## INITIAL ENVIRONMENTAL EXAMINATION

### ACTIVITY DATA

<table>
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<tr>
<th>Activity Name:</th>
<th>AID-FFP-A - 15-00012</th>
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<tbody>
<tr>
<td>Amendment (Y/N):</td>
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<tr>
<td>Geographic Location(s) (Country/Region):</td>
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</tr>
<tr>
<td>Implementation Start/End:</td>
<td>Sep. 29, 2015 / Sep 28, 2022</td>
</tr>
<tr>
<td>Implementing Partner(s):</td>
<td>World Vision</td>
</tr>
<tr>
<td>Link of Other, Related Analyses:</td>
<td>Parent IEE:</td>
</tr>
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### ORGANIZATIONAL/ADMINISTRATIVE DATA

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<tr>
<th>Implementing Operating Unit(s): (e.g. Mission or Bureau or Office)</th>
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<tr>
<td>Lead BEO Bureau:</td>
<td></td>
</tr>
<tr>
<td>Prepared by:</td>
<td>Nobo Jatra</td>
</tr>
<tr>
<td>Date Prepared:</td>
<td>February 18, 2020</td>
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### ENVIRONMENTAL COMPLIANCE REVIEW DATA

<table>
<thead>
<tr>
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<tr>
<td>Environmental Determination(s):</td>
<td>☐ Categorical Exclusion</td>
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<tr>
<td></td>
<td>☐ Negative Determination</td>
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<td>☐ Positive Determination</td>
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<td>☐ Deferral</td>
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<td>IEE Expiration Date:</td>
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<td>Additional Analyses/Reporting Required:</td>
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<tr>
<td>Climate Risks Rating for Risks Identified:</td>
<td>Low <em>✓</em>_ Moderate _____ High _____</td>
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SUMMARY OF FINDINGS

The first IEE of Nobo Jatra project was approved by USAID Bureau Environmental Officer with the following conditions which will followed by WV:

USAID Bureau Environmental Officer Approval:

This Environmental Threshold Decision (ETD) is to inform World Vision (WV) that the Bangladesh IEE has been approved with Conditions by the DCHA Bureau Environmental Officer (BEO), on June 15, 2016.

WV has undergone all necessary Mission and Washington clearances and meets the minimum 22 CFR 216 requirements, with the following 2 conditions for implementation.

Condition 1: WV will need to develop a project specific SUAP tiering off of the USAID/Bangladesh Programmatic Pesticide Evaluation Report and Safer Use Action Plan (PPERSUAP).

Discussion: Although the “PPERSUAP” is document covering a wide range of pesticide applications, it is important that projects are able to tailor findings to their specific needs. Before promoting or using pesticides, the DCHA BEO requests the development of a project specific Safer Use Action Plan (SUAP).

Experience from other regions has shown that this tiering process is an important part of improved PERSUAP implementation. For example, please draw guidance from the “Compliance Tracker” as can be found in the Uganda DOI PERSUAP; see Section 6.4: http://gemini.info.usaid.gov/egat/envcomp/document.php?doc_id=43631.

In addition, WV is expected to submit crop specific integrated pest management (IPM) plans that will be used by the project. These IPM plans should be considered a “living” plan and be updated throughout the life of the project. Updates to these plans do not need to be submitted to USAID, but USAID may request copies of these updated plans at any given time.

WV should also provide other attachments, such as project specific training curriculum on pesticide use and IPM (agenda, timing of trainings, etc.), description of vendors for pesticides and personal protective equipment (PPE), project specific pesticide handling and disposal protocols, awareness raising materials translated in the local language that are applicable to low literacy populations (pictorial), etc.

Condition 2: The Environmental Mitigation and Management Plan (EMMP) needs to be approved by the DCHA BEO, in addition to the MEO.
**Discussion:** While it is typical that the EMMP is submitted with the FFP IEE, it is understood that WV has submitted an EMMP separate from the IEE, through its consultation with the Mission. This EMMP is currently undergoing clearance by the USAID Bangladesh Mission and will also require BEO clearance in accordance with DCHA practices and policies.

**Notation:** Concerning productive use of the invasive species, water hyacinth. The DCHA BEO acknowledges that WV plans to productively use invasive species (water hyacinth), which is a rather unique activity for Food for Peace projects, while common for Bangladesh for many decades. Recognizing the risk involved in working with an invasive species, even under the Bangladesh context, the WV IEE duly notes that:

“However, this plant is nonnative (comes from South America) and is highly invasive. To control invasive plant species there are three approaches; chemical, biological, and mechanical. The practice of harvesting water hyacinth is a form of mechanical control. Harvesting this weed unclogs waterways and ponds restoring surface water, oxygen and sunlight to other aquatic organisms. Promotion of floating agriculture is expected to be limited. However, before using water hyacinth the project should survey the target area to establish presence, relative abundance, status, and distribution of invasive plant populations. Where the plant is already widely established in abundance and in healthy condition, no significant adverse effect on the environment is expected if collected from the wild to use as a means for cultivation. Promotion of the plant should not be done in areas where survey results reflect low scores on presence, abundance, status, and distribution. In these areas, alternative materials for floating agriculture should be promoted such as the use of paddy straw.”
ACTIVITY SUMMARY

The Nobo Jatra program targets 249,348 households living in the poverty-entrenched Southwestern Coastal districts of Khulna and Satkhira, Bangladesh.

The goal of the Nobo Jatra program is: Improved gender equitable food security, nutrition and resilience of vulnerable people in Bangladesh. This goal will be achieved by separating activities into three main purposes:

• Purpose 1: Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls.
• Purpose 2: Increased equitable access to income and nutritious food for both males and females.
• Purpose 3: Strengthened gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from man-made and natural shocks and stresses

To optimize the nutrition impact possible through Purposes 1-3, the following cross-cutting component will also be integrated across program activities: Improved social accountability of service provision for the vulnerable by local government bodies.

The purpose of this IEE is to provide environmental threshold determinations for proposed program activities in the southwestern coastal districts of Khulna and Satkhira. To ensure the environmental soundness of the program, this IEE covers all activities in the approved Nobo Jatra proposal.

The IEE and EMMP for Nobo Jatra Project were prepared by WV and those were approved by USAID during the beginning stage of the project. All the activities planned for Nobo Jatra initially was spelled out in the IEE and EMMP. The impacts of those activities, mitigation and monitoring plan to address all the assessed impacts were well defined. At that stage of project when IEE and EMMP were prepared, the activities were not defined for acceleration fund. The activities come out from the CRA and CDMAP. Considering that stage, Nobo Jatra Project identified some of the activities of CDMAP to implement. Furthermore, Nobo Jatra also planned to install Reverse Osmosis (RO) Plant (water points) to supply drinking water from FY 19. These activities had been anticipated to have negative environmental impacts which were identified with this amendment of IEE (1st amendment). Moreover, the mitigation measures were also identified.

Nobo Jatra had to install Arsenic Iron Removal Plant (AIRP). In this point, to be in compliant with environmental requirement the amendment#1 also identified the impacts of such activities and the suggested mitigation measures.

With the amendment#1, Nobo Jatra identified 9 types of schemes under acceleration funds to implement from FY 19. Total 8 types of schemes were identified which fall under “Negative Determination with Condition” and 1 type of the schemes have been identified which fall under “Categorical Exclusion”.

This IEE (amendment #1) submitted to USAID with the amendment because of the newly identified activities so that Nobo Jatra project remains fully complied with 22 CFR 216.
Along with the amendment #1 information, all other information and conditions raised by USAID in the first USAID’s approved IEE remained same.

For all these above-mentioned activities, Environmental Mitigation and Monitoring Plan (EMMP) was also amended (Annex 1) with the first EMMP that was approved by USAID. All other information of first approved EMMP and conditions raised by USAID remained same. The amended IEE and EMMP were approved by the USAID’s DCHA Bureau Environmental Officer on 11 November 2018.

However, NJP has been awarded a cost extension from 2020-2022. The proposed activities in FY 21 and FY 22 under NJP (section 1.2) are mostly focused on ensuring the sustainability of the outcomes from the original project period. The activities which will be implemented by Nobo Jatra during the cost extension are small scale. This amendment #2 has been carried out considering the activities of the cost extension phase of the project. According to the screening, activities will not have negative impacts on environment except the activity 1.3.1.1.1 (Private sector service providers provide technical assistance and ensure supply chain for the CSA) may have minor indirect impacts which will be covered and managed by the current IEE of the NJP. Recommended environmental determinations for project activities fall under the categories of Categorical Exclusion in accordance with criteria outlined in 22 CFR 216. Moreover, as part of environmental monitoring, NJP will procure Pota Test- membrane filtration (MF) device bacteriological testing. Pota Test, membrane filtration (MF) method, is a water quality testing device to detect the actual numbers of Bacteria (Total and Fecal Coliform) in the water sample. From the screening process using bacteriological testing device, it is found that those will have minor negative impacts on the environment and have a few health and safety risks. The recommended environmental determination is negative determination with condition in accordance with criteria outlined in 22 CFR 216. This amendment #1 has identified impacts and mitigation measures for the activities (1.3.1.1.1 and water quality testing by Pota Test device) However, NJP may amend its current IEE/EMMP if any of the new activities are planned in extension period which may not be covered by its current IEE as and when required.

The first approved IEE/EMMP and approved IEE/EMMP amendment #1 will remain effective where applicable during the cost extension phase of the project as well.

ENVIRONMENTAL DETERMINATIONS AND CLIMATE RISK RATINGS

The activities implemented by Nobo Jatra are small scale in nature. It is not anticipated that any Nobo Jatra program activities will have a significant adverse environmental effect, provided that the recommended mitigation and monitoring measures are faithfully implemented. The potential effects from these activities are analyzed in Section 3. Recommended environmental determinations for program activities fall under the categories of Categorical Exclusion and Negative Determination with Conditions in accordance with criteria outlined in 22 CFR 216. No activities received a recommendation for a Positive Determination or for a Deferral.

Considering the nature of the proposed activities (those are related to sustainability and capacity building) during the cost extension period, NJP has identified through the Climate Risk
Screening that there will be Low to Moderate Climate Risk on its activities. The risks which were identified are mostly gaps on knowledge and awareness on climate risks and their management options. The Climate Risk Management options those have been identified are sensitization and capacity building of different stakeholders relevant to WASH, MCHN, Agriculture & Livelihood and DRR sectors through different meeting, workshops and trainings.

### Summary Table of Recommended Determinations

<table>
<thead>
<tr>
<th>Recommended Determination</th>
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<tbody>
<tr>
<td>Categorical Exclusion pursuant to 22 CFR 216.2(c)(2)(i) for education, technical assistance or training prog.</td>
</tr>
<tr>
<td>1.1.1 Strengthen local WATSAN committees</td>
</tr>
<tr>
<td>1.1.2 Facilitate behavior change programming for essential hygiene practices</td>
</tr>
<tr>
<td>1.1.6 Promote and facilitate linkages between consumers and WASH business</td>
</tr>
<tr>
<td>1.2.1 Media awareness campaigns</td>
</tr>
<tr>
<td>1.2.2 Engagement and sensitization of other influential groups.</td>
</tr>
<tr>
<td>1.2.3 Child Protection Committees (CPC) strengthened to report and prevent cases of early marriage.</td>
</tr>
<tr>
<td>1.4.1 Critical reflection and dialogue through Men Care Groups</td>
</tr>
<tr>
<td>1.4.2 Conduct leadership training for women and youth</td>
</tr>
<tr>
<td>2.1.1 Facilitate access to Entrepreneurial Literacy training</td>
</tr>
<tr>
<td>3.1.1 Strengthen capacity of ward, union and upazila DMCs.</td>
</tr>
<tr>
<td>3.1.3 Train vulnerable groups on DRR practices and appropriate responses</td>
</tr>
<tr>
<td>- Disseminating awareness raising messages of cyclone signals by digital billboard</td>
</tr>
<tr>
<td>CC A.1 Good governance training for Union Parishad and Standing Committees.</td>
</tr>
<tr>
<td>CC A.2 Engage in evidence based National level policy dialogue.</td>
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<tr>
<td>CC A.3 Strengthen inclusive VDCs</td>
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<tr>
<td>Activity 1.1.1.1.1: Strengthened capacity and monitoring mechanism of WATSAN Committees</td>
</tr>
<tr>
<td>Activity 1.1.1.2: Enhanced functional linkage among WATSAN Committees and WASH stakeholders</td>
</tr>
<tr>
<td>Activity 1.1.2.1 Strengthened capacity of WMCs for sustainable operation of Water options</td>
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<tr>
<td>Activity 1.1.3.1 Established strong linkage among WASH LSPs and stakeholders to meet local WASH demand</td>
</tr>
<tr>
<td>Activity 1.1.4.1 DPHE/LGD provided technical assistance, resources and monitoring services to stakeholders to improve WASH services</td>
</tr>
<tr>
<td>Activity 1.3.1.2.1 : Community level Actors disseminate Health and Nutrition message</td>
</tr>
<tr>
<td>Activity 1.3.1.3.1 : MoHFW made available of adequate quality health and nutrition Services</td>
</tr>
</tbody>
</table>

| Categorical Exclusion pursuant to 22 CFR 216.2(c)(2)(viii) for programs involving nutrition, health care or pop. and family planning services except to the extent designed to include activities directly affecting the env. |
| 1.3.2 GMP for Children Under age 5 |
| 1.3.3 MNP provision to children 6-23 months |
| 1.3.5 Support coordination for nutrition at community clinics. |
| 1.3.6 Conditional cash transfer to pregnant women and girls |
| 1.3.7 Nutrition BCC outreach activities |
| 1.3.8 Revitalize the Community Clinic-Community Support Groups |
| 1.3.9 Provision of CNFs |
| Activity 1.3.1.2.1 : Community level Actors disseminate Health and Nutrition message |
| Activity 1.3.1.3.1 : MoHFW made available of adequate quality health and nutrition Services |
Activity 1.3.1.4.1: MoHFW and LGI allocate & mobilize resources to create enabling environment for optimum health service provisions and monitor those.

Activity 1.3.1.5.1: Strengthen Child Marriage and adolescent pregnancy prevention mechanisms.

Activity 1.3.1.5.2: Raise awareness on consequences of child marriage and adolescent pregnancy.

A Negative Determination pursuant to 22 CFR 216.3 (a)(2)(iii) with Conditions:

(1.1.3) Support community water management committees to manage and maintain water supply facilities.

(1.1.4) Rehabilitate and/or develop water facilities. DTW, PSF and special water treatment facilities (Reverse Osmosis (RO) plants, Arsenic Iron Removal Plant (AIRP) and Sky Hydrant)

(1.1.5) Rehabilitate and/or construct latrines to hygienic sanitation standard.

(1.3.1) Capacity building for government health facilities.

(1.3.4) Implementation of an mHealth pilot project.

(2.1.2) Facilitate graduation program for the extremely poor.

(2.1.3) Facilitate training in technical skills required for alternative livelihoods.

(2.1.4) Strengthen linkages to private sector to identify and select market-based livelihoods opportunities.

(2.2.1) Facilitate training in natural resource management (NRM), agricultural production and farm management skills.

(2.2.2) Establish climate smart demonstration plots.

(2.2.3) Strengthen farmers’ capacity to build scale and gain access to markets.

(2.2.4) Build capacity of LSPs to provide sustainable access to inputs and extension.

(3.1.2) Comprehensive Disaster Management Action Plans (CDMAP) implementation acceleration. Amendment specifies 9 types of schemes going to be implemented.

(3.1.4) Facilitate re-validation and/or development of gender sensitive Risk Reduction Action Plans (RRAP) in all targeted unions.

Activity 1.3.1.1.1 Private sector service providers provide technical assistance and ensure supply chain for the CSA.

Other/ monitoring activity: Water quality testing (bacteriological) by Pota Test- membrane filtration (MF) device.

**Implementation**

Key conditions for activities recommended for a Negative Determination with Conditions are outlined in Section 5.2 and in **Annex I - Environmental Mitigation and Monitoring Plan (EMMP)**. If the program decides to incorporate additional activities these will be addressed in the Environmental Status Report, and if need be, an amended IEE will be submitted simultaneously. It should be highlighted that capacity building for community-based Producer Groups will include training in chemical and bio-pesticides. These activities will adhere to the USAID/Bangladesh Programmatic Pesticide Evaluation and Safer-Use Action Plan (PPERSUAP) 2015. They should also align with local government terms and conditions for use of such inputs. In addition to the conditions outlined in this document, World Vision is encouraged to review best practices for each respective component outlined in the Environmental Guidelines for Small-scale Activities [https://www.usaid.gov/environmental-procedures](https://www.usaid.gov/environmental-procedures).

The amendment #1 for IEE and EMMP was carried out as Nobo Jatra project identified new activities which were not specified in the first approved IEE and EMMP. Along with the compliance requirements of the amendment, all the compliance requirements of Nobo Jatra project those were identified by first approved IEE and EMMP remained same.
This amendment #2 has been carried out considering the activities of cost extension period of the Nobo Jatra project. All the environmental compliance requirements of current IEE/EEMP where applicable will be effective for Nobo Jatra project.

**Monitoring and Evaluation**
Nobo Jatra will actively monitor ongoing activities for compliance as outlined in the Environmental Mitigation and Monitoring Plan (EMMP) (pending feedback and approval by the United States Agency for International Development (USAID)). Indicator results will inform programmatic decisions to modify or end activities that are not in compliance. If additional activities are added to Nobo Jatra that are not described in this document, an amended environmental examination will be prepared.
USAID APPROVAL OF INITIAL ENVIRONMENTAL EXAMINATION

ACTIVITY NAME:

Approval: 
Mission Director, Or Washington DC Equivalent 
Date

Clearance: 
Teffera Betru, Deputy Office Director, OPDHA Food for Peace Officer (FFPO)* 
2/23/2020 
Date

Clearance: 
Shahpar Salim, Mission Environmental Officer (MEO) 
02/23/2020 
Date

Clearance: 
Agreement Officer’s Representative (AOR) 
3/2/2020 
Date

Clearance: 
Agreement Officer (AO) 
Date

Clearance: 
Regional Environmental Advisor (REA)* 
Date

Clearance: 
Shahpar Salim, Climate Integration Lead (CIL) 
02/23/2020 
Date

Concurrence: 
Erika Clesceri 
4/18/20 
Date

Erika J. Clesceri, DCHA Bureau Environmental Officer (BEO) 
and DCHA Climate Integration Lead (CIL)

*Clearance recommended, but optional.
**LIST OF ABBREVIATIONS**

<table>
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>BCC</td>
<td>Behavior Change Communication</td>
</tr>
<tr>
<td>CC</td>
<td>Cross Cutting</td>
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<tr>
<td>CDMAP</td>
<td>Comprehensive Disaster Management Action Plan</td>
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<tr>
<td>CFR</td>
<td>U.S. Code of Federal Regulations</td>
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<tr>
<td>CNF</td>
<td>Community Nutrition Facilitator</td>
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<tr>
<td>CNFA</td>
<td>Cultivating New Frontiers in Agriculture</td>
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<tr>
<td>CPC</td>
<td>Child Protection Committee</td>
</tr>
<tr>
<td>CU5</td>
<td>Children Under age 5</td>
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<tr>
<td>DRR</td>
<td>Disaster Risk Reduction</td>
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<tr>
<td>DMC</td>
<td>Disaster Management Committee</td>
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<td>EMMP</td>
<td>Environmental Mitigation and Monitoring Plan</td>
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<td>FY</td>
<td>Fiscal Year</td>
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<td>FYP</td>
<td>Five Year Plan</td>
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<td>GMO</td>
<td>Genetically Modified Organism</td>
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<tr>
<td>GMP</td>
<td>Growth Monitoring and Promotion</td>
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<td>IEE</td>
<td>Initial Environmental Examination</td>
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<tr>
<td>IGA</td>
<td>Income Generating Activities</td>
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<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
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<td>IPM</td>
<td>Integrated Pest Management</td>
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<td>Indicator Performance Tracking Table</td>
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<td>LSP</td>
<td>Local Service Provider</td>
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<td>MNP</td>
<td>Micronutrient Powder</td>
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<td>MoHFW</td>
<td>Ministry of Health and Family Welfare</td>
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<tr>
<td>NGO/INGO</td>
<td>Non-Governmental Organization/International Non-Governmental Organization</td>
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<tr>
<td>NRM</td>
<td>Natural Resource Management</td>
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<tr>
<td>PERSUAP</td>
<td>Programmatic Pesticide Evaluation Report and Safe Use Action Plan</td>
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<tr>
<td>PLW</td>
<td>Pregnant and Lactating Women</td>
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<td>PSF</td>
<td>Pond Sand Filter</td>
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<td>PVO</td>
<td>Private Voluntary Organization</td>
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<td>RFA</td>
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<td>Risk Reduction Action Plans</td>
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<td>SST</td>
<td>Sea Surface Temperatures</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>USD</td>
<td>United States Dollar</td>
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<tr>
<td>VDC</td>
<td>Village Development Committee</td>
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<tr>
<td>WASH</td>
<td>Water, Sanitation and Hygiene</td>
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<tr>
<td>WATSAN</td>
<td>Water and Sanitation</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<td>WQAP</td>
<td>Water Quality Assurance Plan</td>
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DCHA FFP [Bangladesh], [World Vision], [Nobo Jatra], IEE, [February 18, 2020]
1.0 ACTIVITY DESCRIPTION

1.1. PURPOSE AND SCOPE OF IEE
The purpose of this IEE, in accordance with 22CFR216, is to provide the first review of the reasonably foreseeable effects on the environment, as well as recommended Threshold Decisions, for all activities approved in the World Vision FY15 Title II Development Food Assistance Program Application.

This is the first IEE prepared by World Vision for activities in the districts of Satkhira and Khulna, Bangladesh. It is not meant to amend or supersede a previously approved IEE.

This IEE was prepared in two phases. First, a thorough desk review of relevant background documents, scientific literature, government law and policies was conducted. This phase established a general understanding of the environmental issues faced within the Nobo Jatra communities. Second, a field visit to one of the project upazilas, Shyamnagar, and key informant interviews with government offices were conducted in-country to contextualize and fill-in understanding gaps. The field visits were not as extensive as originally planned due to security concerns during the time of the IEE preparation. This amendment for the IEE has also followed above mentioned two phases of works.

The scope of this document includes a review of the foreseeable environmental effects of proposed actions of the Nobo Jatra program, recommended environmental threshold determinations for the activities, and provision of an Environmental Mitigation and Monitoring Plan (EMMP) to monitor the implementation of activity design features intended to eliminate foreseeable adverse environmental effects. This first amendment version of EMMP is attached as Annex 1- Environmental Mitigation and Monitoring Plan (Amendment #1). Efforts have been made to link recommended EMMP mitigation and monitoring actions to the general Nobo Jatra program logical framework through Stand-Alone and Integrated indicators.

Review of project activities concludes that none of the proposed activities will have a significant adverse effect on the environment, signaling a Positive Determination recommendation. Therefore the preparation of an Environmental Assessment is not foreseen as necessary.

1.2. ACTIVITY OVERVIEW
The Nobo Jatra program targets 249,348 households living in the poverty-entrenched Southwestern Coastal districts of Khulna and Satkhira. Persistent food insecurity is a result of a complex interplay of factors in this remote and hazard-prone region. Rice and fish are the most important staple foods in southwestern coastal Bangladesh. Low agricultural yields are off-set with fish caught in rivers or those cultivated in household ponds. In addition to these livelihood challenges, cyclones periodically cripple all food production, not to mention

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1 See p. 34 for definition of recommended Threshold Decision categories for Nobo Jatra activities.
2 World Vision HEA Assessment Livelihood Zone Profiles for Khulna, December 2014
DCHA FFP [Bangladesh], [World Vision], [Nobo Jatra], IEE, [February 18, 2020]
the loss of lives, assets and infrastructure. Cultural norms coupled with gender inequalities greatly impact how food resources are obtained and distributed throughout the household.

World Vision and its partners\textsuperscript{3} have designed Nobo Jatra to address the issues described above. Interventions are organized around three important themes: maternal and child health and nutrition, agriculture and economic development, and resilience, as well as the cross-cutting theme of governance and social accountability, with youth development and gender integrated throughout all activities.

The goal of the Nobo Jatra program is: \textit{Improved gender equitable food security, nutrition and resilience of vulnerable people in Bangladesh}. This goal will be achieved by separating activities into three main purposes:

- Purpose 1: \textit{Improved nutritional status of children under five years of age, pregnant and lactating women (PLW) and adolescent girls}.
- Purpose 2: \textit{Increased equitable access to income and nutritious food for both males and females}.
- Purpose 3: \textit{Strengthened gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from man-made and natural shocks and stresses}.

To optimize the nutrition impact possible through Purposes 1-3, the following cross-cutting component will also be integrated across program activities: \textit{Improved social accountability of service provision for the vulnerable by local government bodies}.

\\textsuperscript{3} Program partners include: World Food Programme (WFP) and Winrock International (WI)
1.3. ACTIVITY DESCRIPTION

**Purpose 1:** Improved nutritional status of Children Under age 5 (CU5), PLW and adolescent girls -
To improve nutritional status of CU5, PLWs, and adolescent girls, the Nobo Jatra program will address the cultural norms and infrastructure challenges that reduce the overall health and nutrition of these vulnerable groups. Table 1 below outlines the sub-purpose, activities and particular actions that will be conducted to improve the nutritional status of CU5 years of age.

Table 1: Purpose 1 activity summary

<table>
<thead>
<tr>
<th>Sub-Purpose</th>
<th>Activities</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1: Reduced incidence of diarrhea among children under five</td>
<td>1.1.1 Strengthen local WATSAN committees</td>
<td>• Training given to union and ward WatSan committee members on: (1) basic WASH concepts, (2) union and ward WASH planning, (3) essential hygiene practices, and (4) behavior change communication</td>
</tr>
<tr>
<td></td>
<td>1.1.2 Facilitate behavior change programming for essential hygiene practices</td>
<td>• Utilization of a cascade training approach to disseminate essential hygiene messages</td>
</tr>
<tr>
<td></td>
<td>1.1.3 Support community water management committees to manage and maintain water supply facilities:</td>
<td>• Training on basic WASH concepts, committee management, finances and fee collection</td>
</tr>
<tr>
<td></td>
<td>1.1.4 Rehabilitate and/or develop water facilities</td>
<td>• Water safety plan development by Water Management Committees that will focus on committee management, finances and fee collection, water quality monitoring, to whom to report water quality test results, and response protocol if water quality test results do not meet with adopted standards.</td>
</tr>
<tr>
<td></td>
<td>1.1.5 Rehabilitate and/or construct latrines to hygienic sanitation standard</td>
<td>• Wells and pond sand filter construction and rehabilitation</td>
</tr>
<tr>
<td></td>
<td>1.1.6 Promote and facilitate linkages between consumers and WASH business</td>
<td>• Alternative water treatment systems developed. The treatment systems identified are RO plant, AIRP and Sky Hydrant</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Latrines constructed and rehabilitated Increased accessibility to WASH produces through private businesses</td>
</tr>
<tr>
<td>1.2 Reduced adolescent pregnancy</td>
<td>1.2.1 Media awareness campaigns</td>
<td>• Messages developed to prevent early marriage and adolescent pregnancy</td>
</tr>
<tr>
<td></td>
<td>1.2.2 Engagement and sensitization of other influential groups</td>
<td>• Influential groups recruited and sensitized regarding the detriments of early marriage</td>
</tr>
<tr>
<td></td>
<td>1.2.3 Child Protection Committee (CPC) strengthened to report and prevent cases of early marriage</td>
<td>• Supporting CPCs to function according to government policy</td>
</tr>
<tr>
<td>1.3 Increased equitable nutritious food intake</td>
<td>1.3.1 Capacity building for government health facilities</td>
<td>• Training and supervision/coaching about nutrition to frontline health workers</td>
</tr>
<tr>
<td></td>
<td>1.3.2 Growth Monitoring Program for Children under 5</td>
<td>• Training to frontline health workers in taking anthropometric measurements, classifying nutritional status and recording data</td>
</tr>
<tr>
<td></td>
<td>1.3.3 Micronutrient powder provision to children 6-23 months</td>
<td>• Provision of 1,073 Growth Monitoring and Promotion (GMP) kits</td>
</tr>
</tbody>
</table>
| | 1.3.4 Implementation of an mHealth pilot project | • Micronutrient powder provision to children 6-
<table>
<thead>
<tr>
<th>Activities in Cost Extension Period</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity 1.1.1.1.1:</strong> Strengthened capacity and monitoring mechanism of WATSAN Committees</td>
</tr>
<tr>
<td>- Annual Joint planning workshops</td>
</tr>
<tr>
<td>- Half yearly dialogue sessions</td>
</tr>
<tr>
<td>- Quarterly joint monitoring of the performance of the WATSAN Committees</td>
</tr>
<tr>
<td>- Institutional Capacity Assessment of the WATSAN Committees</td>
</tr>
<tr>
<td>- Training for the WATSAN Committee</td>
</tr>
<tr>
<td>- Facilitating Union Parishad to mobilize communities to declare ODF Villages, WARD and Union and provide award / recognition</td>
</tr>
<tr>
<td>- Disseminating SBCC messages through VDC, VSLA, CSAs, WATSAN Committees</td>
</tr>
<tr>
<td><strong>Activity 1.1.1.2:</strong> Enhanced functional linkage among WATSAN Committees and WASH stakeholders</td>
</tr>
<tr>
<td>- Participating in different meetings with government agencies and sector actors</td>
</tr>
<tr>
<td>- Arranging WASH convention</td>
</tr>
<tr>
<td>- Organizing coordination meeting with WASH stakeholders</td>
</tr>
<tr>
<td>- Arranging exposure visit for WATSAN Committee representatives</td>
</tr>
<tr>
<td>- Participating in the observance of national and International days and fair related on WASH and hygiene</td>
</tr>
<tr>
<td>**Activity 1.1.2.1 Strengthened capacity of WMCs for sustainable operation of Water options (O&amp;M - tarrif collection &amp; fund management)</td>
</tr>
<tr>
<td>- Joint monitoring of WMC functionality</td>
</tr>
<tr>
<td>- Arranging yearly day long workshop for strengthen linkage at upazila level</td>
</tr>
<tr>
<td>- Arranging half yearly coordination meeting on functionality of the water pints and WMCs</td>
</tr>
<tr>
<td>- Facilitating DPHE to conduct training on &quot;O&amp;M &amp; WSP&quot;</td>
</tr>
<tr>
<td>- Organizing exposure visit to the best practices water facilities for WMCs</td>
</tr>
<tr>
<td>- Keeping stock regarding meeting the challenges related to sustainability of project supported water technology</td>
</tr>
<tr>
<td>Activity 1.1.3.1</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>• Following up the progress of business promotion areas of the potential LSPs and Community Sales / Village Agent / CSA</td>
</tr>
<tr>
<td>• Arranging half yearly Linkage building workshop, quarterly meeting among LSPs and other relevant stakeholders</td>
</tr>
<tr>
<td>• Carrying out advocacy with DPHE on fixing a standard product design and quality</td>
</tr>
<tr>
<td>• Following up HH based latrine installed through MFI and LSPs under innovation challenge fund</td>
</tr>
<tr>
<td>• Supporting LSPs association to do exposure visit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity 1.1.4.1</th>
<th>DPHE / LGD provided technical assistance, resources and monitoring services to stakeholders to improve WASH services</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Organizing meeting, joint visit</td>
<td></td>
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<tr>
<td>• Analysing the sectoral budget allocation by Union Parishad and meeting on findings of the analysis</td>
<td></td>
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<tr>
<td>• Analysing national WASH budget allocation through hiring third party and preparing policy brief on the analysis</td>
<td></td>
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<tr>
<td>• Facilitating joint visit of policy makers including media in working areas</td>
<td></td>
</tr>
<tr>
<td>• Organizing advocacy workshop at National level to increase water budget allocation for coastal belt Enabling environment for WASH sector actors and community to improve WASH services through maintaining coordination with LGIs &amp; others WASH actors (through meeting, convention)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity 1.1</th>
<th>Regular follow-up and capacity building activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Organizing start up workshops</td>
<td></td>
</tr>
<tr>
<td>• Progress review workshop / meeting</td>
<td></td>
</tr>
<tr>
<td>• Capacity building training for staffs</td>
<td></td>
</tr>
<tr>
<td>• Monthly project team meeting</td>
<td></td>
</tr>
<tr>
<td>• Refresher training courses for staff</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity 1.3.1.1.1</th>
<th>Private sector service providers provide technical assistance and ensure supply chain for the CSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Attending and follow up Monthly meeting of CSAs Quarterly Meeting with BSP / Green Star Provider (GSP) and SMC to continue smooth and regular supply of commodities</td>
<td></td>
</tr>
<tr>
<td>• Attend bi-monthly meeting of UEHFPSC for ensuring necessary support and monitoring of CSAs’ work in the community</td>
<td></td>
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<tr>
<td>• Arranging Quarterly meeting to review the performance of the CSAs</td>
<td></td>
</tr>
<tr>
<td>• Organizing semi-annual reflection workshop on CSAs activity, organizing learning sharing workshop at National level</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activity 1.3.1.2.1 : Community level Actors disseminate Health and Nutrition message</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Following up the MCHN awareness activities Organizing joint field visit, quarterly meeting, annual refreshers training, attending monthly coordination meetings</td>
</tr>
<tr>
<td>• Coordination with relevant stakeholders</td>
</tr>
<tr>
<td>• Day observations</td>
</tr>
<tr>
<td>• Conducting study on the functionality of CG / CSG and organizing study findings meeting</td>
</tr>
</tbody>
</table>
| Activity 1.3.1.3.1 : MoHFW made available of adequate quality health and nutrition Services | and national level advocacy meeting on the findings  
- Organizing meeting at Upazila level to sensitize UPs to extend support for mobilizing CG/CSG activity and organizing annual refresher orientation for the CG/CSG |
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Activity 1.3.1.4.1 : MoHFW and LGI allocate &amp; mobilize resources to create enabling environment for optimum health service provisions and monitor those</td>
<td></td>
</tr>
</tbody>
</table>
- Supporting to Upazila Health and Family Planning Department to continue the Annual Local Level Planning (LLP)  
- Facilitating joint visit of National Policy/decision maker along with print and electronic media personnel to the project working areas  
- Attend Meeting on Nutrition issues at National, Divisional and District level  
- Organizing joint supervisory visit  
- Monitoring/tracking of Referred and discharged SAM cases |
| Activity 1.3.1.5.1: Strengthen Child Marriage and adolescent pregnancy prevention mechanisms |  
- Following up with CPC and supporting them to review the action plans highlighting child marriage prevention  
- Organizing follow up, planning, knowledge sharing meetings/ workshops  
- Arranging coordination meetings with Youth Club, UP/UzP and Women’s Affairs Office to organize mass awareness events  
- Promoting youth theatre groups, facilitating youth clubs for awareness raising activities  
- Organizing refreshers training for local journalists and youth journalists |
| Activity 1.3.1.5.2 : Raise awareness on consequences of child marriage and adolescent pregnancy |  
- Arrange coordination meetings with Youth Club, UP/UzP and Women’s Affairs Office to organize mass awareness events  
- Promote youth theater groups to link them with government departments, UP, Local NGOs and other agencies  
- Organize refreshers training for local journalists and youth journalists  
- Unpacking the Annual DIP to the field staff through PIG and quality program implementation is implemented. ( Through DIP start up workshop, half yearly progress review meeting, quarterly Technical Team meetings, |
**Purpose 2:** *Increased equitable access to income and nutritious food for both males and females:*

—Table 2 summarizes activities under Purpose 2 that will address constraints to equitable access to income, which include reliance on unprofitable economic activities, marginal farm sizes and decreasing productivity, restrictive tenancy, and inequitable gender norms.

<table>
<thead>
<tr>
<th>Sub-Purpose</th>
<th>Activity</th>
<th>Action</th>
</tr>
</thead>
</table>
| 2.1 Increased diversification of livelihoods | 2.1.1 Facilitate access to Entrepreneurial Literacy training | • Training on basic literacy, numeracy and core business and financial concepts  
• Monthly cash transfer  
• Intensive training and mentoring on Income Generating Activities (IGA) selection and implementation  
• Seed money for chosen IGA  
• Ongoing supervision, mentoring and follow-up for graduation program  
• Training of 18,000 individuals in skills needed for sustainable employment based on local labor assessments.  
• Broker relationships with potential employers |
| | 2.1.2 Facilitate graduation program for the extremely poor |  |
| | 2.1.3 Facilitate training in technical skills required for alternative livelihoods |  |
| | 2.1.4 Strengthen linkages to private sector to identify and select market-based livelihoods opportunities |  |
| 2.2 Increased production of safe, diverse, nutritious, and high-value foods | 2.2.1 Facilitate training in NRM, agricultural production and farm management skills | • Establishment of male and female Producer Groups  
• Field-based training encouraging the adoption of practices and inputs that are climate-resilient and conserve resources  
• Environmentally sensitive and Climate-smart technologies and innovations featured at demonstration plots  
• Form and strengthen collection center management committees  
• Support for collection center construction  
• Training of 260 entrepreneurial individuals to be Local Service Providers |
| | 2.2.2 Establish climate smart demonstration plots |  |
| | 2.2.3 Strengthen farmers’ capacity to build scale and gain access to markets |  |
| | 2.2.4 Build capacity of Local Service Providers to provide sustainable access to inputs and extension |  |

**Activities in Cost Extension Period**

**Agriculture and Livelihood Component: Off-farm**

**Activity 2.3.1.1.1:** Develop Skill of off-farm groups and entrepreneurs for quality production and services

• Mapping potential trades and stakeholders  
• Incentivizing training cost and mechanical instruments  
• Organizing workshops, advocacy meeting to incorporate the skill training curriculum

**Activity 2.3.1.1.2:** Establish market linkage for strengthening off-farm business

• Meeting, exposure visit, incentivizing, updating off-farm traders market outlet list and share with producer groups and entrepreneurs for accessing local market

**Activity 2.3.1.2.1:** Expand and motivate most successful off-farm products and engaging buyers for expanding

• Conduct off-farm market assessment
| Activity 2.3.1.3.1: Create enabling environment for developing youth and women off farm business | • Develop innovative prototype of existing off-farm business  
• Facilitating MoUs, exposure visits, participating trade fairs, incentivizing, and arranging B2B workshops |
| Activity 2.1.1.8.1: Leveraging services and support of NGOs and Donor funded projects for off-farm business | • Continue advocacy and consultation meeting  
• Updating apprenticeship service providers poll  
• Organizing meeting with relevant stakeholders |
| Activity 2.1.1.8.4: Research and advocacy for increasing Government support for livelihoods focused facilities and safety net program development | • Continue advocacy and consultation meeting  
• Updating database  
• Arranging workshops and follow up meetings |
| Activity 2.3.1.5.1: Village Agents are trained and facilitated to provide supports to existing VSLA and form new VSLA | • Arrange coordination meeting  
• Engage learning partner for conducting research and organizing workshops for sharing learning  
• Continuing advocacy meeting, arranging learning visit and international development conference |
| Activity 2.3.1.5.2: Capacity building of Union and Upazila based VSL Association to improve management capacity and support service to VSLA | • Analyzing functionality gap of VSLA group  
• Designing a mobile base information management tools/system  
• Designing incentives, advocacy meeting |
| Activity 2.3.1.6.1: VSLA group members and entrepreneurs have access to financial services | • Monitor the role of VSLA Association and assess the capacity gap  
• Facilitating trainings, arranging meetings |
| Activity 2.3.1.6.1: VSLA group members and entrepreneurs have access to financial services | • Mapping the financial service provider (Bank, Agent banking, MFI) and their service gaps  
• Facilitating reviewing and planning meetings  
Facilitating Financial Leasing Institutions, MFIs, Banks and Agent Banks to support entrepreneurs, private sectors  
• Advance VSLA members for getting loan to establish new business and expansion |

**Agriculture and Livelihood Component: On-Farm**

| Activities 2.1.1.1 Producers have knowledge and skills for agricultural production | • Conducting study/research  
• Facilitating meeting and collaboration |
| Activities 2.1.2.1.1 Input network/associations are capable to provide inputs and technical assistance | • Facilitating meetings, workshops  
• Organizing fairs and providing critical supports to private sectors |
| Activities: 2.1.2.1.2 Animal Health Service Providers are capable of providing veterinary services | • Facilitating planning meetings, meetings, workshops and advocacy workshops |
| Activities: 2.1.1.3.1 GOB departments are ensuring extension services and policy guidelines | • Facilitating meetings, workshops  
• Conducting study and sharing study findings |
| Activities: 2.1.1.3.2: GoB departments are monitoring the supplying inputs and services by private service providers | • Facilitating meetings, workshops, feedback collection process and learning workshops |
| Activities 2.1.1.4.1: Linked Collection Point Management Committee (CPMC) and formal market buyers with producers | • Facilitating meeting and market channels |

**Purpose 3:** Strengthened gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from man-made and natural shocks and stresses – Activities under Purpose 3 (Table 3) will improve the functionality of local-level governance structures that can plan and coordinate resilience-building activities to effectively target and benefit all

DCHA FFP [Bangladesh], [World Vision], [Nobo Jatra], IEE, [February 18, 2020]
segments of society, support modification and adaptation of community-based plans, and facilitate meaningful coordination with district and regional governance structures.

Table 3: Purpose 3 activity summary

<table>
<thead>
<tr>
<th>Sub-Purpose</th>
<th>Activity</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Strengthen community disaster preparedness and response</td>
<td>3.1.1 Strengthen capacity of ward, union and upazila Disaster Management Committees (DMC)s</td>
<td>• Utilizing a training-of-trainers (ToTs) methodology, DMCs will be trained at the upazila and union level in disaster management to provide training to Village Development Committees (VDC) at the ward- and union-level.</td>
</tr>
<tr>
<td></td>
<td>3.1.2 Comprehensive Disaster Management Action Plans (CDMAP) implementation acceleration</td>
<td>• Financial assistance to fill gender sensitive gaps in CDMAPs</td>
</tr>
<tr>
<td></td>
<td>3.1.3 Train vulnerable groups on DRR practices and appropriate responses</td>
<td>• Training sessions to address the main causes of non-responses of various groups, including women, children and the elderly, to cyclone warnings</td>
</tr>
<tr>
<td></td>
<td>3.1.4 Facilitate re-validation and/or development of gender sensitive Risk Reduction Action Plans (RRAP) in all targeted unions</td>
<td>• Trainings to upazila, union DMCs, and Youth Groups in participatory community risk assessment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Development of RRAPs and CDMAPs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To implement some of the activities identified by developed CDMAP, Nobo Jatra project has identified 9 type of schemes which are i) pond re-excavation ii) distribution of rain water reserving tank iii) reconstruction of embankment iv) providing brick flat soling on existing rural earthen road v) reconstruction of earthen road vi) repairing of small rural bridge vii) canal re-excavation viii) reconstruction of U-drain and ix) disseminating awareness raising messages of cyclone signals by digital billboard.</td>
</tr>
</tbody>
</table>

Activities in Cost Extension Period

| Activity: 3.1.1.1: Facilitated Capacity Building activities for local DMCs based on Capacity Gap Analysis | • Carrying out gap analysis |
| | • Start up and close up workshops |
| | • Joint capacity assessment |
| | • Monitoring and follow up |
| Activity: 3.1.1.2: Facilitated Capacity Building activities for vulnerable communities | • Monitor and provide technical guidance to Ward DMCs and Youth Volunteers to mobilize for community risk assessment and reviewing risk reduction action plan and implementation of RRAP activities |
Activity: 3.1.1.3 Strengthened capacity of communities on disaster preparedness and response

- Following up UDMCs to organize Observance of IDDR & NDPD
- Cyclone Simulations/ Pot Songs by using local resources for the vulnerable communities
- Monitoring and facilitating vulnerable communities' participation in community risk assessment and reviewing risk reduction action plan
- Overseeing selection and implementation of DRR options

Activity: 3.1.1.3.1: Cyclone Preparedness Programme worked in coordination with local DMCs and local Administration

- Reviewing and facilitating of MoUs
- Establishing effective coordination mechanism

Activity: 3.1.1.3.2: Local level Public, Private/ Civil Society DRR actors are engaged in joint response

- Supporting for functioning the establish network of Private/ Civil Society DRR actors at Upazila level through quarterly review meetings

Activity: 3.1.2.1.1: Review Disaster Risk Reduction Action Plans and Disaster Management Plans

- Coordination and collaboration

Activity: 3.1.2.2.1: Dialogue with relevant Govt. ministries/ departments and Private actors to allocate resources

- Participating policy level meetings
- Carrying out advocacy
- Conducting research and documenting learning's

Activity: 3.1.2.3.1: DRR actors networking

- Collaboration with potential academia for using their research findings to contribute RRAP implementation

Cross Cutting Sub-Purpose A: Improved social accountability of service provision for the vulnerable by local government bodies – Table 4 summarizes Nobo Jatra’s social accountability gender integration strategy activities that will focus on facilitating women’s access to leadership positions, leadership training and strengthening their role in decision making.

Table 4: Cross Cutting Sub-Purpose A activity summary

<table>
<thead>
<tr>
<th>Activity</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC A.1</td>
<td>Train union parishad (UP) and their Standing Committees on good governance, pro-poor development planning and implementation, resource mobilization and allocation</td>
</tr>
<tr>
<td></td>
<td>Policy-level interface with critical branches of central government</td>
</tr>
<tr>
<td></td>
<td>Train communities in participatory assessment of their community’s needs, strengths, capacities, climate vulnerability and a gender analysis</td>
</tr>
<tr>
<td></td>
<td>Implementation of Citizen Voice and Action methodology</td>
</tr>
<tr>
<td>CC A.2</td>
<td>Engage in evidence based National level policy dialogue:</td>
</tr>
<tr>
<td>CC A.3</td>
<td>Strengthen inclusive village development committees (VDCs)</td>
</tr>
<tr>
<td>CC A.4</td>
<td>Facilitate linkages between citizens and ward and union and Upazila governance structures:</td>
</tr>
</tbody>
</table>
2.0 BASELINE ENVIRONMENTAL INFORMATION

2.1. Locations Affected

2.1.1 Environmental shocks and stressors of target locations

Nobo Jatra will be implemented in four upazilas within the Khulna and Satkhira districts in the southwestern coastal area of Bangladesh. They are Dacope and Koyra (Khulna), Shyamnagar, and Kaliganj (Satkhira) (see Annex 2 - Implementation Area). Target areas are located within the Ganges tidal plane (see Annex 3 – Geomorphology Map of Bangladesh). The region is characterized by intricate networks of interlaced waterways joining in wide channels that generally extend in a north-south direction. Waterways carry little freshwater as they are almost entirely cut off from the Ganges. They are kept open largely by the diurnal tidal flow. The terrain is low (≤1m above sea level) and flat. The target area is lush, with mahogany, koroi, raintree, chambul and bamboo being the most common tree species. Just south of the target upazilas is the largest mangrove forest in the world, known as the Sundarbans. Review of a general soils map of Bangladesh produced by the Bangladesh Agricultural Research Institute, shows soils of the target upazilas can generally be identified as mainly non-calcareous grey floodplain soils with pockets of acid sulfate soils and some calcareous dark gray floodplain soil (see Annex 4 – General Soil Types of Bangladesh). Soil texture for grey floodplain soils can range from silt loam to silty clay loam along riverbanks and floodplain ridges to silty clays in basins. Acid sulfate soils are also known as peat and form in underwater conditions.

It is the management of water abundance during the monsoon season and the lack thereof during the dry and the consequential water-related responses - flooding, salinity ingress – that are the target areas’ most salient stressors/shocks, followed closely by arsenic mitigation.

Flooding: As reported by Chowdhury (2002) in Alam (2015), only 5% of global cyclones originate in the Bay of Bengal. However, the surrounding countries of India, Myanmar and Bangladesh bear 75% of global cyclone-related casualties. It has been calculated that from 1584 - 1991, 53% of the world’s deaths from cyclones took place in Bangladesh alone. The storm surge that accompanies a cyclone is responsible for the majority of deaths. The flat topography makes coastal communities particularly vulnerable to the sudden onrush of water that can reach kilometers inland. The Sundarbans forest becomes an invaluable energy buffer during storm surge events. Research identifies storm surge as one mechanism for salinity intrusion into subsurface aquifers through broken or unsealed wells.

Unlike much of the country that is plagued by expansive river flooding during the monsoon season, upstream river volumes are not large enough to generally cause flooding. Target upazilas can experience rainwater flooding where excess runoff becomes trapped behind embankments that do not have drainage outlets. Average annual rainfall ranges between 1700mm-2300mm for the target regions - relatively low compared to the rest of the country (see Annex 5 – Spatial Variability of Rainfall in Bangladesh).

Salinity Ingress: Salt water intrusion poses threats to public health and livelihoods through its...
impacts on availability of freshwater for household drinking and domestic uses, agriculture\textsuperscript{vi, vii, viii}, agro-biodiversity\textsuperscript{ix}, coastal biodiversity\textsuperscript{x}, and infrastructure\textsuperscript{xi}.

The lack of large freshwater inputs from regional rivers particularly in the dry season (November-May) means that there is low freshwater force exerted on the saltwater interface allowing for the northward intrusion of saline river water. In addition, during the dry season the salinity level of the Bay of Bengal is relatively high from evaporative losses and low rainfall inputs. Consequently, river salinity rises linearly from December to February reaching a maximum salinity sometime between February and May\textsuperscript{xii}, for target districts this is around 25ppt\textsuperscript{4} as is modeled in Figure 1. To put this into perspective, Golda/giant freshwater prawn thrives best in water less than 4ppt and Bagda/Black Tiger shrimp can handle salinity levels up to 20ppt.

Linked with salt water intrusion both in surface water systems and in shallow aquifers is increasing soil salinity and sodicity\textsuperscript{5}. A high level of salt in the soil limits what crops can be grown, reduces crop germination and yields, and makes soils more difficult to work.\textsuperscript{xiii} Salts accumulate in the soil from two main inputs: 1) application of salt water either intentionally through irrigation with saline river water or unintentionally from storm surge and 2) capillary rise. When salty water percolates through the soil - from irrigation, river flooding, or storm surge - salts are left behind in the soil. Where water tables are shallow, water and dissolved salts are brought up into the root zone. Soil salinity occurs when salt concentrations in the soil are high and the movement of water from the soil to the root is slowed down. When the salt concentrations in the soil are higher than inside the root cells, the soil will draw water from the root, and the plant will wilt and die.

\textsuperscript{4} Salinity is measured in parts per thousand (ppt), grams of salt per 1,000 grams of water.
\textsuperscript{5} No research was found confirming sodicity problems in the target area but an interview with the Soil Research Development Institute and field observations confirm this issue. Sodicity can be masked by more obvious salinity problems.
Soil sodicity is the cousin to soil salinity. Soil salinity impacts plant uptake of soil water whereas soil sodicity impacts the soil structure itself. Soil sodicity is the main cause of waterlogging in the target area. Waterlogging occurs when water stays within the root zone for extended periods of time\(^6\) displacing oxygen needed by the plants to grow. Soils with clay content, as are present in target areas, are vulnerable to soil sodicity when alternating regimes of fresh and salt water are applied to it. As discussed sodium accumulates in the soil through two mechanisms: saltwater application and capillary rise. Sodium binds with clay particles and weakens them. When fresh rainwater is applied, the weaken clay particles swell and then disperse forming a soil with little or no structure. Erosion can occur readily once clay particles are weakened. The small grain size of clay allows clay particles to move through the soil pores filling voids and effectively reducing the permeability of the soil. Permeability refers to the ability of a rock or soil to transmit fluid. Salts accumulated in soils of low permeability cannot be effectively flushed-out. Also, because water is not quickly transmitted, waterlogging can occur and aeration is reduced. A small blessing of low permeability is that it allows for effective rainwater capture in ponds that are used for bathing, cleaning and fish culture throughout the entire dry season. It is also beneficial for latrine placement since transmissivity of fecal bacteria is reduced. In an unsaturated zone of low permeable soil bacteria carried by liquid seeping out of the pit is extremely slow.

\(^6\) “Mapping exercise on water-logging in the Southwest of Bangladesh” conducted by FAO, March 2015 (draft under review), states that cultivated land is submerged an average of 5 months per year.

DCHA FFP [Bangladesh], [World Vision], [Nobo Jatra], IEE, [February 18, 2020]
**Arsenic Mitigation:** In Bangladesh arsenic was first identified in tube wells in 1993. Groundwater becomes contaminated when arsenic is leached from subsurface sediments by reacting with elements found in groundwater such as oxygen, chlorine, and sulfur. Arsenic bonded with these elements is called inorganic arsenic. Tube wells tapping into arsenic contaminated groundwater bring this metalloid up into contact with humans. Arsenic is tasteless and therefore imperceptible in food and water. Of most concern are the health effects upon humans when introduced through drinking water and food consumption. Long term ingestion of arsenic contaminated water increases the risk of developing hypertension, diabetes mellitus vascular disease, and reproductive disorders. It can also result in skin, liver, lung, kidney and bladder cancer. Arsenic is one of numerous naturally occurring metals found in the Earth’s crust. Many toxic metals are not soluble in neutral pH waters typical of groundwater (pH 6.5-8.5) as they are limited by precipitation or adsorption to minerals, oxides, clay or organic materials. However arsenic, chromium, uranium, and selenium are sensitivity to mobilization in neutral pH waters. Of these elements, arsenic is the most problematic in the environmental since it can remain in solution under both reducing and oxidizing conditions.

Arsenic affected aquifers in the target area are generally shallow, comprised of a mixed sequence of micaceous sand, silts and clays deposited by the Ganges and its precursors. These deposits derive from a wide-spread area of the Himalayas and northern and western West Bengal (India). As reported by the British Geological Survey, “In most affected areas, the sediment sequence is capped by a layer of clay or silt (of variable thickness) which effectively restricts entry of air to the aquifers. This, together with an abundance of recent solid organic matter deposited with the sediments, has resulted in the development of highly reducing aquifer conditions which favor the mobilisation of As”xix. As reported in this same study, the DPHE and University of Dhaka conclude that deep wells, tapping depths greater than 150–200 m, almost invariably have low arsenic concentrations.

While effects of arsenic consumption remain a serious threat, arsenic mitigation has been eclipsed by the problem of salinity in southwest Bangladesh. In 2004 the World Health Organization reported that groundwater in southwest Bangladesh was unsuitable for human consumption due to salinity to a greater extent than arsenic. The reason for this statement is that there are more arsenic-free pocket aquifers than salt-free ones, although they, as well, may be difficult to locate. In general, there seems to be little causal link between arsenic mobilization and salinity ingress. In a review of seawater and estuary environments, the British Geological Survey concluded that saline intrusion into an aquifer is unlikely to lead to significant increases of arsenic concentration in groundwater.xvi

Also linked with salinity has become the uptake of arsenic in rice and other locally grown foods. Williams et al. (2006) found highly elevated levels of arsenic in rice, vegetables, pulses and spices that posed a real health risk. Salt water intrusion in the river waters has forced farmers to irrigate crops with tube well water when it has a lower salt concentration than the river water. Unfortunately irrigation with tube well water introduces other problems, one of which is that it draws up arsenic, which is then taken up through the crop roots, not to mention the

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7 Arsenic can occur in several oxidation states. Most commonly in groundwater it is found as an oxyanion of trivalent arsenite As(III) or pentavalent arsenate As(V). As (III) is 2–10 times more toxic than As (V).
depletion of a valuable freshwater aquifer, which can create conditions for saltwater up-coning whereby adjacent saltwater moves into a freshwater zone in response to tube-well pumping or a drop in the groundwater table rendering the well useless.

**Climate Change and Variability:** Climate change and increased variability are predicted to act as multipliers of existing stressors. Southwest Bangladesh is especially vulnerable to the negative effects of global climate change. As with all climate change predictions a level of uncertainty exists but this should not open the door for inaction.

Given this region’s low elevation and proximity to the Gulf of Bengal, it is extremely vulnerable to sea level rise (SLR). The Intergovernmental Panel on Climate Change (IPCC) AR5 projected that global sea levels could rise between 0.20m and 0.33m by 2099. Dasgupta et al. (2014) used a Rainfall-Runoff model in combination with the IPCC’s emission scenarios: A2, A1b, and B1 with three different Global Circulation Models to estimate runoff in southern Bangladesh. Combining runoff with the Global Tide model the best case scenario for 2050 was a relative mean SLR of 35mm. Worst case scenario for 2100 was a relative mean SLR of 67mm (see Annex 6 – Lines of equal salinity under multiple SLR scenarios). According to this same study SLR will affect southwestern Bangladesh in the following manner under the best and worst case scenarios for March 2050.

- “Slight saline” river area is likely to decrease from 22 percent at the baseline to 16 and 13 percent in the best and worst case scenarios, respectively.
- “Slight to moderately saline” river area is likely to decrease from 35 percent at the baseline to 30 and 21 percent in the best and worst case scenarios, respectively.
- “Moderate to high saline” river area is likely to increase from 8 percent at the baseline to 17 and 27 percent in the best and worst case scenarios, respectively.
- “Highly saline” river area is expected to increase from 35 percent at the baseline to 38 and 40 percent in the best and worst case scenarios, respectively.

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8 Total area in study is 30,056 square kilometers.
9 In the National Water Management Plan, the Water Resources Planning Organization in Bangladesh has categorized surface water salinity into the following groups: (i) <1dS/m: slightly saline; (ii) 1–5 dS/m: slightly to moderately saline; (iii) 5–10 dS/m: moderately to highly saline; and (iv) >10dS/m: highly saline. This classification is for average dry season values (WARPO 2001). The conversion factor of dS to ppt depends on temperature. 1dS = 1.75 ppt has been used as a conversion factor in this analysis from the readings of salinity meters in coastal Bangladesh.
It is a well-established hypothesis that sea surface temperatures (SST) are increasing as a result of global warming. Naturally this leads to the speculation that with higher SST the frequency of cyclonic activities will also increase given that SST must be at a relatively warm minimum of 26°-27°C for cyclones to form. Klotzbach (2006) showed that despite sea surface warming there is no evidence to prove that cyclonic activity has increased globally. For the North Indian Ocean, Weber et al. (2005) determined that between 1970-2005 that there is no statistically significant trend in frequency or duration of cyclones, despite increases in SST. Despite the lack of evidence to show that cyclone frequency had increased in parallel with SSTs, Ali (1999) argued that increases in SST would lead to greater wind speeds and hence higher storm surge. Karim and Mimura (2008) used a calibrated numerical hydrodynamic model to simulate surge wave propagation through rivers and overland flooding under multiple SST rise and SLR scenarios. The results indicated that flooding depths 20km from the coastline are 30-40% higher than current storm surge impact levels based on the April 29, 1991 cyclone established in a study by Bangladesh University of Engineering & Technology (BUET) and Bangladesh Institute of Development Studies (BIDS) which didn’t consider SSTs and SLR. Figure 2 maps high-risk zones based on Karim and Mimura’s results. From the map it can be deduced that portions of the Nobo Jatra target areas fall within the risk zone.
The National Adaptation Plan of Action (NAPA) of Bangladesh classifies the intensity of impact that climate change will have on various sectors. Table 5 has been adapted from the NAPA to reflect the physical threats that are thought to be most relevant to the southwest coastal upazilas.

<table>
<thead>
<tr>
<th>Table 5. Intensity of impacts on different sectors due to climate change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Social Vulnerability Context</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Crop Agriculture</strong></td>
</tr>
<tr>
<td><strong>Fisheries</strong></td>
</tr>
<tr>
<td><strong>Livestock</strong></td>
</tr>
<tr>
<td><strong>Infrastructure</strong></td>
</tr>
<tr>
<td><strong>Industries</strong></td>
</tr>
<tr>
<td><strong>Biodiversity</strong></td>
</tr>
<tr>
<td><strong>Health</strong></td>
</tr>
<tr>
<td><strong>Human Settlements</strong></td>
</tr>
<tr>
<td><strong>Energy</strong></td>
</tr>
</tbody>
</table>

*Note: +++ refers to high, ++ refers to moderate, and + refers to low level of impact.*

2.1.2 Protected Areas

The Nobo Jatra target areas are found in the coastal southwest of Bangladesh. Target areas boarder an area known as the Sundarbans (see Figure 3). The Sundarbans are characterized by deltaic mangrove forests that cover approximately 6000 km² of the coastal southwest and of this area approximately 4000 km² is forested with mangrove tree species while the remainder is composed of marshes and waterways. Changes in size of the various components are due to the dynamic nature of the Sundarbans particularly the tidal bores that may wash away forestland near the coast. The Sundari, Gewa and Guran are dominant tree species in the Sundarbans, with the latter two species being the most common in the western third of the forest given their high salt water tolerance. The Sundarbans support a very rich and diverse fish fauna of 400 species, 270 species of birds, and over 300 species of plants.

Multiple layers of protection and management of the Sundarbans have been set in place beginning in 1977 when three wildlife sanctuaries were established under the Bangladesh Wildlife Preservation (Amendment) Act, 1974. No collection of any resource is allowed within the wildlife sanctuaries. In 1996, the entire mangrove forest was protected as the Sundarbans Reserved Forest (SRF) (see Figure 2). Sustainable harvesting plans are in place but are not fully adhered to by the local population. A 10 km-wide band surrounds the SRF and has been designated an ecologically critical area (ECA) and is referred to as the interface landscape zone. The interface landscape zone is heavily populated (approx. 3.5 million) and depends highly upon the SRF (28% of population in the landscape). Except for Kaliganj (Satkhira) a good
percentage of the targeted upazilas are within the landscape zone - Dacope (60%) and Koyra (80%) and Shyamnagar (70%).

2.1.3 Livelihoods and Land Use

The targeted upazilas are characterized by poverty, natural calamities, poor education and health services, drinking water scarcity, and little income opportunities, all of which contribute to high biotic pressure on the natural resources of the SRF, its interface landscape zone, and the area beyond. (See Annex 7 – Sundarbans and Target Upazilas)

**Fish and shrimp culture**: Due to increasing river salinity and the potential for greater personal income generation, there has been and continues to be a shift in the land use away from rice cultivation in favor of shrimp cultivation or culture. Fish and shrimp culture takes place in ghers – low lying fields with raised dykes. The conversion of rice paddies to more profitable shrimp farming can increase the soil salinity to levels unsuitable for agriculture. There
is also the local perception that shrimp farming has contributed to the spoiling of shallow fresh water acquirers from which drinking water is drawn. Many hectares of mangrove forest have also been cleared for salt water shrimp farms.

Despite shifting land use patterns to saltwater shrimp, coastal communities often try to maintain portions of land under polyculture activities of freshwater fish and rice. These ghers collect rainwater during the monsoon season. Soils contain sufficient clay to retain water in these ghers throughout the entire dry season. It is observed, however, the soils in freshwater rice/fish production plots are slowly being degraded by accumulating salts. Faulty reinforcement or deliberate cutting of river/canal embankments can result in unintentional or intentional application of salt water to rice/fish plots. Also, water seepage through dikes from surrounding saltwater shrimp farms mixes with captured rainwater rendering it more brackish than fresh. Involvement of women in fish farming depends on location of the pond/gher and type of work. Women are typically not directly involved in fish cultivation. However, they may be called upon to support if the pond/gher is near to their house.

**Agriculture:** Rice is the most common crop cultivated. There are three main rice varieties, *aus*, *aman* and *boro*. The seasonal calendar for these rice varieties is: *aus* (April-May-June); *aman* (July-August-September); and *boro* (December-January-February). According to a survey by the International Food Policy Research Institute, of the farmers surveyed in the title floodplain 37.2% use crop rotation as the most common land management practice, followed by fallowing (14.7%)\(^\text{10}\). The same study found soil fertility is improved mainly through the use of animal manure (76%), although the use of green compost is also a common practice (40.3%).\(^{xxix}\) Throughout Bangladesh crop diversity appears to be dropping. The region of Khulna is one exception where crop diversity has risen. Rahman and Kazal (2014) attributed the rise in crop diversity, ironically, to the land use change away from rice cultivation to fish/prawn culture that brought with it the practice of planting vegetables on the gher embankments.\(^{xxx}\) Women participate in a wide variety of farm activities. A woman’s primary responsibility will be to take care of the household and contribute, where able, to crop production. The exception to this may be the maintenance of a kitchen garden, where she oversees most of the activities.

**Forest and Fisheries Collection and Harvesting:** With limited livelihood options, dependence on collection and harvesting of natural resources is high, not only for income generation but also for food security. According to the Integrated Resource Management Plan for the Sundarbans nearly one million people directly or indirectly depend upon access to natural resources offered by the reserved forest.\(^{xxxxi}\) This same plan reports that more than half a million people live on the collection of fuelwood and non-timber forest products such as fish, honey, wax, and leaves of trees from the Sundarbans. It is also estimated ~30% of the population live off of fishing within the Sundarbans. Respondents in a study conducted in Satkhira cited declining fish populations in rivers as their greatest threat to economic security.\(^{xxxxii}\) Women do not typically participate in collection and harvesting in the Sundarbans as it is considered dangerous due to kidnappings by well-organized hijacker groups and tiger attacks.

\(^{10}\) Fallowing encourages upward movement of salts and is actually unadvisable. [http://www.fao.org/docrep/x5871e/x5871e05.htm](http://www.fao.org/docrep/x5871e/x5871e05.htm)
Over-collection and -harvesting of forest products has taken a toll on the wildlife in the target districts. Table 2 identifies animal species within the Khulna Division that are protected by the U.S. Endangered Species Act (ESA), as well as the International Union for the Conservation of Nature (IUCN) assessment and the CITES animal trade appendix distinction. From this table it can be clearly seen that for all of the endangered species, human pressures are their greatest threat to survival.

In accordance with 22CFR216.5, Table 2 identifies endangered species found in the target upazilas. However, these animals are only known to live within the boundaries of the Sundarbans Reserved Forest, none are known to be found outside of the protected area in human inhabited areas. Annex 8 – Endangered Species provides details about each animal found in Table 2, as well as further description of endangered animals in Bangladesh, which are not expected to be found in the project area.

Table 2: Species in Khulna Division that are protected by the U.S. Endangered Species Act (ESA) and their threats

<table>
<thead>
<tr>
<th>Common Name (Scientific Name)</th>
<th>ESA status</th>
<th>IUCN assessment</th>
<th>CITES appendix listing</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Habitat Loss</td>
<td>Commercial Trade</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td>Loss</td>
<td>Trade</td>
</tr>
<tr>
<td>Gray langur (Semnopithecus [=Presbytis] entellus)</td>
<td>Endangered</td>
<td>Low Concern</td>
<td>1</td>
<td>x</td>
</tr>
<tr>
<td>Tiger (Panthera tigris)</td>
<td>Endangered</td>
<td>Endangered</td>
<td>1</td>
<td>x</td>
</tr>
<tr>
<td>Leopard cat (Prionailurus [=Felis] bengalensis)</td>
<td>Endangered</td>
<td>Low Concern</td>
<td>1</td>
<td>x</td>
</tr>
<tr>
<td><strong>Birds</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greater Adjutant (Leptoptilos dubius)</td>
<td>Endangered</td>
<td>Endangered</td>
<td>Not Listed</td>
<td>x</td>
</tr>
<tr>
<td><strong>Reptiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gavial (Gavialis gangeticus)</td>
<td>Endangered</td>
<td>Critical</td>
<td>1</td>
<td>x</td>
</tr>
<tr>
<td>Yellow monitor (Varanus flavescens)</td>
<td>Endangered</td>
<td>Low Concern</td>
<td>1</td>
<td>x</td>
</tr>
<tr>
<td>Loggerhead sea turtle (Caretta caretta)</td>
<td>Endangered</td>
<td>Low Concern</td>
<td>1</td>
<td>x</td>
</tr>
<tr>
<td>River terrapin (Batagur baska)</td>
<td>Endangered</td>
<td>Critical</td>
<td>1</td>
<td>x</td>
</tr>
<tr>
<td>Indian Softshell turtle (Trionyx [=Nilssonia] gangeticus)</td>
<td>Endangered</td>
<td>Vulnerable</td>
<td>1</td>
<td>x</td>
</tr>
<tr>
<td>Spotted Pond turtle (Geoclemys hamiltonii)</td>
<td>Endangered</td>
<td>Vulnerable</td>
<td>1</td>
<td>x</td>
</tr>
<tr>
<td>Indian python (Python molurus molurus)</td>
<td>Endangered</td>
<td>Near Threatened</td>
<td>1</td>
<td>x</td>
</tr>
</tbody>
</table>

Animal species that are NOT protected by the ESA but should be (author’s bias)

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11 Appendix I, II, III of the Convention are lists of species afforded different levels or types of protection from over-exploitation. Appendix I lists species that are the most endangered among CITES-listed animals and plants.

12 Expect for perhaps the gavial, which is feared to be extinct.
**Spoon-billed Sandpiper** (Calidris pygmaea) - IUCN Status: Critically Endangered

**Red-crowned Roofed Turtle** (Batagur kachuga) – IUCN Status: Critically Endangered

**Land Tenure:** Land may be privately owned in Bangladesh. With a population density of 530/km² in Khulna district and 540/km² in Satkhira district, land is a scarce resource. Personal possession of land is considered a symbol of wealth and security. It is of little surprise therefore that within the interface landscape zone the percentage of landless households is high at 49% and 47% in Khulna and Satkhira, respectively. Legally, a married woman can co-own land and its assets with her husband - if her name is on the deed. In theory, should the husband die, she remains the rightful owner of her percentage of the land.

Portions of the land can also belong to the State. Along major rivers the Water Development Board has built embankments to control flooding. These embankments are maintained and the land belongs to the Water Development Board. The District Authority has the right to lease State owned land for benefit to the State and the people.

Small portions of land are also considered community land. This land has usually been granted to the community by the District Authority.

2.2. National Environmental Policies and Procedures

**Key Environmental Policies**

Recent Bangladesh environmental law is based on the guiding principles stated in the **Bangladesh Environmental Policy, 1992.** The legal framework of this policy proposed:

1) To amend all law to meet present day needs
2) Frame new laws to control pollution and degradation
3) Ensure implementation and raise public awareness
4) Ratify all concerned international laws/conventions and policies and bring national laws into line with such.

From this effort was borne the **Environmental Conservation Act, 1995.** This is the main legislative framework relating to environmental protection. Three amendments have followed in 2000, 2002, and 2010. The main focus of this act is the control of industrial pollution. However, it also allows for the establishment of Ecologically Critical Areas (ECA) and defines the type of activities that can and cannot be carried out in these ECAs. The responsibilities of this act are carried out by the Department of Environment, which is a department under the Ministry of Environment and Forests. Within the ECAs the following are monitored.

- Hunting
- Fishing and other activities detrimental to fisheries
- All activities that could result in the destruction of natural flora and faunal habitats
- Activities that could destroy natural characteristics of water and soil
- Pollution

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13 For comparison, Bangladesh is roughly the same area as the state of Iowa. Iowa’s population density is 21.2/km² while Bangladesh’s is 1033.5 km². Source: Wikipedia
In order to implement the Environmental Conservation Act, 1995, the Environmental Conservation Rules, 1997 were formed. These rules classify initiatives by potential environmental impact and assigns different assessment and management requirements. The following classification descriptions are taken directly from the background paper for the seventh 5-Year Plan.xxxiv

**Green List** projects are those with positive environmental impacts or negligible negative impacts such as plantation and nursery. Clearance for these is obtained on the basis of project description, initial screening and No Objection Certificate (NOC) by the local authority.

**Orange A** projects are those with minor and mostly temporary environmental impacts for which there are standard mitigation measures, such as the installation of tube wells, pond sand filter (PSF), tank/reservoir, sanitary latrines etc. Application for DOE’s environmental clearance requires general information, a feasibility report, a process flow diagram and schematic diagrams of facilities, environmental screening form, NOC from local authority.

**Orange B** projects are those with moderately significant environmental impacts for which mitigation measures are easily identified.

**Red List** projects are those which may cause ‘significant adverse’ environmental impacts

***It should be noted that the Nobo Jatra project activities appear to fall under the Green and Orange A lists. These requirements were presented to the Ministry of Environment at the Office of the Magistrate, Khulna Division14. The response given was that Nobo Jatra does not need to obtain any clearance from their ministry. While the written law implies that Nobo Jatra has some responsibility to report their activities and obtain at minimum a No Objection Certificate from the MoE, the reality on the ground is that the attention of the MoE is on the pollution and energy consumption of private businesses.***

Environmental policies that have relation to project activities are found in Annex 9 – Relevant Sectoral Policies. Table 3 identifies specific governmental entities tasked with environmental sustainability and climate change mitigation and adaptation and useful environmental plans. This list does not take into consideration the many other government departments that are responsible for ecosystem sustainability within their sector of expertise.

**Table 3 – Climate Change Strategies and Related Government Entities**

<table>
<thead>
<tr>
<th>Government Entity</th>
<th>Responsibility</th>
<th>Interaction</th>
<th>Plan/Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change Cell, Department of Environment, Ministry of</td>
<td>Facilitates management of long term climate risks and uncertainties as an integral part of national development</td>
<td>Dhaka office can potentially be consulted for</td>
<td>Bangladesh Climate Change Strategy and Action Plan 200915</td>
</tr>
</tbody>
</table>

14 The Office of the Magistrate in Khulna is the “local authority” referred to in the Green and Orange A list. Per inquiry during an interview with the MoE High Official, the response given was that the Khulna Division Office of the Magistrate would be the correct office to apply for a No Objection Certificate, if WV was required by law, since there is no other authority at the district or upazila level that could grant this certificate.

Environment and Forest planning. Facilitates strengthening the capacity of the professionals, practitioners, policy makers to reduce unacceptable risks and improve preparedness for climate change impacts.

Forest Department, Ministry of Environment and Forest

Protects the balance of environment and ecosystem, works to conserve and manage wildlife, works to conserve biodiversity, manages all protected areas including Sundarbans Reserve Forest

Office of the Khulna Conservator of Forests can potentially advise on activities within the Ecologically Critical Areas.


Planning Commission, Ministry of Planning

Functions as the central planning organization of the country. It determines objectives, goals and strategies of medium and short-term plans within the framework of long-term perspective and formulates policy measures for the achievement of planned goals and targets.

Office is in Dhaka. Source for national strategies that include climate change and variability, disaster management and environmental sustainability.

7th 5-year Plan (Background Study) and (Final Draft)

3.0 ANALYSIS OF POTENTIAL ENVIRONMENTAL IMPACTS AND CLIMATE RISK

In general, it is anticipated that the proposed Nobo Jatra activities will not present any significant adverse environmental effects provided that the mitigation and monitoring activities recommended in Section 4.0 of this IEE are carried out.

A discussion of potential environmental impacts for each activity is presented below. A good deal of mitigation language has slipped into this section but it should be noted that mitigation measures to address the potential environmental impacts are outlined in Annex 1 – EMMP. Activities are grouped by Purpose. The numbering of the activities is organized by the first number corresponding to the Purpose, second number corresponding to the Sub-Purpose and the final number is the activity number found in the final proposal for future cross-comparison.

Purpose 1: Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls.

(1.1.1) Strengthen local WATSAN committees: Training of WATSAN committees is expected to have no direct impact on the environment. However, from an environmental health perspective, the indirect effect is potentially positive and long-term through trainings on basic
WASH concepts, union and ward WASH planning, essential hygiene practices, and behavior change communication.

(1.1.2) Facilitate behavior change programming for essential hygiene practices: Training on effective BCC and the dissemination of the BCC messages is expected to have no direct impact on the environment. However, from an environmental health perspective, the indirect effect is potentially positive and long-term with behavior change in hygienic fecal management, hand washing, defecating in a latrine, keeping latrines hygienic, water treatment, and proper household water storage.

(1.1.3) Support community water management committees to manage and maintain water supply facilities. The training of water management committees to take ownership for the sustainability of their water source pose potential indirect environmental effects. In reality, this activity is a mitigation measure to ensure that rehabilitated and developed water facilities meet environmental sustainability standards over the long-term. The project will facilitate linkages between the DPHE, in charge of deep tube wells, and the Community Water Management Committees to develop a plan for accurately measuring and monitoring arsenic concentrations. If field test strips will be used, safe use and waste disposal should be part of Community Water Management Committee training and incorporated into their overall water facility management plan. This is due to the fact that arsenic test strips contain small amounts of mercury that must be disposed of in a manner that will not pose a potential risk to human or wildlife health. A reliable arsenic field kits will be selected based on the Bangladesh University of Engineering and Technology’s Rapid Review of Locally Available Arsenic Field Testing Kits. Community water management committees in charge of a pond sand filter (PSF) need to understand how to clean PSF media on a regular basis. Inattention to cleaning leads to increasingly slow filtration rates and potential abandonment due to a perception that the PSF is not working and the long waits for water. All community water management committees must fully understand what the response protocol is if water quality is not up to adopted standards and reporting protocols to the upazila DPHE and to WVB WASH staff.

(1.1.4) Rehabilitate and/or develop water facilities: Soil is an excellent filter for removing pathogenic microorganisms found in surface water. Therefore the rehabilitation and/or development of tube wells or PSFs are steps in the right direction toward providing water that meets the Bangladeshi public health and World Health Organization (WHO) international drinking water quality standards. (See Annex 10 - Department of Public Health Engineering Water Quality Drinking Standards & Annex 11 – WHO International Drinking Water Quality Standards

Shallow tube wells (< 250 ft) are not usually successful options for drinking water due to elevated arsenic and saline water concentrations in shallow aquifers less than 250 ft. Recharge areas for deep aquifers are typically far from the well pump location. Therefore, contamination from local sources is not a prominent concern. However, contamination from distant sources and/or chemical (water) weathering of deep soil layers may be possible. Damaged tube wells can become pathways for contamination of aquifers during storm surge and rainfall runoff.

flooding. Constructing wells to withstand storm surge and rainfall runoff flooding blocks this point of entry for contaminated surface water or salt water. In all areas especially storm surge vulnerable areas wells should be constructed to at minimum to DPHE storm surge standards to withstand a design flood, such as a 25yr event. Of concern is overuse of tube wells, which enables saltwater intrusion by reducing the freshwater column pressure on the denser saltwater allowing it to move inland or if the saltwater interface is close enough to the well, the reduced pressure inside the tube well can draw saltwater into the tube well itself contaminating the water for drinking. A thorough groundwater study should be conducted to evaluate aquifer characteristics, which will ensure greatest success for providing potable water and to mitigate potential adverse effects to deep aquifers.

PSF’s (if designed and operated correctly) have been shown to improve the quality of drinking water for all drinking water parameters. However, they are not fully effective in reducing salinity and fecal coliform bacteria where source water concentrations are high. Arsenic is not generally a problem for PSFs as source waters are from captured rainwater ponds. In the project context, common practice is to collect rainwater in an open pond and pipe this water to a pond sand filter. This method removes concerns of salinity and arsenic but allows for a wide spectrum of chemical and pathogen pollutants to enter the source pond. Cleaning the PSF filter media periodically is a key step in maintaining potable drinking water standards. Training given to Community Water Management Committees should include proper disposal of sand and broken brick pieces removed during the cleaning process.

Tube well and PSF post-development water quality monitoring should begin prior to use and continue quarterly for the first year after the water facility comes into public use in accordance with USAID regulations, which require water sample testing for arsenic and fecal coliform. Both the Bangladeshi DPHE and international WHO drinking water quality parameters for arsenic and fecal coliform will be considered taking the more stringent of the two as the standard. Ideally water quality tests should be performed on the chemical, biological and physical quality of the proposed water source. Local monitoring of arsenic in wells and fecal coliform in PSFs should continue thereafter. A Water Quality Assurance Plan (WQAP) can assist the project management in establishing how initial water quality monitoring will take place, how will continuous water quality monitoring be assumed, BCC messages for safe water use needed and a response protocol in case water quality does not meet adopted standards for both PSFs and deep wells.

There are no particular environmental concerns regarding development of alternative water treatment systems as long as water quality testing is performed regularly. Any alternative water treatment systems should consider available water resource data particularly the information gathered in the groundwater study, which will include mapping of existing water sources and their characteristics.

However, Nobo Jatra has identified water treatment system- Reverse Osmosis (RO) plant to construct from the FY 19. In near future Nobo Jatra may also install two other types of water treatment systems- Arsenic Iron Removal Plant (AIRP) and Sky Hydrant (Surface Water Treatment Technology). Construction and operation of these treatment systems may have
negative environmental and public health impacts which can be mitigated by implementation of mitigation measures.

Reverse osmosis (RO) is a newly applied feasible technology of fresh water source in the coastal areas of Bangladesh. The reverse osmosis system is more technical and economically feasible drinking water source among other technologies of the coastal area. The system can also play a great role as a disaster risk reduction (DRR) based solution of drinking water shortages for building water security related resilience at coastal household level in Bangladesh. The RO is most effective technology in coastal areas where people suffer scarcity of drinking water due to high salinity. The RO plant removes the salinity from the raw saline water which produces drinkable fresh water following reverse osmosis process. On the contrary, the plant also removes arsenic and iron up to drinking standard level. RO plant post-development water quality monitoring will be carried out prior to use and continue quarterly for the first year after the water facility comes into public use in accordance with USAID regulations and monitoring will be carried out by water sample testing for Chloride (for salinity), arsenic, iron and fecal coliform. Both the Bangladeshi DPHE and international WHO drinking water quality parameters’ standard will be considered by Nobo Jatra project. For RO, the sub-projects have been categorized as constructing RO house and installation of RO Plant. During construction of the RO house, the impacts are not considered to be significant since the selected sites are in unfarmed and secured private land as well as Union Parishad premises. However, environmental concern in case of storing of materials and equipment, waste and waste water may create small scale impact on surrounding environment, health and safety issues will be required to consider. During operation phase, the waste effluent of RO system is composed of brine and backwash liquids from pretreatment which may affect the aquatic environment of disposal site in tidal canal or river if brine is not sufficiently dissipated. For sustainability of RO plant, a business model must be followed by the Water Management Committee (WMC) of the respective plant.

Arsenic Iron Removal Plant (AIRP) is also one of the feasible technologies for the areas which are arsenic prone. This technology removes the arsenic and iron from the water up to standard level by following the coagulation, aeration, sedimentation and filtration process. During construction, workers can be injured if they are not equipped with adequate safety gears. Constructed related waste can be generated and polluted the schemes surroundings area if proper waste management system is not considered. In the operation and maintenance phase, If the standard concentration level of arsenic is not maintained by the treatment process, the community people will be exposed to health risk. Considering this, Nobo Jatra will carry out water sample testing for arsenic and iron prior to use of water as well as during the operation stage of the plants. The water quality of the AIRP can be deteriorated if filter bed is not cleaned periodically. In addition, the sludge to be generated from the treatment process may contaminate surrounded soil and water bodies if not managed in sound manner. AIRP plant post-development water quality monitoring will be required to carry out prior to use and continue quarterly for the first year after the water facility comes into public use in accordance with USAID regulations and monitoring will be carried out by water sample testing arsenic, iron.

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and fecal coliform. Both the Bangladeshi DPHE and international WHO drinking water quality parameters’ standard will be considered by Nobo Jatra project.

Sky Hydrant is a simple surface water treatment technology. The raw water of the drinking water pond is lifted to the overhead tank and the water is supplied to the outlet/ tape after the treatment. During construction of plant house, workers can be injured if they are not equipped with adequate safety gears. Constructed related waste can be generated and polluted the schemes surroundings area if proper waste management system is not considered. To ensure potable water supply, monitoring testing of sample water test will be required. The fecal coliform test will be required to test post-development of the system prior to use as well as during the operation stage of the plant. The test will be continued quarterly once for the first year after the water facility comes into public use. The Bangladeshi DPHE and WHO standard will be followed for the quality of the defined parameter. Small amount of waste water produces from the treatment process and this can contaminate surrounded soil/land and water if it is not managed in sound manner. For sustainability of the water technology, a business model must be followed by the Water Management Committee (WMC) of the respective plant.

(1.1.5) Rehabilitate and/or construct latrines to hygienic sanitation standard: Latrines have the direct potential to contaminate groundwater with pathogens that can be transported to shallow wells or to nearby surface water sources. A poorly designed latrine also has the potential to serve as a breeding ground for disease-carrying vectors. During the field visit it was observed that latrines often emptied directly into open rivers/channels contributing to a degradation of aquatic conditions. Contaminated surface waters are a threat to human health as they are the most easily accessed form of water for washing, playing, and consumption. Despite the potential risk of latrines contaminating surface- and ground-waters a do-nothing approach to open defecation poses an even greater environmental risk.

There is the need to design pit-latrines to account for the area’s generally high water table. International standards, of 1.5m distance between bottom of the pit and water table and 30m from any water source, may be difficult to impossible to follow given the area’s abundant water resources, high population density and small household plots.

Regarding distance between a latrine and water sources, a review by the Development Resource Center provides local context,

“…recommendations published by the GOB Department of Public Health Engineering, to install pit latrines or ring slab latrines 30 feet from shallow hand tube wells (depth 240 feet). For the deep hand tube wells (depth 900 to 1100 feet), no separation is required. This is the informal recommendation for rural areas.”

The movement of fecal bacteria both laterally and horizontally in the soil subsurface depends greatly on hydrogeological conditions. Target area soils are generally clayey and are characterized by low permeability. A systematic review of empirical studies on the impacts of pit latrines on groundwater by Graham and Polizzotto (2013) reported 5 out of 6 studies done in clayey soils found no bacteria at distances over 10.2m (one study reported finding
bacteria at 25 m). For latrines not meeting the standard separation of 30m, number of days of travel through groundwater for harmful pathogens between the latrine pit and water source must be calculated to determine risk of water source contamination. This calculation requires soil and groundwater properties. Soil texture field observations should be cross-referenced with available upazila-level soil studies from the Soil Resource Development Institute. Effort should be made to obtain the groundwater property of hydraulic gradient from the WV groundwater study or from available studies from the DPHE.

At the present the Department of Public Health Engineering does not offer any formal or informal recommendations on addressing high water tables and latrines. The project is encouraged to look for latrine designs that consider high water tables from sources such as the United States Environmental Protection Agency or other private enterprises working in the area. Below is a list of latrine options for high water tables many of which are suggested by UNICEF for areas with high water tables.

1) A raised latrine: Costly and disabled- and elderly-unfriendly. Community members express feelings of being exposed. Earth mounded raised latrines would require a minimum of 36ft² of space, which in the high density and poor rural households may not be available. In addition a mound of this size would be prone to erosion. If earth mounded raised latrines are deemed feasible they should be constructed during the dry season and vegetated.

2) The sand enveloped latrine: Expensive. The sand enveloped latrine will not comply with the 1.5m pit-to-water-table spacing standards but does offer a pathogen filter. Although in areas with considerable clay content, a sand filter may not offer an advantage over clay. As discussed soils with low permeability like clay have narrow space between soil particles through which effluent can pass slowing the movement of the liquid. A slow filter of pathogens out of the latrine pit effectively allows them to die off naturally. Sand envelope needs to be replaced after some time. Incorporating a sand envelope adds an additional $43/latrine.

3) Sealed pits: Must be watertight and are expensive. Community members express dissatisfaction with sealed pits because they fill-up too fast and they have no money to replace the latrine. Emptying the pit is an option but unsurprisingly there is strong push-back toward this activity and would require extensive training in handling human sludge.

4) Aqua-privy: Variation on a regular sealed pit. Requires significant amounts of water. Providing an environmentally safe discharge area for the overflow pipe may be a challenge.

5) Shallow double-pit pour flush latrine: The addition of liquid increases static head within the latrine pit forcing liquid under pressure into the unsaturated zone around the pit. If distance to the water table is short contamination of groundwater could happen quickly.

6) Composting or eco-san pits: Expensive and require extensive training in how to use them effectively. The double vault requires more space than a single pit latrine. Dry composting toilets reduce risk of harmful pathogens leaching into the groundwater as there is almost no liquid to transport them into the unsaturated zone.

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22 The author does not make the claim that this is an exhaustive list. There may be emerging technologies appropriate for high water tables of which the author is unaware.
7) Septic-tanks. These are used in the area in government buildings and schools. At the household level this option is cost prohibitive.

8) Biological filters (Tiger toilet, Biofil digester): Expensive but reduce solid wastes efficiently prolonging the use of the toilet. They also convert solids into valuable fertilizer. These systems require addition of water; therefore, liquid management and drainage may pose a challenge. Tiger toilet is approximately $250/latrine.

Each of the options has pros and cons. Union-level wet-season water table data must be procured for each target Union from DPHE. Government data should be cross-examined with results of the groundwater study. In high water table unions (wet-season water table data <3.5m from ground level) the project should consider modified latrine options that ensure that no harmful pathogens leach into the groundwater. Coordination with WASH market research on user motivations for desiring a toilet may be possible. Latrine design will be done to fit site conditions. A suitable design, one that is cost-effective, user-approved, and protects the environment, will be implemented. Difficult areas, such as those with high groundwater and/or flooding, with have to be considered on a site by site basis. Latrines constructed or rehabilitated in low-water table areas should maintain, at a minimum, a standard separation of 1.5m between bottom of the latrine pit and the seasonal high ground water depth.

Communities bordering the Sundarbans are known to be illegally extracting wood from the reserved forest. Any wood for fencing for around the latrine, which is local practice or latrine construction should be of tree species not found in the Sundarbans. If possible wood should be procured from a sustainably harvested source but given the realities on the ground this many not be possible to determine.

(1.1.6) Promote and facilitate linkages between consumers and WASH business: The actions of brokering relationships with potential businesses that are interested in expanding into the project area are not expected to pose a significant direct impact on the environment. However, the indirect effects of supporting environmentally conscientious or detrimental businesses should be considered, particularly in Bangladesh where industries contribute heavily to water pollution and energy consumption. Businesses with known detrimental environmental practices should be avoided.

(1.2.1) Media awareness campaigns: Actions under this activity are anticipated to have no effect on the environment.

(1.2.2) Engagement and sensitization of other influential groups. Actions under this activity are anticipated to have no effect on the environment.

(1.2.3) Child Protection Committees (CPC) strengthened to report and prevent cases of early marriage. Actions under this activity are anticipated to have no effect on the environment.

(1.3.1) Capacity building for government health facilities. According to the Programmatic Initial Environmental Examination of the Food for Peace FY15 Request for Applications (RFA) for USAID Development Food Assistance Projects,
“All FFP project proposals must have provision for promoting safe and effective use of fuelwood, or other energy sources, used for commodity preparation by beneficiaries, integrated across all project designs.”

Given the vulnerability of the mangrove forests yet the high dependence on them by neighboring villages, awareness building on efficient fuelwood use and sustainable harvesting practices among the Ministry of Health and Family Welfare staff and other front line health may have a beneficial effect on the environment. Training modules for the Infant and Young Child Feeding should take into consideration the condition quoted above.

(1.3.2) Growth Monitoring and Promotion (GMP) for CU5: Actions under this activity are anticipated to have no effect on the environment. To support improved GMP, Nobo Jatra will provide a total of 1,073 GMP kits to 960 EPI outreach centers and 113 community clinics (CCs) over the course of the project, with a 20 percent restock in year four to account for loss and breakage. WV will provide instruction on waste disposal of broken equipment. No significant negative effects on the environment are expected.

(1.3.3) Micronutrient Powder (MNP) provision to children 6-23 months: MNP is mixed into prepared food directly and therefore, does not require separate preparation that would consume additional firewood or drinking water. Actions under this activity are anticipated to have no effect on the environment. A plan for disposal of MNP packaging is in place.

(1.3.4) Implementation of an mHealth pilot project: The use of mobile technology to monitor nutrition interventions is anticipated to have no significant adverse effect on the environment, however there is a small potential negative effect on the environment. Mobil phones will be purchased for pilot participating MoHFW workers. To exact the greatest life out of the mobile technology and to keep it out of the trash for as long as possible all hardware will be turned over to the MoHFW at the end of the project for its continued use. After the ownership of project-purchased mobile phones has been turned over to the MoHFW, it will be the responsibility of the MoHFW to see that it is disposed of in accordance with Bangladeshi solid waste law. Replacement of any project-purchased technology during the life of the pilot project should be disposed of in accordance with Procurement Executive's Bulletin (PEB) (No. 2012-05, dated 7/12/2012).

(1.3.5) Support coordination for nutrition at community clinics: Actions under this activity are anticipated to have no effect on the environment.

(1.3.6) Conditional cash transfer to pregnant women and girls: Actions under this activity are anticipated to have no effect on the environment. However, it is conceivable that cash transfers could be used to buy environmentally harmful items such as pesticides. Nobo Jatra will track expenditures through periodic post-distribution monitoring and the project’s annual surveys. A plan is in place to modify SBCC messages and outreach strategies, if data from these monitoring methods reveals purchases out-of-line with the objective of improving nutrition. No phones will be procured by the program. Women participating in the program will use personal phones to receive cash transfers.
(1.3.7) **Nutrition BCC outreach activities:** Actions under this activity are anticipated to have no effect on the environment.

(1.3.8) **Revitalize the Community Clinic-Community Support Groups:** Actions under this activity are anticipated to have no effect on the environment.

(1.3.9) **Provision of Community Nutrition Facilitators (CNF):** Actions under this activity are anticipated to have no effect on the environment.

(1.4.1) **Critical reflection and dialogue through Men Care Groups:** Actions under this activity are anticipated to have no effect on the environment.

(1.4.2) **Conduct leadership training for women and youth:** Actions under this activity are anticipated to have no effect on the environment.

During the cost extension period, activity 1.3.1.1.1 – ‘Private sector service providers provide technical assistance and ensure supply chain for the CSA’ may have a minor to moderate level of environmental impacts. The products (e.g. personal hygiene, sanitary napkins) to be sold by the local entrepreneurs may have non-degradable wastes (plastic/polythene packaging). These may deteriorate soil health and local water bodies. So, there will be environmental impact for the activity if the company (e.g. SMC) will not disseminate proper messages on the disposal/management of such wastes.

Moreover, NJP has plan to carry out water quality testing for faecal and total coliform by Pota Test, membrane filtration (MF) method, which is a water quality testing device to detect the actual numbers of Bacteria (Total and Fecal Coliform) in the water sample. It is anticipated that there may have impacts on the environment and have few health and safety risks if the proper suggested measures are not taken. If Personal Protective Equipment (PPE) is not used during measuring and preparing mixture, it may cause irritation in skin, eye and throat of personnel. If unused, prepared broth and nutrition for microbial growth is not disposed properly, it will create microbes growth in the disposal site. In case aseptic measures are not taken, it will cause existence of other microbes at the testing site. If precaution and safety measures are not taken, it will cause fire at the testing site. If the pack and foil are not disposed properly, soil may be polluted. If these are not disposed in environmental sound manners, these will cause soil and water pollution at the disposal site and outbreak of waterborne diseases.

**Purpose 2:** Increased equitable access to income and nutritious food for both males and females

(2.1.1) **Facilitate access to Entrepreneurial Literacy training:** Actions under this activity are limited to training in small-business management topics and are expected to have no effect on the environment.

(2.1.2) **Facilitate graduation program for the extremely poor:** There are six elements to this activity: (1) Entrepreneurial literacy training; (2) Monthly cash transfer; (3) IGA selection and
development: (4) Productive asset development; (5) Participation in savings groups; (6) Ongoing supervision, mentoring and follow-up.

Element “(3) IGA selection and development” presents a potential indirect negative effect on environment. This element is incorporated into and more fully described in activity (2.1.3). Therefore potential environmental concerns for this element will be described under that activity.

Also, element “(4) Productive asset development” presents a minor potential indirect negative effect on the environment. With any cash transfer there is the possibility that it can be used for ways unintended by the project that may have a negative effect on the environment. The productive asset development cash transfer will take place after the beneficiary has received training in their selected IGA. An indicator of internalization of environmentally sound practices promoted in the IGA training would be evidence of such practices outlined in their business plan.

Sixty percent of the participants in the graduation program will be women. The work load for women is very high in target communities. To compensate households for this lost labor the program has incorporated a monthly cash transfer via a mobile money mechanism, “(2) Monthly Cash Transfer”. Cultural behavior indicates that when a woman is bringing income into the house, she can receive leniency on expected roles and tasks. Monthly cash transfer sums are small and short-term. No significant adverse effects on the environment are expected.

(2.1.3) Facilitate training in technical skills required for alternative livelihoods: The overall expectation of this activity is that the reduction of pressure on the SRF for extraction of forest, aquatic and animal products (legally or illegally) through alternative livelihoods will have indirect long-term positive effects on the environment.

A total of 18,000 people are expected to be trained in technical skills that provide opportunity to earn income outside of the traditional options of farming and harvesting of forest and aquatic products. At this point the technical skills are not defined but will be developed based on market analysis. Of the potential skills to be taught conceivable harm could come to the environment if sound environmental practices are not incorporated into training modules. For example take the IGA of fish processing, this activity often has organic wastes that if disposed directly back into the fish pond or other water body can reduce water quality and harm other aquatic species unintentionally. On the other hand, conceivable benefit could come to the environment by following sound environmental practices such as with activities like sapling nurseries that can promote and preserve landraces, cultivars, and rare species essential to maintaining biodiversity.

During the development of training modules, analysis of potential effects upon the environment should be made. Identification of sound environmental practices should be part of each training module.
(2.1.4) **Strengthen linkages to private sector to identify and select market-based livelihoods opportunities:** The actions of brokering relationships with potential businesses that are interested in expanding into the project area are not expected to pose a significant direct impact on the environment. However, the *indirect effects* of supporting environmentally conscientious or detrimental businesses should be considered, particularly in Bangladesh where industries contribute heavily to water pollution. The proposal states that “Nobo Jatra will evaluate partnership opportunities against business, sustainability and social criteria”. Within the criteria of sustainability should be included a condition for environmentally conscientious business practice

(2.2.1) **Facilitate training in NRM, agricultural production and farm management skills:** Environmental effects of actions under this activity are broken up by training modules that will be offered to participating farmers.

**Management practices:** Management practice technologies identified in the proposal include: nursery operation; land preparation; manure and fertilizer application; lime application; composting and mulching; line sowing (row and crop distance); intercropping; grafting; transplanting; weeding, thinning and pruning; use of low-cost greenhouses for off season and late season production; direct seeding (cereal crops).

Nursery operation and low-cost greenhouse activities compose a small percentage of the total management activities but could potentially have *a negative effect on the environment*. Nurseries will not promote exotic or invasive plant species. Area dimensions are not known at present. Small plastic sheathes are typically used to transport seedlings. These plastic bags are cheap, readily available to nursery operators, and adequately protect the roots of the plants during transportation. However, the environmental downsides to these bags become apparent once they’ve switched hands to the grower. Plastic bags are often discarded into the environment where they clog drainage ways, suffocate aquatic mammals, reptiles and amphibians, harm digestive systems of land animals, and offer breeding sites for mosquitos. Burning plastic bags is not an environmentally friendly solution either as this releases noxious smoke. Some research highlights that plants grown in bio-degradable bags suffer less transplant shock and establish roots better than plants grown in plastic tubing. Financial incentive programs to encourage seedling buyers to return plastic sheathes may reduce waste entering the environment but these mechanisms tend to have low success rates. Improvements on the use of biodegradable jute root bags could be done in coordination with the alternative income generating activities to make these bags available and affordable to nursery owners. For nursery and greenhouse activities, Nobo Jatra should develop a waste reduction plan to minimize plastic bags littering the environment.

In many agriculture settings land preparation techniques can result in the loss of soil and nutrients. However, the *gher* farming system practiced in southwestern Bangladesh nearly eliminates all surface runoff and when not filled with water the elevated dikes serve as wind breaks to keep soil from blowing away. Other management practices such as composting and mulching, line sowing, intercropping, grafting, transplanting, weeding, thinning and pruning, and direct seeding are likely to bring *a benefit to the environment*. Environmental concerns with
regard to fertilizer and lime application are discussed under the Soil Fertility and Conservation module.

Aquaculture management: There are numerous environmental concerns with regard to aquaculture. These concerns are discussed in USAID’s Sector Environmental Guidelines for Fisheries and Aquaculture. Polyculture activities promoted will take place in rain-fed closed-system ghers. Nobo Jatra will be promoting the use of only freshwater throughout all cropping seasons. Concerns about farmers intentionally applying saline river water to flood ghers are not substantiated. Interviews with farmers during the field visit suggest that farmers are knowledgeable about harmful effects applying saline water to their soils. Application of arsenic contaminated tube well water is a possibility if the farmers have access to a pump and hoses. Therefore, the consequences of salt and arsenic contaminated water application should be included within the training module. Infiltration of fresh rainwater captured for aquaculture can serve to flush out accumulated salts in the soil making it more suitable for crop production come dry season. While river and open defecation is a general problem in the target area, there is a social taboo on this practice in freshwater fish/prawn ponds. Ponds are used for the Muslim Wadu ôzu facilities before prayers. Defecation in these ponds would make the water unsuitable for cleansing. In addition farmers are well aware of the export standards for fish and prawn and do not want to jeopardize potential income by allowing their ghers to become contaminated. Engaging women to participate in aquaculture is in-line with the National Fisheries Policy, 1998 (section 7.3).

Aquaculture seeding is traditionally by capture of wild post larval and juvenile prawn or fish fry. Extensive overharvesting and high by-catch volumes are destroying the rich southwestern coastal fisheries. In an effort to protect and sustain the fisheries the Protection and Conservation of Fish Rules 1985 placed a ban on the collection of fry or post larvae of fish, shrimp and prawns from open rivers. Hatcheries for freshwater fish are plentiful and access is good. Farmers interviewed during the field visit responded that they had purchased fish fry from a private hatchery. The practice of collecting prawn seed from the wild still exists. While the program will promote the purchase of certified pathogen-free post-larval prawn from private or government hatcheries, it may encounter resistance to paying for prawn seed. The program implementers should be aware that turning a blind eye to traditional seed capture methods would have a negative effect on the environment.

Drawing broadly from Winrock’s experience implementing the Climate-Resilient Ecosystem and Livelihoods (CREL) program, Nobo Jatra will develop culturally sensitive approaches to counter past environmentally detrimental practices. Nobo Jatra will encourage the adoption of the hatchery produced post-larval prawn through 1) culturally-sensitive behavior change messaging embedded in agricultural training and entrepreneurial literacy (importance of ecosystem health, etc); 2) demonstrating the productivity gains that can be made through use of the hatchery post-larval prawn (lead farmer demos, etc); and 3) by increasing the availability

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23 USAID’s Sector Environmental Guidelines for Fisheries and Aquaculture can be found at [http://www.usaidgems.org/Sectors/fisheries.htm](http://www.usaidgems.org/Sectors/fisheries.htm)

24 In this Muslim dominant culture, the freshwater in ghers is often used for cleansing before daily prayers. Defecation in this water would make it unsuitable for cleansing. Also, there is high awareness about stringent fish/prawn export standards. Farmers do not want to jeopardize their financial return by allowing their investment in fish/prawn to be contaminated by human fecal matter.

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of the hatchery produced post-larval prawn by working with hatcheries and their agents to market the post-larval prawn in project areas. Verification of purchase of pathogen-free post larval prawn should be required for all participating farmers.

**Pest and disease management:** The Nobo Jatra program will promote an Integrated Pest Management (IPM) approach to all aquaculture activities. IPM practices encourage natural and cultural pest control practices and view pesticides (organic or chemical) as “last resort” actions to prevent crop destruction by pests. The project will not directly promote any pesticides. However, it is a known fact that some farmers are applying pesticides to their crops. Therefore, the project will train participants in the safe and judicious use of pesticides in accordance with the Mission-wide PPERSUAP (ASIA 16-003, dated October 27, 2015). The unintended and harmful effects of improper pesticide application include: contamination of soil and water, pesticide drift, effects on non-target organisms, disruption of natural pest controls leading to pest resurgence, and resistance.

**Crop genetics:** High-yielding varieties, drought and saline resistant varieties, and bio-fortified varieties promoted will all be varieties approved by in-country seed certifying entities such as the Bangladesh Rice Research Institute, Bangladesh Agriculture Research Institute, or the Bangladesh Institute of Nuclear Agriculture. No exotic or GMO seed varieties will be introduced. A complete shift to improved crop varieties would reduce agro-biodiversity therefore, local seed varieties that demonstrate advantages for climate change adaptation such as drought and/or salt tolerance and pest resistance will also be promoted. Culturally sensitive training should avoid devaluing local crop varieties while still promoting the improved seed varieties that are themselves a climate-change and variability adaptation strategy essential to the food security of the region. High-yielding varieties have already gained popularity in the region. In combination with culturally sensitive training, losses to local landraces and cultivars may be mitigated by the fact that local taste preference is for traditional crop varieties (which in turn fetch higher local market prices). High-yielding varieties will be promoted carefully and in accordance with approved varieties by seed-certifying institutions.

**Soil fertility and conservation:** Good soil characteristics are essential to plant health. A healthy soil will have a greater capacity to moderate the uptake of nutrients creating a healthy plant that is more resistant to pest and disease damage. The use of fertilizers can have negative effects on the environment.

Chemical fertilizers will not solve salinity problems. In fact, when not applied judiciously chemical fertilizers can increase mineral salts in the soil. Response to fertilizer in saline soils will be limited unless the soil structure and poor drainage are addressed. This can be done in part through liming. The selection of chemical fertilizers should be done with care (and in accordance with the Mission-wide approved PPERSUAP ASIA 16-003, dated October 27, 2015) particularly in a polyculture system. Some fertilizers contain heavy metals such as cadmium, mercury and lead. Fish and other aquatic organisms bioaccumulate these heavy metals, which are then consumed by humans. In addition, over-application of fertilizers and pesticides can result in chemical leaching into the soil and groundwater system. Contamination of surface water is not a prominent concern as there is no surface drainage out of the gher embankments.
The application of chemical fertilizers and lime must always consider safe use and handling procedures for human health and the environment.

The preparation of bio-fertilizer is another option that can be realized every few years by collecting the soil from prawn/fish ghers during the dry season. The material from the bottom of the ghers will be used to fortify the gher dike. This fertile soil will serve as a substrate in which horticulture crops can be grown. A benefit to the environment is that due to the nutrients contained in the bottom-soil, horticulture crops do not need extra fertilizers applied when planted in this soil. Removal of pond bottom soil may improve infiltration drainage characteristics beneficial for crop growth.

Soil conservation techniques should also be taken into consideration when considering a comprehensive approach to improving soil fertility and structure. Soil conservation techniques such as incorporation of composts can improve soil structures, promoting plant root growth and water drainage. The proposal mentions promotion of a no-till conservation approach. This approach should be considered as the progression toward improved soil structure is obtained. The no-till approach should not be applied immediately to severely degraded soils or to soils that undergo severe hardening during dry seasons. On such soils, tillage is required to create a favorable zone for water infiltration, crop establishment, and root penetration. After several well-managed crops, it may be possible to grow subsequent crops on these soils with zero tillage.

Chemical fertilizers, bio-fertilizers, and soil conservation practices should be considered together to develop a comprehensive approach tailored to the specific soil and crop needs. A nutrient management plan should be developed for each agro-ecological zone that propose best nutrient package. The best package may involve multiple forms of nutrient inputs. Baseline soil fertility should be established. The nutrient management plan should take into consideration soil quality improvement practices for soil salinity and sodicity as well as the process (steps) for nutrient application (ex. liming before chemical fertilizer application).

Irrigation and water management: Rainwater is captured in ponds and small reservoirs to use for irrigation during the dry season. To conserve this precious resource drip/sprinkler irrigation and mulching will be used to cultivate horticulture crops along gher dikes and in small plots typically close to the home. Mulch used will be residues from previous crops or other locally available vegetative materials rice straw and coconut leaves. Maintaining horticulture plots close to the homestead is a common cultural practices. Removal of vegetation other than the clean-up of weeds is unlikely. Drip irrigation and mulching activities are expected to have no negative effect on the environment.

Water management should always consider drainage, particularly when combating salinity. Good drainage can assist in flushing out accumulated salts. In the closed cropping system that is practiced, there is no drainage except via percolation. In a mix cropping system where rice is grown within the gher embankments, surface drainage can be improved by digging trenches around the inside perimeter of a central paddy field allowing water to drain off the paddy into the trenches.
Nobo Jatra will be promoting the use of only freshwater throughout all cropping seasons. This promoted action is expected to have no negative effect on the environment. However, the reality is that collected rainwater in ghers in some regions becomes contaminated with some saline water, whether through seepage or intentional application. Addressing salt water mixing with freshwater must be done. This should include identification of ways to limit salt water seepage. If the program determines that beneficiaries are intentionally applying salt water, assessing the reasons for this and looking at the options for safe salt water mixing may stop further soil degradation. The practice of shandying or mixing of salt and fresh water to certain electrical conductivity (EC) levels appropriate for a particular soil type can ensure that soil degradation does not continue. Nobo Jatra should seek to coordinate with government entities such as the Soil Research Development Institute and other USAID partners on appropriate electrical conductivity (EC) levels for soil types in the target area and incorporate this knowledge into the Aquaculture training.

Climate mitigation and adaptation: The US Presidential Executive Order on Climate Resilient International Development mandates the integration of climate screening and sensitivity analysis into all USAID development activities. Raising awareness on climate mitigation and adaptation among all farmers participating in project activities is expected.

Specific activities under this module include: drought and saline resistant seed varieties; raised bed agriculture; pond dyke agriculture; floating agriculture; rice and fish intercropping. Many activities mentioned above are discussed under separate training modules. However, the discussion on the introduction of exotic plant and fish species through promoted activities has not been covered. This is discussed in the following paragraphs.

Floating agriculture is a viable option for continuous income when crop lands become inundated for significant periods of time. As with any agriculture project the use of exotic plant species should be avoided or done with extreme caution. The use of water hyacinth to create a floating raft upon which to plant other crops in standing water is a widespread practice throughout southwest Bangladesh. However, this plant is non-native (comes from South America) and is highly invasive. To control invasive plant species there are three approaches; chemical, biological, and mechanical. The practice of harvesting water hyacinth is a form of mechanical control. Harvesting this weed unclogs waterways and ponds restoring surface water, oxygen and sunlight to other aquatic organisms. Promotion of floating agriculture is expected to be limited. However, before using water hyacinth the project should survey the target area to establish presence, relative abundance, status, and distribution of invasive plant populations. Where the plant is already widely established in abundance and in healthy condition, no significant adverse effect on the environment is expected if collected from the wild to use as a means for cultivation. Promotion of the plant should not be done in areas where survey results reflect low scores on presence, abundance, status, and distribution. In these areas, alternative materials for floating agriculture should be promoted such as the use of paddy straw.

One side note on floating agriculture is that humans are at risk for skin infections and other health problems from prolonged exposure in water. Participants’ health should be monitored and the training module must include address potential risks to both the environment and human health.

Tilapia, a principal species promoted in rice/fish production is a non-native invasive species. It is, however, promoted by the Department of Fisheries and the Bangladesh Fisheries Research Institute as a source of protein for household consumption and income. Tilapia is a freshwater fish and is found in the wild throughout fresh water habitats in Bangladesh. Its impact on native fish is uncertain and difficult to ascertain from the many other pressures on native fish species. Introduction into the wild from project activities could happen during a storm surge event or if producers threw sick fish into saline canals/rivers. Canal/river water in the project area is quite saline and unsuitable for tilapia to thrive in. Nevertheless, training on proper disposal of fish waste needs to be part of aquaculture activities. Little can be done to prevent fish from being swept into the environment during storm surge events. Ocean water brought in by storm surge is unsuitable for tilapia and survival of lost tilapia is unlikely.

Marketing and distribution: Actions contemplated are discussed under activity (2.2.3). At the present no rehabilitation of roads or increased truck activity over fragile terrain to reach producers is anticipated.

Post-harvest handling: Appropriate post-harvest handling can significantly reduce post-harvest waste, thereby fully utilizing water and nutrients provided by nature and providing a benefit to the environment. At the present the project does not anticipate the promotion of chemical fungicides, biocides, or sanitizers. If pesticides are deemed necessary they should adhere to the Mission-wide PPERSUAP. Also, if it becomes apparent that chemicals are needed a safe-use plan must be created.

Value added processing: Processing of crops can also significantly reduce post-harvest waste, thereby fully utilizing the nutrients provided by nature. However, the by-products from processing can result in waste that must be dealt with properly. In particular, animal wastes from fish/prawn processing can reduce water quality if thrown or washed into waterways, open wells, or back into the fish/prawn pond itself.

Other activities under farm management such as poultry raising and goat fattening are expected to be small-scale and are not expected to pose a significant negative effect on the environment. Small animal husbandry is exclusively a “woman’s activity”. These activities are seen as an excellent means by which women can enter into a cash economy.

The potential damages to the environment from livestock are typically over-grazing, pollution of drinking water surface and or groundwater supply sources, and soil erosion due to trails and over crazing. The field visit (during dry season) did not reveal clear evidence of over-grazing or animal induced soil erosion. Current ecosystem carrying capacity for small animals appears to
be sufficient as little active erosion attributable to animals\footnote{Active erosion was observed but the causes of the erosion appeared to be more attributable to the high population density rather than to livestock.} was observed and preferred palatable forage was observed to be rice stubble of which there was an abundance. Small-scale fodder production on homestead plots mitigates potential over-grazing and associated erosion plus improves animal product production and the general health of the animal. Goat stocks will generally be $< 3$ per household and poultry stocks $< 10$ per household. Watering practices were not observed. However, livestock is known to increase harmful pathogen concentrations and to increase turbidity in water sources. Training material should include topics on small-scale fodder production and environmentally conscious forage and water practices. Environmental conditions influence nutrition intake and weight gain for children under 5, in particular. One study found statistically significant correlation between households with 1) animals corralled in their sleeping quarters and 2) relaxed hygiene standards and low weight scores in Bangladeshi children under 5.\footnote{Bio-security refers to measures taken to reduce disease being carried onto or off of one’s own farm.} Nobo Jatra will coordinate small animal husbandry activities closely with health and hygiene activities to promote high standards of hygiene particularly washing hands at all appropriate times for caregivers and children under 5. Small husbandry training should include topics on hygiene and homestead environmental health practices.

Poultry breeds and the Black Bengal goat breed promoted are considered indigenous. These types of chickens are preferred in the community for meat and eggs as well as their ability thrive due to lower nutritional demand and higher resistance to diseases and heat stress.\footnote{Currently, BRAC does not represent an acronym.} The same can be said about the goats. Avian flu among chickens exists. Goat pox and pneumonia can affect goats. Nobo Jatra will coordinate with other organizations with livestock expertise such as USAID’s Feed the Future homestead livestock activities. Cultural norms typically limit a woman’s ability to travel alone or far from home. The project will utilize mobile technology messages to assist women in identifying illness and maintaining bio-security\footnote{Without the need to leave home. Bringing agro-vet products deeper into rural areas can increase accessibility to medicines and vaccinations thereby reducing the spread of disease. Nobo Jatra will coordinate small animal husbandry activities with Local Service Provider activities (2.2.4) that focus on agro-vet training to ensure that farmers and local businesses are fully versed in use and disposal of medicines and vaccines. It is possible that some livestock owners will desire to improve breeds through artificial insemination. Nobo Jatra may train Local Service Providers in artificial insemination administration as well as link program participants with providers such as BRAC and the Department of Livestock Services.} without the need to leave home. Bringing agro-vet products deeper into rural areas can increase accessibility to medicines and vaccinations thereby reducing the spread of disease. Nobo Jatra will coordinate small animal husbandry activities with Local Service Provider activities (2.2.4) that focus on agro-vet training to ensure that farmers and local businesses are fully versed in use and disposal of medicines and vaccines. It is possible that some livestock owners will desire to improve breeds through artificial insemination. Nobo Jatra may train Local Service Providers in artificial insemination administration as well as link program participants with providers such as BRAC and the Department of Livestock Services.

\textbf{(2.2.2) Establish climate smart demonstration plots:} 200 demonstration plots will be established over the life of the project. The footprint of these demonstration plots with regard to the overall project area is small. Practices promoted are those discussed under Activity (2.2.1) and are expected to have an \textit{indirect effect on the environment} through adoption and dissemination of these practices on private agricultural plots. In addition demonstration plots should seek to promote actions that are in alignment with national and other climate change adaptation
initiatives. Previously undeveloped land or marginal land will not be sought for the establishment demonstration plots.

Handwashing stations that are placed on demonstration plots should be designed with a soak-away and water drainage directed away from the station into a vegetated site. Properly designed drainage protects 1) aquatic life, and 2) human health. Vegetation acts as a filter for phosphates that may be in soap used at the handwashing station. When phosphates enter a water body they provide nutrients for algae growth. Algae in overabundance depletes oxygen supplies for other aquatic animals. Failure to factor in drainage counters the promotion of hygiene and health when mud and standing water (vector-borne breeding site) forms around the hand-washing station.

(2.2.3) Strengthen farmers’ capacity to build scale and gain access to markets: The majority of actions under this activity are not anticipated to have any direct impact on the environment. However, small-scale collection centers will be constructed that will pose a small risk to the environment but these risks can be mitigate easily through normal good practices and engineering. The size of a collection center is not expected to exceed 200m². In addition to mitigation measures outlined in the EMMP, construction supervisors should be familiar with and seek to follow USAID’s small scale construction guidelines²⁹. Soil erosion due to poor drainage measures and inattention to revegetation are the most probable environmental effects from collection center construction. Contract language with construction sub-contractors should require site-specific erosion and sediment control plans. Other normal good practices include: construction sites on previously human modified land; construction sites not built on marginal or fragile land nor in disaster prone zones; hazard-resistant construction principles used in design and placement, and sustainably procured materials used to the greatest extent feasible. Contract language should also include construction worker health and safety responsibilities. Adherence to these responsibilities should be tracked.

(2.2.4) Build capacity of Local Service Providers to provide sustainable access to inputs and extension. Training of Local Service Providers (LSPs) is likely to have indirect effects on the environment. A portion of LSPs’ capacity will be built under the same training modalities as outlined in activity (2.2.1). However, LSPs may receive additional training in topics such as artificial insemination and livestock/fish stock vaccination. Coordination with USAID Feed the Future homestead livestock activities and USAID PRO GIS activities should be established to improve activity efficiencies. Inclusion of sound environmental practices within each training module and adhering to mitigation activities recommended for activity (2.2.1) will mitigate adverse effects on the environment.

Purpose 3: Strengthened gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from man-made and natural shocks and stresses

(3.1.1) Strengthen capacity of ward, union and upazila DMCs. The training-of-trainers modality for building knowledge on disaster management is expected to have no effect on the environment. These activities are focused on response behavior during a disaster event. While there is likely

²⁹ http://www.usaidgems.org/Sectors/construction.htm
a connection between a disaster and climate change, the messages on “what to do” during a disaster should not be muddled with scientific explanations for why the event is happening. During a disaster the people need only remember what they should to do to stay safe.

\[(3.1.2)\] Comprehensive Disaster Management Action Plan implementation acceleration. CDMAPs are developed through a lengthy participatory approach that involves the input of community members at the village-, ward-, and union-levels. Each union will have their own unique CDMAP. The content of the CDMAPs is outside of the control of Nobo Jatra. However, through a competitive process and rigorous review, some elements of CDMAPs will be funded to accelerate advancement toward disaster resilience. During the review process the project should seek to "Do No Harm" by applying environmental review criteria when considering elements of the CDMAPs to fund. In order to receive funding, a CDMAP should propose mitigation measures, where necessary, accompanying proposed interventions to avoid negative effects on the environment. There is minor potential for indirect adverse effects on the environment from this activity.

Nobo Jatra has identified 9 types of schemes to implement some the activities of CDMAP. The list for all types of the identified activities is provided in following table 1.

<table>
<thead>
<tr>
<th>SI</th>
<th>Type of Schemes</th>
<th>Comments</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Pond re-excavation</td>
<td>Anticipated to have minor environmental and public health impacts and mitigation measures will be required</td>
</tr>
<tr>
<td>2</td>
<td>Distribution of rain water reserving tank</td>
<td>Anticipated to have minor environmental and public health impacts and mitigation measures will be required</td>
</tr>
<tr>
<td>3</td>
<td>Reconstruction of embankment</td>
<td>Anticipated to have minor environmental impacts and mitigation measures will be required</td>
</tr>
<tr>
<td>4</td>
<td>Providing brick flat soling on existing rural earthen road</td>
<td>Anticipated to have minor environmental impacts and mitigation measures will be required</td>
</tr>
<tr>
<td>5</td>
<td>Reconstruction of earthen road</td>
<td>Anticipated to have minor environmental impacts and mitigation measures will be required</td>
</tr>
<tr>
<td>6</td>
<td>Repairing of small rural bridge</td>
<td>Anticipated to have minor environmental impacts and mitigation measures will be required</td>
</tr>
<tr>
<td>7</td>
<td>Canal re-excavation</td>
<td>Anticipated to have minor environmental impacts and mitigation measures will be required</td>
</tr>
<tr>
<td>8</td>
<td>Reconstruction of U-drain</td>
<td>Anticipated to have minor environmental impacts and mitigation measures will be required</td>
</tr>
<tr>
<td>9</td>
<td>Disseminating awareness raising messages of cyclone signals by digital billboard.</td>
<td>No environmental impact is anticipated which fall under categorical exclusion.</td>
</tr>
</tbody>
</table>

Pond re-excavation work will may have some of the negative environmental and public health impacts if the work does not consider sound environmental design. Furthermore, scheme surrounded community will be mobilized for repairing or installing of drinking water facility in order to ensure supply of potable water. The impacts those could be evolved are risk of water borne diseases for the community people if the water quality is not maintained well, risk of erosion, risk of salinity intrusion due to destruction of pond bottom clay layer, risk of falling run
off inside the pond if the dyke is not constructed well, health and safety risk of the workers if protective gears are not used adequately, cutting of trees.

The people who will be provided rain water reserving tanks may be exposed to water borne diseases if filtration process are not included in the system and the community are not aware about the Water Safety Plan (WSP) and proper cleanliness and maintenance of the tanks.

Reconstruction of embankment and earthen road works may have some of the environmental impacts if the work is not done considering environment, health and safety issues. During construction, local community can be adversely affected if the worksite is not demarcated and visible warning message. Soil fertility can be reduced from the agricultural land if the top soil is not managed after collection of soil from borrow pits. Dust could cause problem to the workers and local people if the work does not consider dust control measure. The workers can face health and safety problem if they do not have adequate safety gears and water & sanitation facilities at the worksites. Cutting of trees can also be required for the works where replantation should be required. Soil erosion and deterioration of the water quality of surrounded water bodies can be introduced if proper manual compaction and turf is not done on the reconstructed embankment or earthen roads. Water flow of small water bodies can be impeded by the reconstruction of rural earthen roads if proper drainage system is not considered for the existing water bodies. But the activities will reduce the risks of cyclone, flood, salinity intrusion etc. in the community. Moreover, the communication of the community people will be smoother by the activities.

Providing brick flat soling with rural earthen road works of Nobo Jatra is anticipated not to have significant environmental impact. Minor impacts those could be happened are disturbance to normal movement of pedestrians if the brick soling is not done properly, minor injury can happen with workers during construction if they are not equipped with required PPE. The activity will reduce erosion of soil and ease the communication of rural people. On the contrary, soil erosion on the slope can be introduced if proper manual compaction and turf is not done on the reconstructed roads.

Repairing of small rural bridge work may have environmental impact if proper mitigation measures are not considered. During construction, workers can be injured if they are not equipped with adequate safety gears. Constructed related waste can be generated and polluted the schemes surroundings area if proper waste management system is not considered. Furthermore, if water flow of the canal/ channel under the bridge is stopped during reconstruction work then fish/fauna migration and spawning of fish/fauna can be disrupted. This can be happened if alternative fish migration way is not provisioned during reconstruction work.

Canal re-excavation work to be carried out by Nobo Jatra will mitigate the waterlogging problem in the community. Due to water logging, people are suffering for agricultural production, regular movement, health and sanitation. The canal re-excavation activity will mitigate these problems in the communities. However, the activity may have some environmental impacts if mitigation measures are not addressed. Run off carrying re-excavated
materials may happen which will deteriorate the water quality of the surrounded water body. Erosion may occur if dyke of the re-excavated canal is not compacted and turfed properly. Tree can be planted on the Dyke in order to reduce soil erosion. The aquatic flora and fauna can be affected if the re-excavation work is not continued section wise. Health and safety concerns may arise if the workers are not equipped with adequate safety gears with first aid box in the worksite and water & sanitation facilities during work. Reconstruction of U-drain will reduce waterlogging. Waterlogging has been impeding agricultural production, regular movement of the community people and inducing water borne diseases. The reconstruction of U-drain will reduce the above mentioned problems in the community. Workers may have health and safety risk if adequate measures like ensuring of PPE and water & sanitation is not considered.

Disseminating awareness raising messages of cyclone signals by digital billboard will increase awareness among people which will reduce their risk and save themselves from natural disasters. It is foreseen that no environmental impact will be introduced for this activity.

(3.1.3) Train vulnerable groups on DRR practices and appropriate responses: Knowledge gained in training under activity (3.1.1) will be passed down to ward-level committees and VDCs. Training will focus on knowing how to respond in a disaster event. These activities are expected to have no effect on the environment.

(3.1.4) Facilitate re-validation and/or development of gender sensitive Risk Reduction Action Plans (RRAP) in all targeted unions: In accordance with the US Presidential Executive Order on Climate Resilient International Development³⁰, the development of RRAPs is an ideal time to sensitise and raise awareness about the linkages between climate change, disasters, and the mitigation of such disasters. If done well the beneficial effects to the environment are potentially expansive, as the development of the RRAPs represent the input of a wide spectrum of the community and also feeds into union-level CDMAPs.

Cross Cutting Sub-Purpose A: Improved social accountability of service provision for the vulnerable by local government bodies

The following activities have been considered within the operational context and are found to generally, have no significant effect on the environment. Any effect that these activities may have on the environment will be indirect and are not regarded as adverse.

(CC A.1) Good governance training for Union Parishad and Standing Committees: Nobo Jatra should seek to coordinate activities with USAID’s Democracy and Governance team to avoid duplicate activities and learn from their experience.
(CC A.2) Engage in evidence based National level policy dialogue.
(CC A.3) Strengthen inclusive VDCs
(CC A.4) Facilitate linkages between citizens and ward and union and Upazila governance structures

Considering the country context and the geographical location of NJP's working areas, climatic impact may pose risk to the project and its activities. Attachment 2 represent the Nobo Jatra project specific climate risks and the management plan of the risks.

4.0 ENVIRONMENTAL DETERMINATIONS AND CLIMATE RISK RATINGS

4.1 Recommended Awardee IEE Determinations
Activities within Nobo Jatra’s scope of work are listed below. They are organized by Purpose followed by groupings of the recommended Environmental Threshold Determination. The environmental review classifications under 22 CFR §216 under which these activities shall fall are:

Categorical Exclusion: actions that have been determined to generally have no significant effect on the environment and therefore do not require environmental assessment.

Negative Determination with Conditions: actions that pose a relatively small risk to the environment and effective mitigation conditions as specified in this IEE can be readily incorporated into the design to reduce potential risks to an acceptable level through monitoring.

The Nobo Jatra program will not support activities that will have a significant adverse effect on the environment and would warrant a Positive Threshold Decision. Should World Vision Bangladesh decide to implement any activities under these mechanisms that exceed the scope (Section 1.1) or limits of the threshold decisions (articulated below), resulting in a positive determination, an amendment to this IEE shall be prepared and approved prior to initiation of any applicable field activities.

General limits of the threshold decisions include:

- Actions that would have an adverse effect on an endangered or threatened species, or critical habitat As per Regulation 216.5 this IEE has determined that program actions, as proposed, will be carried out in human modified environments and are unlikely to further degrade conditions for endangered or threatened species or critical habitat provided that mitigation measures are followed faithfully.

- Actions that would significantly degrade national parks, reserved forests (i.e. Sundarbans Reserve Forests) or similar protected areas that contain tropical forests. Also actions that would introduce exotic plants or animals into such areas and activities that would result in the conversion of forest lands to the rearing of livestock in accordance with the Foreign Assistance Act, sections 118(c)(14), 118(c)(15), and 119(g)(10).
• Procurement or use of Asbestos Containing Materials (ACM) (i.e. piping, roofing, etc.), Polychlorinated Biphenyls (PCB), lead, mercury or other toxic/hazardous materials prohibited by US EPA as provided at: http://www.epa.gov/asbestos and/or under international environmental agreements and conventions, e.g. Stockholm Convention on Persistent Organic Pollutants as provided at: http://chm.pops.int.

• Activities that involve the use of genetically modified organisms (GMOs) for research, field trials or dissemination. Such activities would require preparation of a bio-safety assessment with approval from the USAID Biosafety Officer in Washington.
<table>
<thead>
<tr>
<th>Purpose 1</th>
<th>Sub-purposes</th>
</tr>
</thead>
</table>
| Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls. | 1.1: Reduced incidence of diarrhea among children under five  
1.2: Reduced adolescent pregnancy  
1.3: Increased equitable nutritious food intake  
1.4: Increased practice of gender equitable norms |

### Activities

<table>
<thead>
<tr>
<th>Number</th>
<th>Activity</th>
<th>Threshold determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1.1.1) Strengthen local WATSAN committees</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
<td></td>
</tr>
<tr>
<td>(1.1.2) Facilitate behavior change programming for essential hygiene practices</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
<td></td>
</tr>
<tr>
<td>(1.1.3) Support community water management committees to manage and maintain water supply facilities.</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
<td></td>
</tr>
<tr>
<td>(1.1.4) Rehabilitate and/or develop water facilities.</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
<td></td>
</tr>
<tr>
<td>(1.1.5) Rehabilitate and/or construct latrines to hygienic sanitation standard.</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
<td></td>
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<tr>
<td>(1.1.6) Promote and facilitate linkages between consumers and WASH business</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
<td></td>
</tr>
<tr>
<td>(1.2.1) Media awareness campaigns</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
<td></td>
</tr>
<tr>
<td>(1.2.2) Engagement and sensitization of other influential groups.</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
<td></td>
</tr>
<tr>
<td>(1.2.3) CPCs strengthened to report and prevents cases of early marriage.</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
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<tr>
<td>(1.3.1) Capacity building for government health facilities.</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
<td></td>
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<tr>
<td>(1.3.2) GMP for CU5</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(viii)</td>
<td></td>
</tr>
<tr>
<td>(1.3.3) MNP provision to children 6-23 months</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(viii)</td>
<td></td>
</tr>
<tr>
<td>(1.3.4) Implementation of an mHealth pilot project.</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
<td></td>
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<tr>
<td>(1.3.5) Support coordination for nutrition at community clinics.</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(viii)</td>
<td></td>
</tr>
<tr>
<td>(1.3.6) Conditional cash transfer to pregnant women and girls</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(viii)</td>
<td></td>
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<tr>
<td>(1.3.7) Nutrition BCC outreach activities</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(viii)</td>
<td></td>
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<tr>
<td>(1.3.8) Revitalize the Community Clinic-Community Support Groups</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(viii)</td>
<td></td>
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<tr>
<td>(1.3.9) Provision of CNFs</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(viii)</td>
<td></td>
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<tr>
<td>(1.4.1) Critical reflection and dialogue through Men Care Groups</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
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<tr>
<td>(1.4.2) Conduct leadership training for women and youth</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
<td></td>
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<tr>
<td>Activity 1.1.1.1.1: Strengthened capacity and monitoring mechanism of WATSAN Committees</td>
<td>Categorical Exclusion pursuant to 22 CFR 216.2(c)(2)(i) for education, technical assistance or training prog.</td>
<td></td>
</tr>
<tr>
<td>Activity 1.1.1.1.2: Enhanced functional linkage among WATSAN Committees and WASH stakeholders</td>
<td>Categorical Exclusion pursuant to 22 CFR 216.2(c)(2)(i) for education, technical assistance or training prog.</td>
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</tr>
<tr>
<td>Activity 1.1.1.2.1 Strengthened capacity of WMCs for sustainable operation of Water options</td>
<td>Categorical Exclusion pursuant to 22 CFR 216.2(c)(2)(i) for education, technical assistance or training prog.</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Description</td>
<td>Categorical Exclusion</td>
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</tr>
<tr>
<td>Activity 1.1.3.1.1</td>
<td>Established strong linkage among WASH LSPs and stakeholders to meet local WASH demand</td>
<td>Categorical Exclusion pursuant to 22 CFR 216.2(c)(2)(i) for education, technical assistance or training prog</td>
</tr>
<tr>
<td>Activity 1.1.4.1</td>
<td>DPHE/LGD provided technical assistance, resources and monitoring services to stakeholders to improve WASH services</td>
<td>Categorical Exclusion pursuant to 22 CFR 216.2(c)(2)(i) for education, technical assistance or training prog</td>
</tr>
<tr>
<td>Activity 1.1</td>
<td>Regular follow-up and capacity building activities</td>
<td>Categorical Exclusion pursuant to 22 CFR 216.2(c)(2)(i) for education, technical assistance or training prog</td>
</tr>
<tr>
<td>Activity 1.3.1.2.1</td>
<td>Community level Actors disseminate Health and Nutrition message</td>
<td>Categorical Exclusion pursuant 22 CFR 216.2(c)(2)(viii) for programs involving nutrition, health care or pop. and family planning services except to the extent designed to include activities directly affecting the env.</td>
</tr>
<tr>
<td>Activity 1.3.1.3.1</td>
<td>MoHFW made available of adequate quality health and nutrition Services</td>
<td>Categorical Exclusion pursuant 22 CFR 216.2(c)(2)(viii) for programs involving nutrition, health care or pop. and family planning services except to the extent designed to include activities directly affecting the env.</td>
</tr>
<tr>
<td>Activity 1.3.1.4.1</td>
<td>MoHFW and LGI allocate &amp; mobilize resources to create enabling environment for optimum health service provisions and monitor those</td>
<td>Categorical Exclusion pursuant 22 CFR 216.2(c)(2)(viii) for programs involving nutrition, health care or pop. and family planning services except to the extent designed to include activities directly affecting the env.</td>
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<tr>
<td>Activity 1.3.1.5.1</td>
<td>Strengthen Child Marriage and adolescent pregnancy prevention mechanisms.</td>
<td>Categorical Exclusion pursuant 22 CFR 216.2(c)(2)(viii) for programs involving nutrition, health care or pop. and family planning services except to the extent designed to include activities directly affecting the env.</td>
</tr>
<tr>
<td>Activity 1.3.1.5.2</td>
<td>Raise awareness on consequences of child marriage and adolescent pregnancy</td>
<td>Categorical Exclusion pursuant 22 CFR 216.2(c)(2)(viii) for programs involving nutrition, health care or pop. and family planning services except to the extent designed to include activities directly affecting the env.</td>
</tr>
<tr>
<td>Activity 1.3.1.1.1</td>
<td>Private sector service providers provide technical assistance and ensure supply chain for the CSA</td>
<td>A Negative Determination pursuant to 22 CFR 216.3 (a)(2)(iii) with Conditions</td>
</tr>
<tr>
<td>Other/ monitoring activity: Water quality testing (bacteriological )by Pota Test- membrane filtration (MF) device</td>
<td>A Negative Determination pursuant to 22 CFR 216.3 (a)(2)(iii) with Conditions</td>
<td></td>
</tr>
</tbody>
</table>
### Purpose 2

**Increased equitable access to income and nutritious food for both males and females**

#### Sub-purposes

- **2.1 Increased diversification of livelihoods**
- **2.2 Increased production of safe, diverse, nutritious, and high-value foods**

### Activities

<table>
<thead>
<tr>
<th>Activities</th>
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</tr>
</thead>
<tbody>
<tr>
<td>(2.1.1) Facilitate access to Entrepreneurial Literacy training</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(2.1.2) Facilitate graduation program for the extremely poor</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
</tr>
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<td>(2.1.3) Facilitate training in technical skills required for alternative livelihoods</td>
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<td>(2.1.4) Strengthen linkages to private sector to identify and select market-based livelihoods opportunities</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
</tr>
<tr>
<td>(2.2.1) Facilitate training in NRM, agricultural production and farm management skills</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
</tr>
<tr>
<td>(2.2.2) Establish climate smart demonstration plots</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
</tr>
<tr>
<td>(2.2.3) Strengthen farmers’ capacity to build scale and gain access to markets</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
</tr>
<tr>
<td>(2.2.4) Build capacity of LSPs to provide sustainable access to inputs and extension.</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
</tr>
<tr>
<td>Activity 2.3.1.1.1: Develop Skill of off-farm groups and entrepreneurs for quality production and services</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity 2.3.1.1.2: Establish market linkage for strengthening off-farm business</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity 2.3.1.2.1: Expand and motivate most successful off-farm products and engaging buyers for expanding business of entrepreneur and private sectors</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity 2.3.1.3.1: Create enabling environment for developing youth and women off farm business</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity 2.1.1.8.1: Leveraging services and support of NGOs and Donor funded projects for off-farm business</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity 2.1.1.8.4: Research and advocacy for increasing Government support for livelihoods focused facilities and safety net program development</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity 2.3.1.5.1: Village Agents are trained and facilitated to provide supports to existing VSLA and form new VSLA</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity 2.3.1.5.2: Capacity building of Union and Upazila based VSL Association to improve management capacity and support service to VSLA</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity 2.3.1.6.1: VSLA group members and entrepreneurs have access to financial services</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activities: 2.1.11.1 Producers have knowledge and skills for agricultural production</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activities 2.1.2.1.1 Input network/associations are capable to provide inputs and technical</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activities</td>
<td>Threshold determination</td>
</tr>
<tr>
<td>------------</td>
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</tr>
<tr>
<td>2.1.2.1.2 Animal Health Service Providers are capable of providing veterinary services</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>2.1.1.3.1 GOB departments are ensuring extension services and policy guidelines</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>2.1.1.3.2: GoB departments are monitoring the supplying inputs and services by private service providers</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>2.1.1.4.1: Linked Collection Point Management Committee (CPMC) and formal market buyers with producers</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Purpose 3</th>
<th>Sub-purposes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengthened gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from man-made and natural shocks and stresses</td>
<td>3.1 Strengthen community disaster preparedness and response</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Activities</th>
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<tr>
<td>(3.1.1) Strengthen capacity of ward, union and upazila DMCs.</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.1.2) CDMAP implementation acceleration</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
</tr>
<tr>
<td>(3.1.3) Train vulnerable groups on DRR practices and appropriate responses</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.1.4) Facilitate re-validation and/or development of gender sensitive RRAP in all targeted unions.</td>
<td>Negative Determination with Conditions as per 22CFR216.3(a)(2)(iii)</td>
</tr>
<tr>
<td>Activity: 3.1.1.1.1: Facilitated Capacity Building activities for local DMCs based on Capacity Gap Analysis</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity: 3.1.1.2.1: Facilitated Capacity Building activities for vulnerable communities</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity: 3.1.1.3 Strengthened capacity of communities on disaster preparedness and response</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity: 3.1.1.3.1: Cyclone Preparedness Programme worked in coordination with local DMCs and local Administration</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity: 3.1.1.3.2: Local level Public, Private/ Civil Society DRR actors are engaged in joint response</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity: 3.1.2.1.1: Review Disaster Risk Reduction Action Plans and Disaster Management Plans</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity: 3.1.2.2.1: Dialogue with relevant Govt. ministries/ departments and Private actors to allocate resources</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>Activity: 3.1.2.3.1: DRR actors networking</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
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</table>
### Cross-cutting A

**Improved social accountability of service provision for the vulnerable by local government bodies**

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<tr>
<td>(CC A.1) Good governance training for Union Parishad and Standing Committees.</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(CC A.2) Engage in evidence based National level policy dialogue.</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(CC A.3) Strengthen inclusive VDCs</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(CC A.4) Facilitate linkages between citizens and ward and union and Upazila governance structures.</td>
<td>Categorical Exclusion as per 22CFR216.2(c)(2)(i)</td>
</tr>
</tbody>
</table>
4.2. Climate Risk Management Plan

Considering the country context and the geographical location of NJP’s working areas, climate impact may pose risks to the project and its activities. To comply with USAID’s Program Cycle Operational Policy (ADS chapter 201), NJP has developed a Project Specific draft Climate Risk Management (CRM) Plan (Attachment 2) following the guideline of Climate Risk Management for USAID Projects and Activities (A Mandatory Reference for ADS Chapter 201). For Climate Risk Management (CRM) Plan NJP has followed the process of assessing, addressing and adaptively managing climate risks. To develop the CRM Plan for NJP, the climate risks on project activities have been identified and level of risk have been assessed considering an impact scale of Low, Moderate and High risk. For the identified Low climate risk, no further action will be required beyond documenting that low risk was identified. For the Moderate or High risks identified, NJP has adopted the following approach:

- Identifying risk management measures appropriate for future stages of the Program Cycle and the CRM approach (including the need for additional analysis) to be used moving forward.

The methodology of the assessment was secondary review and meetings. Suggested measures to be addressed have been defined in the CRM Plan to minimize the identified climatic risks. Moreover, the CRM Plan has illustrated the analysis actions for activity design and implementation and has defined the opportunities to achieve development objectives by integrating climate resilience or mitigation measures. The CRM Plan for the cost extension phase of Nobo Jatra Project was developed based on the requirements and basic guidance as per the” Mandatory Reference for ADS Chapter 201: CRM for USAID Projects and Activities (ADS Guidance)”xliv. USAID’s Climate Risk Screening and Management Tools have been applied for completing the CRM table step-by-step. The accompanying Matrix Template has also been followed to identify and assess the risks. Moreover, to identify risks and their management options, sector specific examples have been reviewed and are provided with USAID’s Climate Risk Screening and Management Toolsxlvi and its Annexes. To ensure that the developed plan complies with USAID’s Mandatory Reference for ADS Chapter 201, USAID’s “Working with Marginalized Populations: An Annex to the Climate-Resilient Development Framework”xlvi was also reviewed. Other resources those were used as reference are USAID Sector Environmental Guidelines, USAID ClimateLink website and World Bank Climate Change Knowledge Portal.

As per the guidance of the ADS Chapter 201, the climate risks for the Project’s activities were ranked as Low, Moderate and High Risks. The concept for the risk rating was that the level of risk increases both as the severity of negative impact increases and as the probability of negative impact increases. Along with the above mentioned references, NJP has used local knowledge and expertise that it gathered during the implementation till date, and NJP will inform this Climate Screening
information with relevant stakeholders once the CRM Plan is approved. The table
template provided with the CRM guidance by the NJP AOR has been used for the

Considering the nature of the proposed activities (those are related to sustainability
and capacity building) during the cost extension period, NJP has identified through
the Climate Risk Screening that there will be Low to Moderate Climate Risk on its
activities. The risks which were identified are mostly gaps on knowledge and
awareness on climate risks and their management options. The Climate Risk
Management options those have been identified are sensitization and capacity
building of different stakeholders relevant to WASH, MCHN, Agriculture &
Livelihood and DRR sectors through different meeting, workshops and trainings.
Moreover, NJP will sensitize the stakeholders including the beneficiaries to adopt
climate change mitigation measures as part of their services and facilities (e.g. use of
renewable energy in drinking water point, use of agricultural technology which
reduce Green House Gas emissions etc.).

4.3. Mitigation, Monitoring and Evaluation

Mitigation measures have been thoughtfully considered and developed for activities
with foreseen environmental effects. Mitigation measures are outlined in Annex 1-
Environmental Mitigation and Monitoring Plan (EMMP). Environmental
mitigation activities represent approximately $486,674 of the total project costs.
The second tab (Budget) of the EMMP identifies this cost. Of those costs
approximately $7,908 were not foreseen during the budget development process.
In addition, two activities, latrine modifications for high water tables and initial water
quality monitoring, carry with them the expectation of additional costs but the
amount is undefinable at the moment. Community cost-sharing and coordination
with government agencies may be key in establishing costs to the program. Budget
realignment will be done once costs are more accurately understood.

Monitoring recommendations have been set at a level that will capture sufficient
information to evaluate the success of the Nobo Jatra program to mitigate adverse
effects upon the environment while at the same time not overburdening project staff
with excessive monitoring duties nor causing undue expenditure of project funds.

Nobo Jatra will actively monitor ongoing activities for compliance as outlined in the
Environmental Mitigation and Monitoring Plan (EMMP) (pending feedback and
approval by the United States Agency for International Development (USAID).
Included within this table are only activities recommended as a Negative
Determination with Conditions. EMMP indicators that are the same as those in the
approved Logframe are identified by the infinity symbol (∞). Indicators are also
noted to be at the Outcome-, Output-, or Process-level. Indicator results will inform
programmatic decisions to modify or end activities that are not in compliance. If
additional activities are added to Nobo Jatra that are not described in this document, an amended environmental examination will be prepared.
## 5.0 MITIGATION MEASURES

### 5.1 Environmental Determinations

**Recommended Determination**

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1.1.1)</td>
<td>Strengthen local WATSAN committees</td>
</tr>
<tr>
<td>(1.1.2)</td>
<td>Facilitate behavior change programming for essential hygiene practices</td>
</tr>
<tr>
<td>(1.1.6)</td>
<td>Promote and facilitate linkages between consumers and WASH business</td>
</tr>
<tr>
<td>(1.2.1)</td>
<td>Media awareness campaigns</td>
</tr>
<tr>
<td>(1.2.2)</td>
<td>Engagement and sensitization of other influential groups.</td>
</tr>
<tr>
<td>(1.2.3)</td>
<td>Child Protection Committees (CPC) strengthened to report and prevent cases of early marriage.</td>
</tr>
<tr>
<td>(1.4.1)</td>
<td>Critical reflection and dialogue through Men Care Groups</td>
</tr>
<tr>
<td>(1.4.2)</td>
<td>Conduct leadership training for women and youth</td>
</tr>
<tr>
<td>(2.1.1)</td>
<td>Facilitate access to Entrepreneurial Literacy training</td>
</tr>
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<td>(3.1.1)</td>
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**Activity 1.1.1.1.1:** Strengthened capacity and monitoring mechanism of WATSAN Committees

**Activity 1.1.1.2:** Enhanced functional linkage among WATSAN Committees and WASH stakeholders

**Activity 1.1.1.2.1** Strengthened capacity of WMCs for sustainable operation of Water options

**Activity 1.1.1.3.1** Established strong linkage among WASH LSPs and stakeholders to meet local WASH demand

**Activity 1.1.1.4.1** DPHE/LGD provided technical assistance, resources and monitoring services to stakeholders to improve WASH services

**Activity 1.1 Regular follow-up and capacity building activities**

**Categorical Exclusion pursuant 22 CFR 216.2(c)(2)(viii) for programs involving nutrition, health care or pop. and family planning services except to the extent designed to include activities directly affecting the env.**

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<tr>
<td>(1.3.2)</td>
<td>GMP for CU5</td>
</tr>
<tr>
<td>(1.3.3)</td>
<td>MNP provision to children 6-23 months</td>
</tr>
<tr>
<td>(1.3.5)</td>
<td>Support coordination for nutrition at community clinics.</td>
</tr>
<tr>
<td>(1.3.6)</td>
<td>Conditional cash transfer to pregnant women and girls</td>
</tr>
<tr>
<td>(1.3.7)</td>
<td>Nutrition BCC outreach activities</td>
</tr>
<tr>
<td>(1.3.8)</td>
<td>Revitalize the Community Clinic-Community Support Groups</td>
</tr>
<tr>
<td>(1.3.9)</td>
<td>Provision of CNFs</td>
</tr>
</tbody>
</table>

**Activity 1.3.1.2.1:** Community level Actors disseminate Health and Nutrition message

**Activity 1.3.1.3.1:** MoHFW made available of adequate quality health and nutrition Services

**Activity 1.3.1.4.1:** MoHFW and LGI allocate & mobilize resources to create enabling environment for optimum health service provisions and monitor those
### Activity 1.3.1.5.1: Strengthen Child Marriage and adolescent pregnancy prevention mechanisms.

**Activity 1.3.1.5.2 :** Raise awareness on consequences of child marriage and adolescent pregnancy

#### A Negative Determination pursuant to 22 CFR 216.3 (a)(2)(iii) with Conditions:

- **(1.1.3)** Support community water management committees to manage and maintain water supply facilities.
- **(1.1.4)** Rehabilitate and/or develop water facilities.
- **(1.1.5)** Rehabilitate and/or construct latrines to hygienic sanitation standard.
- **(1.3.1)** Capacity building for government health facilities.
- **(1.3.4)** Implementation of an mHealth pilot project.
- **(2.1.2)** Facilitate graduation program for the extremely poor
- **(2.1.3)** Facilitate training in technical skills required for alternative livelihoods
- **(2.1.4)** Strengthen linkages to private sector to identify and select market-based livelihoods opportunities
- **(2.2.1)** Facilitate training in NRM, agricultural production and farm management skills
- **(2.2.2)** Establish climate smart demonstration plots
- **(2.2.3)** Strengthen farmers’ capacity to build scale and gain access to markets
- **(2.2.4)** Build capacity of LSPs to provide sustainable access to inputs and extension
- **(3.1.2)** Comprehensive Disaster Management Action Plans (CDMAP) implementation acceleration
- **(3.1.4)** Facilitate re-validation and/or development of gender sensitive Risk Reduction Action Plans (RRAP) in all targeted unions.

#### Activity 1.3.1.1.1 Private sector service providers provide technical assistance and ensure supply chain for the CSA

**Other/ monitoring activity:** Water quality testing (bacteriological) by Pota Test- membrane filtration (MF) device

### 6.0 LIMITATIONS OF THIS INITIAL ENVIRONMENTAL EXAMINATION

Key conditions for activities recommended for a Negative Determination with Conditions are outlined in the table below and in Annex 1 - Environmental Mitigation and Monitoring Plan (EMMP). If the program decides to incorporate additional activities these will be addressed in the Environmental Status Report, and if need be, an amended IEE will be submitted simultaneously. It should be highlighted that capacity building for community-based Producer Groups and LSPs will include training in chemical and bio-pesticides. These activities will adhere to the USAID/Bangladesh Programmatic Pesticide Evaluation and Safer-Use Action Plan (PPERSUAP) 2015. They should also align with local government terms and conditions for use of such inputs. In addition to the conditions outlined below, World Vision is encouraged to review best practices outlined in the Environmental Guidelines for Small-scale Activities (http://www.usaidgems.org/sectorGuidelines.htm) for each respective component.

#### Conditions

- **(1.1.3)** Support community water management committees to manage and maintain water supply facilities.
  - Water safety plans are developed and implemented.
- **(1.1.4)** Rehabilitate and/or develop water facilities.
  - Water point site selection done in environmentally conscious manner.
  - Wells are constructed to be hazard resilient where necessary.
A system for managing and maintaining water infrastructure is in place.

Provided water meets minimum arsenic and fecal coliform standards and remains with tolerable limit of iron, chloride (salinity).

Waste water is disposed of properly.

Waste is managed in environmental sound manner.

(1.1.5) Rehabilitate and/or construct latrines to hygienic sanitation standard.

Latrines are constructed/rehabilitated in an environmentally conscious manner

Decommissioning strategies exist.

Latrines are maintained clean and in good physical condition.

(1.3.1) Capacity building for government health facilities.

Basic nutrition training includes sustainable fuelwood harvesting and efficient fuel use.

(1.3.4) Implementation of an mHealth pilot project

Waste is disposed of in an environmentally conscious manner.

(2.1.2) Facilitate graduation program for the extremely poor

Graduate candidates’ business plans reflect understanding of environmentally sound practices for relevant IGA.

(2.1.3) Facilitate training in technical skills required for alternative livelihoods

IGA modules promote sound environmental practices relevant to skill being taught.

(2.1.4) Strengthen linkages to private sector to identify and select market-based livelihoods opportunities

Include within the business partnership evaluation criteria, “demonstrated sound environmental and waste management business practices”.

(2.2.1) Facilitate training in NRM, agricultural production and farm management skills

Management Practices

Seedling plastic bag waste minimized

Aquaculture management

Prawn seed is from a verified sustainable source.

Participants are not encouraged to expand cultivation onto ecologically critical land (i.e. mangrove forest).

Human health is not effected and the environment (aquatic and land) is not contaminated due to improper waste management practices.

Linkages between soil structure deterioration and salt water contamination are addressed.

Pest and disease management

Training in pesticide proceeds with promotion of best practices and Integrated Pest Management principles based on an approved Pesticide Evaluation Report and Safer Use Action Plan (PPERSUAP) pursuant to 22CFR Regulation 216.3 (b)—USAID and local government pesticide procedures.

Local knowledge and practices in combating the effects of climate change and variability with regard to pest management are identified and incorporated into regular IPM activities.

Crop genetics

No exotic or GMO varieties are introduced without a biosafety assessment and approval from the USAID’s Biosafety Officer and approval from local government authorities.

The use and conservation of local traditional crops and plants are not disvalued.

Soil Fertility and Conservation

Soil fertility is improved or conserved through optimal nutrient inputs, with organic fertilizers being the first choice.

Human health is not affected and water sources are not contaminated due to improper fertilizer and lime handling, storage, use and application techniques.

Irrigation and Water Management

Arsenic contaminated tube well water is not used for irrigation.

Climate mitigation and adaptation
Training module on Climate Mitigation and Adaptation is considered priority for all farmers participating in project activities. Use of water hyacinth in floating agriculture is conditional, based on precautionary water hyacinth survey results. No harm to human health occurs from prolonged water exposure.

**Value-added Processing**

Human health is not effected and the environment (aquatic and land) is not contaminated due to improper waste management practices.

Small animal husbandry activities

Disease control measures are in-line with Department of Livestock Services and incorporated into training (ex. bio-safety, mobile technology messages, and linkages with agro-vets). Beneficiaries are trained in medicine use and disposal.

Small animal husbandry activities do not contribute to overgrazing, erosion or water pollution. Human health is not effected by small animal husbandry care practices.

**(2.2.2) Establish climate smart demonstration plots**

Demo plots are not established on land that is in its natural state (ex. wetland, forest) or in environmentally sensitive areas (ex. river/canal bank).

Handwashing stations neither cause a hazard to public health nor degrade any body of water.

Promoted actions are in alignment with national and other climate smart initiatives.

**(2.2.3) Strengthen farmers’ capacity to build scale and gain access to markets**

Collection center site selection minimizes environmental impact.

Collection center designs consider storm surge protection measures and erosion control.

Construction takes into consideration the health and safety of construction workers.

Include BCC messaging around nutrition.

**(2.2.4) Build capacity of LSPs to provide sustainable access to inputs and extension**

LSP modules include and promote sound environmental practices relevant to skill being taught.

**(3.1.2) Comprehensive Disaster Management Action Plans (CDMAP) implementation acceleration**

Apply a “Do No Harm” lens to CDMAP funding review.

**(3.1.4) Facilitate re-validation and/or development of gender sensitive RRAP in all targeted unions.**

Effects of climate change and variability on resiliency are considered.

### 7.0 REVISIONS

Per 22 CFR 216.3(a)(9), when ongoing programs are revised to incorporate a change in scope or nature, a determination will be made as to whether such change may have an environmental impact not previously assessed. If so, this IEE will be amended to cover the changes. Per ADS 204, it is the responsibility of the USAID AOR and awardees to keep the MEO/REA and BEO informed of any new information or changes in the activity that might require revision of this environmental analysis and environmental determination.
ATTACHMENTS:

ENVIRONMENTAL MITIGATION AND MONITORING PLAN

INSTITUTIONAL ARRANGEMENT PLAN

CLIMATE RISK MANAGEMENT SUMMARY TABLE

BEO ISSUES LETTER

REFERENCE DOCUMENTS
REFERENCES


Initial Environmental Examination


xxvii Ibid.


Initial Environmental Examination

xxxii USAID. (2014) The Programmatic Initial Environmental Examination of the Food for Peace FY15 Request for Applications (RFA) for USAID Development Food Assistance Projects


ENVIRONMENTAL MITIGATION AND MONITORING PLAN

Nobo Jatra – New Beginning

USAID’s Development Food Assistance Program

Amendment # 3

FEBRUARY 17, 2020
WORLD VISION BANGLADESH
Abedin Tower (2nd Floor), 35 Kemal Ataturk Avenue, Banani, Dhaka - 1213
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>BCC</td>
<td>Behavior Change Communication</td>
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<tr>
<td>CC</td>
<td>Cross Cutting</td>
</tr>
<tr>
<td>CDMAP</td>
<td>Comprehensive Disaster Management Action Plan</td>
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<tr>
<td>CFR</td>
<td>U.S. Code of Federal Regulations</td>
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<td>CNF</td>
<td>Community Nutrition Facilitator</td>
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<tr>
<td>CNFA</td>
<td>Cultivating New Frontiers in Agriculture</td>
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<td>CPC</td>
<td>Child Protection Committee</td>
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<tr>
<td>CU5</td>
<td>Children Under age 5</td>
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<td>DRR</td>
<td>Disaster Risk Reduction</td>
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<td>DMC</td>
<td>Disaster Management Committee</td>
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<td>EMMP</td>
<td>Environmental Mitigation and Monitoring Plan</td>
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<tr>
<td>FY</td>
<td>Fiscal Year</td>
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<td>FYP</td>
<td>Five Year Plan</td>
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<tr>
<td>GMO</td>
<td>Genetically Modified Organism</td>
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<td>GMP</td>
<td>Growth Monitoring and Promotion</td>
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<td>IEE</td>
<td>Initial Environmental Examination</td>
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<tr>
<td>IGA</td>
<td>Income Generating Activities</td>
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<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
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<td>IPM</td>
<td>Integrated Pest Management</td>
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<td>IPTT</td>
<td>Indicator Performance Tracking Table</td>
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<td>LSP</td>
<td>Local Service Provider</td>
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<tr>
<td>MNP</td>
<td>Micronutrient Powder</td>
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<tr>
<td>MoHFW</td>
<td>Ministry of Health and Family Welfare</td>
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<tr>
<td>NGO/INGO</td>
<td>Non-Governmental Organization/International Non-Governmental</td>
</tr>
<tr>
<td>NRM</td>
<td>Natural Resource Management</td>
</tr>
<tr>
<td>PPERSUAP</td>
<td>Programmatic Pesticide Evaluation Report and Safe Use Action Plan</td>
</tr>
<tr>
<td>PLW</td>
<td>Pregnant and Lactating Women</td>
</tr>
<tr>
<td>PSF</td>
<td>Pond Sand Filter</td>
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<tr>
<td>PVO</td>
<td>Private Voluntary Organization</td>
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<tr>
<td>RFA</td>
<td>Request for Applications</td>
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<td>RRAP</td>
<td>Risk Reduction Action Plans</td>
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<tr>
<td>SST</td>
<td>Sea Surface Temperatures</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>USD</td>
<td>United States Dollar</td>
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<tr>
<td>VDC</td>
<td>Village Development Committee</td>
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<tr>
<td>WASH</td>
<td>Water, Sanitation and Hygiene</td>
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<tr>
<td>WATSAN</td>
<td>Water and Sanitation</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td>WQAP</td>
<td>Water Quality Assurance Plan</td>
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</table>
1 Introduction

1.1 Purpose and Guiding Principles
The EMMP has three main purposes. First, the EMMP translates the conditions outlined in the Initial Environmental Examination (IEE) into mitigation measures. Second, it establishes indicators and the criteria to measure those indicators to monitor the implementation of and effectiveness of the mitigation measures. Thirdly, it establishes the indicator data collection schedule and the person ultimately responsible for reporting on specific indicators.

The EMMP seeks to follow the four following guiding principles:

**Realistic** – Achievable within time, resources and capabilities

**Well-targeted** – Mitigation measures must respond to the IEE conditions which in turn should correspond to the identified environmental threats and stressors for the area of implementation.

**Prevention-focused** – Prevention of negative environmental effects is usually cheaper than remediation.

**Funded** – There must be sufficient budget to cover the implementation of the mitigation measures and their monitoring otherwise the actions cannot be achieved.

The Nobo Jatra project (NJP) has identified 3 types of water treatment systems under its WASH component and 9 types of schemes under the CDMAP implementation. The water treatment systems and the 8 types of DRR mitigation projects may have an environmental impact.

For all the above-mentioned activities, the first EMMP that was approved by USAID Environmental Mitigation and Monitoring Plan (EMMP) has thus been amended. All of the other information regarding the first approved EMMP and conditions raised by USAID remain the same. This amended EMMP intends to cover all the activities over the life of the project, except for the new activities that have been identified.

**The first EMMP was approved by USAID with the following conditions:**

**USAID Bureau Environmental Officer Approval:**
This Environmental Threshold Decision (ETD) is to inform World Vision (WV) that the Bangladesh EMMP has been approved with conditions by the DCHA Bureau Environmental Officer (BEO), on August 8, 2016.

The DCHA BEO would like to commend World Vision and the author of the detailed field tools for verification of environmental compliance matters. If there is no objection, the DCHA BEO may decide to share these tools with other projects as per best practice example.

The DCHA BEO recognizes that the EMMP, and the narrative has been submitted after the IEE was already approved. The EMMP, narrative, and submitted attachments are considered to be the most up-to-date activity information (i.e. based on the latest logical framework). As such, for any discrepancies, USAID will refer to this EMMP.

WV has undergone all necessary Mission and USG clearances necessary to meet the minimum 22 CFR 216 requirements; however, with the following 7 conditions for implementation.
**Summary of BEO Conditions (7):**

Condition 1: World Vision must revise the Water Quality Assurance Plan (WQAP) to outline a protocol for periodic water quality testing and response to any contamination identified.

Condition 2: WV must verify clearly in its next ESR that water hyacinth has not and is not intended for use or promotion for any activities.

Condition 3: The DCHA BEO only approves small-scale drip and sprinkler irrigation schemes at this time. If WV will be using, repairing, or promoting the use of other types of irrigation systems, WV will need to amend the IEE and EMMP to include further information and mitigation measures.

Condition 4: Submit a copy of the groundwater study to the DCHA BEO prior to implementing activities that involve the extraction of groundwater.

Condition 5: WV must develop the prawn seeds checklist referenced in the EMMP to ensure sustainable sourcing prior to implementation of related activities; similarly, other field tools referenced in the EMMP not yet developed/submitted to USAID must be created before related activities commence.

Condition 6: WV’s waste management plans must comply with USAID’s Pesticide Procedures, Regulation 216.3(b), in the nurseries, which includes proper disposal of pesticides.

Condition 7: If WV intends to fumigate, a Fumigation PERSUAP will need to be submitted and approved by the BEO that tiers off of the global Fumigation Programmatic Environmental Assessment (PEA) and a Fumigation Management Plan (FMP) must be completed with each fumigation event.

**Issue 1:** The Water Quality Assurance Plan (WQAP) attached to the EMMP focuses on water point construction, rather than the water quality analysis protocol.

**Discussion:** Although all the information provided in the WQAP is valuable, it fails to focus on water quality testing and the analysis protocol. It is unclear when and how often testing will occur, what specific tests will all be completed, and what the protocol will be if contamination is identified. World Vision is expected to revise its WQAP to cover at least some of the basic elements found in this simple example USAID WQAP from Malawi: [http://www.usaidgems.org/Workshops/Malawi2013Materials/SWQAP.pdf](http://www.usaidgems.org/Workshops/Malawi2013Materials/SWQAP.pdf)

A more robust and comprehensive (best practice) USAID Water Quality Assurance Plan template developed by the Africa Bureau is attached as three separate documents in the approval email that will be circulated with this memo. It should also be noted that the EMMP table only focuses on monitoring arsenic testing, and USAID requires total coliform to be tested at minimum for all water points. For total coliform testing, World Vision will need to either procure low cost test kits or use existing laboratory services.

**Condition 1:** World Vision will need to revise the Water Quality Assurance Plan (WQAP) to outline a protocol for periodic water quality testing and response to any contamination identified.

**Issue 2:** The EMMP now states that floating gardens and activities with water hyacinth will no longer be promoted.

**Discussion:** The review of the IEE discussed the risks of promoting use of water hyacinth because it is an invasive species. The EMMP now states that the project will no longer be promoting floating...
gardens with the use of this specie because the potential risks outweigh the rewards. The DCHA BEO takes note of this change but wants to confirm that water hyacinth is not promoted as part of any other activity given, and that there are no mitigation measures identified or analysis completed addressing the risks to working with these species.

**Condition 2:** WV must verify clearly in its next ESR that water hyacinth has not and is not intended for use or promotion for any of its activities.

**Issue 3:** Limited information was provided about irrigation and very few mitigation measures were in the EMMP.

**Discussion:** After approving of the IEE, it was the DCHA BEO’s understanding that only drip/sprinkler small-scale irrigation using rainwater harvesting would occur. After reading the EMMP and the attached documents, it was not very clear what scale or type of irrigation is going to be used. It should be noted that the EMMP focuses on arsenic testing in tube wells, but other irrigation related short, medium, and long-term effects are not tested. If irrigation systems that are not planned to be drip/sprinkler, the BEO will require more information about scale, design, and mitigation measures prior to approving this activity.

**Condition 3:** The DCHA BEO only approves small-scale drip and sprinkler irrigation schemes at this time. If WV will be using, repairing, or promoting the use of other types of irrigation systems, WV will need to amend its IEE and EMMP to include further information and mitigation measures.

**Issue 4:** Groundwater study not yet submitted.

**Discussion:** The DCHA BEO is pleased to see that WV will be completing a groundwater study. It appears this study will be applicable for multiple uses of water, and this study needs to be submitted to USAID. Activities that involve the use of groundwater may not commence until after this study is completed.

**Condition 4:** Submit a copy of the groundwater study to the DCHA BEO prior to implementing activities that involve the extraction of groundwater.

**Issue 5:** Prawn seeds must be collected from a sustainable source.

**Discussion:** The DCHA BEO notes that the EMMP references checklists for several activities but not all checklists have been developed or provided. One of these appears to be the checklist for selecting prawn seeds from a sustainable source. However, the DCHA BEO states that activities cannot commence until all mitigation measures are able to be implemented - i.e. checklists for selections must be developed prior to implementation.

**Condition 5:** WV must develop the prawn seeds checklist referenced in the EMMP to ensure sustainable sourcing prior to implementation of related activities; similarly, other field tools referenced in the EMMP not yet developed/submitted to USAID must be created before related activities commence.

**Issue 6:** Nursery waste management plan does not consider hazardous wastes.
**Discussion:** The DCHA BEO appreciates that WV has completed a waste management plan specific to its nursery activities, and it should be noted that pesticides or other chemical products are often used in nurseries. The waste management plan does not consider the disposal of these types of wastes, e.g. pesticide containers. As a reminder, WV will need to comply with safe handling, including disposal (Triple Rinse Method), of these hazardous products as outlined in the Bangladesh P-PERSUAP and Nobo Jatra SUAP.

**Condition 6:** WV’s waste management plans must comply with USAID’s Pesticide Procedures, Regulation 216.3(b), in the nurseries, which includes proper disposal of pesticides.

**Issue 7:** Unclear if fumigation or use of contact pesticides inside warehouses will occur.

**Discussion:** At this moment, the DCHA BEO wants to remind that WV does not have permission to use fumigants or contact pesticides in its warehouses because it has not followed the necessary procedures as outlined in the USAID Commodity Protection in Title II Food Assistance Programs by Phosphine Fumigation Programmatic Environmental Assessment (Fumigation PEA). These procedures include the development of a project-specific Fumigation PERSUAP and use of the Fumigation Management Plan (FMP) template with each fumigation event. The Fumigation PEA and its related tools may be accessed online at: [http://www.usaidgems.org/fumigationpea.htm](http://www.usaidgems.org/fumigationpea.htm).

It should also be noted that there are strict equipment requirements for the use of fumigants:

**Fumigation Monitoring Equipment Requirement:** Abundant evidence demonstrates that gas monitoring devices are critical to verify that phosphine concentrations are sustained at high enough levels to provide an effective “kill” treatment of the commodities. Equally, gas monitors are needed to ensure the safety of warehouse personnel and fumigators.

Without these monitors, the fumigant applicator has absolutely no knowledge of the gas concentrations. At phosphine concentrations one can smell the gas, and it is toxic to human health.

**Personal Protective Equipment (PPE) Requirement:** All fumigation PERSUAPs developed by Title II partners must provide detailed guidance on the types of PPE that fumigation applicators will be required to use during fumigation. PPE requirements for fumigation include half-face respirators with eye protective gear or full-face respirators, gloves, coveralls, and closed-toed shoes with socks.

**Gas Impermeable Tarps (e.g. vinyl coated nylon tarping):** Stacks within the warehouses are to be enclosed with gas impermeable (e.g. vinyl coated nylon) tarps when fumigating with phosphine. Warehouse doors and vents must be sealed during fumigation; because gaps can result in gas leaks from the warehouse. In addition, fumigation tarps must not be re-used too often as this may weaken the tarps or result in torn tarps and therefore, would not create a gas tight seal. The warehouse compound must not be open during fumigation, as well, as this potentially exposes workers within adjacent warehouses, office workers, and others working on-site to phosphine gas. Placarding and other measures should be taken to ensure that no entry will occur in warehouses that are being fumigated.
If and when this fumigation equipment is not available, then Title II partners are prohibited from contracting with these Fumigation Service Providers. Alternatively, Title II partners may make a proposal to their FFP AOR to procure only essential fumigation equipment as described above.

**Condition 7:** If WV intends to fumigate, a Fumigation PERSUAP will need to be submitted and approved by the BEO that tiers off of the global Fumigation Programmatic Environmental Assessment (PEA) and a Fumigation Management Plan (FMP) must be completed with each fumigation event.

The EMMP amendment#1 was approved by USAID on 26 September 2019 with the following conditions and actions were taken by NJP to comply the conditions as well as WV submitted the responses to the conditions. The conditions were:

**Issue Summary:**
Condition 1: The applicability of a potential Positive Determination and associated Environmental Assessment (EA) will need to be assessed with the MEO and BEO due to World Vision Nobo Jatra activities in the Sundarbans.

**Detailed Explanation of Issue:**
**Issue 1:** Nobo Jatra activities could have significant environmental impacts, as they are taking place within the Sundarbans, a designated Ramsar Site.

**Discussion:** As the BEO flagged in response to the FY2018 ESR submission, pursuant to 22 CFR 216.5 on endangered species and critical habitats, USAID assistance programs must be conducted in a manner that is sensitive to the protection of endangered or threatened species, or critical habitat. The Threshold Decision shall be a Positive Determination for activities that may risk jeopardizing vulnerable species and habitats, and an appropriate Environmental Assessment or Environmental Impact Statement must be completed.

Nobo Jatra activities are located within the Sundarbans, a protected area and Ramsar Site, which is home to many key elements of South Asia’s threatened megafauna. Threatened species living in the Sundarbans include the Bengal tiger, Ganges and Irrawaddy dolphins and saltwater crocodiles, a number of threatened bird species, and at least 176 species of fish. The principal tree species of the Sundarbans, the Heritiera fomes, has been declared an endangered species under the IUCN red list category of threatened species.

Condition 1: The applicability of a potential Positive Determination and associated Environmental Assessment (EA) will need to be assessed with the MEO and BEO due to World Vision Nobo Jatra activities in the Sundarbans.

ESR FY 19 was approved by USAID on 25 March 2019 with the following conditions and responses to the conditions were submitted to the USAID.

**Summary of BEO Conditions:**

**Condition 1:** Please clarify the number of Reverse Osmosis (RO) plants and Arsenic and Iron Removal Plants (AIRPs) planned for construction.

**Condition 2:** World Vision must update the EMMP accordingly to address construction related waste, the disposal of waste effluent from the RO system, and the disposal of sludge from the AIRP treatment process.

**Condition 3:** World Vision must adequately include mitigation measures to address erosion, salinity intrusion, and dyke failure during re-excavation of the ponds in an updated EMMP.
**Condition 4:** World Vision must revise the EMMP to include mitigation measures related to loss of soil fertility, removal of trees, soil erosion, and impediment of water flow as well as impacts to fish migration routes.

**Detailed Explanation of Issues:**

**Issue 1:** It is unclear how many Reverse Osmosis (RO) plants and Arsenic and Iron Removal Plants (AIRP) are planned.

**Discussion 1:** The ESR notes 13 ROs are planned, but the IEE amendment notes 11 are planned. For AIRPs, the ESR states 15 and the IEE states 10 are planned. Furthermore, specific mitigation measures for construction of RO structures and the waste effluent from the RO structures are needed.

**Condition 1:** Please clarify the number of RO plants and AIRPs planned for construction.

**Issue 2:** Specific mitigation measures for construction, operation and maintenance of both ROs and AIRPs are unclear.

**Discussion 2:** In the IEE and the ESR, construction of the RO structures was not considered a significant impact; “RO house [i.e., structure], the impacts are not considered to be significant since the selected sites are in unfarmed secured private land, as well as within union perished premises.” However, the rationale for classifying it as an insignificant impact is based on geographic location of the RO structures, not on how construction impacts to bio-physical resources. Further, the ESR states that construction related waste can be generated and pollute the surrounding area if proper waste management systems are not considered for operation and maintenance for the AIRPs and the Sky Hydrants, but does not state how this will be mitigated.

Additionally, the following mitigation measure from the ESR for the ROs is unclear and requires further explanation: “the waste effluent of the RO system is composed of brine and backwash liquids from pretreatment which may affect the aquatic environment of disposal site in tidal canal or river if brine is not sufficiently dissipated.”

The ESR states that the water quality of the AIRP can deteriorate if the filter bed is not cleaned periodically. In addition, the sludge to be generated from the treatment process may contaminate surrounding soil and bodies of water, if not managed in sound manner. However, the mitigation measure for this aspect of the AIRP is not articulated.

**Condition 2:** World Vision must update the EMMP accordingly to address construction related waste, the disposal of waste effluent from the RO system, and the disposal of sludge from the AIRP treatment process.

**Issue 3:** It is unclear how erosion, salinity intrusion, water quality, and dyke failure during pond and canal re-excavation works will be mitigated during the re-excavation of the ponds.

**Discussion 3:** The ESR states that during pond re-excavation there is a risk of erosion, salinity intrusion from the destruction of the ponds bottom clay layer, and dyke failure if the dyke is not constructed well. It further states this could impact water quality. Furthermore, if plants are used to stabilize the dyke, the type of plant for soil stabilization is not stated. However, the ESR does not effectively articulate the mitigation measures that will be implemented -- or how effective application of those measures will be monitored -- in either the ESR nor in the original IEE.

**Condition 3:** World Vision must develop and articulate adequate mitigation measures to address erosion, salinity intrusion, and dyke failure during re-excavation of the ponds in an updated EMMP.

**Issue 4:** Lack of clarity on mitigation measures for reconstruction of embankment and earthen road works and repairs of small rural bridges.

**Discussion 4:** The document describes the reconstruction of embankment and earthen road works and states impacts such as loss of soil fertility related to the borrow pits, removal of trees, soil erosion and deterioration, and impediment of water flow if proper drainage systems are not installed during reconstruction. For the repair of small rural bridges, the document states “if water flow of the canal/
channel under the bridge is stopped during reconstruction work then fish/fauna migration and spawning of fish/fauna could be disrupted. This could happen if alternate fish migration routes are not provisioned during reconstruction work.”

**Condition 4:** World Vision must revise the EMMP to include mitigation measures related to loss of soil fertility, removal of trees, soil erosion, and impediment of water flow as well as impacts to fish migration routes.

As noted in prior communications, the implementing partner amended their IEE in November 2018 to address the impacts of the following activities:

- a. Pond re-excavation
- b. Distribution of rain water reserving tank
- c. Reconstruction of embankment
- d. Providing brick flat soling on existing rural earthen road
- e. Reconstruction of earthen road
- f. Repairing of small rural bridge
- g. Canal re-excavation
- h. Construction of U-drain
- i. Disseminating awareness raising messages of cyclone signals by digital billboards.
- j. Installation of Reverse Osmosis (RO) Plants (water points) to supply drinking water during FY18 and FY19 and will carry out throughout the life of the project, if required.
- k. Installation of Sky Hydrant (Surface water Treatment Technology and Arsenic Iron Removal Plants (AIRP) in the near future.

In the amended IEE, all the activities, except for the digital billboards, were assigned “negative determination with conditions” and thus are required to mitigate any potential impacts associated with these activities.

From this amendment, it was revealed that two of the activities: 1. Activity 1.3.1.1.1 Private sector service providers provide technical assistance and ensure supply chain for the CSA and 2. Water quality testing (bacteriological) by Pota Test- membrane filtration (MF) device may have environmental impacts if proper mitigation measures are not taken. This amendment has been carried out considering the cost extension period of the NJP. The original/last EMMP will be effective for the Nobo Jatra project where applicable.

1.2 Background

The EMMP is developed for the USAID-funded Title II Development Food Assistance Program (DFAP), called Nobo Jatra (AID-FFP-A - 15-00012), which means ‘new beginning’ in Bangla. The project is implemented by World Vision, Inc. (WV) and its partners, World Food Programme (WFP) and Winrock International (WI) from September 2015 – September 2020.

The goal of the Nobo Jatra program is: **Improved gender equitable food security, nutrition and resilience of vulnerable people in Bangladesh.** This goal will be achieved by separating activities into three main purposes:

- **Purpose 1:** Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls.
- **Purpose 2:** Increased equitable access to income and nutritious food for both males and females.
- **Purpose 3:** Strengthened gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from man-made and natural shocks and stresses.
To optimize the nutrition impact possible through Purposes 1-3, the following cross-cutting component will also be integrated across program activities: *Improved social accountability of service provision for the vulnerable by local government bodies.*

Nobo Jatra activities will target 249,438 vulnerable households in four upazilas in two districts within the Southwestern Coastal area of Bangladesh namely Dacope and Koyra (Khulna), Shyamnagar, and Kaliganj (Satkhira) (see Figure 1 – Implementation Area).
2 Regulatory Framework

2.1 Relevant Laws and Strategies of Bangladesh
Recent Bangladesh environmental law is based on the guiding principles stated in the Bangladesh Environmental Policy, 1992. The legal framework of this policy proposed:

1) To amend all law to meet present day needs
2) Frame new laws to control pollution and degradation
3) Ensure implementation and raise public awareness
4) Ratify all concerned international laws/conventions and policies and bring national laws into line with such.

From this effort was borne the Environmental Conservation Act, 1995. This is the main legislative framework relating to environmental protection. Three amendments have followed in 2000, 2002, and 2010. The main focus of this act is the control of industrial pollution. However, it also allows for the establishment of Ecologically Critical Areas (ECA) and defines the type of activities that can and cannot be carried out in these ECAs. The responsibilities of this act are carried out by the Department of Environment, which is a department under the Ministry of Environment and Forests. Within the ECAs the following are monitored.

- Hunting
- Fishing and other activities detrimental to fisheries
- All activities that could result in the destruction of natural flora and faunal habitats
- Activities that could destroy natural characteristics of water and soil
- Pollution

In order to implement the Environmental Conservation Act, 1995, the Environmental Conservation Rules, 1997 were formed. These rules classify initiatives by potential environmental impact and assigns different assessment and management requirements. The following classification descriptions are taken directly from the background paper for the seventh 5-Year Plan.\(^1\)

**Green List** projects are those with positive environmental impacts or negligible negative impacts such as plantation and nursery. Clearance for these is obtained on the basis of project description, initial screening and No Objection Certificate (NOC) by the local authority.

**Orange A** projects are those with minor and mostly temporary environmental impacts for which there are standard mitigation measures, such as the installation of tube wells, pond sand filter (PSF), tank/reservoir, sanitary latrines etc. Application for DOE’s environmental clearance requires general information, a feasibility report, a process flow diagram and schematic diagrams of facilities, environmental screening form, NOC from local authority.

**Orange B** projects are those with moderately significant environmental impacts for which mitigation measures are easily identified.

**Red List** projects are those which may cause ‘significant adverse’ environmental impacts

**It should be noted that the Nobo Jatra project activities appear to fall under the Green and Orange A lists. These requirements were presented to the Ministry of Environment at the Office of the**
The response given was that Nobo Jatra does not need to obtain any clearance from their ministry. While the written law implies that Nobo Jatra has some responsibility to report their activities and obtain at minimum a No Objection Certificate from the MoE, the reality on the ground is that the attention of the MoE is on the pollution and energy consumption of private businesses.**

Table 1 identifies specific governmental entities tasked with environmental sustainability and climate change mitigation and adaptation and useful environmental plans. This list does not take into consideration the many other government departments that are responsible for ecosystem sustainability within their sector of expertise.

**Table 1 – Climate Change Strategies and Related Government Entities**

<table>
<thead>
<tr>
<th>Government Entity</th>
<th>Responsibility</th>
<th>Interaction</th>
<th>Plan/Strategy</th>
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<tbody>
<tr>
<td><strong>Climate Change Cell, Department of Environment, Ministry of Environment and Forest</strong></td>
<td>Facilitates management of long term climate risks and uncertainties as an integral part of national development planning. Facilitates strengthening the capacity of the professionals, practitioners, policy makers to reduce unacceptable risks and improve preparedness for climate change impacts.</td>
<td>Dhaka office can potentially be consulted for integration of climate change and variability into DRR activities.</td>
<td>Bangladesh Climate Change Strategy and Action Plan 2009(^2) National Adaptation Programme of Action (NAPA) 2005(^3)</td>
</tr>
<tr>
<td><strong>Forest Department, Ministry of Environment and Forest</strong></td>
<td>Protects the balance of environment and ecosystem, works to conserve and manage wildlife, works to conserve biodiversity, manages all protected areas including Sundarbans Reserve Forest</td>
<td>Office of the Khulna Conservator of Forests can potentially advise on activities within the Ecologically Critical Areas.</td>
<td>Integrated Resource Management Plan for the Sundarbans (2010-2020)(^4)</td>
</tr>
<tr>
<td><strong>Planning Commission, Ministry of Planning</strong></td>
<td>Functions as the central planning organization of the country. It determines objectives, goals and strategies of medium and short-term plans within the framework of long-term perspective and formulates policy measures for the achievement of planned goals and targets.</td>
<td>Office is in Dhaka. Source for national strategies that include climate change and variability, disaster management and environmental sustainability.</td>
<td>7(^{th}) 5-year Plan (Background Study)(^5) and (Final Draft)(^6)</td>
</tr>
</tbody>
</table>

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1 The Office of the Magistrate in Khulna is the “local authority” referred to in the Green and Orange A list. Per inquiry during an interview with the MoE High Official, the response given was that the Khulna Division Office of the Magistrate would be the correct office to apply for a No Objection Certificate, if WV was required by law, since there is no other authority at the district or upazila level that could grant this certificate.

5 http://www.plancomm.gov.bd/7th-five-year-plan/
2.2 Relevant policies - Laws and strategies of United States

The Foreign Assistance Act of 1961 (FAA) established the United States Agency for International Development (USAID) and separated, for the first time, military and humanitarian foreign assistance, acknowledging "that a principal objective of the foreign policy of the United States is the encouragement and sustained support of the people of developing countries." Sections 117, 118 and 119 each outline environmental-oriented mandates related to operations in foreign countries.

The U.S. National Environmental Policy Act (NEPA) 1970 calls for Federal agencies like USAID to act as responsible stewards of natural resources. The Act requires federal agencies to prepare detailed statements assessing the environmental impact of and alternatives to major federal actions significantly affecting the environment. These statements are commonly referred to as Environmental Impact Statements (EIS) and Environmental Assessments (EA). The Act also established the President’s Council on Environmental Quality to oversee the implementation of NEPA.

The entitled Protection and Enhancement of Environmental Quality (March 5, 1970) and amended by Executive U.S. Executive Order 12441 Order 11991 (May 24, 1977) extended the reach of NEPA by requiring that US government agencies (including USAID) undertaking activities/projects in foreign countries develop procedures to, in effect, comply with the spirit of the National Environmental Policy Act (NEPA).

2.3 USAID Environmental Regulations and Requirements

22 CFR 216 ("Reg. 216") is the US federal regulation defining USAID’s pre-implementation environmental impact assessment (EIA) process. The output of this process is Reg. 216 documentation – Requests for Categorical Exclusion (RCEs), Initial Environmental Examinations (IEEs), and Environmental Assessments (EAs).

Related mandatory provisions of USAID’s Automated Directives System (ADS)—especially, but not only, ADS 201.3.12.2.b and 204.

2.3.1 Initial Environmental Evaluation

2.3.1.1 Background and purpose

As defined in Reg. 216 the IEE is “the first review of the reasonably foreseeable effects of a proposed action on the environment. Its function is to provide a brief statement of the factual basis for a Threshold Decision as to whether an Environmental Assessment or an Environmental Impact Statement will be required”.

2.3.1.2 Requirements

Reg. 216 requires that any project funded by USAID provide documentation indicating if there are potential adverse effects to the environment from funded activities. If so, the recipient of the grant must propose mitigation measures to prevent this potential harm to the environment.

There are two exceptions:

- Activities carried out in an emergency or that have exceptional foreign policy sensitivities are exempt.
- Activities that, by their nature, are unlikely to have a negative impact on the environment qualify for a Categorical Exclusion. (A program with only categorically excluded activities will not have to carry-out an IEE but will have to submit a Categorical Exclusion Factsheet with the relevant Reg 216 sections cited.)
All other programs must prepare an IEE and request the relevant category/categories or “Threshold Decision(s)” along with justification in a narrative report. USAID has determined four possible categories (Threshold Decisions) resulting from the IEE:

- **Negative Determination** (ND): No anticipated adverse impact on the environment.
- **Negative Determination With Conditions** (NDWC): Possible adverse impact but measures will be taken to guard against it.
- **Positive Determination** (PD): Likely adverse impact.
- **Deferral**: Not enough is known about the project(s) to make a determination of environmental impact.

### 2.3.1.3 Environmental Determinations

Nobo Jatra’s IEE was approved by the DCHA Bureau Environmental Officer on June 15, 2016. The IEE concluded that the activities implemented by the project are small scale in nature and are not anticipated to have a significant adverse environmental effect, provided that the recommended mitigation and monitoring measures are faithfully implemented. Recommended environmental determinations for program activities are shown in the table below, they fall under the categories of Categorical Exclusion and Negative Determination with Conditions in accordance with criteria outlined in 22 CFR 216. No activities received a recommendation for a Positive Determination or for a Deferral. The general limits of the threshold decisions include:

- Actions that would have an adverse effect on an endangered or threatened species, or critical habitat. As per Regulation 216.5 this IEE has determined that program actions, as proposed, will be carried out in human modified environments and are unlikely to further degrade conditions for endangered or threatened species or critical habitat provided that mitigation measures are followed faithfully.
- Actions that would significantly degrade national parks, reserved forests (i.e. Sundarbans Reserve Forests) or similar protected areas that contain tropical forests. Also actions that would introduce exotic plants or animals into such areas and activities that would result in the conversion of forest lands to the rearing of livestock in accordance with the Foreign Assistance Act, sections 118(c)(14), 118(c)(15), and 119(g)(10).
- Procurement or use of Asbestos Containing Materials (ACM) (i.e. piping, roofing, etc.), Polychlorinated Biphenyls (PCB), lead, mercury or other toxic/hazardous materials prohibited by US EPA as provided at: http://www.epa.gov/asbestos and/or under international environmental agreements and conventions, e.g. Stockholm Convention on Persistent Organic Pollutants as provided at: http://chm.pops.int.
- Activities that involve the use of genetically modified organisms (GMOs) for research, field trials or dissemination. Such activities would require preparation of a bio-safety assessment with approval from the USAID Biosafety Officer in Washington.

### Summary Table of Recommended Determinations

<table>
<thead>
<tr>
<th>Recommended Determination</th>
<th>Categorical Exclusion pursuant to 22 CFR 216.2(c)(2)(i) for education, technical assistance or training prog.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1.1.1.1) (IEE 1.1.1)</td>
<td>Strengthen local WATSAN committees</td>
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<tr>
<td>(1.1.1.3) (IEE 1.1.2)</td>
<td>Facilitate integrated WASH SBCC messaging at HH, community and school level.</td>
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<tr>
<td>(1.1.4.1) (IEE 1.1.6)</td>
<td>Promote and facilitate linkages between consumers and WASH business</td>
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<tr>
<td>(1.2.1.1) (IEE 1.2.1)</td>
<td>Conduct Media awareness campaigns, including &quot;Girls Not Brides&quot;</td>
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<tr>
<td>(1.2.1.2) (IEE 1.2.2)</td>
<td>Engage and sensitize influential groups</td>
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<tr>
<td>(1.2.1.3) (IEE 1.2.3)</td>
<td>Strengthen Child Protection committees to report and prevent cases of early marriage</td>
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<tr>
<td>(1.4.1.2) (IEE 1.4.1)</td>
<td>Critical reflection and dialogue through Men Care Groups</td>
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<tr>
<td>(1.4.1.3) (IEE 1.4.2)</td>
<td>Conduct leadership training for women and youth</td>
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<tr>
<td>(2.1.2.1) (IEE 2.1.1)</td>
<td>Conduct training on entrepreneurial literacy</td>
</tr>
<tr>
<td>(3.2.1.2) (IEE 3.1.1)</td>
<td>Train DMCs (Upazila and Union) in DRR including participatory risk assessment, good governance and gender sensitivity</td>
</tr>
<tr>
<td>(3.1.1.2) (IEE 3.1.3)</td>
<td>Mobilize VDCs to participate and oversee RRAP development and implementation</td>
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<tr>
<td>(4.2.1.1) (IEE CCA.1)</td>
<td>Train Union-level Standing Committees on social accountability &amp; good governance</td>
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<tr>
<td>(4.2.2.1) (IEE CCA.2)</td>
<td>Engage in evidence based National level policy dialogue.</td>
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<tr>
<td>(4.3.1.1) (IEE CCA.3)</td>
<td>Facilitate re-activation of VDCs</td>
</tr>
<tr>
<td>(4.3.1.4) (IEE CCA.4)</td>
<td>Facilitate linkages between citizens and ward and union and Upazila governance structures.</td>
</tr>
<tr>
<td><strong>Categorical Exclusion pursuant 22 CFR 216.2(c)(2)(viii) for programs involving nutrition, health care or pop. and family planning services except to the extent designed to include activities directly affecting the env.</strong></td>
<td></td>
</tr>
<tr>
<td>(1.3.1.1) (IEE 1.3.2)</td>
<td>Conduct growth monitoring for CU5 with an mHealth pilot project, in coordination with UNICEF</td>
</tr>
<tr>
<td>(1.3.1.2) (IEE 1.3.3)</td>
<td>Provide Micronutrient Powder (MNP) to children 6-23 months</td>
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<tr>
<td>(1.3.2.2) (IEE 1.3.5)</td>
<td>Support coordination for nutrition at community clinics.</td>
</tr>
<tr>
<td>(1.3.1.4) (IEE 1.3.6)</td>
<td>Provide conditional cash transfer to pregnant women and girls</td>
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<tr>
<td>(1.3.1.5) (IEE 1.3.7)</td>
<td>Conduct BCC outreach activities on nutrition (Mobile Alliance for Maternal Action-MAMA messages, demonstrations and awareness campaigns)</td>
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<tr>
<td>(1.3.2.3) (IEE 1.3.8)</td>
<td>Reactivate the Community Clinic-Community Support Groups</td>
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<tr>
<td>(1.3.1.6) (IEE 1.3.9)</td>
<td>Provision of Community Nutrition Facilitators (CNF)</td>
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<tr>
<td><strong>A Negative Determination pursuant to 22 CFR 216.3 (a)(2)(iii) with Conditions:</strong></td>
<td></td>
</tr>
<tr>
<td>(1.1.2.1) (IEE 1.1.3)</td>
<td>Support community water management committees to manage and maintain water supply facilities.</td>
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<tr>
<td>(1.1.2.4) (IEE 1.1.4)</td>
<td>Provide community water facilities with appropriate alternative new water option(s) that meet environmental sustainability standards, rehabilitate and/or develop deep tube wells and pond sand filters, etc.</td>
</tr>
<tr>
<td>(1.1.3.1) (IEE 1.1.5)</td>
<td>Rehabilitate and/or construct latrines to meet hygienic sanitation standards</td>
</tr>
<tr>
<td>(1.3.2.1) (IEE 1.3.1)</td>
<td>Capacity building for government health service providers</td>
</tr>
<tr>
<td>(1.3.1.3) (IEE 1.3.4)</td>
<td>Implementation of an mHealth pilot project.</td>
</tr>
<tr>
<td>(2.1.1.1) (IEE 2.1.2)</td>
<td>Select (extremely poor) men and women entrepreneurs to participate in the graduation program</td>
</tr>
<tr>
<td>(2.1.3.1) (IEE 2.1.3)</td>
<td>Conduct training in technical skills required for alternative income generated activities (AIGA)</td>
</tr>
<tr>
<td>(2.1.3.2) (IEE 2.1.4)</td>
<td>Strengthen linkages to private sector to identify and select market-based livelihoods opportunities</td>
</tr>
<tr>
<td>(2.2.2.2) (IEE 2.2.1)</td>
<td>Facilitate training on NRM, Agro-Production and farmer management skills to producer groups</td>
</tr>
<tr>
<td>(2.2.2.1) (IEE 2.2.2)</td>
<td>Establish climate smart demonstration plots</td>
</tr>
<tr>
<td>(2.2.3.2) (IEE 2.2.3)</td>
<td>Form agro-business service committees</td>
</tr>
<tr>
<td>(2.2.3.3) (IEE 2.2.4)</td>
<td>Build Capacity of LSPs to provide sustainable services</td>
</tr>
<tr>
<td>(3.2.1.3) (IEE 3.1.2)</td>
<td>Provide technical and acceleration grant support to Union DMCs in implementing RRAP and CDMAP related activities</td>
</tr>
<tr>
<td>(3.1.2.1) (IEE 3.1.4)</td>
<td>Mobilize and train communities on DRR activities</td>
</tr>
</tbody>
</table>

In addition to the above determinations, the DCHA Bureau Environmental Officer attached the following conditions to the approval of the IEE.
**Condition 1:** WV will need to develop a project specific SUAP tiering off of the USAID/Bangladesh Programmatic Pesticide Evaluation Report and Safer Use Action Plan (PPERSUAP).

**Condition 2:** The Environmental Mitigation and Management Plan (EMMP) needs to be approved by the DCHA BEO, in addition to the MEO.

WV has responded to BEO’s condition, SUAP and PMP have been approved by the DCHA Bureau Environmental Officer (BEO) on April 11, 2017 with a project-specific condition ‘World Vision will need to comply with USAID’s Pesticide Procedures for the use, procurement, or promotion of pesticides for livestock activities’.

2.3.2 Environmental Due Diligence

Environmental Due Diligence forms are not specifically required by Reg. 216 or the ADS. However, as part of the pre-implementation environmental impact review process using a Leopold matrix or environmental checklists can help predict the impact of a project on the environment.

2.3.3 EMMP

EMMPs are not specifically required by Reg. 216 or the ADS for IEEs. Reg. 216 does require monitoring of the environment for programs that have prepared Environmental Impact Statements or Environmental Assessments. However, for the Nobo Jatra project the EMMP is implicitly required by the IEE as reference to the plan is making through the document. As new activities have been identified to implement, based on the experience gathered during the first few years of the program, Nobo Jatra has amended the first EMMP. This is amendment #3 considering the activities of the cost extension period.

3 Environmental Screening of Activities

3.1 Potential Environmental Impacts

In general, it is anticipated that the proposed Nobo Jatra activities will not present any significant adverse environmental effects provided that the mitigation and monitoring activities recommended in the IEE are carried out. A discussion of potential environmental impacts for each activity is presented below.

**Purpose 1:** Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls.

(1.1.1.1) (IEE 1.1.1) *Strengthen local WATSAN committees:* Training of WATSAN committees is expected to have no direct impact on the environment. However, from an environmental health perspective, the *indirect effect is potentially positive and long-term* through trainings on basic WASH concepts, union and ward WASH planning, essential hygiene practices, and behavior change communication.

(1.1.1.3) (IEE 1.1.2) *Facilitate integrated WASH SBCC messaging at HH, community and school level:* Training on effective BCC and the dissemination of the BCC messages is expected to have no direct impact on the environment. However, from an environmental health perspective, the *indirect effect is potentially positive and long-term* with behavior change in hygienic fecal management, hand washing, defecating in a latrine, keeping latrines hygienic, water treatment, and proper household water storage.
(1.1.2.1) (IEE 1.1.3) **Support community water management committees to manage and maintain water supply facilities**. The training of water management committees to take ownership for the sustainability of their water source poses potential indirect environmental impacts. In reality, this activity is a mitigation measure to ensure that rehabilitated and developed water facilities meet environmental sustainability standards over the long-term. The project will facilitate linkages between the Department of Public Health Engineering (DPHE), in charge of deep tube wells, and the Community Water Management Committees to develop a plan for accurately measuring and monitoring arsenic concentrations. If field test strips will be used, safe use and waste disposal should be part of Community Water Management Committee training and incorporated into their overall water facility management plan. This is due to the fact that arsenic test strips contain small amounts of mercury that must be disposed of in a manner that will not pose a potential risk to human or wildlife health.

Community water management committees in charge of a pond sand filter (PSF) need to understand how to clean PSF media on a regular basis. Inattention to cleaning leads to increasingly slow filtration rates and potential abandonment due to a perception that the PSF is not working and the long waits for water. All community water management committees must fully understand what the response protocol is if water quality is not up to adopted standards and reporting protocols to the Upazila DPHE and to World Vision Bangladesh, WASH staff.

(1.1.2.4: (IEE 1.1.4) **Provide community water facilities with appropriate alternative new water option(s) that meet environmental sustainability standards, rehabilitate and/or develop deep tube wells and pond sand filters, etc.** Soil is an excellent filter for removing pathogenic microorganisms found in surface water. Therefore the rehabilitation and/or development of tube wells or PSFs are steps in the right direction toward providing water that meets the Bangladeshi public health and World Health Organization (WHO) international drinking water quality standards. However, shallow tube wells (< 250 ft) are usually not successful options for drinking water due to high arsenic and saline water concentrations. Recharge areas for deep aquifers are typically far from the well pump location. Therefore, contamination from local sources is not a prominent concern. However, contamination from distant sources and/or chemical (water) weathering of deep soil layers may be possible.

Damaged tube wells can become pathways for contamination of aquifers during storm surge and rainfall runoff flooding. Constructing wells to withstand storm surge and rainfall runoff flooding blocks this point of entry for contaminated surface water or salt water. In storm surge vulnerable areas wells should be constructed to at minimum to DPHE storm surge standards. Of concern is overuse of tube wells, which enables saltwater intrusion by reducing the freshwater column pressure on the denser saltwater allowing it to move inland or if the saltwater interface is close enough to the well, the reduced pressure inside the tube well can draw saltwater into the tube well itself contaminating the water for drinking.

PSFs (if designed and operated correctly) have been shown to improve the quality of drinking water for all drinking water parameters. However, they are not fully effective in reducing salinity and fecal coliform bacteria where source water concentrations are high. Arsenic is not generally a problem for PSFs as source waters are from captured rainwater ponds. In the project context, common practice is to collect rainwater in an open pond and pipe this water to a pond sand filter. This method removes

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1 Since the IEE was approved, the title for this activity was been changed with revisions made in the project log frame. The new activity title is “1.1.2.1 “develop community water management committee members’ technical skills for water system maintenance. (Project will facilitate linkages between community water management committees, DPHE which is in charge of tube wells to develop a plan for accurately measuring and monitoring arsenic concentrations.”
concerns of salinity and arsenic but allows for a wide spectrum of chemical and pathogen pollutants to enter the source pond.

Tube well and PSF post-development water quality monitoring should begin prior to use and continue quarterly for the first year after the water facility comes into public use in accordance with USAID regulations, which require water sample testing for arsenic and fecal coliform. Both the Bangladeshi DPHE and international WHO drinking water quality parameters for arsenic and fecal coliform will be considered taking the more stringent of the two as the standard. Ideally water quality tests should be performed on the chemical, biological and physical quality of the proposed water source. Local monitoring of arsenic in wells and fecal coliform in PSFs should continue thereafter. There are no particular environmental concerns regarding development of alternative water treatment systems as long as water quality testing is performed regularly.

Nobo Jatra plans to install newly identified water treatment systems (RO Plant, AIRP, Sky Hydrant) which may have environmental impacts. RO plants post-development water quality monitoring will be carried out prior to use and continue quarterly for the first year after the water facility becomes public use in accordance with USAID regulations and monitoring will be carried out by water sample testing for Chloride (for salinity), arsenic, iron and fecal coliform. Both the Bangladeshi DPHE and international WHO drinking water quality parameters’ will be considered by Nobo Jatra project. For RO, the sub-projects have been categorized as; constructing RO house, and installation of RO plants. During construction of the RO house, the impacts are not considered to be significant since the selected sites are in unfarmed and secured private land as well as Union Parishad premises. However, environmental concern in the case of storing materials and equipment, waste and waste water may create a small-scale impact on the surrounding environment; therefore, health and safety issues will be required to take into consideration. During the operation phase, the waste effluent of RO systems is composed of brine and backwash liquids from pretreatment which may affect the aquatic environment of the disposal site in the tidal canal or river if the brine is not sufficiently dissipated. For the sustainability of the RO plant, a business model must be followed by the Water Management Committee (WMC) of the respective plant.

If the standard concentration level of arsenic is not maintained by the treatment process throughout the operation of AIRP, the community members will be exposed to a potential health risk. Therefore, Nobo Jatra will carry out water sample testing for arsenic, iron, and fecal coliform prior to use of the water; as well as during the operation stage of the plants. The sludge to be generated from the treatment process may contaminate surrounding soil and water bodies if it is not managed in sound manner. During construction, workers can be injured if they are not equipped with adequate safety gear. Construction related waste can be generated and can pollute the surrounding area if proper waste management systems are not considered. The water quality of the AIRP can be deteriorated if the filter bed is not cleaned periodically AIRP plant post-development water quality monitoring will be required to be carried out prior to use and continue quarterly for the first year after the water facility becomes public use in accordance with USAID regulations; and monitoring will be carried out by water sample testing for arsenic, iron, and fecal coliform. Both the Bangladeshi DPHE and international WHO drinking water quality parameters’ standards will be considered by the Nobo Jatra project.

To ensure safe water supply from Sky Hydrant, the testing of water samples will be required and monitored carefully. The fecal coliform test will be required post-development of the system and prior to use as well as during the operation stage of the plant. The test will then be conducted quarterly once for the first year after the water facility becomes public use. The Bangladeshi DPHE and WHO standard will be followed for the quality of the defined parameters. Small amounts of waste water produced from the treatment process can contaminate surrounding soil, land and water if not managed in sound manner. During construction of plant house, workers can be injured if they are not equipped with adequate safety gear. Construction related waste can be generated and pollute the surrounding area if proper waste management systems
are not considered. For sustainability of the water technology, a business model must be followed by the Water Management Committee (WMC) of the respective plant.

(1.1.3.1) (IEE 1.1.5) Rehabilitate and/or construct latrines to meet hygienic sanitation standards:: Nobo Jatra will implement Citizen Voice and Action (CVA) to advocate for government sanitation subsidies to be directed to the most vulnerable households. CVA is a social accountability approach that aims to increase dialogue between ordinary citizens and organizations that provide services to the public. Nobo Jatra will train VDC (Village Development Committees) to use CVA to empower communities to influence the quality, efficiency and accountability of public services. Communities will be encouraged to compare actual services with the standards of service that their government has committed to providing. WV will provide training and help mobilize community members to identify gaps in service delivery, develop score cards and advocate for improvements through continuous engagement with relevant office bearers. Additionally, the project will support up to 8,800 extremely vulnerable HH with subsidies for new latrines and another 8,800 families with subsidies to rehabilitate existing latrines. Latrines have the direct potential to contaminate groundwater with pathogens that can be transported to shallow wells or to nearby surface water sources. A poorly designed latrine also has the potential to serve as a breeding ground for disease-carrying vectors. During the field visit it was observed that latrines often emptied directly into open rivers/channels contributing to a degradation of aquatic conditions. Despite the potential risk of contaminating groundwater that will pose a negative risk to the environment, a do-nothing approach to open defecation poses an even greater environmental risk.

There is the need to design pit-latrines to account for the area’s generally high water table. International standards, of 1.5m distance between bottom of the pit and water table and 30m from any water source, may be difficult to impossible to follow given the area’s abundant water resources, high population density and small household plots. Regarding distance between a latrine and water sources, a review by the Development Resource Center provides local context,

“...recommendations published by the GOB Department of Public Health Engineering, to install pit latrines or ring slab latrines 30 feet from shallow hand tube wells (depth 240 feet). For the deep hand tube wells (depth 900 to 1100 feet), no separation is required. This is the informal recommendation for rural areas.” iii

At the present the Department of Public Health Engineering does not offer any formal or informal recommendations on addressing high-water tables and latrines. For high-water tables the following options exist many of which are suggested by UNICEF for areas with high water tables:

1) A raised latrine: Costly and disabled- and elderly-unfriendly. Community members express feelings of being exposed. Earth mounded raised latrines would require a minimum of 36ft² of space, which in the high density and poor rural households may not be available. In addition a mound of this size would be prone to erosion. If earth mounded raised latrines are deemed feasible they should be constructed during the dry season and vegetated.

2) The sand enveloped latrine: Expensive. The sand enveloped latrine will not comply with the 1.5m pit-to-water-table spacing standards but does offer a pathogen filter. Although in areas with considerable clay content, a sand filter may not offer an advantage over clay. As discussed soils with low permeability like clay have narrow space between soil particles

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8 The author does not make the claim that this is an exhaustive list. There may be emerging technologies appropriate for high water tables of which the author is unaware.
through which effluent can pass slowing the movement of the liquid. A slow filter of pathogens out of the latrine pit effectively allows them to die off naturally. Sand envelope needs to be replaced after some time. Incorporating a sand envelope adds an additional $43/latrine.

3) Sealed pits: Must be watertight and are expensive. Community members express dissatisfaction with sealed pits because they fill-up too fast and they have no money to replace the latrine. Emptying the pit is an option but unsurprisingly there is strong push-back toward this activity and would require extensive training in handling human sludge.

4) Aqua-privy: Variation on a regular sealed pit. Requires significant amounts of water. Providing an environmentally safe discharge area for the overflow pipe may be a challenge.

5) Shallow double-pit pour flush latrine: The addition of liquid increases static head within the latrine pit forcing liquid under pressure into the unsaturated zone around the pit. If distance to the water table is short contamination of groundwater could happen quickly.

6) Composting or eco-san pits: Expensive and require extensive training in how to use them effectively. The double vault requires more space than a single pit latrine. Dry composting toilets reduce risk of harmful pathogens leaching into the groundwater as there is almost no liquid to transport them into the unsaturated zone.

7) Septic-tanks. These are used in the area in government buildings and schools. At the household level this option is cost prohibitive.

8) Biological filters (Tiger toilet, Biofil digester): Expensive but reduce solid wastes efficiently prolonging the use of the toilet. They also convert solids into valuable fertilizer. These systems require addition of water therefore, liquid management and drainage may pose a challenge. Tiger toilet is approximately $250/latrine.

Each of the options have pros and cons. In high water table unions (where wet-season water table data is less than 3.5m from ground level) the project should sensitize beneficiaries to consider modified latrine options that ensure that no harmful pathogens leach into the groundwater. Coordination with WASH market research on user motivations for desiring a toilet may be possible. Latrines constructed or rehabilitated in low-water table areas should maintain, at a minimum, a standard separation of 1.5m between bottom of the latrine pit and the seasonal high ground water depth. Communities bordering the Sundarbans should be sensitized against illegally extracting wood from the reserved forest for construction of sanitation facilities.

(1.1.4.1) (IEE 1.1.6) Promote and facilitate linkages between consumers and WASH business: The actions of brokering relationships with potential businesses that are interested in expanding into the project area are not expected to pose a significant direct impact on the environment. However, the indirect effects of supporting environmentally conscientious or detrimental businesses should be considered, particularly in Bangladesh where industries contribute heavily to water pollution and energy consumption. Businesses with known detrimental environmental practices should be avoided.

(1.2.1.1) (IEE 1.2.1) Conduct Media awareness campaigns, including “Girls Not Brides”: Actions under this activity are anticipated to have no effect on the environment.

(1.2.1.2) (IEE 1.2.2) Engage and sensitize influential groups. Actions under this activity are anticipated to have no effect on the environment.

(1.2.1.3) (IEE 1.2.3) Strengthen Child Protection committees to report and prevent cases of early marriage. Actions under this activity are anticipated to have no effect on the environment.
(1.3.2.1) (IEE 1.3.1) Capacity building for government health service providers. According to the Programmatic Initial Environmental Examination of the Food for Peace FY15 Request for Applications (RFA) for USAID Development Food Assistance Projects, “All FFP project proposals must have provision for promoting safe and effective use of fuelwood, or other energy sources, used for commodity preparation by beneficiaries, integrated across all project designs.”

Given the vulnerability of the mangrove forests yet the high dependence on them by neighboring villages, awareness building on efficient fuelwood use and sustainable harvesting practices among the Ministry of Health and Family Welfare staff and other front line health may have a beneficial effect on the environment. Training modules for the Infant and Young Child Feeding should take into consideration the condition quoted above.

(1.3.1.2) (IEE 1.3.2) Conduct growth monitoring for CU5 with an mHealth pilot project, in coordination with UNICEF: Actions under this activity are anticipated to have no effect on the environment. To support improved GMP, Nobo Jatra will provide a total of 1,073 GMP kits to 960 EPI outreach centers and 113 community clinics (CCs) over the course of the project, with a 20 percent restock in year four to account for loss and breakage. WV will provide instruction on waste disposal of broken equipment. No significant negative effects on the environment are expected.

(1.3.1.3) (IEE 1.3.3) Provide Micronutrient Powder (MNP) to children 6-23 months: MNP is mixed into prepared food directly and therefore, does not require separate preparation that would consume additional firewood or drinking water. Actions under this activity are anticipated to have no effect on the environment. A plan for disposal of MNP packaging is in place.

(1.3.1.4) (IEE 1.3.4) Implementation of an mHealth pilot project: The use of mobile technology to monitor nutrition interventions is anticipated to have no significant adverse effect on the environment, however there is a small potential negative effect on the environment. Mobile phones will be purchased for pilot participating MoHFW workers. To exact the greatest life out of the mobile technology and to keep it out of the trash for as long as possible all hardware will be turned over to the MoHFW at the end of the project for its continued use. After the ownership of project-purchased mobile phones has been turned over to the MoHFW, it will be the responsibility of the MoHFW to see that it is disposed of in accordance with government’s solid waste disposal strategy.

(1.3.2.2) (IEE 1.3.5) Support coordination for nutrition at community clinics: Actions under this activity are anticipated to have no effect on the environment.

(1.3.1.4: (IEE 1.3.6) Provide conditional cash transfer to pregnant women and girls: Actions under this activity are anticipated to have no effect on the environment. However, it is conceivable that cash transfers could be used to buy environmentally harmful items such as pesticides. Nobo Jatra will track expenditures through periodic post-distribution monitoring and the project’s annual surveys. A plan is in place to modify SBCC messages and outreach strategies, if data from these monitoring methods

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9 The National 3R (Reduce, Reuse and Recycle) strategy ratified by the Government of Bangladesh (GOB) in 2010.
reveals purchases out-of-line with the objective of improving nutrition. No phones will be procured by the program. Women participating in the program will use personal phones to receive cash transfers.

(1.3.1.5) (IEE 1.3.7) Conduct BCC outreach activities on nutrition (Mobile Alliance for Maternal Action-MAMA messages, demonstrations and awareness campaigns): Actions under this activity are anticipated to have no effect on the environment.

(1.3.2.3) (IEE 1.3.8) Reactivate the Community Clinic-Community Support Groups: Actions under this activity are anticipated to have no effect on the environment.

(1.3.1.6) (IEE 1.3.9) Provision of Community Nutrition Facilitators (CNF): Actions under this activity are anticipated to have no effect on the environment.

(1.4.1.2) (IEE 1.4.1) Critical reflection and dialogue through Men Care Groups: Actions under this activity are anticipated to have no effect on the environment.

(1.4.1.3) (IEE 1.4.2) Conduct leadership training for women and youth: Actions under this activity are anticipated to have no effect on the environment.

During the cost extension period, activity 1.3.1.1.1 – ‘Private sector service providers provide technical assistance and ensure supply chain for the CSA’ may have minor to moderate level of environmental impacts. The products (e.g. personal hygiene, sanitary napkins) to be sold by the local providers may have non-degradable wastes (plastic/polythine packaging). These may deteriorate the soil health and local water bodies. So, there will be environmental impact for the activity if the company (SMC) will not disseminate proper messages on the disposal/management of such wastes.

Moreover, NJP has plan to carry out water quality testing for faecal and total coliform by Pota Test, membrane filtration (MF) method, which is a water quality testing device to detect the actual numbers of Bacteria (Total and Fecal Coliform) in the water sample. It is anticipated that there may be impact on the environment and may have a few health and safety risks if proper suggested measures are not taken. If Personal Protective Equipment (PPE) is not used during measuring and preparing mixture, it may cause irritation in skin, eye and throat of personnel.

If unused prepared broth, nutrition for microbial growth, is not disposed properly, it will create microbes growth in the disposal site. In case aseptic measures are not taken, it will cause existence of other microbes at the testing site. If precaution and safety measures are not taken, it will cause fire at the testing site. If the pack and foil are not disposed properly, soil may be polluted and will cause soil and water pollution at the disposal site and outbreak of waterborne diseases.

**Purpose 2**: Increased equitable household income
(2.1.2.1) (IEE 2.1.1) Conduct training on entrepreneurial literacy: Actions under this activity are limited to training in small-business management topics and are expected to have no effect on the environment.

(2.1.1.1) (IEE 2.1.2) Select (extremely poor) men and women entrepreneurs to participate in the graduation program: There are six elements to this activity: (1) Entrepreneurial literacy training; (2) Monthly cash transfer; (3) IGA selection and development; (4) Productive asset development; (5) Participation in savings groups; (6) Ongoing supervision, mentoring and follow-up.

Element “(3) IGA selection and development” presents a potential indirect negative effect on the environment. This element is incorporated into and more fully described in activity (2.1.3.1) (IEE 2.1.3). Therefore potential environmental concerns for this element will be described under that activity.

Also, element “(4) Productive asset development” presents a minor potential indirect negative effect on the environment. With any cash transfer there is the possibility that it can be used for ways unintended by the project that may have a negative effect on the environment. The productive asset development cash transfer will take place after the beneficiary has received training in their selected IGA. An indicator of internalization of environmentally sound practices promoted in the IGA training would be evidence of such practices outlined in their business plan.

At least sixty percent of the participants in the graduation program will be women. The work load for women is very high in target communities. To compensate households for this lost labor the program has incorporated a monthly cash transfer via a mobile money mechanism, “(2) Monthly Cash Transfer”. Cultural behavior indicates that when a woman is bringing income into the house, she can receive leniency on expected roles and tasks. Monthly cash transfer sums are small and short-term. No significant adverse effects on the environment are expected.

(2.1.3.1) (IEE 2.1.3) Conduct training in technical skills required for alternative income generated activities (AIGA) The overall expectation of this activity is that the reduction of pressure on the SRF for extraction of forest, aquatic and animal products (legally or illegally) through alternative livelihoods will have indirect long-term positive effects on the environment.

A total of 18,000 people are expected to be trained in technical skills that provide opportunity to earn income outside of the traditional options of farming and harvesting of forest and aquatic products. At this point the technical skills are not defined but will be developed based on market analysis. Of the potential skills to be taught conceivable harm could come to the environment if sound environmental practices are not incorporated into training modules. For example take the IGA of fish processing, this activity often has organic wastes that if disposed directly back into the fish pond or other water body can reduce water quality and harm other aquatic species unintentionally. On the other hand, conceivable benefit could come to the environment by following sound environmental practices such as with activities like sapling nurseries that can promote and preserve landraces, cultivars, and rare species essential to maintaining biodiversity.

During the development of training modules, analysis of potential effects upon the environment should be made. Identification of sound environmental practices should be part of each training module.
(2.1.3.2) (IEE 2.1.4) Strengthen linkages to private sector to identify and select market-based livelihoods opportunities: The actions of brokering relationships with potential businesses that are interested in expanding into the project area are not expected to pose a significant direct impact on the environment. However, the indirect effects of supporting environmentally conscientious or detrimental businesses should be considered, particularly in Bangladesh where industries contribute heavily to water pollution. The proposal states that “Nobo Jatra will evaluate partnership opportunities against business, sustainability and social criteria”. Within the criteria of sustainability should be included a condition for environmentally conscientious business practice

(2.2.2.2) (IEE 2.2.1) Facilitate training on NRM, Agro-Production and farmer management skills to producer groups:
Environmental effects of actions under this activity are broken up by training modules that will be offered to participating farmers.

Management practices: Management practice technologies identified in the proposal include: nursery operation; land preparation; manure and fertilizer application; lime application; composting and mulching; line sowing (row and crop distance); intercropping; grafting; transplanting; weeding, thinning and pruning; use of low-cost greenhouses for off season and late season production; direct seeding (cereal crops).

Nursery operation and low-cost greenhouse activities compose a small percentage of the total management activities but could potentially have a negative effect on the environment. Nurseries will not promote exotic or invasive plant species. Area dimensions are not known at present. Small plastic sheathes are typically used to transport seedlings. These plastic bags are cheap, readily available to nursery operators, and adequately protect the roots of the plants during transportation. However, the environmental downsides to these bags become apparent once they've switched hands to the grower. Plastic bags are often discarded into the environment where they clog drainage ways, suffocate aquatic animals, reptiles and amphibians, harm digestive systems of land animals, and offer breeding sites for mosquitos. Burning plastic bags is not an environmentally friendly solution either as this releases noxious smoke. Some research highlights that plants grown in bio-degradable bags suffer less transplant shock and establish roots better than plants grown in plastic tubingVI. Financial incentive programs to encourage seedling buyers to return plastic sheathes may reduce waste entering the environment but these mechanisms tend to have low success rates. Improvements on the use of biodegradable jute root bags could be done in coordination with the alternative income generating activities to make these bags available and affordable to nursery owners. For nursery and greenhouse activities, Nobo Jatra should develop a waste reduction plan to minimize plastic bags littering the environment. Nobo Jatra will encourage use of bio-degradable bags instead of jute bags. Where needed, a waste reduction plan for nurseries will be developed together with beneficiaries to respond directly to the challenges affecting a specific site. WV has provided a sample waste management plan in Annex 7. This will be used as a template to develop tailored plans at each site.

In many agriculture settings land preparation techniques can result in the loss of soil and nutrients. However, the gher farming system practiced in southwestern Bangladesh nearly eliminates all surface runoff and when not filled with water the elevated dikes serve as wind breaks to keep soil from blowing away. Other management practices such as composting and mulching, line sowing, intercropping, grafting, transplanting, weeding, thinning and pruning, and direct seeding are likely to bring a benefit to the environment.
Aquaculture management: Polyculture activities promoted will take place in rain-fed closed-system ghers. Nobo Jatra will be promoting the use of only freshwater throughout all cropping seasons. Concerns about farmers intentionally applying saline river water to flood ghers are not substantiated. Interviews with farmers during the field visit suggest that farmers are knowledgeable about harmful effects applying saline water to their soils. Application of arsenic contaminated tube well water is a possibility if the farmers have access to a pump and hoses. Therefore, the consequences of salt and arsenic contaminated water application should be included within the training module. Infiltration of fresh rainwater captured for aquaculture can serve to flush out accumulated salts in the soil making it more suitable for crop production come dry season. While river and open defecation is a general problem in the target area, there is a social taboo on this practice in freshwater fish/prawn ponds. Ponds are used for the Islamic oggi ceremonial washing before prayers. Defecation in these ponds would make the water unsuitable for cleansing. In addition farmers are well aware of the export standards for fish and prawn and do not want to jeopardize potential income by allowing their ghers to become contaminated. Engaging women to participate in aquaculture is in-line with the National Fisheries Policy, 1998 (section 7.3).

Aquaculture seeding is traditionally by capture of wild post larval and juvenile prawn or fish fry. Extensive overharvesting and high by-catch volumes are destroying the rich southwestern coastal fisheries. In an effort to protect and sustain the fisheries the Protection and Conservation of Fish Rules 1985 placed a ban on the collection of fry or post larvae of fish, shrimp and prawns from open rivers. Hatcheries for freshwater fish are plentiful and access is good. Farmers interviewed during the field visit responded that they had purchased fish fry from a private hatchery. The practice of collecting prawn seed from the wild still exists. While the program will promote the purchase of certified pathogen-free post-larval prawn from private or government hatcheries, it may encounter resistance to paying for prawn seed. The program implementers should be aware that turning a blind eye to traditional seed capture methods would have a negative effect on the environment.

Drawing broadly from Winrock’s experience implementing the Climate-Resilient Ecosystem and Livelihoods (CREL) program, Nobo Jatra will develop culturally sensitive approaches to counter past environmentally detrimental practices. Nobo Jatra will encourage the adoption of the hatchery produced post-larval prawn through 1) culturally-sensitive behavior change messaging embedded in agricultural training and entrepreneurial literacy (importance of ecosystem health, etc.); 2) demonstrating the productivity gains that can be made through use of the hatchery post-larval prawn (lead farmer demos, etc.); and 3) by increasing the availability of the hatchery produced post-larval prawn by working with hatcheries and their agents to market the post-larval prawn in project areas. Verification of purchase of pathogen-free post larval prawn should be required for all participating farmers.

Pest and disease management: The Nobo Jatra program will promote an Integrated Pest Management (IPM) approach to all aquaculture activities. IPM practices encourage natural and cultural pest control practices and view pesticides (organic or chemical) as “last resort” actions to prevent crop destruction by pests. The project will not directly promote any pesticides. However, it is a known fact that some farmers are applying pesticides to their crops. Therefore, the project has developed Safe Use Action Plan (SUAP) and SUAP has been approved by the DCHA Bureau Environmental Officer (BEO) on April 11, 2017 with a project-specific condition ‘World Vision will need to comply with USAID’s Pesticide

10 In this Muslim dominant culture, the freshwater in ghers is often used for cleansing before daily prayers. Defecation in this water would make it unsuitable for cleansing. Also, there is high awareness about stringent fish/prawn export standards. Farmers do not want to jeopardize their financial return by allowing their investment in fish/prawn to be contaminated by human fecal matter.
Procedures for the use, procurement, or promotion of pesticides for livestock activities. WV will train participants in the safe and judicious use of pesticides in accordance with the Bangladesh Mission-wide Programmatic Pesticide Evaluation Report and Safer Use Action Plan (PPERSUAP) Asia 16-003 approved by BEO, ASIA dated October 2015. The unintended and harmful effects of improper pesticide application include: contamination of soil and water, pesticide drift, effects on non-target organisms, disruption of natural pest controls leading to pest resurgence, and resistance.

**Crop genetics:** High-yielding varieties, drought and saline resistant varieties, and bio-fortified varieties promoted will all be varieties approved by in-country seed certifying entities such as the Bangladesh Rice Research Institute, Bangladesh Agriculture Research Institute, or the Bangladesh Institute of Nuclear Agriculture. No exotic or GMO seed varieties will be introduced. A complete shift to improved crop varieties would reduce agro-biodiversity therefore, local seed varieties that demonstrate advantages for climate change adaptation such as drought and/or salt tolerance and pest resistance will also be promoted. Culturally sensitive training should avoid devaluing local crop varieties while still promoting the improved seed varieties that are themselves a climate-change and variability adaptation strategy essential to the food security of the region. High-yielding varieties have already gained popularity in the region. In combination with culturally sensitive training, losses to local landraces and cultivars may be mitigated by the fact that local taste preference is for traditional crop varieties (which in turn fetch higher local market prices). High-yielding varieties will be promoted carefully and in accordance with approved varieties by seed-certifying institutions.

**Soil fertility and conservation:** Good soil characteristics are essential to plant health. A healthy soil will have a greater capacity to moderate the uptake of nutrients creating a healthy plant that is more resistant to pest and disease damage. The use of fertilizers can have negative effects on the environment.

Chemical fertilizers will not solve salinity problems. In fact, when not applied judiciously chemical fertilizers can increase mineral salts in the soil. Response to fertilizer in saline soils will be limited unless the soil structure and poor drainage are addressed. This can be done in part through liming. The selection of chemical fertilizers should be done with care (and in accordance with the Bangladesh Mission-wide Programmatic Pesticide Evaluation Report and Safer Use Action Plan (PPERSUAP) Asia 16-003 approved by BEO, ASIA dated October 2015, particularly in a polyculture system. Some fertilizers contain heavy metals such as cadmium, mercury and lead. Fish and other aquatic organisms bio accumulate these heavy metals, which are then consumed by humans. In addition, over-application of fertilizers and pesticides can result in chemical leaching into the soil and groundwater system. Contamination of surface water is not a prominent concern as there is no surface drainage out of the gher embankments. Training provided by Nobo Jatra will instruct farmers to apply safe use and handling standards outlined in the training module.

The preparation of bio-fertilizer is another option that can be realized every few years by collecting the soil from prawn/fish ghers during the dry season. The material from the bottom of the ghers will be used to fortify the gher dike. This fertile soil will serve as a substrate in which horticulture crops can be grown. A benefit to the environment is that due to the nutrients contained in the bottom-soil, horticulture crops do not need extra fertilizers applied when planted in this soil. Removal of pond bottom soil may improve infiltration drainage characteristics beneficial for crop growth.

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https://www.researchgate.net/publication/269784904_Effect_of_Different_Heavy_Metal_Pollution_on_Fish
Soil conservation techniques should also be taken into consideration when considering a comprehensive approach to improving soil fertility and structure. Soil conservation techniques such as incorporation of composts can improve soil structures, promoting plant root growth and water drainage. The proposal mentions promotion of a no-till conservation approach. This approach should be considered as the progression toward improved soil structure is obtained. The no-till approach should not be applied immediately to severely degraded soils or to soils that undergo severe hardening during dry seasons. On such soils, tillage is required to create a favorable zone for water infiltration, crop establishment, and root penetration. After several well-managed crops, it may be possible to grow subsequent crops on these soils with zero tillage.

Chemical fertilizers, bio-fertilizers, and soil conservation practices should be considered together to develop a comprehensive approach tailored to the specific soil and crop needs. A nutrient management plan should be developed for each agro-ecological zone that propose best nutrient package. The best package may involve multiple forms of nutrient inputs. Baseline soil fertility should be established. The nutrient management plan should take into consideration soil quality improvement practices for soil salinity and sodicity as well as the process (steps) for nutrient application (ex. liming before chemical fertilizer application).

Irrigation and water management: Rainwater is captured in ponds and small reservoirs to use for irrigation during the dry season. To conserve this precious resource drip/sprinkler irrigation and mulching will be used to cultivate horticulture crops along gher dikes and in small plots typically close to the home. Mulch used will be residues from previous crops or other locally available vegetative materials rice straw and coconut leaves. Maintaining horticulture plots close to the homestead is a common cultural practices. Removal of vegetation other than the clean-up of weeds is unlikely. Drip irrigation and mulching activities are expected to have no negative effect on the environment.

Water management should always consider drainage, particularly when combating salinity. Good drainage can assist in flushing out accumulated salts. In the closed cropping system that is practiced, there is no drainage except via percolation. In a mix cropping system where rice is grown within the gher embankments, surface drainage can be improved by digging trenches around the inside perimeter of a central paddy field allowing water to drain off the paddy into the trenches.

Nobo Jatra will be promoting the use of only freshwater throughout all cropping seasons. This promoted action is expected to have no negative effect on the environment. However, the reality is that collected rainwater in gher in some regions becomes contaminated with some saline water, whether through seepage or intentional application. Addressing salt water mixing with freshwater must be done. This should include identification of ways to limit salt water seepage. If the program determines that beneficiaries are intentionally applying salt water, assessing the reasons for this and looking at the options for safe salt water mixing may stop further soil degradation. The practice of shandyng or mixing of salt and fresh water to certain electrical conductivity (EC) levels appropriate for a particular soil type can ensure that soil degradation does not continue. Nobo Jatra should seek to coordinate with government entities such as the Soil Research Development Institute and other USAID partners on appropriate electrical conductivity (EC) levels for soil types in the target area and incorporate this knowledge into the Aquaculture training.
Climate mitigation and adaptation: The US Presidential Executive Order on Climate Resilient International Development\textsuperscript{12} mandates the integration of climate screening and sensitivity analysis into all USAID development activities. Raising awareness on climate mitigation and adaptation among all farmers participating in project activities is expected.

Specific activities under this module include: drought and saline resistant seed varieties; raised bed agriculture; pond dyke agriculture; floating agriculture; rice and fish intercropping. Many activities mentioned above are discussed under separate training modules. However, the discussion on the introduction of exotic plant and fish species through promoted activities has not been covered. This is discussed in the following paragraphs.

One side note on floating agriculture is that humans are at risk for skin infections and other health problems from prolonged exposure in water. Participants’ health should be monitored and the training module must include address potential risks to both the environment and human health.

Tilapia, a principal species promoted in rice/fish production is a non-native invasive species. It is, however, promoted by the Department of Fisheries and the Bangladesh Fisheries Research Institute as a source of protein for household consumption and income. Tilapia is a freshwater fish and is found in the wild throughout fresh water habitats in Bangladesh. Its impact on native fish is uncertain and difficult to ascertain from the many other pressures on native fish species. Introduction into the wild from project activities could happen during a storm surge event or if producers threw sick fish into saline canals/rivers. Canal/river water in the project area is quite saline and unsuitable for tilapia to thrive in. Nevertheless, training on proper disposal of fish waste needs to be part of aquaculture activities. Little can be done to prevent fish from being swept into the environment during storm surge events. Ocean water brought in by storm surge is unsuitable for tilapia and survival of lost tilapia is unlikely.

Post-harvest handling: Appropriate post-harvest handling can significantly reduce post-harvest waste, thereby fully utilizing water and nutrients provided by nature and providing a benefit to the environment. At the present the project does not anticipate the promotion of chemical fungicides, biocides, or sanitizers. If pesticides are deemed necessary they should adhere to the Mission-wide PPERSUAP. Also, if it becomes apparent that chemicals are needed a safe-use plan must be created.

Value added processing: Processing of crops can also significantly reduce post-harvest waste, thereby fully utilizing the nutrients provided by nature. However, the by-products from processing can result in waste that must be dealt with properly. In particular, animal wastes from fish/prawn processing can reduce water quality if thrown or washed into waterways, open wells, or back into the fish/prawn pond itself.

Other activities under farm management such as poultry raising and goat fattening are expected to be small-scale and are not expected to pose a significant negative effect on the environment. Small animal husbandry is exclusively a “woman’s activity”. These activities are seen as an excellent means by which women can enter into a cash economy.

The potential damages to the environment from livestock are typically over-grazing, pollution of drinking water surface and or groundwater supply sources, and soil erosion due to trails and over crazing. The field visit (during dry season) did not reveal clear evidence of over-grazing or animal induced soil erosion. Current ecosystem carrying capacity for small animals appears to be sufficient as little active erosion attributable to animals was observed and preferred palatable forage was observed to be rice stubble of which there was an abundance. Small-scale fodder production on homestead plots mitigates potential over-grazing and associated erosion plus improves animal product production and the general health of the animal. Goat stocks will generally be < 3 per household and poultry stocks < 10 per household. Watering practices were not observed. However, livestock is known to increase harmful pathogen concentrations and to increase turbidity in water sources. Training material should include topics on small-scale fodder production and environmentally conscious forage and water practices. Environmental conditions influence nutrition intake and weight gain for children under 5, in particular. One study found statistically significant correlation between households with 1) animals corralled in their sleeping quarters and 2) relaxed hygiene standards and low weight scores in Bangladeshi children under 5. Nobo Jatra will coordinate small animal husbandry activities closely with health and hygiene activities to promote high standards of hygiene particularly washing hands at all appropriate times for caregivers and children under 5. Small husbandry training should include topics on hygiene and homestead environmental health practices. Poultry breeds and the Black Bengal goat breed promoted are considered indigenous. These types of chickens are preferred in the community for meat and eggs as well as their ability thrive due to lower nutritional demand and higher resistance to diseases and heat stress. The same can be said about the goats. Avian flu among chickens exists. Goat pox and pneumonia can affect goats. Nobo Jatra will coordinate with other organizations with livestock expertise such as USAID’s Feed the Future homestead livestock activities. Cultural norms typically limit a woman’s ability to travel alone or far from home. The project will utilize mobile technology messages to assist women in identifying illness and maintaining bio-security without the need to leave home. Bringing agro-vet products deeper into rural areas can increase accessibility to medicines and vaccinations thereby reducing the spread of disease. Nobo Jatra will coordinate small animal husbandry activities with Local Service Provider activities (2.2.3.1) (IEE 2.2.4) that focus on agro-vet training to ensure that farmers and local businesses are fully versed in use and disposal of medicines and vaccines. It is possible that some livestock owners will desire to improve breeds through artificial insemination. Nobo Jatra may train Local Service Providers in artificial insemination administration as well as link program participants with providers such as BRAC and the Department of Livestock Services.

(2.2.2.1) (IEE 2.2.2) Establish climate smart demonstration plots: 200 demonstration plots will be established over the life of the project. The footprint of these demonstration plots with regard to the overall project area is small. Practices promoted are those discussed under Activity (2.2.2.2) (IEE2.2.1) and are expected to have an indirect effect on the environment through adoption and dissemination of these practices on private agricultural plots. In addition demonstration plots should seek to promote actions that are in alignment with national and other climate change adaptation initiatives. Previously undeveloped land or marginal land will not be sought for the establishment demonstration plots. Demonstration plot selection criteria is in Annex 5

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13 Active erosion was observed but the causes of the erosion appeared to be more attributable to the high population density rather than to livestock.
14 Bio-security refers to measures taken to reduce disease being carried onto or off of one’s own farm.
15 Currently, BRAC does not represent an acronym.
Hand-washing stations that are placed on demonstration plots should be designed with a soak-away and water drainage directed away from the station into a vegetated site. Properly designed drainage protects 1) aquatic life, and 2) human health. Vegetation acts as filter for phosphates that may be in soap used at the hand-washing station. When phosphates enter a water body they provide nutrients for algae growth. Algae in overabundance deplete oxygen supplies for other aquatic animals. Failure to factor in drainage counters the promotion of hygiene and health when mud and standing water (vector-borne breeding site) forms around the hand-washing station.

(2.2.3.2): (IEE 2.2.3) Form agro-business service committees: The majority of actions under this activity are not anticipated to have any direct impact on the environment. However, there was a misunderstanding in the development of the IEE where it was deduced that Nobo Jatra will be constructing collection centers. However, the project will only be mobilizing farmers and value chain actors within identified clusters and a central location may be used a meeting point e.g. for business fairs, selling or buying products. There will be no construction of any buildings. Farmers and value-chain actors will identify an appropriate space that already exists. WV is thus requesting that the conditions linked to this activity be removed from the IEE.

(2.2.3.1) (IEE 2.2.4) Build Capacity of LSPs to provide sustainable services. Training of Local Service Providers (LSPs) is likely to have indirect effects on the environment. A portion of LSPs’ capacity will be built under the same training modalities as outlined in activity (2.2.2.2) (IEE 2.2.1). However, LSPs may receive additional training in topics such as artificial insemination and livestock/fish stock vaccination. Coordination with USAID Feed the Future homestead livestock activities and USAID PRO GIS activities should be established to improve activity efficiencies. Inclusion of sound environmental practices within each training module and adhering to mitigation activities recommended for activity (2.2.2.2) (IEE 2.2.1) will mitigate adverse effects on the environment.

Purpose 3: Strengthened gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from man-made and natural shocks and stresses

(3.2.1.2) (IEE 3.1.1) Train DMCs (Upazila and Union) in DRR including participatory risk assessment, good governance and gender sensitivity. The training-of-trainers modality for building knowledge on disaster management is expected to have no effect on the environment. These activities are focused on response behavior during a disaster event. While there is likely a connection between a disaster and climate change, the messages on “what to do” during a disaster should not be muddled with scientific explanations for why the event is happening. During a disaster the people need only remember what they should to do to stay safe.

(3.2.1.3) (IEE 3.1.2) Provide technical and acceleration grant support to Union DMCs in implementing RRAP and CDMAP related activities .. The CDMAP is developed at the union-level. Although CDMAPs will be critiqued based on sensitivity to target gender gaps, a “Do No Harm” lens should also be applied when reviewing CDMAPs. For example, if a CDMAP identifies the need for a river embankment to be reinforced the CDMAP should also address mitigation measures necessary to avoid negative effects on the environment such as, a revegetation plan with native fast-growing plants to limit erosion. There is minor potential for indirect adverse effects on the environment from this activity.

Nobo Jatra has identified 9 types of DRR mitigation projects to be implemented under CDMAP. Pond re-excavation work may have some negative environmental and public health impacts if sound
environmental design is not considered. Furthermore, sustainability of the intervention will not be ensured if the community surrounding the project will not be mobilized for repairing or installing the drinking water facilities in order to ensure supply of potable water. There is a risk of water borne diseases for the community people if the water quality is not maintained well due to the risk of erosion, risk of salinity intrusion from the destruction of the ponds bottom clay layer, risk of run-off falling in the pond if the dyke is not constructed well, health and safety risk of the workers if protective gears are not used adequately, and the cutting down of trees.

The people receiving rain water harvesting tanks may be exposed to water borne diseases if they are not aware of the Water Safety Plan (WSP) and proper cleanliness and maintenance requirements for the tanks.

Reconstruction of embankment and earthen road works may have some of the environmental impacts if the environment, health, and safety are not taken into consideration as the work is being done. Soil fertility could reduce if the top soil is not managed after the collection of the soil from the borrow pits. Dust could cause problems for the workers and local people if dust control measures are not taken. The workers can face health and safety problems if they do not have adequate safety gear, water, and sanitation facilities at the worksites. Cutting of trees may also be required for the work where replantation should be required. Soil erosion and deterioration of the water quality within the surrounding bodies of water can be introduced if proper compaction and turfing are not done on the reconstructed embankment or earthen roads. Water flow from small bodies of water can impede the reconstruction of rural earthen roads when proper drainage systems are not considered for the existing bodies of water. However, the activities will reduce the risks of cyclones, floods, and salinity intrusion, etc. in the community. Moreover, the communication amongst the community people will become smoother from the activities. Providing brick flat soling with the rural earthen road works of Nobo Jatra is not anticipated to have a significant environmental impact. Minor impacts could include; disturbance to normal movement of pedestrians if the brick soling is not done properly, minor injuries to workers during construction could occur if they are not equipped with required PPE. The activity will reduce the erosion of soil and ease the communication of rural people. On the contrary, soil erosion on the slope can be introduced if proper compaction and turfing are not done on the reconstructed roads.

Repairing of small rural bridge work may have an environmental impact if proper mitigation measures are not considered. During construction, workers can be injured if they are not equipped with adequate safety gear, and construction related waste can be generated and pollute the surrounding area if proper waste management systems are not considered. Furthermore, if water flow from the canal/channel under the bridge is stopped during reconstruction work then fish/fauna migration and spawning of fish/fauna could be disrupted. This can be happened if alternate fish migration routes are not provisioned during reconstruction work.

Canal re-excavation work to be carried out by Nobo Jatra will mitigate the waterlogging problem in the community. Due to water logging, people are suffering for salinity intrusion, agricultural production, regular movement, health and sanitation. The canal re-excavation activity will mitigate these problems in the communities. However, the activity may have some environmental impacts if mitigation measures are not addressed. Run off carrying re-excavated materials may occur, and will deteriorate the water quality of the surrounded bodies of water. Erosion may occur if the dyke of the re-excavated canal is not compacted properly. Tree can be planted on the Dyke in order to reduce soil erosion. The aquatic flora and fauna can be affected if the re-excavation work is not continued section
wise. Health and safety concerns may arise if the workers are not equipped with adequate safety gear, water and sanitation facilities while working.

The reconstruction of the u-drain will reduce waterlogging; waterlogging has been impeding agricultural production, regular movement of the people within the community and inducing water borne diseases. The reconstruction of the u-drain will reduce the above-mentioned problems within the community. Workers may be prone to health and safety risks if adequate measures like ensuring of PPE, water, and sanitation are not considered.

Disseminating awareness raising messages of cyclone signals by digital billboards will increase awareness among people which will reduce the potential risks and could save them from natural disasters. It is foreseen that no environmental impact will occur from this activity.

(3.1.1.2:) (IEE 3.1.3) Mobilize VDCs to participate and oversee RRAP development and implementation: Knowledge gained in training under activity (3.2.1.2) (IEE 3.1.1) will be passed down to ward-level committees and VDCs. Training will focus on knowing how to respond in a disaster event. These activities are expected to have no effect on the environment.

(3.1.2.1:) (IEE 3.1.4) Mobilize and train communities on DRR activities: In accordance with the US Presidential Executive Order on Climate Resilient International Development, the development of RRAPs is an ideal time to sensitize and raise awareness about the linkages between climate change, disasters, and the mitigation of such disasters. If done well the beneficial effects to the environment are potentially expansive, as the development of the RRAPs represent the input of a wide spectrum of the community and also feeds into union-level CDMAPs.

Purpose-4: (Cross-Cutting): Improved social accountability and national policy engagement of service provision for vulnerable men and women

The following activities have been considered within the operational context and are found to generally, have no significant effect on the environment. Any effect that these activities may have on the environment will be indirect and are not regarded as adverse.

(4.2.1.1) (IEE CCA.1) Train Union-level Standing Committees on social accountability & good governance: Nobo Jatra should seek to coordinate activities with USAID’s Democracy and Governance team to avoid duplicate activities and learn from their experience.

(4.2.2.1) (IEE CCA.2) Engage in evidence based National level policy dialogue.

(4.3.1.1) (IEE CCA.3) Facilitate re-activation of VDCs

(4.3.1.4) (IEE CCA.4) Facilitate linkages between citizens and ward and union and Upazila governance structures

3.2 Environmental Impact Mitigation Measures

Mitigation measures have been thoughtfully considered and developed for activities with foreseen environmental effects. Mitigation measures are outlined in Annex 1- Environmental Mitigation and Monitoring Plan (EMMP). Monitoring recommendations have been set at a level that will capture sufficient information to evaluate the success of the Nobo Jatra program to mitigate adverse effects.

upon the environment while at the same time not overburdening project staff with excessive monitoring duties nor causing undue expenditure of project funds.

(1.1.2.1) (IEE 1.1.3) Support community water management committees to manage and maintain water supply facilities.

Nobo Jatra project will facilitate linkages between community water management committees and DPHE which is in charge of tube wells to develop a plan for accurately measuring and monitoring arsenic concentrations. If field test strips are used, there is risk that arsenic strips contain small amounts of mercury that could pose a health risk to humans and animals. At the same time, water management committees must fully understand the response protocol is if water is found not to meet adopted standards. They must know the reporting protocols to the Upazila DPHE and to WVB WASH staff

**IEE Condition:** Water safety plans are developed and implemented to address risks associated with water testing using arsenic strips

**Mitigation Measure 1.1.2.1a:** (IEE 1.1.3a) Selection of reliable arsenic test kits. Reliable arsenic field kits will be procured based on recommendations from DPHE.

**Mitigation Measure 1.1.2.1b:** (IEE 1.1.3 b) Training of committees on safe use and waste disposal of the test kits.
A water management committee will be considered to be fully trained when all members and selected “caretakers” have complete water point training. Training topics should include but are certainly not limited to:
- Cleaning filter media in PSF
- Safe disposal of filter media
- Safe disposal of arsenic test strips
- How to test and where to report water quality test results
- Response protocol if water quality test results do not meet with adopted standards

Following the training, water management committees will be assisted to develop water safety plans for their specific water infrastructure (well or PSF) in order to ensure the safety concerns expressed earlier are addressed effectively. Water management committees must fully understand the response protocol is if water is found not to meet adopted standards. They must know the reporting protocols to the Upazila DPHE and to WVB WASH staff. Water safety plans should also address necessary measures and required process for reporting. Nobo Jatra will train water management committees according to the WHO guidelines for developing and using water safety plans. 17 The WASH team will conduct site visits to monitor implementation of water safety plans (See Annex 2 Water Safety Plan) and provide technical support where adjustments are needed.

Cleaning the PSF filter media periodically is a key step in maintaining potable drinking water standards. Community water management committees in charge of PSFs need to clean PSF media on a regular basis. If this is not done well, the PSFs will clog leading to abandonment. Training given to Community Water Management Committees should include proper disposal of sand and broken brick pieces removed during the cleaning process.

**Mitigation Measure 1.1.2.1c:** (IEE 1.1.3c) Team has to develop training module for water management committees on maintenance of PSFs and apply it on an agreed upon schedule.

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Through the study on ‘surface and ground water evaluation’ sources map and relevant technology would be identified. So water management committee training manuals will be developed according to the selected technologies. Based on technology relevant mitigation chapter will be incorporated in the training modules accordingly.

- Responsibilities of WMC at specific PSFs point
- Input and output water quality of PSF
- Water safety plan
- Agents quality use for water purification (Using ratio, cleaning and disposal)
- Repair and maintenance
- Practical session
- Assign and develop care taker

1.1.2.4 (IEE 1.1.4): Provide community water facilities with appropriate alternative new water option(s) that meet environmental sustainability standards, rehabilitate and/or develop deep tube wells and pond sand filters, etc. The project will work with DPHE, WMCs and local communities to develop or rehabilitate water supply facilities- such as deep tube-wells and pond sand filters- through co-investment schemes to meet the needs of 167,200 people. The project will also support the development of alternative treatment systems to address water quality issues arising from high arsenic, iron and salinity levels. Final technology decisions will be based on feasibility and appropriateness criteria, with preference given for simple systems, such as direct sun-powered desalination.

**IEE Condition:** Water point site selection done in environmentally conscious manner. Poor site selection of water facilities could lead to degradation of terrestrial, aquatic and coastal habitats. There is also risk that sinking additional wells could lead to depletion of aquifers. A thorough groundwater study should be conducted to evaluate aquifer characteristics, which will ensure greatest success for providing potable water and to mitigate potential adverse effects to deep aquifers.

**Mitigation Measure 1.1.2.4a (IEE .1.14a):** Conduct groundwater study. Groundwater study should include:

- depth to groundwater (information needed for latrine activities)
- hydrogeology data for shallow soil textures and at-depth soil textures such as porosity, permeability, and hydraulic gradient (some information will be used for latrine activities)
- impacts to subsurface water resources considering salinity ingress
- a groundwater management plan
- groundwater quality/portability analysis, if sufficient information is available
- recommended well siting locations
- existing well inventory map (depth of well, depth to water level, portability, construction method) around recommended well siting location with discussion on impact to aquifer resource from additional withdrawal

**Mitigation Measure 1.1.2.4b (IEE 1.1.4b):** Define land ownership and user rights and validate with government and local authorities.

The process for defining land ownership and user rights will be the following:

- Meeting held with land owner & local community
- Community leaders act as witnesses of the meeting
- Land ownership documents photocopy attached to the meeting documents
- Written agreement between land owners and community leaders stating the user rights and ownership. Agreement is signed by the local leaders, land owner and by the local government authority.
• The signature of the Upazila chairman or Ward member, will serve as validation of the land ownership and user rights.

**Mitigation Measure 1.1.2.4c (IEE1.1.4c):** Pre-screen wells for drinking water quality (particularly arsenic and salinity).

A water sample should be taken of all potential wells as soon as it is possible to do so and before well is put into public use. This water sample should be the responsibility of the well contractor and the requirement of such written into the contract language. The water sample should be collected at a time when the sample will not be impacted by sediments suspended in the water or by drilling fluids. The sample should ideally be collected after the water in the hole has come to a static state after being left undisturbed for 12-24 hours. The water sample should be taken to a lab for analysis or a drinking water quality kit from the BUET reviewed list 18 should be used to screen for the WHO drinking water quality parameters. If any of the WHO drinking water quality standards are not met, decision to drill further or abandon the site must be taken.

**IEE Condition:** Wells are constructed to be hazard resilient.

Damaged tube wells can become pathways for contamination of aquifers during storm surge and rainfall runoff flooding. Constructing wells to withstand storm surge and rainfall runoff flooding blocks this point of entry for contaminated surface water or salt water. In all areas especially storm surge vulnerable areas wells should be constructed to at minimum to DPHE storm surge standards to withstand a design flood, such as a 25yr event (Annex 9 Well Site Selection Checklist).

**Mitigation Measure 1.1.2.4d (IEE1.1.4d):** Engineers identify hazard risks in selected well sites.

Given the difficulty in finding suitable aquifers, siting will give priority to the potential areas identified in the groundwater study. The WVB engineers or contracted engineer should identify hazard risks for the potential well sites. Risks should include natural hazards that could cause damage to the well itself and natural hazards that could place humans in danger as they try to access the well. Final site selection should take into consideration these hazards with the intent to modify the water infrastructure or the access to the water infrastructure. Well sites will be selected based on recommendations from the ground water study.

**Mitigation Measure 1.1.2.4e (IEE1.1.4e):** Incorporate resiliency features, into well design

Based on identified risks, engineering designs should incorporate hazard resilient features into water infrastructure plans. Engineering well design checklist is in Annex 6. However at minimum, well construction should include the following:

- Sealed casing that rises above the ground to withstand a 25-yr flood or where appropriate storm surge deemed.
- Locked cap
- The entire tube well should be installed straight and vertically, deep bore hole is required
- The annular space of bore holes of the deep tube wells are required to be sealed at the level of impermeable strata.
- Consider highest flood/tidal surge level
- Soak Pit (5 RCC Ring and 01 RCC Slab) will be provided as mitigation measure for waste water management

**IEE Condition:** A system for managing and maintaining water infrastructure is in place.

Over-use of tube wells could lead to salt water intrusion by reducing the freshwater column pressure on the denser saltwater allowing it to move inland or if the saltwater interface is close enough to the

well, the reduced pressure inside the tube well can draw saltwater into the tube well itself contaminating the water for drinking.

**Mitigation Measure 1.1.2.4f (IEE1.1.4f): Sensitize community about risk of over-use**
As part of the training for water management committees, communities will be sensitized about the risks of over-using tube wells. The training will also highlight measures that the community can take to ration water in order to prevent over-use. Nobo Jatra will also implement activities such as rehabilitation of river embankment to reduce soil erosion and help replenish the water table thus mitigating against the risk of over-use.

**Mitigation Measure 1.1.2.4g (IEE1.1.4g): Monitor salinity levels in tube wells**
As part of the water quality assurance plan, water management committees will be trained and assisted to conduct regular testing for salinity levels.

**IEE Condition:** Provided water meets minimum arsenic and total coliform standards and remains with tolerable limit of iron, chloride (salinity). Tube well and PSF post-development water quality monitoring should begin prior to use and continue quarterly for the first year after the water facility comes into public use in accordance with USAID regulations, which require water sample testing for arsenic and fecal coliform for tube well, fecal coliform for PSF, arsenic, iron, chloride for RO, arsenic, iron and fecal coliform for AIRP and fecal coliform for Sky Hydrant. Both the Bangladeshi DPHE and international WHO drinking water quality parameters for arsenic and fecal coliform will be considered taking the more stringent of the two as the standard. Ideally water quality tests should be performed on the chemical, biological and physical quality of the proposed water source. Local monitoring of arsenic in wells and fecal coliform in PSFs should continue thereafter. A Water Quality Assurance Plan (WQAP) Annex 4 Water Quality Assurance Plan can assist the project management in establishing how initial water quality monitoring will take place, how will continuous water quality monitoring be assumed, BCC messages for safe water use needed and a response protocol in case water quality does not meet adopted standards for both PSFs and deep wells.

**Mitigation Measure 1.1.2.4h (IEE1.1.4h): Develop a Water Quality Assurance Plan (WQAP)**
The plan must assign responsibility to WVB for initial water quality testing. This should be done in coordination with the DPHE arsenic testing program. At minimum, fecal coliform and arsenic must be tested prior to use and thereafter for four quarters (5 times) for all water points. Arsenic testing must conform to the requirements enumerated in Guidance Cable State 98 108651 that arsenic concentration be <0.01mg/L. Fecal coliform standard is that none are detected in a 100mL sample. The plan should describe how and what BCC activities are educating community members on the different effects of contaminated water and providing options for behavior change. The WQAP must include a response protocol in the event that water does not meet the adopted standards. The response protocol should be in-line with DPHE protocol for contaminated wells but go beyond with behavior change options such as market linkages to household water filters. Water quality assurance plan is attached as Annex 4.

As new technology has been identified to install, the previous WQAP has been amended and is now, Annex 1.2 of this EMMP.

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19 See Annex 4 for a sample WAQP
IEE Condition: Waste water is disposed of properly.
As communities start using the water points, there is risk that waste water around these facilities will not be disposed of properly.
Mitigation Measure 1.1.2.4i (IEE1.1.4i): Train people on proper waste water disposal as part of the Essential Hygiene Practices training. (Incorporated into activity 1.1.1.3) (IEE1.1.2).
Behavior Change Communication (BCC) actions under Activity 1.1.1.3 (IEE1.1.2) - Facilitate integrated WASH SBCC messaging at HH, community and school level will include messages on proper disposal of waste water.

During operational and maintenance phase of RO system, a pre-treatment filter connecting with the RO waste water pipe will be constructed in order to minimize the concentration of waste water pollutants (A filter house will be provisioned with coarse sand and gravels bed that will filter iron). Side by side, a dispersion pipe (3mm porous bottom side of the pipe) connecting with the effluent pipe, will be fitted for disposal of waste effluent from the RO system to tidal canal or river, and the brine will be sufficiently dispersed with the pipe.

IEE Condition: Waste is managed in an environmental sound manner. 
There is the risk of waste potentially polluting surrounding water and soil if it is not managed well.
Mitigation Measure 1.1.2.4j (IEE1.1.4j): Train people on proper waste water disposal as part of the Essential Hygiene Practices training. (Incorporated into activity 1.1.1.3) (IEE1.1.2).
Behavior Change Communication (BCC) actions under Activity 1.1.1.3 (IEE1.1.2) - Facilitate integrated WASH SBCC messaging at HH, community and school level will include messages on proper disposal of waste water.
During construction phase, pits will be prepared to dump construction debris and drainage systems with decanting ponds will be provisioned for proper management of waste water. The sludge to be generated from AIRP will be disposed in a sealed pit and will be far away from any body of water. As another option, the sludge will be sent to nearby brick fields as raw materials for making bricks.

For Sky Hydrant, bleaching powder and acid water is rarely mixed in the machine for cleaning membranes; and if it happens the cleaned waste will be disposed in sealed pit.

For addressing health and safety of the construction related work for each of the interventions, all the workers will be required to use PPE.
A business model must be followed by the Water Management Committee (WMC) of the respective RO plant for sustainability.

1.1.3.1 (IEE 1.1.5): Rehabilitate and/or construct latrines to meet hygienic sanitation standards
To address the lack of access to hygienic latrines, Nobo Jatra will implement CVA to advocate for government sanitation subsidies to be directed to the most vulnerable households. Additionally, the project will support up to 8,800 extremely vulnerable HH with subsidies for new latrines and another 8,800 families with subsidies to rehabilitate existing latrines.

IEE Condition: Latrines are constructed/rehabilitated in an environmentally conscious manner.
Although Nobo Jatra will not fund or be directly engaged in construction of latrines, beneficiaries who receive subsidies can apply poor environmental practices if not well guided. Ground water contamination can occur if latrines are poorly located. Fecal material may be washed into surrounding areas during storm surge events. WV developed latrine selection criteria (Annex 10) and latrine decision tree (Annex 11) that will comply environmental safeguard. WV also monitor the latrine status using the tool Environmental Monitoring and Compliance Checklist (Annex 3).
Mitigation Measure 1.1.3.1a (IEE1.1.5a): Train beneficiaries on environmentally sustainable practices for construction of latrines.

The Nobo Jatra WASH team will sensitize beneficiaries on the following environmentally sound criteria for constructing latrines:

- Latrines have to be constructed at a safe distance from shallow tube wells and between the bottom of latrine and water table. There must be a minimum of 10 meters (30 feet) between a water source and a source of contamination such as a latrine.
- Wood used to construct latrines should not be harvested illegally from the Sundarbans.
- Latrines should not be constructed in areas where the water table is high or areas that are prone to flooding.
- Latrine design should incorporate elements such as elevated slabs or sealants to increase durability in the face of extreme weather, such as storm surge or flooding.

The Nobo Jatra WASH team will provide tailored guidance for beneficiaries on appropriate latrine construction designs depending on the ecological characteristics of their location. A rapid assessments of latrine construction practices will be carried out by the WASH team to identify best practices for environmental protection and incorporate these in training for project participants.

IEE Condition: Decommissioning strategies exist.

When latrines fill up, fecal material could be washed into surrounding areas and polluting the environment if beneficiaries are not trained on how to appropriately de-commission the facility.

Mitigation Measure 1.1.3.1b (IEE1.1.5b): Incorporate decommissioning strategies into Essential Hygiene Practices training. (Incorporated into activity 1.1.1.3) (IEE 1.1.2)

Essential hygiene practices training module will incorporate training on latrine decommissioning strategies. Depending on the latrine design installed on a homestead the appropriate decommissioning strategy may change. Some latrines are designed to be cleaned out after the feces have been left to decompose after a period of time. These latrines will not necessarily require a decommissioning strategy but prudent development would promote decommissioning strategies in these particular cases.

IEE Condition: Latrines are maintained clean and in good physical condition.

Proper maintenance of latrines will be critical for hygiene and also for environmental protection. The WASH team will use the ENCAP Visual Field Guide: TOILETS/LATRINES for quick identification of serious environmental concerns in small scale sanitation activities (www.encapafrika.org/sectors/watsan.htm)

Mitigation Measure 1.1.3.1c (IEE1.1.5c): Train users in proper maintenance of the latrine with respect to both cleanliness and physical condition. (See Annex 8 for the Guide for Latrine Maintenance).

Under Activity 1.1.1.3 (IEE 1.1.2): Facilitate integrated WASH SBCC messaging at HH, community and school level— beneficiaries will receive training in why hygiene is important, why maintaining the physical structure of the latrine contributes to hygiene, and how to clean the latrine to a hygienic standard.

Moreover, NJP has a plan to carry out water quality testing for faecal and total coliform by Pota Test, membrane filtration (MF) method, which is a water quality testing device to detect the actual numbers of Bactria (Total and Fecal Coliform) in the water sample. To address the listed impacts, the following mitigation measures will be taken by NJP:
<table>
<thead>
<tr>
<th>Sl#</th>
<th>Chemical and Materials and Potential Impact</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Laurial Sulphate Broth for microbes growth</td>
<td>Use of Personal Protective Equipment like hand gloves, mask, safety goggles, cap and apron; Unused prepared broth should be autoclaved with 120 degree Celsius then dispose in a selective pit.</td>
</tr>
<tr>
<td>02</td>
<td>Absolute Ethanol for sterilizing and flaming</td>
<td>Aseptic measures should be taken and fire extinguisher at the field office level.</td>
</tr>
<tr>
<td>03</td>
<td>Used plastic write pack and Aluminum foil paper</td>
<td>The used materials should be recycled or put through the recycler or it should be incinerated in a specific pit.</td>
</tr>
<tr>
<td>04</td>
<td>Used filter membrane, cotton and Waste hand gloves, masks, and caps</td>
<td>The used/waste materials should be autoclaved then disposed in a specific pit.</td>
</tr>
<tr>
<td>05</td>
<td>Used Petridis (plastic) with microbes</td>
<td>The used/waste materials should be autoclaved then incinerated in a specific pit or put through the recycler.</td>
</tr>
</tbody>
</table>

**IEE Condition:** Basic nutrition training includes sustainable fuel wood harvesting and efficient fuel use.

According to the Programmatic Initial Environmental Examination of the Food for Peace FY15 Request for Applications (RFA) for USAID Development Food Assistance Projects”,

“All FFP project proposals must have provision for promoting safe and effective use of fuel-wood, or other energy sources, used for commodity preparation by beneficiaries, integrated across all project designs.”
Given the vulnerability of the mangrove forests yet the high dependence on them by neighboring villages, awareness building on efficient fuel-wood use and sustainable harvesting practices among the MoHFW staff and other front line health may have a beneficial effect on the environment. Training modules for the Infant and Young Child Feeding should take into consideration the condition quoted above.

**Mitigation Measure 1.3.2.1a (IEE 1.3.1a):** Incorporate efficient fuel use into capacity building curriculum.

As part of the Infant and Young Child Feeding training, Ministry of Health and Family Welfare (MoHFW) staff and community health workers linkages between nutrition and health and efficient fuel use should be promoted. Topic to consider includes:

- the role that food basket items, particularly their type and age, play in affecting fuel requirements and natural energy resources;
- the promotion of efficient fuel use (e.g. cooking with tight fitting lids on pots, using animal dung sticks, etc.) and/or fuel-efficient cooking devices; and
- the potential social impacts, such as competition, inequitable distribution or conflict over scarce energy resources.

**Mitigation Measure 1.3.1.3a (IEE 1.3.4a):** Encourage recycling and or environmentally conscious ways of disposing mobile devices.

To exact the greatest life out of the mobile technology and to keep it out of the trash for as long as possible all hardware will be turned over to the MoHFW at the end of the project for its continued use. After the ownership of project-purchased mobile phones has been turned over to the MoHFW, it will be the responsibility of the MoHFW to see that it is disposed of in accordance with Bangladeshi solid waste management strategy.

During the cost extension period, the activity 1.3.1.1.1- ‘Private sector service providers provide technical assistance and ensure supply chain for the CSA’ may have minor to moderate level of environmental impacts. The products (e.g. personal hygiene, sanitary napkins) those to be sold by the local providers may have non-degradable wastes (plastic/polythine packaging). Those may deteriorate soil health and local water bodies. There will be environmental impact for the activity if the company (SMC) will not disseminate proper messages on the disposal/ management of such wastes.
The company/companies to be linked with the service providers will need to disseminate the messages on proper disposal (e.g. pit burning) of such wastes through their regular training meetings to be held with the service providers. The training module of the company/companies will include the waste management issues. The service providers will also disseminate the messages on proper wastes disposal among the users of the products.

(2.1.1.1) (IEE 2.1.2) Select (extremely poor) men and women entrepreneurs to participate in the graduation program: The goal of the graduation program is to create a pathway out of poverty for 14,000 extremely poor families in the target locations. The graduation program consists of: (1) Entrepreneurial literacy training involving a twelve-month intensive program. (2) Monthly cash transfer to compensate for the opportunity costs associated with participation in the training activities. Nobo Jatra will provide each selected participant with BDT 1,000 (approximately USD13) per month for nine months while they actively participate in the graduation program. (3) IGA selection and development: graduation program participants will receive three months of intensive training and mentoring on IGA selection and implementation, including the development of a business plan. (4) Productive asset development: After the entrepreneurial literacy, mentoring, IGA selection and implementation training, graduation program participants will receive a cash transfer of approximately BDT 15,000 (approximately USD193) - in support of their business plan. (5) Participation in savings groups: To support increased financial resiliency all participants will be encouraged to join a savings group facilitated by a local partner NGO. Each savings group member will have an active savings account with a formal financial institution with mobile money capabilities. (6) Ongoing supervision, mentoring and follow-up: Nobo Jatra will work with local NGO implementers in the development of standard monitoring, supervision and follow-up tools. These tools will be used to provide systematic follow-up support, trouble-shooting and tailored, individualized training, as appropriate.

IEE Condition: Graduate candidates’ business plans reflect understanding of environmentally sound practices for relevant IGA.
Element “(3) IGA selection and development” presents a potential indirect negative effect on environment. Also, element “(4) Productive asset development” presents a minor potential indirect negative effect on the environment. With any cash transfer there is the possibility that it can be used for ways unintended by the project that may have a negative effect on the environment. The productive asset development cash transfer will take place after the beneficiary has received training in their selected IGA. An indicator of internalization of environmentally sound practices promoted in the IGA training would be evidence of such practices outlined in their business plan.

Mitigation Measure 2.1.1.1a (IEE 2.1.2a): Incorporate environmental sustainability into review criteria for graduate candidates' business plans prior to productive asset transfer. After the entrepreneurial literacy, mentoring, IGA selection and implementation training, graduation program participants will receive a cash transfer of approximately BDT 15,000 (approximately USD193) - in support of their business plan. Review criteria for graduation candidate business plans must include a consideration for environmental soundness. The business plan should reflect the candidates understanding of how their IGA can impact the environment, from attention to sustainable raw material sourcing to disposal of generated waste.

(2.1.3.1) (IEE 2.1.3) Conduct training in technical skills required for alternative income generated activities (AIGA)Nobo Jatra will train 18,000 individuals- at least 65 percent women- to acquire skills required for sustainable employment for income generation. Based on local labor assessments and consultations with upazila-based employers, staff will engage training providers/programs, including those offered through the Department of Youth Development, to adapt or develop existing curricula.
and provide training to participants in each upazila. To increase employability and job retention through on-the-job training the project will link participants to internships and apprenticeships with employers. An assessment conducted by World Vision and Winrock identified a number of high-potential alternative livelihoods in the project area including processing and value addition for agricultural and fish products; mobile fish fry trading; sapling nursery and fish nursery operation; home-based manufacturing of sewn/tailored products; ecotourism; van pulling; production of handicrafts; and electronics and mechanics-related jobs.

**IEE Condition:** IGA modules promote sound environmental practices relevant to skill being taught. Of the potential skills to be taught conceivable harm could come to the environment if sound environmental practices are not incorporated into training modules. For example take the IGA of fish processing, this activity often has organic wastes that if disposed directly back into the fish pond or other water body can reduce water quality and harm other aquatic species unintentionally. On the other hand, conceivable benefit could come to the environment by following sound environmental practices such as with activities like sapling nurseries that can promote and preserve landraces, cultivars, and rare species essential to maintaining biodiversity. During the development of training modules, analysis of potential effects upon the environment should be made. Identification of sound environmental practices should be part of each training module.

**Mitigation Measure 2.1.3.1a (IEE 2.1.3a):** Identify environmentally sound practices relevant for each promoted IGA. Through market assessments and consultations with upazila employers, IGAs that have strong income generating potential will be selected. Training modules for each IGA will need to be adapted from existing curricula or developed. During the adaption or development of an IGA training module, environmentally sound practices appropriate for the specific IGA should be identified for each training module.

**Mitigation Measure 2.1.3.1b (IEE 2.1.3b):** Incorporate environmentally sound practices into training modules for each IGA. Once environmentally sound practices have been identified for each promoted IGA, they should be incorporated into the training modules.

(2.1.3.2) (IEE 2.1.4) Strengthen linkages to private sector to identify and select market-based livelihoods opportunities

To increase employment, Nobo Jatra will build develop public-private partnerships (PPPs) with businesses and social enterprises. The project’s Enterprise Development Specialist will identify, evaluate and broker relationships with potential employers that are interested in expanding production in rural areas. Nobo Jatra will host a series of workshops to generate private sector interest and establish new partnerships.

**IEE Condition:** Include within the business partnership evaluation criteria, “demonstrated sound environmental and waste management business practices”.

The actions of brokering relationships with potential businesses that are interested in expanding into the project area are not expected to pose a significant direct impact on the environment. However, the indirect effects of supporting environmentally conscientious or detrimental businesses should be considered, particularly in Bangladesh where industries contribute heavily to water pollution. Nobo Jatra will evaluate partnership opportunities against business, sustainability and social criteria. Within the criteria of sustainability should be included a condition for environmentally conscientious business practice.
Mitigation Measure 2.1.3.2a (IEE 2.1.4a): Include an assessment of environmental practices within the business partnership evaluation criteria

Nobo Jatra will develop public-private partnerships with businesses and social enterprises that are interested in expanding into the target area. During the partnership evaluation phase, Nobo Jatra should assess the partner’s practices related to environmental management. Nobo Jatra should also ensure that company abides by the SUAP, any MoU signed with companies should include clauses to uphold environmental sustainability.

(2.2.2.2) (IEE 2.2.1) Facilitate training on NRM, Agro-Production and farmer management skills to producer groups.

Nobo Jatra will provide training for farmers to support the adoption of sustainable agriculture practices and inputs that are climate-resilient, and promote resource conservation. Training will include information regarding saline and flood tolerant varieties, production of high-value vegetables on pond dykes, intercropping, fish nursery operation, use of improved fish fry, goat fattening, and poultry rearing to meet local demand for eggs. Natural resource management practices to be promoted include: nursery operation; land preparation; manure and fertilizer application; lime application; composting and mulching; line sowing (row and crop distance); intercropping; grafting; transplanting; weeding, thinning and pruning; use of low-cost greenhouses for off season and late season production; direct seeding (cereal crops).

2.2.2.2.1 (IEE 2.2.1.1) Nursery Management

IEE Condition: Seedling plastic bag waste minimized

Small plastic sheathes are typically used to transport seedlings in nurseries. These plastic bags are cheap, readily available to nursery operators, and adequately protect the roots of the plants during transportation. However, the environmental downsides to these bags become apparent once they’ve switched hands to the grower.

Mitigation Measure 2.2.2.2.1a (IEE 2.2.1.1a): Promote use of biodegradable seedling bags

Some research highlights that plants grown in bio-degradable bags suffer less transplant shock and establish roots better than plants grown in plastic tubing. Nobo Jatra will promote the use of biodegradable jute seedling bags as an alternative income generating activity to make these bags available and affordable to nursery owners. Here is attached a Nursery waste reduction plan as an Annex 7

2.2.2.2.2 (IEE 2.2.1.2) Aquaculture Management

IEE Condition: Prawn seed is from a verified sustainable source.

Aquaculture seeding is traditionally by capture of wild post larval and juvenile prawn or fish fry. Extensive overharvesting and high by-catch volumes are destroying the rich southwestern coastal fisheries. While farmers interviewed during the field visit responded that they had purchased fish fry from a private hatchery, the practice of collecting prawn seed from the wild still exists. While the program will promote the purchase of certified pathogen-free post-larval prawn from private or government hatcheries, it may encounter resistance to paying for prawn seed. The program implementers should be aware that turning a blind eye to traditional seed capture methods would have a negative effect on the environment.

Mitigation Measure 2.2.2.2.2a (IEE 2.2.1.2a): Incorporate topics on maintaining natural fisheries healthy into Aquaculture Management training module.

Nobo Jatra will develop culturally-sensitive behavior change messaging embedded in aquaculture management training and entrepreneurial literacy (importance of ecosystem health, potential social impacts, such as competition, inequitable distribution or conflict over scarce fishery resources, etc.).
Training will also demonstrate the productivity gains that can be made through use of the hatchery post-larval prawn (lead farmer demos, etc.). Nobo Jatra will work to increase the availability of the hatchery produced post-larval prawn by working with hatcheries and their agents to market the post-larval prawn in project areas. Verification of purchase of pathogen-free post larval prawn should be required for all participating farmers.

**IEE Condition:** Aquaculture participants are not encouraged to expand cultivation onto ecologically critical land (i.e. *beels*, mangrove forest). Nobo Jatra will be promoting the use of only freshwater *ghers* throughout all cropping seasons. As this enterprise becomes more profitable, risk exists that aquaculture could expand into sensitive areas around the SRF leading to degradation of natural areas and loss of mangrove habitat.

**Mitigation Measure 2.2.2.2.2b (IEE 2.2.1.2b):** Incorporate topics of land use planning with clear discouragement of conversion of mangroves or other natural areas in the Aquaculture Management training module.

Thousands of hectares of *beels* and mangrove forests have been converted for shrimp farming. Nobo Jatra does not wish to encourage this practice. Therefore, the program will develop culturally sensitive land use planning topics into the Aquaculture Management training module. Land use planning topics should emphasize using resources (soil, water, agriculture inputs, etc.) efficiently. Expansion onto undeveloped land should be discouraged with topics on ecosystem services that directly benefit farmers with the land they currently work.

**IEE Condition:** Human health is not effected and the environment (aquatic and land) is not contaminated due to improper waste management practices.

While river and open defecation is a general problem in the target area, there is a social taboo on this practice in freshwater fish/prawn ponds. Ponds are used for the Muslim Wadu *ghers* before prayers. Defecation in these ponds would make the water unsuitable for cleansing. In addition farmers are well aware of the export standards for fish and prawn and do not want to jeopardize potential income by allowing their *ghers* to become contaminated.

**Mitigation Measure 2.2.2.2.2c (IEE 2.2.1.2c):** Incorporate topics of fish/prawn disease and waste management with regard to human and environmental health into Aquaculture Management training module.

The topics of fish/prawn disease and waste management within the Aquaculture Management training module should focus on the maintaining animal, human, and environmental health during the growth phase of the fish/prawn. Value-added waste management for fish/prawn should be covered under the Value-Added training module.

**IEE Condition:** Linkages between soil structure deterioration and salt water contamination are addressed.

Concerns about farmers intentionally applying saline river water to flood *ghers* are not substantiated. Interviews with farmers during the field visit suggest that farmers are knowledgeable about harmful effects applying saline water to their soils. Application of arsenic contaminated tube well water is a possibility if the farmers have access to a pump and hoses. Therefore, the consequences of salt and arsenic contaminated water application should be included within the training module. Infiltration of fresh rainwater captured for aquaculture can serve to flush out accumulated salts in the soil making it more suitable for crop production come dry season.

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20 In this Muslim dominant culture, the freshwater in *ghers* is often used for cleansing before daily prayers. Defecation in this water would make it unsuitable for cleansing. Also, there is high awareness about stringent fish/prawn export standards. Farmers do not want to jeopardize their financial return by allowing their investment in fish/prawn to be contaminated by human fecal matter.
Mitigation Measure 2.2.2.2.2d (IEE 2.2.1.2d): Sensitize farmers on the negative effects of mixing salt and fresh water

The Nobo Jatra program will only be promoting the capture of fresh rainwater for aquaculture activities. However, despite ghers being constructed without water intakes or outtakes ghers ponds do not remain fresh but become contaminated with salt. The alternating salinity levels between freshwater and saline water cause damage to the soil making it difficult to work. Nobo Jatra will seek to coordinate with government entities such as the Soil Research Development Institute and other USAID partners on appropriate strategies for addressing salt water mixing strategy for agro-ecological zones where apparently unavoidable salt water contamination occurs.

2.2.2.2.3. (IEE 2.2.1.3) Pest and Disease Management

The Nobo Jatra program will promote an Integrated Pest Management (IPM) approach to all agriculture and aquaculture production activities. IPM practices encourage natural and cultural pest control practices and view pesticides (organic or chemical) as “last resort” actions to prevent crop destruction by pests. The project will not directly promote any pesticides. However, it is a known fact that some farmers are applying pesticides to their crops.

BEO Condition 1: WV will need to develop a project specific SUAP tiring off of the USAID/Bangladesh Programmatic Pesticide Evaluation Report and Safer Use Action Plan (PPERSUAP).

Mitigation Measure 2.2.2.2.3a: WV has already developed the project specific SUAP as well as crops specific integrated pest management (IPM) plans. Both the documents are attached here. Please see Annex EMMP_Annex 12_Nobo Jatra SUAP_Feb 14 2017 and EMMP_Annex 13_Nobo Jatra PMP_Feb 14 2017. Both SUAP and PMP have been approved by the DCHA Bureau Environmental Officer (BEO) on April 11, 2017 with a project-specific condition 'World Vision will need to comply with USAID’s Pesticide Procedures for the use, procurement, or promotion of pesticides for livestock activities'.


The unintended and harmful effects of improper pesticide application include: contamination of soil and water, pesticide drift, effects on non-target organisms, disruption of natural pest controls leading to pest resurgence, and resistance. Therefore, the project will train participants in the safe and judicious use of pesticides in accordance with the Mission-wide PPERSUAP (ASIA 16-003, dated October 27, 2015).

Mitigation Measure 2.2.2.2.3b (IEE 2.2.1.3b): Identify good pest and disease management practices for each crop promoted in accordance with approved SUAP, local government procedures, and local knowledge and practices.

As a part of the process to develop a project specific SUAP tiring off of the USAID/Bangladesh PPERSUAP, WV will identify good pest and disease management practices for each crop promoted. The resulting guidance will identify mechanisms to enhance coordination with local government institutes such as Bangladesh Rice Research Institute, Bangladesh Agriculture Research Institute, or the Bangladesh Institute of Nuclear Agriculture will ensure that pest and disease management practice are in-line with local government initiatives.
Mitigation Measure 2.2.2.2.3c (IEE 2.2.1.3c): Incorporate safe use and handling of agrochemicals into Pest and Disease Management training in accordance with approved SUAP. Once practices for safe use and handling of agrochemicals have been identified for each crop promoted, these good practices will be incorporated into the Pest and Disease Management training module.

**IEE Condition:** Local knowledge and practices in combating the effects of climate change and variability with regard to pest management are identified and incorporated into regular IPM activities.

**Mitigation Measure 2.2.2.2.3d** (IEE 2.2.1.3d): Identify local knowledge and practices in combating the effects of climate change and variability with regard to pest management. Climate change and variability can affect temperature and seasonal rainfall, which in turn affects the range and life span of crop pests. Integrated Pest Management (IPM) welcomes the use of local knowledge and practices with regard to pest management. Identification of these local practices is first step in adaptation for climate change.

**Mitigation Measure 2.2.2.2.3e** (IEE 2.2.1.3e): Incorporate local knowledge and practices in combating the effects of climate change and variability with regard to pest management into Pest and Disease Management module. Once local knowledge and practices have been identified these should be incorporated into the Pest and Disease Management module.

**2.2.2.2.4. (IEE 2.2.1.4) Crop Genetics**

High-yielding varieties, drought and saline resistant varieties, and bio-fortified varieties will be promoted. No exotic or GMO seed varieties will be introduced. A complete shift to improved crop varieties would reduce agro-biodiversity; therefore, local seed varieties that demonstrate advantages for climate change adaptation such as drought and/or salt tolerance and pest resistance will also be promoted.

**IEE Condition:** No exotic or GMO varieties are introduced without a biosafety assessment and USAID approval from the AOR, MEO And BEO as appropriate and approval from local authorities.

**Mitigation Measure 2.2.2.2.4a (IEE 2.2.1.4a):** Verify that crop seed varieties are not exotic or GMO. Proof of certification should be obtained from the certifying entity (Bangladesh Rice Research Institute, Bangladesh Agriculture Research Institute, or the Bangladesh Institute of Nuclear Agriculture). These certifications should be kept on file.

**IEE Condition:** The use and conservation of local traditional crops and plants are not disvalued.

**Mitigation Measure 2.2.2.2.4b (IEE 2.2.1.4b):** Incorporate discussion on the value of traditional crops and how to incorporate them into a cropping system in the Crop Genetics training module. Nobo Jatra will seek to maintain agro-biodiversity by promoting traditional crops that have climate change adaptation characteristics. Local varieties with characteristics such as drought or saline resistance, nitrogen-fixing, and/or heat tolerance may be promoted.

**2.2.2.2.5 (IEE 2.2.1.5) Soil Fertility and Conservation**

The use of fertilizers can have **negative effects on the environment.** Some fertilizers contain heavy metals such as cadmium, mercury and lead. Fish and other aquatic organisms bio-accumulate these heavy metals, which are then consumed by humans. In addition, over-application of fertilizers and pesticides can result in chemical leaching into the soil and groundwater system. The application of chemical fertilizers and lime must always consider safe use and handling procedures for human health and the environment.
**IEE Condition:** Soil fertility is improved or conserved through optimal nutrient inputs, with organic fertilizers being the first choice.

**Mitigation Measure 2.2.2.2.5a (IEE 2.2.1.5a):** Provide training on strategies for optimizing nutrient management in soils to mitigate harmful effects of improper use of fertilizer.

**IEE Condition:** Human health is not affected and water sources are not contaminated due to improper fertilizer and lime handling, storage, use and application techniques.

**Mitigation Measure 2.2.2.2.5b (IEE 2.2.1.5b):** Incorporate proper handling, storage, use and application of fertilizers and lime into Soil Fertility and Conservation in training module. Fertilizers are not covered by the Mission-wide PPERSUAP, therefore it is important that the Nobo Jatra program develop sound fertilizer use and handling messages.

Fertilizer application things to consider:
- More is not better. Applying the appropriate quantity of fertilizer will go far in protecting soil and water resources. Follow quantity instructions.

Fertilizer handling things to consider:
- How far is the fertilizer mixing site from a water source? (>100 ft. from water source and downhill if possible)
- Is the mixing site on concrete or permeable soil? (On impermeable surface with run-off to a vegetated site)
- If the fertilizer is a liquid, is it hand-poured? What protective measures can be taken? (Closed system or latex gloves)
- How is fertilizer application equipment cleaned? Directly in a water source? (Sprayer washed out in field with reinstate used for the next fertilizer application on target crop)

Fertilizer storage things to consider:
- Store fertilizers separate from other chemicals in dry conditions.
- Extra care needs to be given to concentrate fertilizer solutions. A double containment should be used.
- Provide pallets to keep bags off the floor. Shelves for smaller containers should have a lip to keep the containers from sliding off easily.
- Keep the storage area locked and clearly labeled as a fertilizer storage area. Preventing young children from tampering with fertilizers is critical for their health. Preventing unauthorized use of fertilizers reduces the chance of accidental spills or theft.
- Keep fertilizers in original package with name and application instructions intact.

2.2.2.2.6. (IEE 2.2.1.6) Irrigation and Water Management
Nobo Jatra will be promoting the use of only freshwater throughout all cropping seasons. Application of arsenic contaminated tube well water is a possibility if the farmers have access to a pump and hoses.

**IEE Condition:** Arsenic contaminated tube well water is not used for irrigation.

**Mitigation Measure 2.2.2.6a (IEE 2.2.1.6a):** Incorporate topic on harmful health effects on consumers when crops are irrigated with arsenic contaminated water and then consumed in Irrigation and Water Management. Linkages between arsenic contaminated water and root uptake of arsenic in consumable crops should be incorporated into the Irrigation and Water Management training module.

2.2.2.2.7. (IEE 2.2.1.7) Climate Change and Mitigation
Raising awareness on climate mitigation and adaptation among all farmers participating in project activities is expected. Specific activities under this module include: drought and saline resistant seed varieties; raised bed agriculture; pond dyke agriculture; floating agriculture; rice and fish intercropping.

**IEE Condition:** Training module on Climate Change and Mitigation is considered priority for all farmers participating in project activities.

**Mitigation Measure 2.2.2.2.7a (IEE 2.2.1.7a):** Provide Climate Change and Mitigation training to all agriculture project participants.

The US Presidential Executive Order on Climate Resilient International Development\(^21\) mandates the integration of climate screening and sensitivity analysis into all USAID development activities. By providing Climate Change and Mitigation training to all agriculture project participants Nobo Jatra can adhere to this order.

**IEE Condition:** Use of water hyacinth in floating agriculture is conditional based on precautionary water hyacinth survey results.

The use of water hyacinth to create a floating raft upon which to plant other crops in standing water is a widespread practice throughout southwest Bangladesh. However, an assessment done by the project team found that floating agriculture is not common in the areas where Nobo Jatra will be implemented. The project does not intend to introduce nor promote floating agriculture using water hyacinth. Where farmers are found to be adopting floating agriculture out of their own initiative, Nobo Jatra will sensitize them on the risks of using water hyacinth and encourage the use of alternative materials for rafts such as paddy straw.

**IEE Condition:** No harm to human health occurs from prolonged water exposure.

Floating agriculture presents significant risks for skin infections and other health problems due to prolonged exposure to water.

**Mitigation Measure 2.2.2.2.7b (IEE 2.2.1.7b):** If farmers are found to be practicing floating agriculture, Nobo Jatra will monitor and sensitize project participants about the risks and mitigation strategies. Agriculture staff should be aware of common skin conditions that can result from exposure to water for long periods of time. In addition to agriculture staff being aware of common human health illnesses or conditions that can occur from working in water for extended periods of time, farmer practicing floating agriculture should also be aware of how to maintain their health and diagnose illnesses or skin conditions resulting from water related activities. They should be informed on how to deal with these illnesses or skin conditions.

**2.2.2.2.8. (IEE 2.2.1.8) Value-added Processing**

Processing of crops can significantly reduce post-harvest waste, thereby fully utilizing the nutrients provided by nature. However, the by-products from processing can result in waste that must be dealt with properly. In particular, animal wastes from fish/prawn processing can reduce water quality if thrown or washed into waterways, open wells, or back into the fish/prawn pond itself.

**IEE Condition:** Human health is not affected and the environment (aquatic and land) is not contaminated due to improper waste management practices.

**Mitigation Measure 2.2.2.2.8a (IEE 2.2.1.8a):** Waste management plans are developed with regard to each value-added product.

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Where value-added processing activities are approved for funding by the project, a waste management plan will be developed to ensure environmental sustainability. Nobo will USAID’s Environmental Sector Guidelines on Food Processing\(^2\) where applicable.

2.2.2.2.9 (IEE 2.2.1.9) Small Animal Husbandry

Avian flu among chickens exists. Goat pox and pneumonia can affect goats. Nobo Jatra will coordinate with other organizations with livestock expertise such as USAID’s Feed the Future homestead livestock activities. Bringing agro-vet products deeper into rural areas can increase accessibility to medicines and vaccinations thereby reducing the spread of disease.

**IEE Condition:** Disease control measures are in-line with Department of Livestock Services and incorporated into training (ex. bio-safety, mobile technology messages, and linkages with agro-vets).

**Mitigation Measure 2.2.2.2.9a (IEE 2.2.1.9a):** Verify that disease control measures are in-line with Department of Livestock Services.

To avoid duplication of efforts and to further government initiatives Nobo Jatra should coordinate disease control measures with the Department of Livestock Services and other organizations promoting livestock and disease control, such as BRAC.

**Mitigation Measure 2.2.2.2.9b (IEE 2.2.1.9b):** Incorporate disease control measures into Small Animal Husbandry training.

Disease control measures promoted will be influenced by those promoted by the Department of Livestock Services. Attention should be paid to common diseases in the animals promoted, bio-safety measures to control against disease being brought onto the homestead and spread beyond, and common signs of animal sickness, and how to treat the sickness (including calling a mobile vet).

**IEE Condition:** Beneficiaries are trained in medicine use and disposal.

**Mitigation Measure 2.2.2.2.9c (IEE 2.2.1.9c):** Incorporate topics of medicine use and disposal into Small Animal Husbandry training.

Coordination with other organizations regarding appropriate medicines for small animal husbandry will be needed. Medicines that are typically purchased locally and administered by the animal owner should be identified and a safer use action plan be prepared for each medicine. This safer use action plan should be incorporated into the Small Animal Husbandry training.

**IEE Condition:** Small animal husbandry activities do not contribute to overgrazing, erosion, or water pollution.

The potential damages to the environment from livestock are typically over-grazing, pollution of drinking water surface and or groundwater supply sources, and soil erosion due to trails and over crazing. Livestock is known to increase harmful pathogen concentrations and to increase turbidity in water sources. Training material should include topics on small-scale fodder production and environmentally conscious forage and water practices.

**Mitigation Measure 2.2.2.2.9d (IEE 2.2.1.9d):** Incorporate small-scale fodder production and environmentally sound watering practices into Small Animal Husbandry training.

Fodders that provide nutrients for improved milk production and fattening of the animal should be reviewed. Environmentally sound watering practices may include but are not limited to: limiting drinking time along river/channel/pond banks (hooves breakdown vegetation and soil banks at the water’s edge increasing sedimentation), not allowing free grazing along riverbanks (this increases erosion and removal of vegetation), designation of animal watering ponds, and banning animals from PSF source ponds.

**IEE Condition:** Human health is not effected by small animal husbandry care practices.

\(^2\) [http://www.usaidgems.org/mse/foodProcessing.htm](http://www.usaidgems.org/mse/foodProcessing.htm)
Nobo Jatra will coordinate small animal husbandry activities closely with health and hygiene activities to promote high standards of hygiene particularly washing hands at all appropriate times for caregivers and children under 5. Small husbandry training should include topics on hygiene and homestead environmental health practices.

**Mitigation Measure 2.2.2.2.9e (IEE 2.2.1.9e):** Coordinate with health and hygiene activities to encourage increased hygiene and homestead environmental health standards. Coordination with health and hygiene should focus on two aspects of hygiene. First, animal/human sleeping separation. Households should be encouraged to designate small animal pens outside of the house or at minimum away from sleeping areas. Where means are sufficient, households should be encouraged to use a separation (ex. cardboard, blankets, board and mattress) between the bare ground and their bodies while sleeping (pathogens travel through the earth between animals and humans). Second, hand-washing. Children under 5 and caregivers should be encouraged to wash hands with soap after handling animals and after other standard times (after use of bathroom, before preparing food, before eating, etc.).

**(2.2.2.1) (IEE 2.2.2) Establish climate smart demonstration plots**

*IEE Condition:* Demo plots are not established on land that is in its natural state (ex. beels, forest) or in environmentally sensitive areas (ex. river/canal bank).

About 150 demonstration plots will be established over the life of the project. The footprint of these demonstration plots with regard to the overall project area is small. Practices promoted are expected to have an indirect effect on the environment through adoption and dissemination of these practices on private agricultural plots. An environmental risk assessment will be done at each demo plot site prior to establishment. The assessment will evaluate the risks for environmental degradation and propose remedial measures based on the unique characteristics of each location. Previously undeveloped land or marginal land will not be sought for the establishment demonstration plots. The project will sensitize lead farmers environmentally sensitive site selection and management of demo plots. Demo plots will not be established on riverbeds or along hilly slopes to avoid soil erosion. Integrated soil fertility and pest management will be promoted to reduce pollution. A demonstration plot selection criteria is in Annex 5.

**Mitigation Measure 2.2.2.1a (IEE 2.2.2a):** Verify that site selection for demo plot will not convert natural forest or wetland nor will it be constructed in an environmentally sensitive area prior to establishment.

This mitigation measure ensures that the Nobo Jatra sets an exemplary model for the community in its use of land. The site visit form in Annex 3 — Site Visit Forms, can be used to verify that selected demo plot sites will not convert land in its natural state to agriculture land. It will also mitigate the establishment of a demonstration plot on environmentally fragile marginal lands. Marginal lands are areas that are not ideal for farming but due to land competition have been converted for production. Nobo Jatra should not establish demonstration plots on land that should not be under cultivation such as along river or canal banks where there is no vegetative buffer or recently converted beel land.

*IEE Condition:* Hand-washing stations neither cause a hazard to public health nor degrade any body of water.

Hand-washing stations that are placed on demonstration plots should be designed with a soak-away and water drainage directed away from the station into a vegetated site. Properly designed drainage protects 1) aquatic life, and 2) human health. Vegetation acts as filter for phosphates that may be in soap used at the hand-washing station. When phosphates enter a water body they provide nutrients for algae growth. Algae in overabundance depletes oxygen supplies for other aquatic animals. Failure to factor in drainage counters the promotion of hygiene and health when mud and standing water (vector-borne breeding site) forms around the hand-washing station.
**Mitigation Measure 1:** Incorporate environmentally conscious drainage into hand-washing station design.

Design plans should incorporate drainage into hand-washing station designs. This may be a gravel soak-away combined with a drainage channel to vegetative areas. The general design goal is that there be:

- no standing water around base
- no clear erosion paths forming
- drainage leads water to a vegetative area (not directly to a water source)

**Mitigation Measure 2.2.2.1b (IEE 2.2.2b):** Verify that drainage measures work according to environmentally conscious design.

Adequate drainage should be checked twice a year – dry and wet season – for the first year after construction. The checklist in **Annex 3 – Site Visit Forms** can be used to verify if drainage measures are sufficiently meeting the environmental conscious design criteria.

**IEE Condition:** Promoted actions are in alignment with national and other climate smart initiatives.

**Mitigation Measure 2.2.2.1c (IEE 2.2.2c):** Identify national, regional, or other climate smart initiatives.

Predicted climate change effects such as sea level rise and increased sea surface temperatures are expected to impact rural coastal Bangladeshi households in a broad manner, including their ability to grow crops. A primary purpose of the demonstration plots should be to model climate change adaptation practices. Review of national, regional, or other climate smart (or climate adaptation) initiatives. Some suggested strategies are listed in Table 1 of this document.

**Mitigation Measure 2.2.2.1d (IEE 2.2.2d):** Link climate smart initiatives to promoted demo plot practices.

Once a review of climate smart initiatives has been done, Nobo Jatra should be able to link activities promoted in the demo plots with climate smart initiatives. This promotes collaboration and coordination of efforts to prepare community members for climate chance induced effects.

**IEE Condition:** Promoted actions are in alignment with national and other climate smart initiatives.

**Mitigation Measure 2.2.2.1b (IEE 2.2.2b):** Verify that drainage measures work according to environmentally conscious design.

Adequate drainage should be checked twice a year – dry and wet season – for the first year after construction. The checklist in **Annex 3 – Site Visit Forms** can be used to verify if drainage measures are sufficiently meeting the environmental conscious design criteria.

**IEE Condition:** Promoted actions are in alignment with national and other climate smart initiatives.

**Mitigation Measure 2.2.2.1c (IEE 2.2.2c):** Identify national, regional, or other climate smart initiatives.

Predicted climate change effects such as sea level rise and increased sea surface temperatures are expected to impact rural coastal Bangladeshi households in a broad manner, including their ability to grow crops. A primary purpose of the demonstration plots should be to model climate change adaptation practices. Review of national, regional, or other climate smart (or climate adaptation) initiatives. Some suggested strategies are listed in Table 1 of this document.

**Mitigation Measure 2.2.2.1d (IEE 2.2.2d):** Link climate smart initiatives to promoted demo plot practices.

Once a review of climate smart initiatives has been done, Nobo Jatra should be able to link activities promoted in the demo plots with climate smart initiatives. This promotes collaboration and coordination of efforts to prepare community members for climate chance induced effects.

**Form agro-business service committees:** Nobo Jatra revised the DIP and dropped the activity (IEE 2.2.3) and added the above activity. Actions under this activity are anticipated to have no effect on the environment.

**IEE Condition:** LSP modules include and promote sound environmental practices relevant to skill being taught.

Training of LSPs is likely to have indirect effects on the environment. A portion of LSPs’ capacity will be built under the same training modalities as outlined in activity (2.2.2.2) (IEE 2.2.1). However, LSPs may receive additional training in topics such as artificial insemination and livestock/fish stock vaccination. Inclusion of sound environmental practices within each training module and adhering to mitigation activities recommended for activity (2.2.2.2) (IEE 2.2.21) will mitigate adverse effects on the environment.

**Mitigation Measure 2.2.3.1a (IEE 2.2.4a):** Identify sound environmental practices for each LSP skill being taught.

The range of skills to be taught has not yet been established. Therefore, once LSP skills are selected sound environmental practices for each action should be identified and incorporated into the training module. For example, if the use of pond-bottom sediment is being used, sound environmental practices would include:

- **Water removal plan** (if manual water removal is planned). Will the addition of water contribute to water-logging at the destination? Does the water contain disease-vectors that
will be spread? Can the destination crop handle the nutrient-rich water? For example, rice is known to be sensitive to nutrient overloading. Sending fish/prawn pond water into a water body can contribute to eutrophication.

- **Know soil salinity.** If water in the gher is known to be saline, establish average salinity of pond-bottom sediment prior to using it on other crops. This could be done by sampling the pond-bottom mud from a demonstration plot implementing similar activities as those of the beneficiaries and testing for salt build-up. Providing saline soil for crops would be a harmful instead of beneficial practices.

**Mitigation Measure 2.2.3.1b (IEE 2.2.4b):** Incorporate identified sound environmental practices into each LSP skill training curriculum.

Once sound environmental practices for each LSP skill have been identified these should be incorporated into the LSP training curriculum.

**Purpose 3:** Strengthened gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from man-made and natural shocks and stresses

(3.2.1.2) (IEE 3.1.1) **Train DMCs (Upazila and Union) in DRR including participatory risk assessment, good governance and gender sensitivity.** The training-of-trainers modality for building knowledge on disaster management is expected to have no effect on the environment.

(3.2.1.3) (IEE 3.1.2) **Provide technical and acceleration grant support to Union DMCs in implementing RRAP and CDMAP related activities IEE Condition:** Apply a “Do No Harm” lens to CDMAP funding review.

The content of the CDMAPs is outside of the control of Nobo Jatra. However, through a competitive process and rigorous review, some elements of CDMAPs will be funded to accelerate advancement toward disaster resilience. During the review process the project should seek to "Do No Harm" by applying environmental review criteria when considering elements of the CDMAPs to fund. In order to receive funding, a CDMAP should propose mitigation measures, where necessary, accompanying proposed interventions to avoid negative effects on the environment.

Mitigation Measure 3.2.1.3a (IEE 3.1.2a): Include within CDMAP evaluation criteria the existence of environmental mitigation measures for activities proposed. Since the list of activities presented in each CDMAP will be broad, plans should be reviewed with general requirement that funded activities be carried out in a manner that will not cause harm to environment. A requirement of funded CDMAPs should be that activities that have an effect on the environment should be accompanied with mitigation measures.

Implementation for the 8 activities from the CDMAP, have been identified to potentially have an environmental impact. The mitigation measures for all the activities include:

**Mitigation Measures for Pond Re-excavation**
- Regular monitoring and maintenance of water quality for the ponds that will be used for drinking water
- Maintaining proper sloping of the dyke within the ponds to ensure proper compaction of dyke within the ponds
- Turfing (indigenous grasses) or tree plantation will be required to control erosion. If plants are used to stabilize the dyke, indigenous variety will be considered which has been used country wide.
- Raising the dyke of the pond adequately to avoid run off
- Preservation of the clay layer on the bottom of the pond to avoid salinity intrusion by seepage
- Ensuring workers use required PPE during work
- Avoid the cutting of trees for work; and if trees are removed, ensure replantation.
• Ensure First Aid Facility at the work

**Mitigation Measures for Distribution of Rain Water Harvesting Tank**
• Orient the beneficiaries on the Water Safety Plan (WSP) and proper cleanliness and maintenance of the tanks.
• Include filtration system with the tank

**Mitigation Measures for Reconstruction of Embankment and Earthen Road**
• Replacement of the top soil from the same place after the collection of soil for reconstruction of the embankment and earthen road
• Water sprinkling to control dust during construction work
• Ensuring that workers are using required PPE
• Ensuring provision of drinking water and sanitation facilities around the worksites for the workers
• Replanting trees if trees are required to be cut down
• Ensuring proper compaction of embankment and road
• Ensure turfing where applicable
• If the reconstruction of earthen roads crosses any bodies of water, ensure that water flow is not disturbed. Take necessary measures (e.g. provision of small culvert, small box culvert).

**Mitigation Measures for Providing Brick Flat Soling with Rural Earthen Road**
• Fixing the bricks on the road properly
• Ensuring proper management of construction work
• Ensuring that workers are using adequate PPE during construction
• Ensuring proper compaction and turfing where applicable

**Mitigation Measures for Repairing of Small Rural Bridge**
• Ensuring proper management of construction work
• Ensuring that workers are using required PPE
• Ensuring proper management systems are in place for construction related waste
• Ensuring alternative fish migration routes as mitigation measures if applicable

**Mitigation Measures for Canal Re-excavation**
• Keeping the re-excavated materials in a place that run off cannot carry them to a body of water
• If the re-excavated materials are kept on the dyke of the canals, proper slopping and manual compaction will be required to control erosion
• Turfing (indigenous grasses) or tree plantation will be required to control erosion. If plants are used to stabilize the dyke, indigenous variety will be considered which has been used country wide.
• Ensuring adequate PPE is used by the workers during work
• Continuing re-excavation work per section
• Ensuring provision of drinking water and sanitation facilities at the worksites
• Ensure First Aid Facility at the work place

**Mitigation Measures for Reconstruction of U-drain**
• Ensuring proper management of construction work
• Ensuring adequate PPE are used by the workers during work
• Ensuring provision of drinking water and sanitation facilities at the worksites
• Ensure First Aid Facility at the work

**3.2.1.2 (IEE 3.1.3): Train DMCs (Upazila and Union) in DRR including participatory risk assessment, good governance and gender sensitivity:** Knowledge gained in training under activity (3.2.1.2) (IEE
3.1.1) will be passed down to ward-level committees and VDCs. Training will focus on knowing how to respond in a disaster event. These activities are expected to have no effect on the environment.

**(3.1.2.1)** Mobilize and train communities on DRR activities: During the DIP revision (IEE 3.1.4) was combined with (IEE 3.1.2) and new activity 3.2.1.3 was proposed. IEE conditions are described above under 3.2.1.3. The new activity 3.1.2.1 is expected to have no effect on environment.

## 4 Monitoring System

### 4.1 Performance Monitoring Measurement

Presented below are both Stand-alone Environmental Indicators and Integrated Environmental Indicators, both at the output and outcome level. Process indicators are also included to verify the completion of prerequisite tasks. Indicator definitions and validation methods are outlined in the EMMP table (Annex 1 - EMMP Table)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Purpose 1: Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls.</th>
</tr>
</thead>
</table>
| (1.1.2.1) (IEE 1.1.3) Support community water management committees to manage and maintain water supply facilities | Stand-alone Output Indicator  
Number of community water management committees that have developed and are implementing water safety plans  
Integrated Output Indicator  
Number of community water management committees members that complete capacity building training by sex |
| (1.1.2.4) (IEE 1.1.4) Provide community water facilities with appropriate alternative new water option(s) that meet environmental sustainability standards, rehabilitate and/or develop deep tube wells and pond sand filters, etc. | Process Indicator  
Groundwater evaluation study conducted  
Stand-alone Outcome Indicator  
Percent of project-supported boreholes / water points that meet environmental sustainability standards outlined in feasibility studies |
| (1.1.3.1) (IEE 1.1.5) Rehabilitate and/or construct latrines to meet hygienic sanitation standards | Stand-alone Outcome Indicator  
Percentage of latrines constructed that meet environmental sustainability criteria  
Integrated Output Indicator  
Number of people gaining access to basic sanitation services as a result of USG assistance, by sex  
Process Indicator  
Essential hygiene practices training module includes information on how to decommission a latrine |
| (1.3.2.1) (IEE 1.3.1) Capacity building for government health service providers | Process Indicator  
Training module for the Infant and Young Child Feeding includes topics of sustainable fuel wood harvesting and efficient fuel use |
| Other/monitoring activity: Water quality testing (bacteriological) by Pota Test-membrane filtration (MF) device | Integrated Output Indicator  
Percentage of the tests conducted by Pota Test-MF device with proper EHS measures |
| activity 1.3.1.1.1 - Private sector service providers provide technical | Process Indicator  
Training module for service providers includes topics of proper disposal of wastes |
## Purpose 2: Increased equitable household income

<table>
<thead>
<tr>
<th>Purpose 2: Increased equitable household income</th>
<th>Stand-alone Output Indicator</th>
<th>Process Indicator</th>
<th>Integrated Outcome Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2.1.1.1) (IEE 2.1.2) Select (extremely poor) men and women entrepreneurs to participate in the graduation program</td>
<td>Number of approved business plans that meet established criteria for environmentally sound practices for their selected IGA</td>
<td>IGA training modules include sound environmental practices relevant to skill being taught.</td>
<td>FFP 9: Number of farmers and others who applied improved technologies or management practices as a result of USG assistance, by sex.</td>
</tr>
<tr>
<td>(2.1.3.1) (IEE 2.1.3) Conduct training in technical skills required for alternative income generated activities (AIGA)</td>
<td></td>
<td></td>
<td># of project participants trained in safe use and handling of agrochemicals.</td>
</tr>
<tr>
<td>(2.1.3.2) (IEE 2.1.4) Strengthen linkages to private sector to identify and select market-based livelihoods opportunities</td>
<td>Percentage of private sector companies engaged that meet environmental sustainability criteria</td>
<td></td>
<td>FFP 11: Number of individuals who have received USG supported short-term agricultural sector productivity or food security training, by sex.</td>
</tr>
<tr>
<td>(2.2.2.2 (IEE 2.2.1): Facilitate training on NRM, Agro-Production and farmer management skills to producer groups.</td>
<td></td>
<td>Information on value of traditional crops incorporated in Crops Genetics module</td>
<td></td>
</tr>
<tr>
<td>(2.2.2.1) (IEE 2.2.2) Establish climate smart demonstration plot</td>
<td>SUAP and IPM plans developed and approved by USAID</td>
<td></td>
<td>FFP 15 &quot;Number of hectares under improved technologies or management practices as a result of USG assistance.</td>
</tr>
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<tr>
<td></td>
<td></td>
<td></td>
<td>FFP 14 (Env. Safeguard): Percentage of farmers who used at least three sustainable agriculture (crop/livestock and/or NRM) practices and/or technologies in the past 12 months (FFP-RIA, OUTCOME).</td>
</tr>
</tbody>
</table>
(2.2.3.1) Build Capacity of LSPs to provide sustainable services

**Process Indicator**
Percentage of LSP training modules that include sound environmental practices

**Purpose 3: Strengthen gender equitable ability of people, households, communities and systems to mitigate, adapt to and recover from natural shocks and stresses.**

(3.2.1.3) Provide technical and acceleration grant support to Union DMCs in implementing RRAP and CDMAP related activities

**Stand Alone Output Indicator**
Percent of CDMAPs funded that included environmental mitigation measures for proposed activities that posed a potential adverse effect on the environment

Percent of schemes having defined mitigation measures

(3.1.1.2) Mobilize VDCs to participate and oversee RRAP development and implementation

**Process Indicator**
Baseline resilience study incorporates climate change and variability

**Stand Alone Output Indicator**
Number of RRAPs including risk reducing actions that correspond to climate change effects

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4.2 Monitoring Plan

Twenty four indicators are identified to monitor environmental safeguard, different data collection methods including beneficiary based sample survey, annual routine monitoring, review of different training module and documenting through Nobo Jatra’s real time Management Information System (MIS). Details indicators descriptions are included in the EMMP table as well as Performance Indicators Reference Sheets under the M&E plan. Sampling methodology of beneficiary based sample survey is described in the M&E plan. A summary table are given below indicating the monitoring frequency, tools and method to be apply for each of the indicators.

<table>
<thead>
<tr>
<th>SL #</th>
<th>Indicators</th>
<th>Tools</th>
<th>Frequency</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of approved business plans that meet established criteria for environmentally sound practices for their selected IGA</td>
<td>Site Visit Forms (Graduation program)-Business plan</td>
<td>Routine</td>
<td>Review of business plans</td>
</tr>
<tr>
<td>2</td>
<td>IGA training modules include sound environmental practices relevant to skill being taught</td>
<td>Site Visit Forms (IGA)-Training Module</td>
<td>Once</td>
<td>Review of training modules</td>
</tr>
<tr>
<td>3</td>
<td>Percentage of private sector companies engaged that meet environmental sustainability criteria</td>
<td>Site Visit Forms (IGA)-Private Sector</td>
<td>Routine</td>
<td>Evaluate private sector partnerships against the set criteria</td>
</tr>
<tr>
<td>4</td>
<td>FFP 9: Number of farmers and others who applied improved technologies or management practices as a result of USG assistance, by sex (FFP-RiA, OUTCOME)</td>
<td>Questionnaire</td>
<td>Annual</td>
<td>Annual beneficiary based sample survey</td>
</tr>
<tr>
<td>5</td>
<td>Number of project participants trained in safe use and handling of agrochemicals</td>
<td>Event Database</td>
<td>Routine</td>
<td>Document through Nobo Jatra MIS</td>
</tr>
<tr>
<td>SL #</td>
<td>Indicators</td>
<td>Tools</td>
<td>Frequency</td>
<td>Method</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------</td>
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<td>---------------------------------------------</td>
</tr>
<tr>
<td>6</td>
<td>Number of project participants trained in integrated pest management (IPM)</td>
<td>Event Database</td>
<td>Routine</td>
<td>Document through Nobo Jatra MIS</td>
</tr>
<tr>
<td>7</td>
<td>Information on value of traditional crops incorporated in Crops Genetics module</td>
<td>Review report</td>
<td>Once</td>
<td>Review of completed Crop Genetics module</td>
</tr>
<tr>
<td>8</td>
<td>FFP 11: Number of individuals who have received USG supported short-term agricultural sector productivity or food security training, by sex (FP-RiA, OUTPUT)</td>
<td>Event Database</td>
<td>Routine</td>
<td>Document through Nobo Jatra MIS</td>
</tr>
<tr>
<td>9</td>
<td>Custom 4: Number of community water management committee members that complete capacity building training, by sex (Custom Output Indicator)</td>
<td>Event Database</td>
<td>Routine</td>
<td>Document through Nobo Jatra MIS</td>
</tr>
<tr>
<td>10</td>
<td>FFP 9: Number of farmers and others who applied improved technologies or management practices as a result of USG assistance, by sex (FP-RiA, OUTCOME)</td>
<td>Questionnaire</td>
<td>Annual</td>
<td>Annual beneficiary based sample survey</td>
</tr>
<tr>
<td>11</td>
<td>FFP 15 &quot;Number of hectares under improved technologies or management practices as a result of USG assistance</td>
<td>Questionnaire</td>
<td>Annual</td>
<td>Annual beneficiary based sample survey</td>
</tr>
<tr>
<td>12</td>
<td>FFP 14 (Env. Safeguard) : Percentage of farmers who used at least three sustainable agriculture (crop/livestock and/or NRM) practices and/or technologies in the past 12 months (FP-RiA, OUTCOME)</td>
<td>Questionnaire</td>
<td>Baseline and Endline</td>
<td>Population based sample survey</td>
</tr>
<tr>
<td>13</td>
<td>Percentage of LSP training modules that include sound environmental practices</td>
<td>Checklist</td>
<td>Once</td>
<td>Review of each LSP module.</td>
</tr>
<tr>
<td>14</td>
<td>Percent of CDMAPs funded that included environmental mitigation measures for proposed activities that posed a potential adverse effect on the environment</td>
<td>Checklist Site Visit Forms (DRR)-CDMAP</td>
<td>Once</td>
<td>All the CDMAP will be reviewed</td>
</tr>
<tr>
<td>15</td>
<td>Baseline resilience study incorporates climate change and variability</td>
<td>Questionnaire</td>
<td>Baseline and Endline</td>
<td>Population based sample survey</td>
</tr>
<tr>
<td>16</td>
<td>Number of RRAPs including risk reducing actions that correspond to climate change effects</td>
<td>Checklist</td>
<td>Once</td>
<td>Review of RRAPs</td>
</tr>
<tr>
<td>SL #</td>
<td>Indicators</td>
<td>Tools</td>
<td>Frequency</td>
<td>Method</td>
</tr>
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<td>------</td>
<td>---------------------------------------------------------------------------</td>
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<td>---------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>17</td>
<td>Number of community water management committees that have developed and are implementing water safety plans</td>
<td>Checklist</td>
<td>Annual</td>
<td>Observation method 1) existence of a water safety plan, 2) drinking water test results</td>
</tr>
<tr>
<td>18</td>
<td>Percent of project-supported boreholes / water points that meet environmental sustainability standards outlined in feasibility studies</td>
<td>Checklist</td>
<td>Once</td>
<td>Evaluate against the sustainability criteria</td>
</tr>
<tr>
<td>19</td>
<td>Percentage of latrines constructed that meet environmental sustainability criteria</td>
<td>Questionnaire</td>
<td>Annual</td>
<td>Evaluate against the sustainability criteria</td>
</tr>
<tr>
<td>20</td>
<td>Number of people gaining access to basic sanitation services as a result of USG assistance</td>
<td>Enter into the MIS</td>
<td>Routine</td>
<td>Counting</td>
</tr>
<tr>
<td>21</td>
<td>Essential hygiene practices training module includes information on how to decommission a latrine</td>
<td>Checklist</td>
<td>Once</td>
<td>Review Training module</td>
</tr>
<tr>
<td>22</td>
<td>Training module for the Infant and Young Child Feeding includes topics of sustainable fuel wood harvesting and efficient fuel use</td>
<td>Checklist</td>
<td>Once</td>
<td>Review Training module</td>
</tr>
<tr>
<td>23</td>
<td>Percentage of the tests conducted by Pota Test-MF device with proper EHS measures</td>
<td>Checklist</td>
<td>Routine</td>
<td>Visit at Field Level Labs</td>
</tr>
<tr>
<td>24</td>
<td>Training module for service providers includes topics of proper disposal of wastes</td>
<td>Checklist</td>
<td>Once</td>
<td>Review Training module</td>
</tr>
</tbody>
</table>

### 4.2.1 Staffing

The Environmental Safeguarding Coordinator will oversee the implementation of recommended mitigation measures, working closely with relevant staff and partners in all sectors. There is budget for this position and the individual is on-staff. Implementation of the mitigation measures is expected to be carried out by budgeted staff positions. Only the groundwater study is expected to require the contracting of a consultant for whom there is an allotted budget. However, to comply with USAID regulations 216, NJP may hire an environmental expert or consultant as and when required.

### 4.2.2 Schedule

Monitoring schedule for each indicator can be found in the EMMP table.

### 4.2.3 Budget

Environmental mitigation activities represent approximately $404,074 of the total project costs. The second tab (Budget) of the EMMP identifies these costs. Community cost-sharing and coordination
with government agencies may be key in establishing costs to the program. Budget realignment will be done once costs are more accurately understood.

5 Corrective Action Plan
The project coordinators, the Environmental Safeguarding Coordinator, and appropriate finance staff will meet once a year prior to the submission of the Environmental Status Report to, 1) discuss the effectiveness of the mitigation measures to protect against environmental harm, 2) review feasibility of data collection, 3) address budget realignments for EMMP actions, and 4) recommend adjustments to mitigation measures, indicators, or indicator criteria. Adjustments should be in-line with the 4 EMMP guiding principles:

Realistic – Achievable within time, resources and capabilities

Well-targeted – Mitigation measures must respond to the IEE conditions which in turn should correspond to the identified environmental threats and stressors for the area of implementation.

Prevention-focused – Prevention of negative environmental effects is usually cheaper than remediation.

Funded – There must be sufficient budget to cover the implementation of the mitigation measures and their monitoring otherwise the actions cannot be achieved.

6 Reporting
6.1 Site Visit Reports
Site visit reports should be modified according to the needs of the project in order to gather the necessary information. Annex 3 – Site Visit Forms provides examples of site visit reports for mitigation measures. This is just a sampling of the most obvious mitigation measures which will require a site visit form. Other mitigation measures may also need site visit reports and will be developed based on reporting requirements. Any additional forms will be added to this EMMP.

6.2 Reporting Schedule
Reporting of process indicators will generally take place on a quarterly basis. Output and outcome indicators will generally be reported on an annual basis. Reporting schedule for each indicator is identified in the EMMP table.

7 Annexes:

The following annexes are attached separately:

Annex 1: - Environmental Mitigation and Monitoring Plan (EMMP)
Annex 2: Sample Water Safety Plan
Annex 3: Site Visit Forms
Annex 4: Water Quality Assurance Plan
Annex 5: Demonstration Plot Selection Criteria
Annex 6: Engineering well design checklist
Annex 7: Nursery Waste Reduction Plan
Annex 8: Latrine Maintenance Guide
Annex 9: Well Site Selection Checklist
Annex 10: Latrine Site Selection Criteria
Annex 11: Latrine Decision Tree
Annex 12: Nobo Jatra SUAP
Annex 13: Nobo Jatra PMP


\[3\] Parker, A, Carlier, I. (2009), National regulations on the safe distance between latrines and water points. Draft version. DEW Point.


\[5\] USAID. (2014) The Programmatic Initial Environmental Examination of the Food for Peace FY15 Request for Applications (RFA) for USAID Development Food Assistance Projects


USAID. (2014) The Programmatic Initial Environmental Examination of the Food for Peace FY15 Request for Applications (RFA) for USAID Development Food Assistance Projects

### Climate Risk Screening and Management Tool for Project Design

#### PROJECT CRM TOOL OUTPUT MATRIX: CLIMATE RISKS, OPPORTUNITIES, AND ACTIONS

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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Activity 1.1.1.1.1.1 Strengthened capacity and/or mechanisms of project design*</td>
<td>October 2022 - September 2023</td>
<td>Dacope and Koyra Upazilas of Khulna District, Bangladesh.</td>
<td>If the mobilized resources of the WASH actors are not utilized considering the climatic events (e.g. infrastructures those can be damaged by the climatic events like flood, storm surge, cyclone etc.). WASH committees and stakeholders have low capacity to address climate change issue and many do not have institutional and financial adaptive capacity.</td>
<td>Moderate</td>
<td>The measures to be taken will be integrated with the project’s regular activities and the integration will contribute to the development objective of climate resilience.</td>
<td>WASH committees and stakeholders have low capacity to address climate change issue and many do not have institutional and financial adaptive capacity.</td>
<td>WASH committees and stakeholders have low capacity to address climate change issue and many do not have institutional and financial adaptive capacity.</td>
<td>Nobo Jatra will sensitize different stakeholder to ensure climate resilient services (e.g. infrastructures to be disaster/climate resilient) and promote emergency preparedness.</td>
<td>Nobo Jatra will sensitize different stakeholders to ensure climate resilient services during different workshops/meetings. Avoiding climate/other risk poses risk which will be addressed through the above-mentioned measures.</td>
</tr>
<tr>
<td></td>
<td>Activity 1.1.1.1.1.2 Enhanced functional alignment of WASH Actors and different stakeholders</td>
<td>October 2022 - September 2023</td>
<td>Dacope and Koyra Upazilas of Khulna District, Bangladesh.</td>
<td>The stochastic risk is not used considering the climatic events/seasonal variability and the operation and maintenance works by the WASH actors do not consider the climatic stress. The functionality of the water points may be disrupted by the climatic events like flood, storm surge, cyclone etc.</td>
<td>Moderate</td>
<td>This visualization will be integrated with the meetings/workshops to be held with different WASH actors and this will contribute to the climate resilience development objective of USAID.</td>
<td>WASH committees have low capacity to address climate change issue and many do not have financial adaptive capacity.</td>
<td>WASH committees have low capacity to address climate change issue and many do not have financial adaptive capacity.</td>
<td>Nobo Jatra will sensitize different stakeholders to ensure climate resilient services during different workshops/meetings.</td>
<td>Nobo Jatra will sensitize different stakeholders to ensure climate resilient services during different workshops/meetings.</td>
</tr>
<tr>
<td></td>
<td>Activity 1.1.1.1.1.3 Strengthened capacity of Deterrent for sustainable supply of water systems (USAID- approved Water Management or watershed management)</td>
<td>October 2022 - September 2023</td>
<td>Dacope and Koyra Upazilas of Khulna District, Bangladesh.</td>
<td>If the WASH actors are not considering the climate resilience, the climatic events (e.g. extreme heat, flood, cyclone) can pose health risk to the communities and the environment of the communities can be polluted.</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Nobo Jatra will sensitize the WASH actors to ensure that the WASH services are climate resilient and the Deterrent works also consider the climate resilience.</td>
<td>Nobo Jatra will sensitize the WASH actors to ensure that the WASH services are climate resilient and the Deterrent works also consider the climate resilience.</td>
</tr>
</tbody>
</table>

* = A required element, according to the Mandatory Reference

** Project elements may include Purpose / Sub-purpose, Areas of Focus, or Activities / Mechanisms, etc.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Activity Details</th>
<th>Area of Focus</th>
<th>Time Frame</th>
<th>Location</th>
<th>Objective</th>
<th>Rating</th>
<th>Integration with the Regular Meetings/Workshops of the Project</th>
<th>Strategy</th>
<th>Action</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1.1.1.1.1</td>
<td>Established strong linkage among WASH LSPs and stakeholders to meet local WASH demand</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh</td>
<td>October 2020-September 2022</td>
<td>If the private sector service providers do not have the knowledge on climate-resilience, the linking on integrating the climate resilience in the services risks poor health of the communities and deteriorate the functionality of the services by the climatic events.</td>
<td>Moderate</td>
<td>Integration with the regular meetings/workshops of the project</td>
<td>Nobo Jatra will sensitize the private sector service providers on climate resilience for their services through the project's regular meeting/workshops</td>
<td>Incorporate climate change assessment into the activity.</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Activity 1.1.1.2</td>
<td>Established strong linkage among WASH LSPs and stakeholders to meet local WASH demand</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh</td>
<td>October 2020-September 2022</td>
<td>If the technical assistance does not consider the climatic resilience, the community will be at risk (e.g. diseases, infections) for the climatic events.</td>
<td>Low</td>
<td>Integration with the regular meetings/workshops of the project</td>
<td>The actors to provide the assistance will be sensitized on the climate risk and management in their services</td>
<td>None</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Activity 1.3.1.1</td>
<td>Private sector service providers provide technical assistance and ensure supply chain for the CSA</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh</td>
<td>October 2020-September 2022</td>
<td>If the supply chain does not consider contingency planning and preparedness of the supplies for the major climatic events, the supply of the services will be disrupted and the communities will not be able to get the services.</td>
<td>Moderate</td>
<td>Integration with the regular meetings/workshops of the project</td>
<td>Nobo Jatra will sensitize private sector to have contingency and emergency preparedness plan considering major climatic events considering the months when climatic events happen in Project areas.</td>
<td>Incorporate climate change assessment into the activity.</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Activity 1.3.3.1.1: Community level</td>
<td></td>
<td></td>
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<td><strong>Activity</strong></td>
<td><strong>Elements</strong></td>
<td><strong>Time-frame</strong></td>
<td><strong>1.3.1.2.1</strong>: Community level actors disseminate Health and Nutrition message</td>
<td><strong>1.3.1.2.2</strong>: MoHFW front line staff provide Health and Nutrition education</td>
<td><strong>1.3.1.2.3</strong>: CG/CSG members raise demand on MCHN behavior and practices</td>
<td><strong>1.3.1.3.1</strong>: MoHFW made available of adequate quality Health and Nutrition services</td>
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<tr>
<td>1.3.3.2.1.1: Community level</td>
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<tr>
<td><strong>Actor</strong></td>
<td><strong>Element</strong></td>
<td><strong>Time-frame</strong></td>
<td><strong>1.3.1.2.1</strong>: Community level actors disseminate Health and Nutrition message</td>
<td><strong>1.3.1.2.2</strong>: MoHFW front line staff provide Health and Nutrition education</td>
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<td><strong>1.3.1.3.1</strong>: MoHFW made available of adequate quality Health and Nutrition services</td>
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<tr>
<td><strong>Decentralization District</strong></td>
<td><strong>Districts and Upazilas</strong></td>
<td><strong>Topics</strong></td>
<td><strong>Indicators</strong></td>
<td><strong>Key Actions</strong></td>
<td><strong>Integration with the regular meetings/ workshops of the project will contribute to the climate resilience development objective</strong></td>
<td><strong>Integration with the regular meetings/ workshops of the project will contribute to the climate resilience development objective</strong></td>
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<tr>
<td><strong>1.3.1.2.1</strong>: Community level actors disseminate Health and Nutrition message</td>
<td><strong>October 2020-September 2022</strong></td>
<td><strong>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</strong></td>
<td><strong>If the community level actors do not consider sensitizing the community on how to cope with situation during/after a climatic disaster, their health may be at risks.</strong></td>
<td><strong>Community level actors have lack of capacity of climate change issue.</strong></td>
<td><strong>To be carried out with regular activities (door to door, different meetings). This will not direct risk on the activity which will be reduced through the mentioned effort.</strong></td>
<td><strong>MoHFW has lack of human resource capacity.</strong></td>
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<tr>
<td><strong>1.3.1.2.2</strong>: MoHFW front line staff provide Health and Nutrition education</td>
<td><strong>October 2020-September 2022</strong></td>
<td><strong>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</strong></td>
<td><strong>If the education works do not consider sensitizing the community on how to cope with situation during/after a climatic disaster, their health may be at risks.</strong></td>
<td><strong>To be carried out with regular activities (door to door, different meetings). This will not direct risk on the activity which will be reduced through the mentioned effort.</strong></td>
<td><strong>Integration with the regular meetings/ workshops of the project will contribute to the climate resilience development objective</strong></td>
<td><strong>Integration with the regular meetings/ workshops of the project will contribute to the climate resilience development objective</strong></td>
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<tr>
<td><strong>1.3.1.2.3</strong>: CG/CSG members raise demand on MCHN behavior and practices</td>
<td><strong>October 2020-September 2022</strong></td>
<td><strong>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</strong></td>
<td><strong>If the CG/CSG members do not consider sensitizing the community on how to cope with situation during/after a climatic disaster, their health may be at risks.</strong></td>
<td><strong>CG/CSGs have lack of capacity of climate change issue.</strong></td>
<td><strong>Integration with the regular meetings/ workshops of the project will contribute to the climate resilience development objective</strong></td>
<td><strong>Integration with the regular meetings/ workshops of the project will contribute to the climate resilience development objective</strong></td>
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<tr>
<td><strong>1.3.1.3.1</strong>: MoHFW made available of adequate quality Health and Nutrition services</td>
<td><strong>October 2020-September 2022</strong></td>
<td><strong>Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</strong></td>
<td><strong>If the education works do not consider sensitizing the community on how to cope with situation during/after a climatic disaster, their health may be at risks.</strong></td>
<td><strong>MoHFW has lack of human resource capacity.</strong></td>
<td><strong>Integration with the regular meetings/ workshops of the project will contribute to the climate resilience development objective</strong></td>
<td><strong>Integration with the regular meetings/ workshops of the project will contribute to the climate resilience development objective</strong></td>
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<tr>
<td>Activity</td>
<td>Activity Title</td>
<td>Timeframe</td>
<td>Location</td>
<td>Description</td>
<td>Climate Risk Rating*</td>
<td>Integration with the regular meetings/ workshops of the project</td>
<td>Next Steps for Activity Design/Implementation*</td>
<td>Accepted Climate Risks*</td>
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<tr>
<td>1.3.1.4.1</td>
<td>Multi-sectoral climate &amp; mobility</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>If the mobilized and allocated resources to be used in constructions of the facilities do not consider the climate resilience (e.g. highest flood level, strong structures), the services of the facilities may be disrupted by the climatic events. Identify and fill the lack of resources to create enabling environment for optimum health service provisions and monitor these.</td>
<td>Moderate</td>
<td>Integration with the regular meetings/ workshops of the project</td>
<td>The actors will be sensitized through the regular meetings/ workshops Neda Jatra. This effort will reduce the climatic risk on the activity.</td>
<td>None</td>
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<tr>
<td>1.3.1.5.1</td>
<td>Strengthen Child Marriage and adolescent pregnancy prevention mechanisms</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>Climate change events can hamper the Child Marriage and adolescent pregnancy prevention mechanisms.</td>
<td>Low</td>
<td>Inclusion of the Climate change issue into the existing events</td>
<td>Orientation session can increase the coping mechanisms to the stakeholders</td>
<td>None</td>
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<tr>
<td>1.3.1.5.2</td>
<td>Raise awareness on consequences of child marriage and adolescent pregnancy</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>Climate change events can hamper the Child Marriage and adolescent pregnancy prevention mechanisms.</td>
<td>Low</td>
<td>Inclusion of the Climate change issue into the existing events</td>
<td>Event will be organized based on the climate change forecasting</td>
<td>None</td>
<td></td>
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<tr>
<td>General Component Activities</td>
<td>General Component Activities</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>If the staffs of the NOBO JATRA do not have knowledge on climatic risk management, the climate risk will hamper the sustainability of the activities and the community people will be vulnerable for climate change. This is an indirect impact. The assessed risk is indirect which is manageable by the set options.</td>
<td>Low</td>
<td>The training on CRM will increase the capacity of the staffs to reduce climatic vulnerability of the community</td>
<td>None</td>
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</table>

*Note: The climate risk ratings are High, Moderate, or Low.
## Defined or Anticipated Project Elements*

1. **Defined or Anticipated Project Elements**:
   - **Time-frame**:
   - **Geography**:
   - **Climate Risks***: If the producers do not have knowledge on climate risks and their management, the production will be hampered through evolved climate change (e.g., flood, salinity, extreme temperature).
   - **Adaptive Capacity**:
   - **Opportunities**:

## Climate Risk Rating*

5: Opportunities*

- **Climate Risk Management Options**:
- **How Climate Risks Are Addressed in the Project**:

## Next Steps for Activity Design/Implementation*

8: Accepted Climate Risks*
<table>
<thead>
<tr>
<th>Activity</th>
<th>Defined or Anticipated Project Elements*</th>
<th>Time-frame</th>
<th>Geography</th>
<th>Climate Risks*</th>
<th>Adaptive Capacity</th>
<th>Opportunities*</th>
<th>Risk Management Options</th>
<th>Next Steps for Activity Design/Implementation*</th>
<th>Accepted Climate Risks*</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.1.3</td>
<td>GoB departments and private service providers monitoring the supply and services by private service providers.</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>If the education works do not consider sensitizing the community on how to cope with situation during/after a climatic disaster, then health may be at risk.</td>
<td>No</td>
<td>The training on CRM will increase the capacity of the staff to reduce climatic vulnerability of the community.</td>
<td>GoB will be trained on CRM plan</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>2.1.1.4.1</td>
<td>United Collection Point Management Committee (CPMC) and formal market buyers with producers.</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>If the CPMC has not aware on climate risk and collection points are not elevated enough, it can be flooded during tidal surge during cyclone.</td>
<td>No</td>
<td>The training on CRM will increase the capacity of the CPMC to reduce climatic vulnerability of collection points.</td>
<td>CPMC will be trained on CRM plan</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>2.1.1.4.2</td>
<td>Buyers are supporting for market information.</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>If the activity does not consider information dissemination (e.g., warning systems to provide farmers and markets with information about severe weather events), the farmers as well as the buyers will be in losses due to climatic events.</td>
<td>Moderate</td>
<td>The integration of measure with other regular activities will increase the resilience of agricultural system locally.</td>
<td>Nobo Jatra will sensitize the GoB relevant department to ensure warning system to provide farmers and markets with information about severe weather events.</td>
<td>None</td>
<td>N/A</td>
</tr>
<tr>
<td>2.3.1.1.1</td>
<td>Develop skill of off-farm groups and entrepreneurs for quality production and services.</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>Off-farm groups and entrepreneurs are at risk of climatic change events if they are not considered the climate change issue. No off-farm groups and entrepreneurs have lack of information capacity on climate change events.</td>
<td>No</td>
<td>The training of CRM plan will be provided to the groups.</td>
<td>Off-farm groups and entrepreneurs will be trained on CRM.</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Activity</td>
<td>Time-frame</td>
<td>Location</td>
<td>Description</td>
<td>Climate Risks</td>
<td>Rating</td>
<td>CRM Plan</td>
<td>Actions</td>
<td>Human Capacity</td>
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<tr>
<td>2.3.1.1.1: Establish market linkage for strengthening off farm business</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>If the meetings of market linkage are not considered the climate change events, the strengthening off farm business will be at risk.</td>
<td>Market linkage stakeholders have lack of information capacity of climate change event.</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to the stakeholders.</td>
<td>Stakeholders will be trained on CRM.</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>2.3.1.2.2: Expand and motivate most successful off farm products and engaging buyers for expanding business of entrepreneur and private sector.</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>If climate change disaster is not considered then strengthening off farm business are at risk.</td>
<td>Youth and women off farm business have lack of information capacity.</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to the youth and women off farm business.</td>
<td>The youth and women off farm business will be oriented on CRM.</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>2.3.1.3.1: Create enabling environment for developing youth and women off farm business.</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>If climate change disaster is not considered then creating enabling environment for developing youth and women off farm business are at risk.</td>
<td>NGOs and donor funded projects for off farm business have lack of human capacity.</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to NGOs and donor funded projects for off farm business.</td>
<td>Existing NGOs will be oriented on CRM.</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>2.3.1.8.1: Leveraging services and support of NGOs and Donor funded projects for off farm business.</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>NGOs and donor funded projects for off farm business are at risk of climate change uncertainties if climate change adaptation are not considered.</td>
<td>NGOs and donor funded projects for off farm business have lack of human capacity.</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to NGOs and donor funded projects for off farm business.</td>
<td>Existing NGOs will be oriented on CRM.</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Activity 2.1.1.8.2:</td>
<td>Research and advocacy for increasing Government support for livelihood focused facilities and safety net program development.</td>
<td>October 2020- September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>The advocacy meetings are at risk if not considered climate change uncertainties.</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to research and advocacy teams.</td>
<td>Existing research and advocacy teams will be orientated on CRM.</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Activity 2.3.1.5.1:</td>
<td>Village Agents are trained and facilitated to provide supports to existing VSLA and form new VSLA.</td>
<td>October 2020- September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>The training event will be at risk if climate change uncertainties happened.</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to Village agents.</td>
<td>Village agents will be orientated on CRM.</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Activity 2.3.1.5.2:</td>
<td>Capacity building of Union and Upazila based VSL Association to improve management capacity and support service to VSLA.</td>
<td>October 2020- September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>The capacity building event will be at risk if climate change uncertainties happened.</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to Village agent association.</td>
<td>Village agents association will be orientated on CRM.</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Activity 2.3.1.6.1:</td>
<td>VSLA group members and entrepreneurs have access to financial services.</td>
<td>October 2020- September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>VSLA group members and entrepreneurs are at risk if climate change uncertainties affected their financial services.</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to VSLA group.</td>
<td>VSLA group will be orientated on CRM.</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Activity</td>
<td>Objective</td>
<td>Start Date</td>
<td>End Date</td>
<td>Location</td>
<td>Description</td>
<td>Risk</td>
<td>Action Plan</td>
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<tr>
<td>Activity 3.1.1.1.1</td>
<td>Facilitated Capacity Building activities for local DMCs based on Capacity Gap Analysis</td>
<td>October 2020 - September 2022</td>
<td></td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh</td>
<td>Capacity Building activities are at risk of climate change uncertainties</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to the DMCs</td>
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<tr>
<td>Activity 3.1.1.2.1</td>
<td>Facilitated Capacity Building activities for vulnerable communities</td>
<td>October 2020 - September 2022</td>
<td></td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh</td>
<td>Communities are at risk of climate change calamities if they are not aware about climate change issue</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to the local community</td>
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<tr>
<td>Activity 3.1.1.3.1</td>
<td>Cyclone Preparedness Program worked in coordination with local DMCs and local Administration</td>
<td>October 2020 - September 2022</td>
<td></td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh</td>
<td>Cyclone Preparedness Program worked in coordination with local DMCs and local Administration at risk of climate change uncertainties are not considered</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to staff of CPP</td>
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<tr>
<td>Activity 3.1.1.3.2</td>
<td>Local level Public, Private/ Civil Society DRR actors are engaged in joint response</td>
<td>October 2020 - September 2022</td>
<td></td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh</td>
<td>The meeting with local level Public, Private/ Civil Society DRR actors will be hampered if not considered climate change calamities</td>
<td>Low</td>
<td>The orientation of CRM plan will be provided to the staff</td>
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*Defined or Anticipated Project Elements*:
- 1.1 Time-frame
- 1.2 Geography
- 2 Climate Risks
- 3.2.1.1 Adaptation Capacity
- 3.2.2 Risk Rating

<table>
<thead>
<tr>
<th>Risk Rating</th>
<th>High</th>
<th>Moderate</th>
<th>Low</th>
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<tbody>
<tr>
<td>Activities</td>
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<tr>
<td>Activity</td>
<td>Timeframe</td>
<td>Description</td>
<td>Risk Rating</td>
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<tr>
<td>3.1.2.1.1 Review Disaster Risk Reduction Action Plans and Disaster Management Plans</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>Moderate</td>
</tr>
<tr>
<td>3.1.2.2.1 Dialogue with relevant Government Ministries/Departments and Private actors to allocate resources</td>
<td>October 2020-September 2022</td>
<td>The meeting with relevant Government Ministries/Departments and Private actors will be hampered if not considered climate change calamities</td>
<td>Low</td>
</tr>
<tr>
<td>3.1.2.3.1 DRR actors networking</td>
<td>October 2020-September 2022</td>
<td>Dacope and Koyra Upazila of Khulna District and Shyamnagar and Kaliganj Upazila of Satkhira District, Bangladesh.</td>
<td>Low</td>
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</table>