpur	Agraghata	578	149	3.9
16	Khulna	Paikgachha	Kapilmuni	*Shyamnagar	*Shyamnagar	1748	453	3.9
16	Khulna	Paikgachha	Kapilmuni	*Taltala Alakdi	*Taltala Alakdi	182	48	3.8
16	Khulna	Paikgachha	Khalilnagar	*Chapanghat	*Chapanghat	171	48	3.6
16	Khulna	Paikgachha	Khalilnagar	*Daskati	*Daskati	527	117	4.5
16	Khulna	Paikgachha	Khalilnagar	*Fatehpur	*Fatehpur	416	98	4.2
16	Khulna	Paikgachha	Khalilnagar	*Gangarampur	*Gangarampur	1592	365	4.4
16	Khulna	Paikgachha	Khalilnagar	*Gonali	*Gonali	1827	434	4.2
16	Khulna	Paikgachha	Khalilnagar	*Ghoshnagar	*Ghoshnagar	489	123	4.0
16	Khulna	Paikgachha	Khalilnagar	*Harischandra Kati	*Harischandra Kati	1530	376	4.1
16	Khulna	Paikgachha	Khalilnagar	*Hajrakati	Hajrakati	2968	771	3.8
16	Khulna	Paikgachha	Khalilnagar	*Hajrakati	Katbunia	349	71	4.9
16	Khulna	Paikgachha	Khalilnagar	*Khalilnagar	*Khalilnagar	2019	557	3.6
16	Khulna	Paikgachha	Khalilnagar	*Machhiara	Uttar Machhiara	1394	345	4.0

Annex 4 (Polder# 16)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
16	Khulna	Paikgachha	Khalilnagar	*Machhiara	Dakshin Machhiara	3481	846	4.1
16	Khulna	Paikgachha	Khalilnagar	*Mahandi	*Mahandi	2996	782	3.8
16	Khulna	Paikgachha	Khalilnagar	*Nalta	Uttar Nalta	2436	624	3.9
16	Khulna	Paikgachha	Khalilnagar	*Nalta	Dakshin Nalta	2473	625	4.0
16	Khulna	Paikgachha	Khalilnagar	*Nurullapur	*Nurullapur	282	65	4.3
16	Khulna	Paikgachha	Khalilnagar	*Prasadpur	*Prasadpur	2057	524	3.9
16	Khulna	Paikgachha	Khalilnagar	*Roypur	*Roypur	1421	316	4.5
16	Satkhira	Tala	Tala	*Atarai	*Atarai	4847	1161	4.2
16	Satkhira	Tala	Tala	*Baruihati	*Baruihati	3301	804	4.1
16	Satkhira	Tala	Tala	*Bhaira	Bhaira	1916	462	4.1
16	Satkhira	Tala	Tala	*Bhaira	Agaljhara	1034	238	4.3
16	Satkhira	Tala	Tala	*Danga Nalta	*Danga Nalta	1088	268	4.1
16	Satkhira	Tala	Tala	*Jadpur	*Jadpur	1375	296	4.6
16	Satkhira	Tala	Tala	*Jiala	*Jiala	2310	545	4.2
16	Satkhira	Tala	Tala	*Jiala Nalta	*Jiala Nalta	3021	732	4.1
16	Satkhira	Tala	Tala	*Kismatghona	*Kismatghona	645	156	4.1
16	Satkhira	Tala	Tala	*Murakalia	*Murakalia	1420	388	3.7
16	Satkhira	Tala	Tala	*Rahimabad	*Rahimabad	1182	282	4.2
						119801	**29368**	**4.1**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*
** Haridhali/Tala union villages name collected from Union Chairman (2016)*

Annex 4 (Polder# 17/1)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
17/1	Khulna	Dumuria	Atlia	*Boyarsinga	Boyarsinga	759	163	4.7
17/1	Khulna	Dumuria	Atlia	*Boyarsinga	Putimari	209	52	4.0
17/1	Khulna	Dumuria	Atlia	*Boyarsinga	Andhar Manik	345	78	4.4
17/1	Khulna	Dumuria	Atlia	*Boyarsinga	Khalsibunia	65	16	4.1
17/1	Khulna	Dumuria	Atlia	*Boyarsinga	Chhota Murabunia	135	29	4.7
17/1	Khulna	Dumuria	Atlia	*Boyarsinga	Sondar Bunia	194	34	5.7
17/1	Khulna	Dumuria	Magurkhali	*Ahladipur	Ahladipur	728	174	4.2
17/1	Khulna	Dumuria	Magurkhali	*Ahladipur	Purba Patibunia	342	85	4.0
17/1	Khulna	Dumuria	Magurkhali	*Ahladipur	Paschim Patibunia	379	84	4.5
17/1	Khulna	Dumuria	Magurkhali	*Andhar Manik	*Andhar Manik	780	169	4.6
17/1	Khulna	Dumuria	Magurkhali	*Bailahara	*Bailahara	15	6	2.5
17/1	Khulna	Dumuria	Magurkhali	*Baithahara	*Baithahara	457	95	4.8
17/1	Khulna	Dumuria	Magurkhali	*Chandipur	*Chandipur	816	166	4.9
17/1	Khulna	Dumuria	Magurkhali	*Chitramari	*Chitramari	424	99	4.3
17/1	Khulna	Dumuria	Magurkhali	*Dakshin Bagardair	*Dakshin Bagardair	280	62	4.5
17/1	Khulna	Dumuria	Magurkhali	*Gajalia	Hoglabunia	264	47	5.6
17/1	Khulna	Dumuria	Magurkhali	*Gajalia	Gajalia	286	63	4.5
17/1	Khulna	Dumuria	Magurkhali	*Gazirnagar	*Gazirnagar	383	92	4.2
17/1	Khulna	Dumuria	Magurkhali	*Ghurnia	*Ghurnia	424	113	3.8
17/1	Khulna	Dumuria	Magurkhali	*Haburia	*Haburia	9	2	4.5
17/1	Khulna	Dumuria	Magurkhali	*Kaipukuria	*Kaipukuria	562	132	4.3
17/1	Khulna	Dumuria	Magurkhali	*Kanchan Nagar	*Kanchan Nagar	768	190	4.0
17/1	Khulna	Dumuria	Magurkhali	*Katalia	*Katalia	1011	235	4.3
17/1	Khulna	Dumuria	Magurkhali	*Khagrabunia	*Khagrabunia	318	85	3.7
17/1	Khulna	Dumuria	Magurkhali	*Khorerabad	*Khorerabad	1019	229	4.4
17/1	Khulna	Dumuria	Magurkhali	*Korakata	Hatalbunia	472	102	4.6
17/1	Khulna	Dumuria	Magurkhali	*Korakata	Korakata	233	52	4.5
17/1	Khulna	Dumuria	Magurkhali	*Korakata	Sokarmari	160	31	5.2
17/1	Khulna	Dumuria	Magurkhali	*Magurkhali	*Magurkhali	872	220	4.0
17/1	Khulna	Dumuria	Magurkhali	*Mohadebpur	*Mohadebpur	892	193	4.6
17/1	Khulna	Dumuria	Magurkhali	*Madartala	Amurbunia	403	83	4.9
17/1	Khulna	Dumuria	Magurkhali	*Madartala	Shakertak	458	95	4.8
17/1	Khulna	Dumuria	Magurkhali	*Madartala	Barmarber	188	39	4.8
17/1	Khulna	Dumuria	Magurkhali	*Madartala	Jharjhria	326	76	4.3
17/1	Khulna	Dumuria	Magurkhali	*Nangalmura	*Nangalmura	313	87	3.6
17/1	Khulna	Dumuria	Magurkhali	*Natherkur	*Natherkur	108	24	4.5
17/1	Khulna	Dumuria	Magurkhali	*Par Magurkhali	*Par Magurkhali	554	133	4.2
17/1	Khulna	Dumuria	Magurkhali	*Shibnagar	*Shibnagar	1180	278	4.2
17/1	Khulna	Dumuria	Magurkhali	*Tentultala	*Tentultala	9	4	2.3
17/1	Khulna	Dumuria	Magurkhali	*Uttar Bagardair	*Uttar Bagardair	35	10	3.5
17/1	Khulna	Dumuria	Sovna	*Balabunia	*Balabunia	547	140	3.9
17/1	Khulna	Dumuria	Sovna	*Mandartala	Mandartala	1033	243	4.3
17/1	Khulna	Dumuria	Sovna	*Mandartala	Baruikati	701	171	4.1
17/1	Khulna	Dumuria	Sovna	*Parmandartala	*Parmandartala	816	179	4.6
17/1	Khulna	Dumuria	Sovna	*Patibunia	*Patibunia	557	141	4.0
						20829	**4801**	4.34

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*
** Atlia/ Sovna union villages name collected from PMU/Union Chairman (2016)*

Annex 4 (Polder# 17/2)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
17/2	Khulna	Dumuria	Atlia	*Chakundia	*Chakundia	2989	664	4.5
17/2	Khulna	Dumuria	Atlia	*Chuknagar	Chuknagar	4131	1051	3.9
17/2	Khulna	Dumuria	Atlia	*Kulbaria	*Kulbaria	799	202	4.0
17/2	Khulna	Dumuria	Atlia	*Kulbaria Baratia	Baratia	3667	872	4.2
17/2	Khulna	Dumuria	Atlia	*Kulbaria Baratia	Matbaria	1744	412	4.2
17/2	Khulna	Dumuria	Atlia	*Kulbaria Baratia	Gobindakatia	2286	547	4.2
17/2	Khulna	Dumuria	Atlia	*Kulbaria Baratia	Nizkhali	323	77	4.2
17/2	Khulna	Dumuria	Atlia	*Maltia	*Maltia	3656	881	4.1
17/2	Khulna	Dumuria	Atlia	*Narnia	*Narnia	4006	932	4.3
17/2	Khulna	Dumuria	Atlia	*Rostampur	*Rostampur	1945	428	4.5
17/2	Khulna	Dumuria	Maguraghona	*Aroshnagar	*Aroshnagar	4818	1147	4.2
17/2	Khulna	Dumuria	Maguraghona	*Betagram	*Betagram	3571	856	4.2
17/2	Khulna	Dumuria	Maguraghona	*Kanchanpur	*Kanchanpur	3176	721	4.4
17/2	Khulna	Dumuria	Maguraghona	*Maguraghona (Tularampur)	*Maguraghona (Tularampur)	6858	1547	4.4
17/2	Satkhira	Tala	Tala	*Aladipur	*Aladipur	1776	412	4.3
						45745	**10749**	**4.3**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*

**Atlia/ Maguraghona/ Tala union villages name collected from Union Chairman (2016)*

Annex 4 (Polder# 23)

Polder	District	Name of Upazila	Union Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
23	Khulna	Paikgachha	Laskar	*Karulia	*Karulia	453	95	4.8
23	Khulna	Paikgachha	Laskar	*Laskar	*Laskar	2768	626	4.4
23	Khulna	Paikgachha	Sholadana	*Amurkata	*Amurkata	919	206	4.5
23	Khulna	Paikgachha	Sholadana	*Betbunia	Betbunia	2350	534	4.4
23	Khulna	Paikgachha	Sholadana	*Betbunia	Khatuamari	1171	258	4.5
23	Khulna	Paikgachha	Sholadana	*Boyar Jhapa	Boyer Jhapa	1301	300	4.3
23	Khulna	Paikgachha	Sholadana	*Boyar Jhapa	Majherbad	104	23	4.5
23	Khulna	Paikgachha	Sholadana	*Boyar Jhapa	Tengramari	459	107	4.3
23	Khulna	Paikgachha	Sholadana	*Char Banda	Char Banda	592	136	4.4
23	Khulna	Paikgachha	Sholadana	*Char Banda	Paschim Bhekatmari	308	69	4.5
23	Khulna	Paikgachha	Sholadana	*Dakshin Kanmukhi	Dakshin Kanmukhi	539	120	4.5
23	Khulna	Paikgachha	Sholadana	*Dakshin Kanmukhi	Uttar Kanmukhi	323	73	4.4
23	Khulna	Paikgachha	Sholadana	*Digha	Digha	985	210	4.7
23	Khulna	Paikgachha	Sholadana	*Digha	Golbunia	314	70	4.5
23	Khulna	Paikgachha	Sholadana	*Digha	Nutan Chak	157	37	4.2
23	Khulna	Paikgachha	Sholadana	*Harikhali	Harikhali	51	15	3.4
23	Khulna	Paikgachha	Sholadana	*Harikhali	Hajuti Vita	60	13	4.6
23	Khulna	Paikgachha	Sholadana	*Harikhali Chak	Harikhali Chak	336	81	4.1
23	Khulna	Paikgachha	Sholadana	*Harikhali Chak	Shalbunia Haridhali Abation	275	68	4.0
23	Khulna	Paikgachha	Sholadana	*Khalia	Khalia	446	102	4.4
23	Khulna	Paikgachha	Sholadana	*Khalia	Parsemari	706	163	4.3
23	Khulna	Paikgachha	Sholadana	*Khalia	Nune Para	707	144	4.9
23	Khulna	Paikgachha	Sholadana	*Paikgachha	*Paikgachha	4522	1030	4.4
23	Khulna	Paikgachha	Sholadana	*Par Boyar Jhapa	Par Boyar Jhapa	973	226	4.3
23	Khulna	Paikgachha	Sholadana	*Par Boyar Jhapa	Nayebkhali	186	44	4.2
23	Khulna	Paikgachha	Sholadana	*Patan	Patkelpota	952	229	4.2
23	Khulna	Paikgachha	Sholadana	*Patan	Narikeltala	388	93	4.2
23	Khulna	Paikgachha	Sholadana	*Patan	Purba Bhekatmari	958	216	4.4
23	Khulna	Paikgachha	Sholadana	*Patan	Patnikhali	229	50	4.6
23	Khulna	Paikgachha	Sholadana	*Paschim Kanmukhi	*Paschim Kanmukhi	477	89	5.4
23	Khulna	Paikgachha	Sholadana	*Sannyasidanga	*Sannyasidanga	232	51	4.5
23	Khulna	Paikgachha	Sholadana	*Sholadana	*Sholadana	791	204	3.9
23	Khulna	Paikgachha	Sholadana	*Sonakhali	*Sonakhali	488	109	4.5
23	Khulna	Paikgachha	Sholadana	*Sonamukhi	*Sonamukhi	8	2	4.0
						25528	**5793**	**4.4**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*

** Laskar union villages name collected from PMU/Union Chairman (2016)*

Annex 4 (Polder# 34/3)

Polder	District	Name of Upazila	Union/ Wand Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
34/3	Bagerhat	B. Sadar	Ward No-01	*Harinkhali	*Harinkhali	3174	733	4.3
34/3	Bagerhat	B. Sadar	Ward No-01	*Malo Para	*Malo Para	1126	294	3.8
34/3	Bagerhat	B. Sadar	Ward No-01	*Uttar Muniganj	*Uttar Muniganj	1039	173	6.0
34/3	Bagerhat	B. Sadar	Ward No-02	*Dakshin Muniganj	*Dakshin Muniganj	1994	505	3.9
34/3	Bagerhat	B. Sadar	Ward No-02	*Paschim Harinkhana	*Paschim Harinkhana	1805	383	4.7
34/3	Bagerhat	B. Sadar	Ward No-02	*Purba Harinkhana	*Purba Harinkhana	1607	312	5.2
34/3	Bagerhat	B. Sadar	Ward No-03	*Dakshin Sorui (Paschim)	*Dakshin Sorui (Paschim)	540	135	4.0
34/3	Bagerhat	B. Sadar	Ward No-03	*Paschim Dash Ani	*Paschim Dash Ani	1249	313	4.0
34/3	Bagerhat	B. Sadar	Ward No-03	*Paschim Sonatala	*Paschim Sonatala	2897	744	3.9
34/3	Bagerhat	B. Sadar	Ward No-03	*Purba Dash Ani	*Purba Dash Ani	3002	796	3.8
34/3	Bagerhat	B. Sadar	Ward No-06	*Dakshin Amla Para	*Dakshin Amla Para	1266	331	3.8
34/3	Bagerhat	B. Sadar	Ward No-06	*Dakshin Sorui	*Dakshin Sorui	1289	336	3.8
34/3	Bagerhat	B. Sadar	Ward No-06	*Dakshin Bazar (Paschim)	*Dakshin Bazar (Paschim)	753	189	4.0
34/3	Bagerhat	B. Sadar	Ward No-06	*Paschim Basabari (Daspara)	*Paschim Basabari (Daspara)	561	149	3.8
34/3	Bagerhat	B. Sadar	Ward No-08	*Dakshin Basabari	*Dakshin Basabari	3376	805	4.2
34/3	Bagerhat	B. Sadar	Ward No-08	*Dakshin Nager Bazar	*Dakshin Nager Bazar	408	97	4.2
34/3	Bagerhat	B. Sadar	Ward No-08	*Purba Nagerbari Basabari	*Purba Nagerbari Basabari	789	199	4.0
34/3	Bagerhat	B. Sadar	Ward No-08	*Palpara Basabari	*Palpara Basabari	2318	501	4.6
34/3	Bagerhat	B. Sadar	Ward No-08	*Purba Basabari (Daspara)	*Purba Basabari (Daspara)	503	135	3.7
34/3	Bagerhat	B. Sadar	Ward No-09	*Basabari Sahapara	*Basabari Sahapara	1012	254	4.0
34/3	Bagerhat	B. Sadar	Ward No-09	*Basabari Daspara	*Basabari Daspara	527	116	4.5
34/3	Bagerhat	B. Sadar	Ward No-09	*Khardwar	*Khardwar	2667	663	4.0
34/3	Bagerhat	B. Sadar	Jatrapur	*Afra	*Afra	1738	431	4.0
34/3	Bagerhat	B. Sadar	Jatrapur	*Bara Raghunathpur	*Bara Raghunathpur	634	167	3.8
34/3	Bagerhat	B. Sadar	Jatrapur	*Chanpatala	*Chanpatala	3422	851	4.0
34/3	Bagerhat	B. Sadar	Jatrapur	*Khalsi Panchali	Panchali	752	194	3.9
34/3	Bagerhat	B. Sadar	Jatrapur	*Khalsi Panchali	Khalsi	1170	291	4.0
34/3	Bagerhat	B. Sadar	Jatrapur	*Rahimabad	*Rahimabad	2278	546	4.2
34/3	Bagerhat	B. Sadar	Jatrapur	*Udkul	*Udkul	2770	669	4.1
34/3	Bagerhat	B. Sadar	Kara Para	*Bade Kara Para	*Bade Kara Para	2167	543	4.0
34/3	Bagerhat	B. Sadar	Kara Para	*Baghmara	*Baghmara	2191	526	4.2
34/3	Bagerhat	B. Sadar	Kara Para	*Dari Taluk	*Dari Taluk	837	202	4.1
34/3	Bagerhat	B. Sadar	Kara Para	*Deolbari	*Deolbari	1042	215	4.8
34/3	Bagerhat	B. Sadar	Kara Para	*Gobardia	*Gobardia	5591	1159	4.8
34/3	Bagerhat	B. Sadar	Kara Para	*Gomati	*Gomati	338	79	4.3
34/3	Bagerhat	B. Sadar	Kara Para	*Guzihati	*Guzihati	267	63	4.2
34/3	Bagerhat	B. Sadar	Kara Para	*Kanthal	*Kanthal	693	174	4.0
34/3	Bagerhat	B. Sadar	Kara Para	*Kara Para	*Kara Para	2969	685	4.3
34/3	Bagerhat	B. Sadar	Kara Para	*Kati	*Kati	257	60	4.3
34/3	Bagerhat	B. Sadar	Kara Para	*Katua	*Katua	289	68	4.3
34/3	Bagerhat	B. Sadar	Kara Para	*Krishnanagar	*Krishnanagar	881	203	4.3
34/3	Bagerhat	B. Sadar	Kara Para	*Kulia Dair (Chhota)	*Kulia Dair (Chhota)	827	208	4.0

Annex 4 (Polder# 34/3)

Polder	District	Name of Upazila	Union/ Wand Name	Mouza Name	Village Name-only Villages INSIDE the Polder	Population	Households	HH size
34/3	Bagerhat	B. Sadar	Kara Para	*Magra	*Magra	2460	575	4.3
34/3	Bagerhat	B. Sadar	Kara Para	*Majhidanga	*Majhidanga	1003	255	3.9
34/3	Bagerhat	B. Sadar	Kara Para	*Mirzapur	*Mirzapur	1756	391	4.5
34/3	Bagerhat	B. Sadar	Kara Para	*Nonadanga	*Nonadanga	1802	443	4.1
34/3	Bagerhat	B. Sadar	Kara Para	*Pater Para	*Pater Para	2136	525	4.1
34/3	Bagerhat	B. Sadar	Kara Para	*Phultala	*Phultala	668	140	4.8
34/3	Bagerhat	B. Sadar	Kara Para	*Polghat	*Polghat	1675	399	4.2
34/3	Bagerhat	B. Sadar	Kara Para	*Putimari	*Putimari	136	33	4.1
34/3	Bagerhat	B. Sadar	Kara Para	*Radha Ballabha	*Radha Ballabha	1140	252	4.5
34/3	Bagerhat	B. Sadar	Kara Para	*Rajapur	*Rajapur	604	137	4.4
34/3	Bagerhat	B. Sadar	Kara Para	*Sabekdanga	*Sabekdanga	867	210	4.1
34/3	Bagerhat	B. Sadar	Kara Para	*Singrai	*Singrai	1531	376	4.1
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Badukhali	*Badukhali	2164	488	4.4
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Barakpur	*Barakpur	1320	309	4.3
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Bhruidanga	*Bhruidanga	445	110	4.0
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Chunakhola	*Chunakhola	707	176	4.0
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Kantakhali	*Kantakhali	103	22	4.7
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Paschimdanga	*Paschimdanga	835	198	4.2
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Fulbari	*Fulbari	306	70	4.4
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Fulmagra	*Fulmagra	143	30	4.8
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Ran Bijoypur	*Ran Bijoypur	3741	938	4.0
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Sadullahpur	*Sadullahpur	1381	332	4.2
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Sayera	Purba Sayera	1896	461	4.1
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Sayera	Paschim Sayera	2210	570	3.9
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Sreeghat	*Sreeghat	2595	612	4.2
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Sundar Ghona Baje Afti	*Sundar Ghona Baje Afti	335	79	4.2
34/3	Bagerhat	B. Sadar	Shat Gambuj	*Thakur Dighi	*Thakur Dighi	496	105	4.7
						99470	**23733**	**4.2**

Sources: *Population Census-2011, Bangladesh Bureau of Statistics (BBS)*
**Jatrapur/ Shat Gambuj union villages name collected from Union Chairman (2016)*