

GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

MINISTRY OF WATER RESOURCES



BANGLADESH WATER DEVELOPMENT BOARD

COASTAL EMBANKMENT IMPROVEMENT PROJECT, PHASE-1(CEIP-1)

TERMS OF REFERENCE

FOR

Consultancy service (NGO) to Implement (a) Social afforestation (b) Social mobilization with Social Action plan (incl. setting up WMOs) and (c) Implementation of Integrated Pest Management (IPM) Plan for Polder No.39/2C in Pirojpur District

(CONTRACT PACKAGE NO. CEIP-1/A2 & B1/S1-C)

DECEMBER, 2017

Terms of Reference for

Consultancy service (NGO) to Implement (a) Social mobilization with Social Action Plan (incl. setting up WMOs) (b) Social afforestation and (c) Implementation of Integrated Pest Management (IPM) Plan for Polder No.39/2C in Pirojpur District

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1. Introduction

1.1 Bangladesh's coastal zone is characterized by a delicately balanced natural morphology of an evolving flat delta subject to very high tides and frequent cyclones coming in from the Bay of Bengal. The coastal zone, in its natural state, used to be subject to inundation by high tides, salinity intrusion, cyclonic storms and associated tidal surges. In the 1960s, polderization began in the coastal zone of the country to convert this area into permanent agricultural lands. The polders in this area are enclosed on all sides by dykes or embankments, separating the land from the main river system and offering protection against tidal floods, salinity intrusion and sedimentation. The polders were designed to keep the land safe from the daily tide to allow for agriculture activities. These polders are equipped with in- and outlet sluice gates to control the water inside the embanked area.

1.2 Originally, the polders were not designed to protect the areas against storm surges. Recent cyclones and storm surges, however, have significantly damaged the embankments in many locations leading to breaches and problem of flooding. This, in turn, has resulted in reduced agricultural productivity, and widespread environmental degradation, and served to undermine efforts at poverty reduction in the coastal areas. In addition, a poor track record of maintenance has contributed to increased internal drainage congestion and heavy external siltation, which has led to salinity intrusion and reduced agricultural productivity. Finally, the weakened embankment systems will be less resilient to future cyclones and storm surges, leaving millions of coastal residents at risk.

1.3 The above reasons led the Government to re-focus its strategy on the coastal area from one that only protects against high tides to one that would provide protection against frequent storm surges as well. The long term objective of the Government is to increase the resilience of the entire coastal population to tidal flooding as well as natural disasters by upgrading the whole embankment system. With an existing network of nearly 5,700 km long embankments in 139 polders, the magnitude of such a project is daunting and requires prudent planning. Hence a multi-phased approach of embankment improvement and rehabilitation will be adopted over a period of fifteen to twenty years. The proposed Coastal Embankment Improvement Project-I (CEIP-I) is the first phase of this long term program, and will upgrade and improve a total of seventeen polders over a six year period.

1.4 BWDB had completed feasibility level studies for improvement of performance of the polders in the entire coastal belt in 2013. A total of 17 polders were selected for urgent implementation, in Phase-1 with funding from the World Bank (WB). A consortium of national and international consulting engineering firms has been recruited for preparation of detailed design of engineering components and

also be responsible for supervision of construction work. Another consortium of national and international consulting engineering firms has been engaged for independent checking of quality of work and monitoring of progress in construction work. Construction of the 17 polders will be taken up in 3 packages. Contract for construction of 4 polders under package-1 has been signed and field level works are currently under implementation. Contract for 6 polders will be implemented under package - 2, that has been signed and work in field will be taken up very soon. Contract for rest 7 polders under package 3 will be processed at an early date. BWDB will implement (1) Social Mobilization with Social Action plan (incl. setting up WMOs); (2) Social afforestation and (3) Implementation of Integrated Pest Management (IPM) Plan in 5 contract packages for 10 Polders of works package 1 and 2.

1.5 The main objective of the “Contract Package No **CEIP-1/A2 & B1/S1-C** Consultancy service (NGO Services)” is to support the Bangladesh Water Development Board (BWDB) under CEIP-1. These activities are (a) Implementation of afforestation program especially in the fore-shore areas under social afforestation approach, (b) Social mobilization including setting up WMOs for introduction of ‘Integrated Water Resources Management (IWRM) practices through preparation of Social Action plan, and (c) Implementation of the Integrated Pest Management (IPM) Plan. Engagement with local communities on the project is considered integral to the successful implementation of the project’s components, and, thus, a reputable Non-Governmental Organization is sought to oversee and manage this work on behalf of the Bangladesh Water Development Board.

2. Scope of Work.

Objective of Consulting Services.

2.1 The objective of the consulting services are to manage and oversee tasks for social mobilization, participatory scheme cycle management (PSM) and participatory afforestation in relation to the successful implementation of the CEIP-I. Specifically, consulting services will be sought for (a) Social mobilization including setting up WMOs for introduction of IWRM practices through preparation and implementation of Social Action plan through engagement of local communities and community groups for PSM and participatory O&M of schemes, (b) Implementation of afforestation program specially in the fore-shore areas with ecologically appropriate species by adopting social afforestation approach, and (c) Implementation of the IPM practices.

A detailed description of the tasks is provided below.

Task 1. Social mobilization of community groups including setting up WMOs for introduction of IWRM practices through preparation and implementation of Social Action plan through engagement of local communities and community groups for PSM and participatory O&M of schemes.

2.2 Bangladesh’s National Water Policy (1999) and Participatory Water Management Rule 2014 recognizes the role of all stakeholders in the management of water, and mandates their participation in any scheme to promote sustainability and to ensure the long term integration of social and environmental considerations. In line with this mandate, the Bangladesh Water Development Board (BWDB) **requires**

to promote principles of participatory water management within selected coastal embankments to assist in the management of local water resources management schemes. Coastal embankments and water resources infrastructure are closely linked, with the operation and maintenance of sluice gates and associated infrastructure acting as critical regulation mechanisms for water management.

2.3 **WMOs:** Under the CEIP-I, BWDB will establish **Water Management Organizations (WMOs)**¹ in each polder where investments will take place. WMOs will be responsible for the operation and routine minor maintenance of the polders following experience of the Integrated Planning for Sustainable Water Management (IPSWAM) Project/ WMIP project /Blue Gold Program. Small works, including minor periodic maintenance and operation of minor hydraulic infrastructure would be undertaken by the WMOs under a memorandum of understanding with BWDB. The activities to be accomplished through the WMO are shown in the Table below:

Sl	Activity
1	Participatory Scheme Assessment
2	Consultations
3	Formation of Group
4	Social Mobilization
5	Planning and Technical Design
6	Implementation
7	Operation of Scheme
8	Routine Minor Maintenance
9	Training

2.4 In order to successfully establish functioning and participatory WMOs, Model of Blue Gold Program or PSM process practiced in the World Bank aided WMIP project will be followed. This requires at least one year of intense work with local communities in the mobilization activities prior to the establishment of the WMOs. Besides, the IPSWAM model envisions the close coordination with local communities during the design phases of the project.

2.5 Total seventeen (17) Polders under CEIP-1 have been planned to be rehabilitated and upgraded for which WMOs shall be established. Among those seventeen (17) Polders, rehabilitation and upgrading of **ten (10)** polders have already been taken up under two procurement packages (#1 and #2) and is now going on. The tasks for participatory scheme assessment, social mobilization, and community engagement for planning and technical design must all take place prior to the planned rehabilitation works being undertaken, and in close coordination with the contractor. The present package of consultancy service will accomplish afore said work in two polders in Khulna district. The details of those two polders are given below.

¹ WMOs refer to all types of organizations within a polder or scheme for participatory water management. Water Management Group (WMG) is formed for each hydraulic boundary known as Water Management Unit (WMU) within a polder/scheme. There are a number of WMUs in a polder/scheme having WMG for each. An apex body of the WMGs is formed with representatives from each WMG called Water Management Association (WMA) for each polder/scheme. The WMGs and the WMA in a polder/scheme are known as WMOs.

Sl.	Polder	Upzilla,District	Gross Area (ha)	Population	Construction Start Date	Major Intervention
1	P39/2C	Mathbaria,Bhandaria (Pirojpur)	10748	84853	June, 2017 (Contract #2)	Embankment=60.03 Km Drainage Channel=26.9154 Km Drainage Sluice=13 Nos Flushing Sluice= 22 Nos

2.6 The approach and methodology of social mobilization for Participatory Scheme cycle Management (PSM) will be benefited from review of (i) Bangladesh's National Water Policy 1999, (ii) Guidelines for Participatory Water Management (GPWM), 2001, (iii) Guidelines for Integrated Planning for Sustainable Water Management (IPSWAM), iv) Participatory Water Management Rule 2014 (v) Framework for participatory scheme cycle management (PSM) from the Water Management Improvement Project (WMIP), (vi) Scheme maps of all the selected polders under CEIP-I, (vii) Community series of relevant *upazilas* covering the targeted polders, (viii) Cooperative Society (amendment) Act 2012, (ix) Sample constitutions of Water Management Groups (WMG)/Water Management Associations (WMA) from IPSWAM and WMIP projects; and (x) any other information/documents deemed necessary. Manuals for beneficiary participation will be developed including information, education and communication materials for disclosure and awareness building. The methods of communication and participation will be mass beneficiary meeting, focused group meetings, and personal contact. The deliverables of the review and analysis of background documents and secondary information will be the following manuals/guidelines/Rule for management of the social mobilization activities:

- 1) Implementation manual for participatory scheme cycle management;
- 2) Information, education and communication materials;
- 3) Sample By-Law for Water Management Groups and Water Management Associations;
- 4) Training curriculum for organizational management, supervision and quality control of civil works construction, income generation activities, and cooperatives management.
- 5) Manuals for organization management and operation and maintenance of water management schemes (polders).
- 6) Manual for WMO Management by BWDB and any other plans and strategies identified necessary during project implementation;
- 7) Registration of all WMOs under Participatory Water Management Rule 2014;
- 8) IWRM practices inside the polders with the help of reconstructed appurtenant structures;
- 9) Environmental Enhancement Plan prepared for the polders
- 10) Mechanism for conflicts resolution of beneficiaries

2.7 The specific activities of the selected NGO for involvement of beneficiaries at various stages of project cycle will generally include the following:

1. Participatory Scheme Assessment	a. Design and carry out Participatory Rural Appraisal (PRA) in association with BWDB's field office and divisional offices including: - Conduct information campaign in the locality/polder areas well ahead of WMO formation - Provide authentic information like project objectives, involvement of beneficiaries in the project cycles and ultimate benefits of the community peoples from the project and the responsibility of the WMOs during implementation of the project and after completion of the project - Review scheme maps to identification beneficiary villages and hydraulic boundaries. - Conduct household census survey using specific format (prepared by the employer) for preparing the stakeholders' list in each of the Water Management Units(WMUs) - Identification of beneficiaries and other stakeholders. - Identify key problems of water management in the polder and the need for rehabilitation and improvement works. - Asses demand and willingness to establish WMOs, participate in project cycle, and their interest to take over O&M responsibilities. - Collect quantitative information on social, environmental, technical and economic aspects. - Identify BWDB and government land, suggest suitable use of this land for different professionals of WMOs. b. Prepare the report which will be the benchmark for the planning and monitoring for the development of the scheme following the Guidelines for IPSWAM and other similar projects implemented by BWDB.
2. Social Mobilization	a. Identify the beneficiary villages of the water management schemes and boundaries of Water Management Units (WMU) in a polder. Enroll at least 75% of households as a member of WMGs. Prepare household list for each WMO unit in order to work out the percentage of enrollment. b. Carry out beneficiary census and identify existing and/or potential members of Water Management Organizations (WMO) including Water Management Groups (WMG) for each Water Management Unit (WMU) under a polder and Water Management Association (WMA) for each polder. c. Establish/reorganize WMOs and draft a set of scheme-specific by-laws (following GPWM-2001& PWMR, 2014) which inter alia spell out the constitution of WMOs. d. Carry out participatory training needs assessment and prepare a program for capacity building of BWDB field officials and WMO representatives. e. Carry out the capacity building program including training in coordination with BWDB's Staff Development Unit.

	f. Register the WMOs with the BWDB concerned offices as per PWMR, 2014 with all documents relating to membership, formation of executive committees, half-yearly and annual physical and financial reports, and establish communication and correspondence mechanism. g. Conduct introductory level training curriculum for WMGs/WMA on “Participatory Water Management”, “Income Generating Activities (IGA)” and “Record Keeping and Accounting” using participatory training methodologies. h. Create financial management capacity through bank account for the newly formed WMGs. i. Assist the WMOs in the process of registration with concerned office of BWDB following PWMR 2014.
3. Planning and technical design	a. Assist the engineering and economic team in sharing the polder improvement plan with the WMO's/community organizations to arrive at an agreed plan. Each of the constituent WMGs of respective polder should attend the discussion, understand the proposed interventions and agree on. b. Assist PMU, BWDB finalizing the Polder Development Plan (PDP) with participation from the beneficiary communities of respective polder. c. Develop Memorandum of Understanding (MOU) on the implementation of the PDP and discuss with the WMOs on the implications of signing the PDP. d. Arrange signing of the PDP for implementation in the full understanding of the WMOs with the assurance that sufficient resources have been allocated for implementation with quality and timeliness. e. The WMOs will also agree on taking over their responsibility in O&M during operation. f. Develop mechanism/tools for O & M fund collection from the benefitted farmers
4. Implementation	a. Formation of Construction Supervision Team (CST) from the members of WMGs/WMA and disseminate project design and works specifications to the WMA members with assistance from the engineering consultants and BWDB field and division offices. b. Impart training to the CST before fielding it for functioning. c. Develop participatory monitoring plan for the WMAs with assistance from the engineering consultants and BWDB field office. d. Develop a procedure for CST to coordinate the social issues with contractor, consultant and BWDB field officials during construction. e. Facilitate the Construction Supervision Team (authorized members of WMA for supervision - CST) and assist them in communicating observations to the BWDB field office and the consultants. f. Document the process for monitoring of civil works to assist the CST and gradually train them up to do all proceedings by their own.

	g. Involve the WMOs in the implementation process of the project especially earth work through formation of Labor Contracting Society (LCS)
5. Operation and Maintenance (O&M) of scheme	a. Introduce the WMO and WMA members with the water control structures, irrigation and drainage channels and the embankment of the polder and disseminate operation and maintenance details of those components. b. Discuss and sort out minor O&M activities that are plausible for the WMOs to implement during operation of the scheme. c. Develop O&M Plan for the WMAs with reference to major activities as responsibility of the BWDB division offices. d. Design and develop draft Agreements for signing between WMAs & BWDB in respective schemes on the responsibilities of routine O&M through active participation of the WMOs. e. Explain in-depth all the articles of the agreements to the WMOs so that they understand their specific roles and those of the BWDB in the O&M of the scheme. f. Arrange signing of the agreement by WMOs & BWDB Executive Engineer of respective division office on the Polder Development Plan. g. Facilitate the WMOs in the operation and routine maintenance of the polder and assist them in communicating observations for major repair and maintenance to the BWDB division offices. h. Document the process for operation and routine maintenance of the polder to assist the WMOs and gradually train them up to do all activities designated for them. i. WMOs will agree on long-term O&M responsibilities and take over the operation and routine minor maintenance of the polder.

2.8 Gender Mainstreaming in PSM. Women in Bangladesh are traditionally the last resort of family economy at any crisis and contributing significantly to the economy, both through their remunerative work on farms and through unpaid traditional work at home. BWDB will follow a strategy of gender inclusive project design, implementation, and operation and maintenance. Women in the communities will be consulted at each stage of project cycle and their representation will be ensured in project management. The poor women will be employed in earth work through Labor Contracting Societies (LCS) and at least 30% of the members of the WMOs will be women. BWDB will provide gender-related training to sensitize its officials and increase capacity of the LCS and WMOs. The selected NGO will understand and ensure that gender roles at the various project cycle will be as follows:

1. Participatory Scheme Assessment	Women will be encouraged to participate in consultation exercises jointly with men as well as separately.
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	Information will be sought from both men and women on the potential water management problems and the measures for mitigation of the problems through structural and non-structural interventions.
2. Social Mobilization	Women will be encouraged to join WMOs and potential women leaders given training on gender and leadership. Women will constitute a minimum of 30% of the members of executive committees in WMGs and WMAs. Emphasis will be given on gender role and responsibilities in project cycle with focus to operation and maintenance.
3. Planning and technical design	Women and men members of WMGs and WMAs will participate in the discussion on project planning and works specification
4. Implementation	LCS comprising women and men participate in earthwork and derive benefits in terms of poverty reduction. Women will also participate in quality monitoring with men and will receive special training on supervision and monitoring.
5. Operation and Maintenance (O&M) of scheme	Women members will actively participate in O&M of polders during operation.

2.9 **Reporting on Social Mobilization.** The selected NGO will identify and mobilize beneficiaries in Water Management Organizations and involve them in each stage of project cycle from identification through assessment, design, implementation and operation and maintenance. These activities should be reported. They will provide appropriate training to the WMOs in order to ensure sustainable water management with effective participation of the beneficiaries. The NGO requires assessing periodic progress of their activities and the achievement in effecting participation of beneficiaries in project cycle and operation and maintenance of polders. The selected NGO will provide BWDB and Package A NGO (CEIP-1/A2 & B1/S1-A) monthly report on the progress in social mobilization, including any issue that might be hindering progress, separately for each civil works contract. The report will contain the following together with the progress reporting:

1	INTRODUCTION (common)	Purpose, objective, scope and background of the Progress Report
2	PROGRESS AND ACHIEVEMENTS	Summary progress of targeted activities during the reporting period and the cumulative achievements; A spreadsheet will be used to determine the progress that can be attached to the report as an Annex. A Bar Chart with Target and achievement should be included in their report
3	INPUTS	Physical and financial input during the reporting period and cumulative progress against the allocated quantities and financial budget. Comments if any at the end.

4	STATUS OF MOBILIZATION	Summary of achievement in social mobilization including consultation, census of beneficiaries, mobilization of beneficiaries into WMOs, training, and advance of the WMOs in terms of their activities as per objectives of participation. Summary of achievement in social mobilization, membership enrollment, savings and share capital accumulation, meetings, and communication, participation in supervision, monitoring and quality control of civil works.
5	PROBLEMS	Description of problems and difficulties encountered during the reporting period and link them to policy and administrative decisions with remarks Actions taken to resolve problems identified in the earlier report(s), their current status and any outstanding problems and recommendations for resolving those problems.
6	ACTIVITIES COMPLETED	Description of activities carried out during the reporting period with tables and charts for quantities (achievement and targets) followed by cumulative achievement for each activity The description have to be made separately for each polder under implementation (if more than one polder under implementation).
7	WORK SCHEDULE	Target for next reporting period and remaining tasks with timelines for their completion Comments on targets and work schedule, if any
8	MISCELLANEOUS	Miscellaneous activities at the request of BWDB and missions attended during the reporting period with particular reference to GPWM, IPSWAM and WMIP guidelines and manuals. Status of special targets set by pervious missions during the reporting period Comments on miscellaneous activities.

2.10 The introduction will be common for implementation of social mobilization plan and afforestation plan for polders under improvement.

Task 2. Implementation of afforestation program specially in the fore-shore areas with ecologically appropriate species by adopting social afforestation approach

2.11 **Objectives.** The objective of this task is for the NGO to lead the stakeholder consultation process for transparent and participatory dialogue and engagement between stakeholder groups to facilitate a better understanding, stronger community ownership, improved technical delivery and sound benefit sharing for implementation of the social forestry activities within the afforestation component with focus on fore-shore areas. One of the major component of the CEIP-1 is bank protection works. It is an established fact that presence of a wide stretch of mangrove type forest in front of the embankment/dyke on the river side gives protection to dyke/embankment from wave erosion. The stakeholder consultations between forestry specialists, local government officers, community leaders, potential beneficiaries and wider community members take into account scientific and local traditional knowledge, current and potential land-uses, land-use and social conflicts and local environmental and

socio-economic conditions to decide upon afforestation types and sites, purposes (protective or productive) and the proportions of different species to support their environmental and social needs and protection of the embankments.

2.12 The stakeholder consultation process will allow the NGO to support the village by village selection process for beneficiaries for participation in social forestry activities. The general criteria for selecting the beneficiaries are detailed in the Social Forestry Rules 2011. The types of beneficiaries include: i) *Laborer* on a daily wage basis; ii) *Laborer & Direct Beneficiary* as the recipient of direct benefit of final harvest and obliged to provide labor as required under an agreement and work norms; iii) *Laborer and recipient of Alternate Income Generation (AIG)* as their participation benefit when there is no harvesting(e.g. mangrove plantings).

2.13 The outputs of stakeholder consultations provide inputs to site/species matching and a revised version of the afforestation implementation plan that details seasonal time bound monthly and annual afforestation operational needs, work norms and costs for seeds, nurseries (locations, size, methods, seedling production), site preparation, planting, weeding, tending, maintenance, protection and harvesting. The implementation plan and associated maps additionally assist in refinement in selection of beneficiaries and identification of potential land-use conflict areas.

2.14 The NGO will comply with the Bangladesh Social Forestry Rules 2011. In case of plantation, the NGO should follow Tree Plantation Manual-2003 and Guideline for Forestation in the BWDB Embankment-1998. It will support the Afforestation Implementation Plan in participation with the Social Mobilization of Community Groups and Water Management Organizations, but provide specific support to:

1. Identify land ownership, current and proposed land-use, rights and tenure and resolve any land-use, benefit sharing and any other social or cultural issues that conflict with proposed afforestation and social forestry plans for areas both inside as well as out-side the embankments/dykes.
2. In a participatory and inclusive process identify and select social forestry beneficiaries and establish mechanisms for benefit sharing by following the rules and regulations of the government;
3. Undertake awareness raising to assist local communities to better understand the critical need for planting trees to protect the embankments directly and support their lives, villages and livelihoods (agriculture and fisheries) directly and indirectly;
4. Undertake capacity building through training, piloting and demonstration and provide technical support to local workers in the necessary skill sets for successful social forestry, including selection of species with justification, improved seed collecting, seedling production from nurseries, site preparation, planting, tending, maintenance and protection of plantings, i.e. deployment of watchers(particularly from grazing livestock and encroachment);
5. Monitor technical delivery of social forestry standards and sharing of financial benefits in accordance with agreed ratios and rates; and

6. Assist communities to identify and undertake alternative livelihoods activities to reduce environmental pressures and livelihoods vulnerabilities in coastal strips.

2.15 **Reporting on Social Forestry.** The selected NGO will identify and mobilize beneficiaries to participate in the Social Forestry program. They will provide appropriate training to the beneficiaries in order to ensure sustainable afforestation **activities** with effective participation of the beneficiaries. The NGO requires assessing periodic progress of their activities and the achievement in effecting participation of beneficiaries in afforestation. The selected NGO will provide BWDB and Package A NGO (CEIP-1/A2 & B1/S1-A) monthly report on the progress in social forestry, including any issue that might be hindering progress. The report will contain the following together with the progress reporting:

1	INTRODUCTION (common)	Purpose, objective, scope and background of the Progress Report
2	PROGRESS AND ACHIEVEMENTS	Summary progress of targeted activities during the reporting period and the cumulative achievements A spreadsheet will be used to determine the progress that can be attached to the report as an Annex. Provide a Bar Chart with Target and Achievement
3	INPUTS	Physical and financial input during the reporting period and cumulative progress against the allocated quantities and financial budget. Comments if any at the end.
4	STATUS OF SOCIAL FORESTRY ACTIVITIES	Summary of achievement in social afforestation including consultation, , mobilization of beneficiaries for social forestry activities, training, and any other activities
5	PROBLEMS	Description of problems and difficulties encountered during the reporting period and link them to policy and administrative decisions with remarks Actions taken to resolve problems identified in the earlier report(s), their current status and any outstanding problems and recommendations for resolving those problems.
6	ACTIVITIES COMPLETED	Description of activities carried out during the reporting period with tables and charts for quantities (achievement and targets) followed by cumulative achievement for each activity The description have to be made separately for each polder under implementation (if more than one polder under implementation).
7	WORK SCHEDULE	Target for next reporting period and remaining tasks with timelines for their completion Comments on targets and work schedule, if any
8	MISCELLANEOUS	Miscellaneous activities at the request of BWDB and missions attended during the reporting period with particular reference to GPWM, IPSWAM and WMIP guidelines and manuals. Status of special targets set by pervious missions during the reporting period Comments on miscellaneous activities.

Task 3. Implementation of Integrated Pest Management Plan.

2.16. *Objectives:* In Bank-financed agriculture operations, pest populations are normally controlled through IPM approaches, such as biological control, **cultural practices**, and the development and use of **crop varieties** that are resistant or tolerant to the pest. The Bank may finance the purchase of pesticides when their use is justified under an IPM approach. IPM refers to a mix of farmer-driven, ecologically based pest control practices that seeks to reduce reliance on synthetic chemical pesticides. It involves (a) managing pests (keeping them below economically damaging levels) rather than seeking to eradicate them; (b) relying, to the extent possible, on non-chemical measures to keep pest populations low; and (c) selecting and applying pesticides, when they have to be used, in a way that minimizes adverse effects on beneficial organisms, humans, and the environment.

2.17 As in Bangladesh, Crop diversification strategy has been formulated with the assumption that (i) flood control and drainage projects would result in more lands free from risk and facilitate crop production (ii) more area would be brought under irrigation, (iii) farmers would use improved varieties and apply improved agronomic management practices, (iv) there would be increased use of chemical balanced fertilizers and pesticides, (v) more crops would be grown to increase crop intensity (vi) there would be more technological advancement of crop production, (vii) there would be marketing improvement for internal and export demand (viii) there would be more selective small farm mechanization, particularly in land preparation and also in harvesting to release land quickly for planting the next crops by reducing the turn-around time.

2.18 Based on the assumptions stated above various agricultural organizations, educational institutes, NGOs of the country launched various programs in the coastal areas of Bangladesh for improving the performance of agriculture through adoption of environmental-friendly procedures. Accordingly World Bank Operation Policy OP 4.09 is prepared for assisting the borrowers to manage pests that affect either agriculture or public health, the Bank supports a strategy that promotes the use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. [Rural development and health sector projects have to avoid using harmful pesticides. Other pesticides can be used, but only as an element of an Integrated Pest Management Plan \(IPMP\) that emphasizes environmental and biological controls.](#) Accordingly, the borrowers needs to incorporate project components to strengthen such capacity along with country's regulatory framework.

2.19 IPM has been applied by the Department of Agricultural Extension (DAE) over the past several years and the results are overwhelming. The use of insecticides and pesticides had come down dramatically, mainly through better varieties and better agricultural practice. This is true for staple crops like rice and vegetables but also for orchards products such as mango and strawberry etc. The clue is to modify the agricultural practice and simultaneously introduce better varieties so that less insecticide and pesticide is applied to get better yields (less pesticides on existing cropped land and on new land brought under cultivation, both).

2.20 The success is acquired thanks to the grass-root works of the many DAE extension officers on the ground whose tasks are mainly focused around providing information on the use and timing of minimum quantities of insecticides and pesticides. New practice of cropping and new varieties are operated under the Integrated Crop Management Plan (ICMP) of which the Integrated Pest Management Plan is one of the many parts. This successful modus operandi is to be kept intact when implementing the IPM component under CEIP-1 project. In other words: the IPM-related activities under CEIP-1 will be connected to the established DAE operations on the targeted sites within each of the Polders under rehabilitation. Start is on the 4 Polders of Package-1 for which the EIAs and EAPs have been operationalized already.

2.21 Two sectors are concerned within the CEIP-1 rehabilitation activities: forestry and agriculture. The NGO will follow similar approach as to the ways and means to involve the local communities, especially the crop farmers, the fishermen, the forestry users. In all cases, the appropriate structure under which IPM Plan can be implemented is the Water Management Organisation (users of water). Bottom-

up approach will be followed for further mainstreaming the IPM practice among the target groups (farmers, fishermen, forest product users).

2.22 The CEIP-1 is basically an infrastructure improvement project and not an agricultural project. The handling of pesticides is not a part of project activities. Although intensive afforestation is a part of project activity, the provision of nursery is not included in project activities.

Nevertheless, during conducting the EIA it was noticed that in one polder about 280 ha and 85 ha of lands were under Boro (HYV) and T. Aus (Local) rice cultivation respectively. About 190 tons of chemical fertilizers and 2.8 tons (Both granular and liquid) pesticides were being used for cultivation Boro and T. Aus. After implementation of the project interventions especially re-excavation of khals would cause expansion of area under irrigated cultivation of Boro (HYV) and T.Aus (Local) varieties of rice. The expansion of irrigated area in association of cultivation area would increase use of chemical inputs including fertilizers and pesticides. Runoff from such cultivation fields might potentially pollute the water bodies and even drinking water sources thus causing health hazards to the communities.

2.23 As stated above, the Department of Agriculture Extension (DAE) is mandated for all types of agricultural extension activities including the preparation and implementation of Integrated Pest Management Plan (IPMP) under the general framework of the Integrated Crop Management Plan (ICMP). The DAE has already proven community-based approach tested on the ground, with great success. DAE conducts capacity building both for IPMP & ICMP. However, the scope of CEIP-1 Project activities do not include the DAE involvement. Therefore, it is planned that the DAE will start its activities after successful completion of all civil works of the Project.

2.24 The Integrated Pest Management (IPM) and Integrated Crop Management (ICM) concepts would be popularized among the farmers, Water Management Organization (WMO), Water Management Association (WMA), and Social Afforestation Group. The NGO will work closely with the DAE and its field officers in this respect to achieve this task. Recruiting and remunerating some of these highly experienced DAE field officers to assist the NGO staff is recommended.

The key objectives of the IPM Plan will include:

- i) To guide the afforestation activities and future agriculture development in the polders area based on the best practice available for IPM.
- ii) To raise awareness of all stakeholders about the IPM approach to crop management, and to train extension agents and farmers to become practitioners of IPM; and
- iii) To determine the level of pesticide residue on agricultural crops in normally treated and IPM-treated areas and disseminate information to stakeholders on the usefulness of IPM practices.

The key elements of the IPM Plan will include but not limited to:

- i) Awareness/dissemination of Information;
- ii) Training of Trainers (ToT), Training of Facilitators (ToF) and establishing of Farmers Organization in line with New Agriculture Extension Policy of 1996 & 2012/ Farmer Field Schools (FFS);
- iii) Implementing Integrated Plant and Soil Nutrient Management (IPSNM) techniques (including organic fertilizers, composting and worm culture); and
- iv) Determining pesticide residue on crops.

Monitoring and Evaluation & Reporting tasks:

- i) Set-up of a M&E system to measure the effectiveness of the training, the degree of dissemination of new practices and the outcome of residue measurement;
- ii) The selected NGO will provide BWDB and Package A NGO (CEIP-1/A2 & B1/S1-A) monthly report on the progress in implementing Integrated Pest Management Plan, including any issue that might be hindering progress. The report will contain the following together with the progress reporting:

1	INTRODUCTION (common)	Purpose, objective, scope and background of the Progress Report
2	PROGRESS AND ACHIEVEMENTS	Summary progress of targeted activities during the reporting period and the achievements Provide a Bar Chart with Target and Achievement
3	INPUTS	Physical and financial input during the reporting period and cumulative progress against the allocated quantities and financial budget. Comments if any at the end.
4	STATUS OF INTEGRATED PEST MANAGMENT	Summary of achievement in integrated pest management (IPM) including awareness activities, training, implementing IPSNM techniques. The section should also include the following: applied quantities of pesticides, before and after the Project, increase if any of cropped land after the Project, increase in yield outputs of crops practiced, determining levels of pesticide residues in crops, soil and water at regular time intervals, effectiveness of bottom-up participation by the targeted groups, which types of pesticides belong to which type of crops.
5	PROBLEMS	Description of problems and difficulties encountered during the reporting period and link them to policy and administrative decisions with remarks Actions taken to resolve problems identified in the earlier report(s), their current status and any outstanding problems and recommendations for resolving those problems.
6	WORK SCHEDULE	Target for next reporting period and remaining tasks with timelines for their completion Comments on targets and work schedule, if any
7	MISCELLANEOUS	Miscellaneous activities at the request of BWDB and missions attended during the reporting period with particular reference to IPM, and IPSNM guidelines and manuals. Status of special targets set by pervious missions during the reporting period Comments on miscellaneous activities.

3. Implementation Schedule

3.1 The Consultants (NGO) will work closely with BWDB, and coordinate their work with Detailed Design, Construction Supervision & Project Management (DDCS & PMS) Consultant and other relevant units stakeholders, as needed. The consultant will establish their office in Khulna as well as in field at convenient locations to BWDB offices to whom they will be reporting on a day to day basis.

3.2 The selected NGO will provide monthly, quarterly as well as final/ completion reports to BWDB and Package A NGO (CEIP-1/A2 & B1/S1-A).

3.3 The work is scheduled to start in **December 2017** and will continue until **June 2020**. It is expected that at least 9-12 months will be spent undertaking the initial planning and social mobilization tasks in order that the WMOs are fully established *prior* to any rehabilitation and upgrading work.

3.4 The services to be provided by the NGO will follow a specific time schedule, which is given in the table below. This represents the activities to be undertaken **for each polder** that has been identified as a pilot polder to establish WMOs. In each of these polders, an initial planning will be undertaken, followed by social mobilization, and training. The suggested activity schedule for this is provided in the table below.

	Major Activity	Months								
		1	2	3	4	5	6	7	8	9
A	Initial Planning and Survey									
1	Collection of infrastructure's list	■ ■ ■ ■								
2	Define Water Management Units	■ ■ ■ ■ ■ ■								
3	Conduct household census survey	■ ■ ■ ■ ■ ■ ■ ■								
B	Formation of WMO									
4	Motivation campaign and conduct polling	■ ■ ■ ■ ■ ■ ■ ■								
5	Prepare group formation modalities	■ ■ ■ ■ ■ ■ ■ ■								
6	Prepare stakeholder lists	■ ■ ■ ■ ■ ■ ■ ■								
7	Define WMG's tasks & disseminate group formation activity		■ ■ ■ ■ ■ ■ ■ ■							
8	Formation of WMGs			■ ■ ■ ■ ■ ■ ■ ■						
9	Formation of WMAs			■ ■ ■ ■ ■ ■ ■ ■						
C	Knowledge Development									
10	Prepare curriculum of training	■ ■ ■ ■ ■ ■ ■ ■								
11	Conduct introductory training to the EC, WMGs/WMA			■ ■ ■ ■ ■ ■ ■ ■						
D	Legislation Process									
12	Create financial arrangement of WMGs			■ ■ ■ ■ ■ ■ ■ ■						
13	Registration of WMOs under cooperative act						■ ■ ■ ■ ■ ■ ■ ■			

	Major Activity	Months								
		1	2	3	4	5	6	7	8	9
E	Monitoring & Evaluation									
14	Prepare M&E Framework							■ ■ ■ ■ ■ ■ ■ ■ ■ ■		
F	Reporting									
15	Inception Report		●							
16	Monthly Progress Report		●	●	●	●	●	●	●	●
17	Quarterly Progress Report				●			●		
18	Training Curriculum					●				
19	Monitoring and Evaluation Framework									●
20	Final Report/Completion Report									●

3.5 **Responsibilities of the Client:** The NGO shall work under the Project Director (PD), CEIP-1, BWDB, Dhaka. At the field level, the NGO shall work under supervision of the concerned Executive Engineers of different Field Divisions in different BWDB Zones keeping liaison with DDCCS & PMS Consultant. The concerned Deputy Chief Extension Officer (DCEO) and Extension Officials of the Office of Chief Water Management, BWDB, Dhaka will assist NGO as required particularly with the specific activities on initial communication, information collection and stakeholder consultation within the selected polders and in the formation process of WMOs as per Guideline for Participatory Water Management, 2001 and Participatory Water Management Rule, 2014.

36 **Ownership of Documents.** All reports, documents, correspondence, draft publications, maps, drawings, notes, specifications, statistics, work product in any form and, technical data compiled or prepared by the NGO and communicated to BWDB in performing the services (in electronic form or otherwise and including computer-disks comprising data) shall be the sole and exclusive property of BWDB, and may be made available to the general public at its sole discretion. All computer programs developed by the NGO under this contract shall be the sole and exclusive property of BWDB.

3.7 Equipment, and materials furnished to the NGO by BWDB, or purchased by the NGO wholly or partly with funds supplied or reimbursed by BWDB hereunder, shall be the property of BWDB. Equipment or materials brought into by the NGO and the personnel and used either for the project or personal use shall remain the property of the NGO or the personnel concerned, as applicable.

4. Staffing

4.1. The NGO must be able to present evidence of sufficient experienced and trained qualified manpower to be mobilized to this end. The NGO shall have to provide staff input to carry out the works under this Terms of Reference (TOR). The man-months and designation of the staff shall have to be as stated in Table 2. The NGO should show the duration of their services and limit as per requirement in consultation with the civil works contract. If settlement of legal issues on land acquisition requires longer time, the NGO may have to demobilize for a period as per the request from the executing agency in writing.

Table 2: Key professionals and inputs

Sl. No	Professional/Discipline	No	Input months needed (months/person/year)	Total Person-Months (Two and Half Years)
1.	Social Mobilization Expert/Team Leader	1	8	20
2.	Participation Specialist/Institutional Specialist	1	6	15
3.	Social Forestry Specialist	1	4	10
4.	Integrated Pest Management (IPM) Specialist	1	4	10
5.	Agronomist	1	4	10
6.	Community Organizer	8	12	240
	Total	13	38	305

4.2 The following table shows the minimum qualifications of the key staff to be proposed under the assignment, as well as the anticipated tasks assigned.

Sl. No.	Position Assigned	Educational Qualification	Area of Expertise with Qualification	Task Assigned
1	Social Mobilization Expert/ Team Leader (TL)	Masters in Social Sciences (e.g. Sociology/ Social Welfare/ Economics)	At least 20 years of work experience in conducting social studies, carrying out of in-depth social and livelihood studies, assessing social needs for sectorial development including participatory water management, and leading study/projects for different sectors	- Overall planning and implementation of the assignment - Overall supervision of the implementation of the assignment - Supervising the activity of the team members including field team - Planning for conducting beneficiary survey - Designing survey tools - Planning and designing stakeholders' need assessment survey - Preparing modalities of WMO formation - Formation of WMOs - Preparing monthly progress report - Preparing mid-term and final reports - Make necessary arrangement for Preparation of GIS maps for each WMU And WMO's to be formed in that WMU - Keeping liaison with BWDB, World Bank, Main Consultant etc.
2	Participation/ Institution Specialist / Deputy Team Leader (DTL)	Masters in Social Sciences (e.g. Sociology/ Social Welfare/ Economics)	At least 18 years of work experience in carrying out social studies linked with livelihood and rural power groups, conducting in-depth social studies, and	- Overall planning for stakeholder participation activities - Overall supervision of institution building and the stakeholders' participation activities - Supervising the participation related work of field team members

Sl. No.	Position Assigned	Educational Qualification	Area of Expertise with Qualification	Task Assigned
			initiate public participation in the development projects for different sectors	- Planning and designing stakeholders' need assessment survey - Preparing modalities of WMO formation - Formation of WMOs In absence of the Team Leader, he/she will perform the tasks of TL as "Acting Team Leader" in addition to his/her own tasks and shall keep liaison with BWDB, World Bank, Main Consultant etc.
3	Social Forestry Specialist	MS in Forestry or Natural Sciences	At least 15 years of work experience in carrying out programs of social forestry, and experience coordinating between the Forest Department and other agencies to facilitate the implementation of a social forestry program	- Overall supervision of social forestry component - Planning and designing forestry component - Preparing modalities for implementation of social forestry - Formation social groups needed to engage in social forestry activities - Monitoring of progress under the component and reporting to Team Leader and to BWDB on results
4	Integrated Pest Management (IPM) Specialist	MS in Agricultural Entomology and/or Pathology, Agricultural Sciences	At least 15 years overall experience of which he/she must have at least 5 years' experience in integrated pest management (IPM). Knowledge of new molecular tools in biotechnology and their implementation in IPM is desirable	- Liaison with DAE in respect to preparation and implementation of Integrated Pest Management Plan (IPMP); - Work with TL and Local community groups to make them understand on rational use of chemical pesticides and nutrients; - Raise awareness of all stakeholders about the IPM approach to crop management, and to train extension agents and farmers to become practitioners of IPM; - Prepare Integrated Pest Management Plan; - Prepare communicable Training Module on IPM; - Impart training to the WMOs about the IPM approach to crop management; - Prepare activity progress report and submit to TL
5	Agronomist	MS in Agronomy, Agricultural Sciences or Agricultural Extension	At least 15 years of work experience working with community groups on livelihood activities related to agriculture. Experience working in the coastal areas a plus	- Overall supervision of livelihood activities related to agriculture or agronomy - Working with TL and local community groups to understand key challenges - Preparing easy and communicable module to ensure that livelihood activities are fully mainstreamed in WMO activities

Sl. No.	Position Assigned	Educational Qualification	Area of Expertise with Qualification	Task Assigned
				- Providing training to the WMOs on the aspects related to agriculture and livelihoods -
6	Community Organizers	Diploma in Agriculture (is preferable) Or BSc/BSS/BA	At least 2-3 years of work experience in working with the social/institutional development programs/ studies/projects. Preference will be given to those who have working experience in BWDB projects as Extension Overseers or working experience as Co-operative Inspector.	- Visiting villages within the polders and rapport building with the beneficiaries; - Carrying out beneficiary identification survey - Regular contact with the beneficiaries and other stakeholders at the local level - Mobilizing beneficiaries and formation of WMGs - Formation of WMAs - Nursing WMGs and WMAs and monitoring their activities - Motivating WMO members and promoting them for income generating activities; - Mobilizing the WMO members for training and capacity development - Mobilizing WMOs for participation in identification, assessment and design of project interventions and monitoring civil works construction - Mobilizing WMOs for participation in O&M - Mobilizing WMOs for PIP and MOUs for participatory scheme cycle management.

5. Selection Criteria

- 5.1 Selection of the NGO will be based on **CQS (Selection of Consultants Based on Consultant's Qualifications)** method in accordance with the procedures set out in the World Bank's *Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers - [January 2011 (Revised July 2014)]and PPR2008.*
- 5.2 The NGO / consortium of NGOs should have relevant professional experience. The form association, if any, should be clearly indicated either "joint venture" or "sub-consultancy"; and all members should have well defined inputs to the assignment. In the case of joint-venture, all NGOs shall be jointly and severally liable for the entire NGO's obligations under the contract. In case of sub-consultancy, the main NGO shall sign the contract and shall be liable for the entire NGO's obligations under the contract. The total number of NGOs including their associates shall not exceed three (3)

6. Monitoring & Evaluation of Performance

6.1. Progress in implementation of the tasks will be monitored and evaluated periodically by Third Party Monitoring and Evaluation Consultant to ensure adequate performance.

(Md. Delwar Hossain)
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CEIP-1, BWDB