USAID DCHA ENVIRONMENTAL THRESHOLD DECISION FOR THE INITIAL ENVIRONMENTAL EXAMINATION (IEE) AND ENVIRONMENTAL STATUS REPORT (ESR) FY16

Awardee: Helen Keller Institute (HKI)
DCHA Office: Food for Peace
Program Title: Sustainable Agriculture and Production Linked to Improved Nutrition Status, Resilience, and Gender Equity (SAPLING)
Award Number: AID-FFP-A-15-00010
Country/Region: Bangladesh/Asia
Life of Grant: September, 2015-September 2020
LOP Funding: $28,777,000

ENVIRONMENTAL ACTION RECOMMENDED:

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**USAID Bureau Environmental Officer Approval:**
This Environmental Threshold Decision (ETD) is to inform Helen Keller Institute (HKI) that the Bangladesh IEE and ESR FY16 have been approved with Conditions by the DCHA Bureau Environmental Officer (BEO), on September 20, 2016. HKI has undergone all necessary Mission and Washington clearances and meets the minimum 22 CFR 216 requirements, with the following 13 conditions and 1 recommendation for implementation.

**Summary of BEO Conditions:**

Condition 1: HKI will need to submit the SUAP for DCHA BEO and MEO approval before pesticide related activities can commence.
Condition 2: HKI must include Rotenone in their SUAP and comply with the PERSUAP for all pesticide related activities.

Condition 3: HKI must provide greater detail on the scale of the Activity 1.2.4, especially related to the irrigation activities, to the DCHA BEO within one month of today (09/20/2016).

Condition 4: HKI must reclassify the *Activity 3.2.3: Promote community strategies to address/mitigate the hazards of environmental degradation through geo-spatial mapping and awareness raising* to a Negative Determination with Conditions and provide the DCHA BEO and Mission Environmental Officer (MEO) with appropriate mitigation measures within one month of today (09/20/2016).

Condition 5: HKI must reclassify the *Activity 1.2.3: Introduce Savings and Internal Lending Committees (SILC)* to a Negative Determination with Conditions and provide the DCHA BEO and Mission Environmental Officer (MEO) with appropriate mitigation measures within one month of today (09/20/2016).

Condition 6: HKI must provide greater mitigation measures for *Activity 1.1.1: Microenterprise development for poor and extreme poor household*, especially with respect to solid waste production and air pollution, to the Mission Environmental Officer.

Condition 7: HKI must ensure the appropriate disposal of and management of healthcare waste resulting from veterinary services, monitor the quality of veterinary pharmaceuticals, and promote best environmental practices with respect to the training of health service providers.

Condition 8: HKI must develop and implement a Water Quality Assurance Plan to address water contamination concerns and send the DCHA BEO copies of the geographical and hydro-geological conditions assessments and promote best environmental practices in safe water supply activities.

Condition 9: HKI must respond to the Mission Environmental Officer (MEO) with greater details and clear mitigation measure for aquaculture activities.
Condition 10: HKI should recommend energy saving cooking practices, when appropriate, at the cooking demonstrations.

Condition 11: HKI must provide more detail regarding any environmental issues, best environmental practices, and/or lessons learned from the implementation of these fertilizer activities, including education of counterfeit fertilizers.

Condition 12: HKI must ensure that sufficient funds are allocated in order to ensure environmental compliance and provide updates on their environmental budgeting during annual reporting.

Condition 13: Follow the updated guidance on annual environmental reporting through the ESR, as described in the FY16 FFP RFA IEE.

Recommendation 1: HKI should consider planning options for climate screening and sensitivity during implementation in accordance with upcoming requirements of the US Presidential Executive Order 13677.

______________________________________________________________________________

Issue 1: The SUAP is an important piece of environmental compliance.

Discussion: The DCHA BEO is pleased to note HKI’s level of compliance with the Bangladesh Mission-Wide PERSUAP (2015). The BEO recognizes that HKI will be filling out a Safer Use Action Plan (SUAP).¹ The BEO would like to request a copy of the SUAP and remind HKI that, in addition to MEO approval, the SUAP will need to be approved by the BEO.

Condition 1: HKI will need to submit the SUAP for DCHA BEO and MEO approval before pesticide related activities can commence.

______________________________________________________________________________

¹“The project will prepare a “Pesticide Safer Use Action Plan and Compliance Tracker” per the format provided in the 2015 Mission-wide PERSUAP and the SUAP will be incorporated by reference into the project’s EMMP.” (IEE, p. 60).
**Issue 2: The application of Rotenone.**

**Discussion:** In the IEE, HKI mentions the use of Rotenone. For Must comply with PERSUAP and SUAP for the Rotenone for this activity. Rotenone was approved in the Bangladesh Mission-Wide PERSUAP (2015). However, no mention is made of Rotenone activities complying with the PERSUAP. The PERSUAP must be applied to all activities including aquaculture. HKI must include Rotenone in their SUAP (see Condition 1) to be submitted to the DCHA BEO.

**Condition 2:** HKI must include Rotenone in their SUAP and comply with the PERSUAP for all pesticide related activities.

**Issue 3: Lack of detail regarding irrigation activities.**

**Discussion:** For the **Activity 1.2.4: Improve access to water for irrigation, livestock and aquaculture (Capturing rainwater or diverting other surface water to create temporary water reservoirs or ponds),** not enough details were provided regarding the scale of the livestock activities. Given the sensitivity of this activity, HKI must assess if the scale of the irrigation activities warrants a Positive Determination classification pursuant to 22 CFR 216.3(a)(2)(iii). Activities that receive a Positive Determination will require further environmental analysis such as a Scoping Statement and Environmental Assessment (EA).

**Condition 3:** HKI must provide greater detail on the scale of the Activity 1.2.4, especially related to the irrigation activities, to the DCHA BEO within one month of today (09/20/2016).

**Issue 4: Activity 3.2.3: Promote community strategies to address/mitigate the hazards of environmental degradation through geo-spatial mapping and awareness raising was improperly classified.**

**Discussion:** **Activity 3.2.3: Promote community strategies to address/mitigate the hazards of environmental degradation through geo-spatial mapping and awareness raising** was classified as a Categorical Exclusion (CE) is this IEE. However due to the scope and potential for negative environmental impacts, this activity needs to be reclassified as a Negative Determination with
Conditions (ND w/C). Activity 3.2.3 will require mitigation measures for its proposed activities. The activities that require particular attention in the Environmental Mitigation and Monitoring Plan (EMMP) include: Natural Resource Management promotion, demonstrations plots, and alternatives for jhum cultivation.²

Condition 4: HKI must reclassify the Activity 3.2.3: Promote community strategies to address/mitigate the hazards of environmental degradation through geo-spatial mapping and awareness raising to a Negative Determination with Conditions and provide the DCHA BEO and Mission Environmental Officer (MEO) with appropriate mitigation measures within one month of today (09/20/2016).

Issue 5: The activity related to the Savings and Internal Lending Committee was improperly classified.

Discussion: The Activity 1.2.3: Introduce Savings and Internal Lending Committees (SILC) was classified as a Categorical Exclusion (CE) is this IEE. However due to the scope and potential indirect, negative environmental impacts, this activity needs to be reclassified as a Negative Determination with Conditions (ND w/C). The project cannot control how individuals spend their savings and lended money. However, the project can incorporate environmental messaging into this activity and thus help mitigate the potential negative environmental impacts. Since the number of people that are reached in these activities is usually very high, these activities can encourage a large number of participants to be more environmentally sensitive.

Condition 5: HKI must reclassify the Activity 1.2.3: Introduce Savings and Internal Lending Committees (SILC) to a Negative Determination with Conditions and provide the DCHA BEO and Mission Environmental Officer (MEO) with appropriate mitigation measures within one month of today (09/20/2016).

² “The project will work to increase awareness of alternatives to traditional or adapted jhum cultivation, such as discouraging burning, planting crops that enrich rather than deplete soil, reforesting and forest management approaches, watershed management practices, and use of non-chemical farm inputs, linking to activities under Purpose 1. Dialogs will be held to facilitate community leaders to pose their own solutions while also learning about alternative natural resource management (NRM) practices that have worked within the South Asia region, such as planting of pineapple or coffee as cash crops, crop and land rotation, and selective trimming of forests as an approach to forest management (linking to agriculture activities under Purpose 1). Demonstration plots will be promoted to test new practices, led by key community agriculture champions.” (IEE, p. 50)
Issue 6: Microenterprise activities may contribute to unmanaged solid waste production and air pollution.

Discussion: Although HKI mentions some mitigation measures for Activity 1.1.1: Microenterprise development for poor and extreme poor households, these activities may contribute to unmanaged waste production and air pollution. Microenterprise related activities must take into account solid waste production and air pollution. USAID has developed Sector Environmental Guidelines for Micro and Small Enterprises (MSEs). Is part of these guidelines, USAID has specifically designed a guide for Mechanisms for MSEs to Control Environmental Impact. These guidelines are useful for HKI’s activities and should be applied to the activities’ mitigation measures. With respect to the solid waste, USAID also produced the Sector Environmental Guidelines for Solid Waste. HKI will need to incorporate some of the best environmental practices from these guidelines into the mitigation measures.

Condition 6: HKI must provide greater mitigation measures for Activity 1.1.1: Microenterprise development for poor and extreme poor household, especially with respect to solid waste production and air pollution, to the Mission Environmental Officer.

Issue 7: The IEE does not include information regarding how the veterinary and healthcare waste will be disposed of properly.

Discussion: The IEE correctly identifies with respect to the small animal husbandry activities that the, “inappropriate use of veterinary drugs and improper disposal of related medical waste could have potential negative effects on the environment”. (p 67) However in the Environmental Mitigation and Monitoring Plan (EMMP) Table, no mitigation measure is listed to mitigate against this potential adverse environmental impact. If handled, treated, or disposed of incorrectly healthcare can spread disease, poisoning people, livestock, wild animals, plants and whole ecosystems.

Healthcare waste: Currently, little or no management of healthcare wastes typically occurs in small-scale facilities in Asia. Training and supplies are minimal. Common practice in urban areas is to dispose of healthcare waste along with the general solid waste or, in peri-urban and rural areas, to bury waste, without treatment, in an unlined pit. Unwanted pharmaceuticals and veterinary waste may be dumped into the local sanitation outlet, be it a sewage system, septic tank or latrine.
For healthcare waste pertaining to the veterinary activities, the HKI team must work with its implementing partners and vendors to assure, to the extent possible, that the veterinary service providers involved have adequate procedures and capacities in place to properly dispose of blood, sharps, and other hazardous waste that may result from veterinary services to livestock in the project.

For more information regarding healthcare waste, the USAID Sector Environmental Guideline for Healthcare Waste also provide valuable information, including the appropriate type of incinerators to use for different types of waste (p. 9).

**Placenta Waste:** For Activity 2.1.1: *Train government and non-government health service providers including traditional birth attendants and the traditional healthcare practitioners and agriculture extension workers on Essential Nutrition Actions-Essential Hygiene Actions (ENA-EHA) framework*, the IEE makes no mention of placenta disposal and placenta pits. Given the close proximity of birth attendants and healthcare practitioners to issues surrounding proper placenta handling, the DCHA BEO would like HKI to ensure that they are promoting best environmental practices with respect to placenta disposal. For more information, Health Care Without Harm produced a Technical Specifications: Placenta Pits with best practices for placenta pit construction.

**Quality of Veterinary inputs (Counterfeit pharmaceuticals):** In addition to concerns regarding the veterinary waste, another concern with veterinary activities, especially with those related to pharmacies, is the prevalence of counterfeit pharmaceuticals on the market. This problem can dramatically impact the livelihood of rural livestock owners.⁴ Proper precautions must be in place to ensure that vendors are providing quality veterinary pharmaceuticals and eliminating counterfeit ones.

**Condition 7:** HKI must ensure the appropriate disposal of and management of healthcare waste resulting from veterinary services, monitor the quality of veterinary pharmaceuticals, and promote best environmental practices with respect to the training of health service providers.

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Issue 8: Water quality assurance is not consistently addressed throughout related activities in the IEE.

Discussion:

Water testing: The BEO commends HKI for including illustrative water quality testing throughout their project. However, the BEO notes that there is a lack of an integrated Water Quality Assurance Plan (WQAP); water pollution or water quality concerns are noted under several activities.

The IEE mentions that for drinking water sources, “Test water for arsenic and other requirements before installation of water retention structures.” (p. 71, 72) The BEO wishes to remind HKI that water quality levels must also meet USAID and WHO standards for all activities. More information is found in the USAID Sector Environmental Guidelines for Water Supply and Sanitation.

Initial water quality testing is the responsibility of HKI, but HKI should also set in place measures to provide reasonable assurance that ongoing water quality monitoring occurs. A WQAP also develops a response protocol in case contamination is detected. A simple example WQAP can be found [here](#). The HKI WQAP must include minimum USAID and WHO requirements, but also test for other contaminants that be be in the area that are location-specific.

The DCHA BEO is pleased to note that HKI is doing assessments on the geographical and hydro-geological conditions. The BEO would like to request a copy of these assessments.

Safe Water Supply: In the IEE in Activity 2.2.3: Increase access to safe water supply technologies and infrastructure, HKI mentions using that they will be working in collaboration with the Department of Public Health Engineering (DPHE) to identify and introduce safe water supply options. The IEE is unclear about the level of influence that HKI will have in the

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4 Activities from the IEE include: “Activity 1.2.4: Improve access to water for irrigation, livestock and aquaculture (Capturing rainwater or diverting other surface water to create temporary water reservoirs or ponds) Activity 2.2.2: Promote the use of improved sanitation technologies and systems Activity 2.2.3: Increase access to safe water through appropriate water supply technologies and infrastructure.” (p. 8)

5 Identify and introduce safe water supply options in collaboration with the Department of Public Health Engineering (DPHE) e.g. protected shallow wells (to be raised in flood prone areas), tube wells, ring wells, rain water harvesting tanks and cisterns or possible more elaborate systems, such as piped gravity-fed water systems drawing from nearby springs, infiltration galleries or deep set pumps.” (IEE, p. 18-19)
decision making process if any. The DCHA BEO would like HKI to promote best environmental practices in any collaboration with DPHE. USAID has created Sector Environmental Guidelines for Water Supply and Sanitation.

**Condition 8: HKI must develop and implement a Water Quality Assurance Plan to address water contamination concerns and send the DCHA BEO copies of the geographical and hydro-geological conditions assessments and promote best environmental practices in safe water supply activities.**

**Issue 9: Lack of detail regarding aquaculture activities.**

**Discussion:** The IEE explains some of the items and potential adverse impacts from the aquaculture related activities under Activity 1.1.1: Microenterprise development for poor and extreme poor households. However, more detailed must be provided about the specifics around aquaculture activities. For example, what are “Good Aquaculture Practices (GAP)”? Greater detail must be provided around this practice in order to assess GAP. Also, is there a native fish species alternative to the Tilapia Nilotica? In the event of fish pond construction, what will be done to mitigate soil disturbance and other potential negative environmental impacts? Will water testing be done to ensure the water is not contaminated? What will be checked in the Environmental Due Diligence Review (EDDR) checklist? These types of details must addressed in greater specificity and clear mitigation measure must be provided in order to ensure best environmental practices.

The Food and Agriculture Organization (FAO) provides helpful resources for rice-fish farming, including the article Rice-fish benefits and problems by Josh Sollows.

**Condition 9: HKI must respond to the Mission Environmental Officer (MEO) with greater details and clear mitigation measure for aquaculture activities.**

**Issue 10: Cooking demonstration and activities.**

**Discussion:** For the Activity 2.1.4: Organize nutrition fairs and cooking demonstrations, the DCHA BEO notes that HKI will be promoting a wide variety of activities at these cooking demonstrations. The BEO notes that there was no mention of related energy issues planned for
these cooking demonstrations in the IEE. Given the importance of energy saving cooking practices in order to ensure best environmental practices, the DCHA BEO recommends that energy related issues and energy saving options be presented at these cooking demonstrations.

USAID developed a toolkit for stove programs entitled Fuel-Efficient Stove Programs in Humanitarian Settings: An Implementer’s Toolkit. Although the BEO recognizes that HKI is not doing a Stove Program, this toolkit is an excellent resource regarding energy saving cooking practices.

**Condition 10: HKI should recommend energy saving cooking practices, when appropriate, at the cooking demonstrations.**

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**Issue 11: Fertilizer activities.**

**Discussion:** The DCHA BEO appreciates HKI mentioning their fertilizer activities and their promotion of organic fertilizers. The IEE notes that the promotion of organic over chemical fertilizers and that HKI will “Evaluate (the) percentage of producers properly using organic and chemical fertilizers - quarterly.” (p. 60) Concerning the range of risks associated with fertilizers, the DCHA BEO is concerned about the limited information provided in the IEE regarding the fertilizers.

As with any technology, it is recommended that fertilizers be thoughtfully employed according to best practice, promoting integrated soil fertility management, within the context of the prevailing biophysical and socio-economic conditions, as well as the desired outcomes. This [USAID AFR Fertilizer fact sheet](#) was developed to assist in that regard.

“**Dodgy**” Fertilizers: As noted in this [The Guardian article](#), the sell of counterfeit, diluted, or adulterated fertilizers is a concern. The ESR must make mention of how the project will address the issue of counterfeit fertilizers and educate the community on this issue. While very challenging, the risk should be made known to the beneficiaries, especially so that those using fertilizers will be conscious of this problem after the program has ended.

The DCHA BEO would like to request that additional information is provided by HKI regarding any environmental issues, best environmental practices, and/or lessons learned from the
implementation of these fertilizer activities within the context of prevailing biophysical and socio-economic conditions. The DCHA BEO is also interested in learning how HKI might address the issue of counterfeit fertilizers within SAPLING.

**Condition 11: HKI must provide more detail regarding any environmental issues, best environmental practices, and/or lessons learned from the implementation of these fertilizer activities, including education of counterfeit fertilizers.**

**Issue 12: Environmental budgeting may be insufficient.**

**Discussion:** The DCHA BEO wants to remind HKI to appropriately budget funds for environmental staffing, training, activities, etc. The DCHA BEO would like to emphasise the importance of environmental budgeting. For example on the Activity 3.2.3: *Promote community strategies to address/mitigate the hazards of environmental degradation through geo-spatial mapping and awareness raising*, are their staff member who have been trained on environmental degradation? For direction and guidance in developing a budget for environmental compliance and management activities within a development program, USAID has developed an Environmental Compliance Budgeting Toolkit. This toolkit has sections to assist both budget developers and selection committee members who review proposal budgets.

**Condition 12: HKI must ensure that sufficient funds are allocated in order to ensure environmental compliance and provide updates on their environmental budgeting during annual reporting.**

**Issue 13: ESR approval.**

**Discussion:** The DCHA BEO recognizes that the ESR was submitted before the IEE received final approval and appreciates the note in the ESR to this end. Please refer to updated information on annual environmental reporting as described in the FY16 RFA IEE. The Annex 3 in the new RFA IEE provides the newest ESR template for future reference.

**Condition 13: Follow the updated guidance on annual environmental reporting through the ESR, as described in the FY16 FFP RFA IEE.**
Issue 14: Awareness raising on the Climate Change Executive Order 13677.

**Discussion:** HKI should incorporate the US Presidential Executive Order on Climate-Resilient International Development. The memorandum states that climate-resilience considerations must be incorporated into international development work. HKI should be aware of this Executive Order from previous DCHA BEO ETDs but no comments about its incorporation into the project were included in this ESR. The complete Executive Order is available at: [www.gpo.gov/fdsys/pkg/FR-2014-09-26/pdf/2014-23228.pdf](http://www.gpo.gov/fdsys/pkg/FR-2014-09-26/pdf/2014-23228.pdf).

**Recommendation 1:** HKI should consider planning options for climate screening and sensitivity during implementation in accordance with upcoming requirements of the US Presidential Executive Order 13677.
Initial Environmental Examination

Sustainable Agriculture and Production Linked to Improved Nutrition Status, Resilience and Gender Equity (SAPLING)


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LIST OF ACRONYMS
FFP ENVIRONMENTAL COMPLIANCE FACTSHEET for the SUSTAINABLE AGRICULTURE AND PRODUCTION LINKED TO IMPROVED NUTRITION STATUS, RESILIENCE, AND GENDER EQUITY (SAPLING) INITIAL ENVIRONMENTAL EXAMINATION

PROJECT AND ACTIVITY DATA:

Title of Project: Sustainable Agriculture and Production Linked to Improved Nutrition Status, Resilience, and Gender Equity (SAPLING)

Implementing Partner/ Country/Region: Helen Keller International (HKI), Bangladesh, South Asia

Originating Office:

Agreement No.: AID-FFP-A-15-00010

Funding Period: FY2015 - FY2020

Life of Activity Amount: $28,777,000

IEE Prepared by: Md. Kamrul Hasan Bhuiyan, Environment Specialist SAPLING Project, HKI

Date: May 25, 2016

IEE Amendment: No

Date of Original IEE: N/A

Amendment Purpose: N/A

ENVIRONMENTAL ACTION RECOMMENDED: (Place X where applicable)

Categorical Exclusion: X Negative Determination w/Conditions: X

Positive Determination: Deferral:

ADDITIONAL ELEMENTS: (Place X where applicable)

Conditions: X PVO/NGO: X
SUMMARY OF FINDINGS:

The Sustainable Agriculture and Production Linked to Improved Nutrition Status, Resilience, and Gender Equity (SAPLING) is a five-year Development Food Assistance Program (DFAP) being implemented in five upazilas (Thanchi, Ruma, Lama, Rowangchari, and Bandarban Sadar) of Bandarban District, located in the Chittagong Hill Tracts (CHT) of Bangladesh. Throughout the life of the activity (LOA) SAPLING anticipates assisting 55,925 households (HHs).

The overall goal of the SAPLING project is improved gender equitable food security, nutrition and resilience of vulnerable people in the CHT region of Bangladesh. This goal will be achieved through activities grouped together in three interconnected purposes:

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

Underpinning all activities is the recognition that improved gender equity, environmental protection and community participation are critical components for achieving project outcomes, which is reflected throughout each of the three purposes.

In accordance with 22 Code of Federal Regulations (CFR) 216, the purpose of this Initial Environmental Examination (IEE) is to determine potential environmental impacts and recommend threshold determinations for all activities to take place in the five target upazilas in Bandarban District in the CHT. All activities included in the approved proposal have been covered in this IEE to provide a full understanding of the expected environmental impacts of the SAPLING project.

**Environmental Determinations**

The activities planned by SAPLING are small-scale in nature and designed to be implemented at the individual, HH and community levels. None are expected to have any significant negative impacts on the environment provided that required mitigation measures are appropriately implemented and monitored. The threshold determinations proposed for all SAPLING planned activities can be categorized as a Categorical Exclusion (CE) or Negative Determination with Conditions (NDC) in accordance with United States Agency for International Development (USAID) guidance 22 CFR 216. No SAPLING activities fall into the categories of Positive Determination (PD) or Deferral (D).
Table 1: Summary of Recommended Determinations

<table>
<thead>
<tr>
<th>Recommended Determination</th>
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<tbody>
<tr>
<td><strong>Categorical Exclusion (CE) pursuant to 22 CFR 216.2(c)(2)(i) for education, technical assistance or training programs</strong></td>
</tr>
<tr>
<td>Activity 1.2.2: Link microenterprise producers to markets and create a demand for products coming out of the CHT</td>
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<tr>
<td>Activity 1.2.3: Introduce Savings and Internal Lending Committees (SILC)</td>
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<tr>
<td>Activity 2.1.1: Training of government and non-government health service providers, including traditional birth attendants, traditional healthcare practitioners, and agriculture extension workers on Essential Nutrition Actions Plus (ENA+) framework including consumption of safe and diverse nutritious foods.</td>
</tr>
<tr>
<td>Activity 2.1.2: Introduce the Nurturing Connections© gender transformative/sensitive approach across program elements</td>
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<tr>
<td>Activity 2.1.5: Provide Nutrition in Emergencies (NIE) training for Ministry of Health and Family Welfare (MOH&amp;FW) staff at supervisory positions and Disaster Management Committees (DMC)</td>
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<tr>
<td>Activity 3.1.1: Assist vulnerable households in developing preparedness strategies and action plans for shocks</td>
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<tr>
<td>Activity 3.1.2: Assist HHs to develop a variety of strategies to protect productive assets</td>
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<tr>
<td>Activity 3.1.3: Assist vulnerable HHs to access social safety nets to recover from stresses</td>
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<tr>
<td>Activity 3.2.1: Form and support para (village)- level DMCs to lead Disaster Risk Reduction (DRR) activities</td>
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<tr>
<td>Activity 3.2.2: Assist Para Disaster Management Committees (PDMC) to develop community Risk Reduction Action Plans (RRAP)</td>
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<tr>
<td>Activity 3.2.3: Promote community strategies to address/mitigate the hazards of environmental degradation through geo-spatial mapping and awareness raising</td>
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<tr>
<td>Activity 3.2.4: Facilitate establishment of capable gender-equitable community task forces to prepare for and respond to disasters</td>
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<tr>
<td>Activity 3.2.5: Increase community knowledge on approaches to mitigate man-made stresses</td>
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<tr>
<td>Activity 3.3.1: Form and train Union DMCs (UDMC) to develop Disaster Management Plans (DMP), with support from Regional and Upazila DMCs (UzDMC)</td>
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<tr>
<td>Activity 3.3.2: Link communities to District, Upazila and Union DMC structures and to national Climate Early Warning Systems (EWS)</td>
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<tr>
<td>Activity 3.3.3: Establish a community-based Conflict EWS</td>
</tr>
<tr>
<td><strong>Categorical Exclusion (CE) pursuant to 22 CFR 216.2(c)(2)(viii) for programs involving nutrition, health care or population and family planning services except to the extent designed to include activities directly affecting the environment</strong></td>
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<tr>
<td>Activity 2.1.3: Promote Essential Nutrition Actions (ENA), Essential Hygiene Actions (EHA) and Adolescent Nutrition at the community level</td>
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<tr>
<td>Activity 2.1.4: Organize nutrition fairs and cooking demonstrations</td>
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<tr>
<td>Activity 2.2.1: Design and implement Behavior Change Communication (BCC) around Nutrition and Water, Sanitation and Hygiene (WASH)</td>
</tr>
<tr>
<td><strong>Negative Determination pursuant to 22 CFR 216.3(a)(2)(iii) with Conditions (NDC)</strong></td>
</tr>
<tr>
<td>Activity 1.1.1: Microenterprise development for poor and extreme poor HHs</td>
</tr>
<tr>
<td>Activity 1.2.1: Promote Homestead Food Production (HFP)</td>
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<tr>
<td>Activity 1.2.4: Improve access to water for irrigation, livestock and aquaculture</td>
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<tr>
<td>Activity 2.2.2: Promote the use of improved sanitation technologies and systems</td>
</tr>
<tr>
<td>Activity 2.2.3: Increase access to safe water through appropriate water supply technologies and infrastructure</td>
</tr>
<tr>
<td>Activity 3.2.6: Facilitate funding of government approved mitigation projects from community DRR plans, using project, community and government contribution</td>
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</table>
Conditions
The major conditions that need to be met for activities with a determination of NDC are described in Section 5.2 of this IEE as well as Annex 1 – Environmental Mitigation and Monitoring Plan (EMMP). The general conditions for NDC activities include meeting and complying with Bangladesh and U.S. environmental and human health and safety standards, laws and regulations; remaining informed of environmental, human-health and safety compliance responsibilities and collaborating with the Agreement Officer’s Representative (AOR) and Mission Environmental Officer (MEO); briefing sub-grantees on environmental, human-health and safety compliance and responsibilities prior to initiation and throughout the project. As the prime agreement holder, it is Helen Keller International’s (HKI) responsibility to integrate compliance responsibilities into sub-contracts and grant agreements, provide training to relevant project staff and implementing partners on environmental, human-health and safety issues, and monitor staff and partners to ensure compliance.

Monitoring and Evaluation
This IEE sets out specific conditions and recommended mitigation measures in Section 4. SAPLING’s plan for implementation and monitoring all activities for compliance with the IEE is provided in the EMMP presented in Annex 1 – EMMP. Data collected for routine monitoring will allow SAPLING to adjust programmatic activities as needed if environmental mitigation measures are inadequate or not appropriately implemented. If any activities are added over the course of the project, an amendment to the IEE will be submitted for approval by USAID.
APPROVAL OF ENVIRONMENTAL ACTION(S) RECOMMENDED:

IEE for Sustainable Agriculture and Production Linked to Improved Nutrition, Resilience and Gender Equity (SAPLING) Project

A. Mission Clearances:

Mission Director Date: 01/23/2016

Mission Environment Officer (MEO) Date: 06/18/2016

Food for Peace Representative Date: 6/13/2016

B. Food for Peace, Washington Clearances

Agreement Officer's Representative (AOR) Date: 9/2/2016

Regional Environmental Advisor (REA) * Date: 

Agreement Officer (AO)/Director Date: 9/1/2016

C. Concurrence:

DCHA Bureau Environment Officer Date: 

Approved: 

Disapproved: 

* REA’s clearance is suggested but not mandatory.
1. BACKGROUND AND FFP ACTIVITY DESCRIPTION

1.1 BACKGROUND

Communities in the Chittagong Hill Tracts (CHT) suffer from pervasive poverty brought on by myriad factors, including recurring human-made and natural shocks and stressors that increase vulnerability and contribute to heightened food insecurity and malnutrition. These conditions are further exacerbated by gender inequalities, lack of opportunities for youth, and inadequate government systems. Population pressure, changing land-use practices and loss of forested areas have accelerated environmental degradation, increasing soil erosion, loss of productive resources and assets, frequent and extreme droughts and floods, and the severity of landslides. These intricately woven socio-economic, socio-cultural and environmental factors have intersected to negatively impact marginalized individuals and communities.

Within the CHT, water scarcity is a prevalent concern, with hunger periods in both dry and rainy seasons. Lack of roads and quality infrastructure limits availability of and access to health and nutrition services, education, skills training, and social safety net programs, as well as markets and opportunities for formal employment. The poorest (often landless), who are dependent on subsistence *jhum* (slash and burn) cultivation or day labor, have insufficient involvement in community decision making and little capacity to withstand livelihood shocks of any type.

Under the Sustainable Agriculture and Production Linked to Improved Nutrition Status, Resilience, and Gender Equity (SAPLING) project, Helen Keller International (HKI), Catholic Relief Services (CRS), and Caritas/Bangladesh will work in partnership with individuals, communities and the Government of Bangladesh (GOB), to apply a multi-sectoral, integrated approach to reduce food insecurity and malnutrition in all unions of the upazilas of Thanchi, Ruma, Lama, Rowangchari, and Bandarban Sadar, within the Bandarban District of the CHT. These areas have a high proportion of people living in extreme poverty, combined with high rates of stunting, undernutrition, food insecurity, and fertility.

Notably, the 2013 Food Security and Nutrition Surveillance Project (FSNSP 2013) estimated chronic undernutrition among children (height for age) in the CHT to be 39%, of which 27% was moderate and 12% severe.\(^1\) Prevalence of acute child undernutrition among children under age five (weight for age) was estimated to be 10%, and prevalence of underweight (weight for height) was 30%. Additionally, approximately 53% of pregnant women were consuming inadequately diverse diets, not meeting all or most of the macro- and micro-nutrient requirements for an average woman.\(^2\)

A HKI food security and nutrition assessment of poor HHs in the CHT for the World Food Program (WFP) found that 35% of HHs reported periodic food shortages.\(^3\) The baseline study for HKI’s Making Markets Work for Women (M2W2) project in Khagrachuri indicated that participant HHs had only an average of seven months of sufficient food, defined as three full meals a day for all family members.\(^4\) In the HKI/WFP assessment, only 12% of HHs reported eating from all 12 food groups essential for good nutrition during the previous week, while 23% had eaten from six of 12 groups, the diet was mostly grains and potatoes/tubers, vegetables,

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\(^1\) *State of Food Security and Nutrition in Bangladesh.* Dhaka, BD: Helen Keller International, the James P. Grant School of Public Health, the Bangladesh Bureau of Statistics. 2013. [http://sph/bracu.ac.bd/reports/FSNSP](http://sph/bracu.ac.bd/reports/FSNSP)
\(^2\) FSNSP 2013
\(^3\) HKI, Food security and nutrition assessment in selected unions of the CHT, September 2013
\(^4\) M2W2 End line report
spices, oils, and sweets. Consumption of meat, fish, and dal was infrequent, and milk consumption was minimal. Although the FSNSP reported rates of exclusive breast feeding in the CHT to be 72%, with 99% of those infants still breastfeeding at one year of age and 82% at two years, it also found that 71% of mothers introduced complementary foods that did not meet minimum dietary diversity standards.

Since malnutrition early in life has long-lasting negative effects on overall growth, morbidity, cognitive development, educational attainment and adult productivity, the nutritional status of children, particularly below five years of age, is seen as one of the most sensitive indicators of a country’s vulnerability to food insecurity and overall socio-economic development. Women of child-bearing age are also highly vulnerable to nutritional deficiencies due to increased need for food and nutrients during pregnancy and lactation.

Consequently, the SAPLING project design recognizes that within the CHT, food and nutrition security and the health of the environment are highly interdependent and must be addressed together rather than as separate activities. HKI and its partners’ approach to improve food and nutrition security in CHT will ensure that negative impacts of its activities on the natural environment are avoided, minimized or mitigated, and that natural resources are used more sustainably. SAPLING will also increase awareness among its participants that protection of the environment will contribute to their food and nutrition security by maintaining and preserving the resources upon which they depend and incorporate environmentally sustainable activities into the horticulture, agriculture, and aquaculture activities, as well as promote managed forests.

Food and nutrition security and the environment, are inextricably linked, particularly in densely populated Bangladesh, where environmental calamities increasingly challenge development progress. Bangladesh consistently tops the UN Disaster Risk Index (DRI), which measures the relative vulnerability of countries to natural hazards. Ranking among the highest on risks of disaster occurrence and people’s exposure, vulnerability and lack of capability to cope, Bangladesh is also one of the countries most affected by the adverse impacts of climate change.

The overall goal of the SAPLING project is: Improved gender equitable food security, nutrition and resilience of vulnerable people in selected upazilas of the CHT in Bangladesh. This goal will be achieved by separating activities into three main purposes:

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

### 1.2 DESCRIPTION OF ACTIVITIES

Through various integrated interventions, SAPLING will address food insecurity in five upazilas (Thanchi, Lama, Ruma, Rowangchari and Bandarban Sadar) within the Bandarban District of the CHT. The project anticipates assisting 55,925 HHs across three programmatic “Purposes” in all 24 unions and 2 pourosovas (municipalities) within the five target upazilas.
**Purpose 1: Increased equitable access to income and nutritious foods for both males and females**

Table 2 outlines the sub-purposes, activities and relevant sub-activities under Purpose 1 that will help increase equitable access to income and nutritious foods in target HHs in alignment with the SAPLING program description. (A full description of approved program activities can be found in the SAPLING DFAP application.) For the numbering of sub-purposes and activities, the first number corresponds to the Purpose number, the second number corresponds to the Sub-Purpose number, and the third number corresponds to the Activity number.

**Table 2: Purpose 1 Activities Summary**

<table>
<thead>
<tr>
<th>Sub-Purpose</th>
<th>Activities</th>
<th>Sub-Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sub-Purpose 1.1: Increased sales and profitability from IGAs/markets</strong></td>
<td>1.1.1: Microenterprise development for poor and extreme poor HHs</td>
<td>Conduct Market/Value Change/Agribusiness Assessment&lt;br&gt;Form producer groups. Provide technical assistance in appropriate production methodologies, crop management, climate smart agriculture and production technologies, post-harvest management, processing and marketing strategies&lt;br&gt;Facilitate direct asset transfer and/or distribution events for small animal husbandry (poultry, pig and goat)&lt;br&gt;Provide technical assistance for livestock rearing practices and vaccination&lt;br&gt;Organize and train community-based vaccinators in appropriate veterinary practices/techniques&lt;br&gt;Develop business management skills</td>
</tr>
<tr>
<td><strong>Sub-Purpose 1.2: Increased homestead agriculture production of nutritious foods</strong></td>
<td>1.2.1: Promote Homestead Food Production (HFP)</td>
<td>Identify Village Model Farms (VMF) and Lead farmers (LFs)&lt;br&gt;Establish demonstration plots&lt;br&gt;Train LFs in climate-smart agriculture techniques (e.g., contour farming, intercropping and planting hedgerows, raised-bed technology, vegetative strips as water buffers and bio-composting etc.) that increase income and adaptability to climate change (e.g. diversified production, seasonal nutrient dense vegetables and poultry management)&lt;br&gt;Train LF HHs in nutrition and gender&lt;br&gt;Establish a system to promote access to quality inputs and market negotiation skills.</td>
</tr>
</tbody>
</table>
| | 1.2.2: Link microenterprise producers to markets and create a demand for products coming out of the CHT | Form Marketing Committees (MCs)<br>Train MCs in marketing and business strategies/skills, crop prioritization and seed
### Purpose 2: Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls

SAPLING will use the Essential Nutrition Actions (ENA)-Essential Hygiene Actions (EHA) framework as its core technical approach to improve the nutritional status of women and children, including adolescent nutrition, in target communities. The ENA-EHA framework was developed with the support of USAID through collaboration between HKI, John Snow Inc. (JSI), and Core Group, and serves as a complete guide to managing the advocacy, training, planning and delivery of an integrated package of nutrition and hygiene interventions. The package aligns with the World Health Organization (WHO) Essential Nutrition Actions, and emphasizes the promotion of small feasible actions through interpersonal counseling, social mobilization events, and other behavior change channels, as well as focusing on building the capacity of the health system to ensure that nutrition and hygiene behaviors are encouraged throughout the life cycle at all available platforms. Table 3 below lists the specific practices promoted by the ENA-EHA framework.

| **1.2.3: Introduce Savings and Internal Lending Committees (SILC)** | **Approaches, linkages, price information, and market demand led production**<br>Facilitate linkage events for MCs to develop vendor networks<br>Train producers on quality seed identification and assistance with purchase<br>Support development of local seed supply chain through facilitation of relationships with input dealers (e.g. group meetings, on-the-job training, exposure visits to successful farms) | **Conduct resource mapping to identify microfinance institutions and non-governmental organizations (NGOs) working in CHT**<br>Identify and train SILC field facilitators (FFs)<br>Form and train SILC groups<br>Provide technical assistance and supervision of SILC groups on SILC methodology (group management, decision making, conflict management, financial education, etc.)<br>Facilitate cross-training and linkages between SILC Field Agents and Agriculture Extension workers and Marketing Committees (MCs) |
| **1.2.4: Improve access to water for irrigation, livestock and aquaculture** | **Train communities on agricultural techniques that improve water seepage and infiltration (e.g. terracing, bunds, etc.)**<br>Train HHs on creating small-scale and/or temporary creeks, water reservoirs and ponds for aquaculture and agriculture activities (e.g. capturing rainwater or diverting other surface water) | }

Purpose 2: Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls

SAPLING will use the Essential Nutrition Actions (ENA)-Essential Hygiene Actions (EHA) framework as its core technical approach to improve the nutritional status of women and children, including adolescent nutrition, in target communities. The ENA-EHA framework was developed with the support of USAID through collaboration between HKI, John Snow Inc. (JSI), and Core Group, and serves as a complete guide to managing the advocacy, training, planning and delivery of an integrated package of nutrition and hygiene interventions. The package aligns with the World Health Organization (WHO) Essential Nutrition Actions, and emphasizes the promotion of small feasible actions through interpersonal counseling, social mobilization events, and other behavior change channels, as well as focusing on building the capacity of the health system to ensure that nutrition and hygiene behaviors are encouraged throughout the life cycle at all available platforms. Table 3 below lists the specific practices promoted by the ENA-EHA framework.
Table 3: Key Practices Promoted by ENA-EHA Framework

<table>
<thead>
<tr>
<th>Essential Nutrition Actions (ENA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Optimal breastfeeding practices (e.g. early initiative of breastfeeding, exclusive breastfeeding for the first six months, continued breastfeeding six months up to two years, and infant feeding in the HIV context)</td>
</tr>
<tr>
<td>• Optimal complementary feeding starting at six months (e.g. age-appropriate quality foods, continued breastfeeding up to two years, responsive feeding methods)</td>
</tr>
<tr>
<td>• Optimal nutritional care of sick and malnourished children (e.g. increased feeding during and after illness, Oral Rehydration Salts and zinc treatment of diarrhea, management of moderate and severe malnutrition)</td>
</tr>
<tr>
<td>• Prevention and control of vitamin A (VA) deficiency for women and children (e.g. breastfeeding, VA supplementation, consumption of VA-rich or fortified foods)</td>
</tr>
<tr>
<td>• Prevention and control of anemia for women and children (e.g. delayed cord clamping, iron-folic acid supplementation, consumption of iron-rich or fortified foods, deworming, use of bed nets, case management of child illness, etc.)</td>
</tr>
<tr>
<td>• Prevention and control of iodine deficiency for women and children (e.g. consumption of iodized salt or iodine supplementation)</td>
</tr>
<tr>
<td>• Optimal nutrition for women and adolescent girls, especially during pregnancy and lactation (e.g. healthy spacing of pregnancy, appropriate consumption of micronutrient-and protein-rich foods, lactation amenorrhea method of contraception)</td>
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</table>

<table>
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<tr>
<th>Essential Hygiene Actions (EHA)</th>
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</thead>
<tbody>
<tr>
<td>• Household treatment and safe storage of drinking water</td>
</tr>
<tr>
<td>• Handwashing at five critical moments (after defecation, after cleaning child who has defecated, before preparing food, before feeding child, and before eating)</td>
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<tr>
<td>• Safe storage and handling of food</td>
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<tr>
<td>• Safe disposal of feces using latrines and promotion of open defecation-free communities</td>
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<tr>
<td>• Creating barriers between young children and soiled environments and animal feces</td>
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</tbody>
</table>

Table 4 outlines the sub-purposes, activities and relevant sub-activities under Purpose 2 that will help improve nutritional status of children under five years of age, pregnant and lactating women and adolescent girls in alignment with the SAPLING program description. (A full description of approved program activities can be found in the SAPLING DFAP application.) For the numbering of sub-purposes and activities, the first number corresponds to the Purpose number, the second number corresponds to the Sub-Purpose number, and the third number corresponds to the Activity number.

Table 4: Purpose 2 Activities Summary

<table>
<thead>
<tr>
<th>Sub-Purpose</th>
<th>Activity</th>
<th>Sub-Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Purpose 2.1: Adequate and Equitable Distribution and Consumption of Safe and Diverse Nutritious Foods in Households</td>
<td>2.1.1: Train government and non-government health service providers including traditional birth attendants (TBAs) and the traditional healthcare practitioners and agriculture extension workers on ENA-EHA framework</td>
<td>Train government and non-government health workers, TBAs and agriculture extension workers on ENA+ framework</td>
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<tr>
<td></td>
<td></td>
<td>Conduct rapid assessment of health services, including health service availability, staffing level, supply adequacy, demand for services, adherence to national antenatal care (ANC), growth promotion and micronutrient supplementation protocols</td>
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<td></td>
<td>Provide technical assistance for health service providers to help improve quality of services for women and infants during both antenatal period and first year post-delivery, with an emphasis on nutritional screening, counseling and support, and provision of micronutrient supplementation</td>
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<td></td>
<td></td>
<td>Facilitate incorporation of nutrition education in enhanced HFP model</td>
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</tbody>
</table>
| 2.1.2: Introduce the Nurturing Connections© gender transformative/sensitive approach across program elements | Conduct internal training for all SAPLING implementing partner field staff on Nurturing Connections curriculum, methodologies and facilitation skills  
Conduct gender analysis to adapt Nurturing Connections curriculum to the CHT context  
Conduct training of trainers (TOT) in Nurturing Connections curriculum  
Facilitate annual information sessions for the communities to learn from participants and facilitators about the benefits of the Nurturing Connections sessions  
Observe international days (e.g., International Women’s Day on 8th March, Safe Motherhood Day on 28th May and World Breast Feeding Week on 1 to 7th August)  
Deliver Nurturing Connections sessions at the HHs in select vulnerable communities using participatory tools (e.g. daily clock, access to nutrition, seasonal calendar, market access, and cyclone shelter) |
|---|---|
| 2.1.3: Promote ENA-EHA and Adolescent Nutrition at the community level | Facilitate courtyard sessions by community health service workers (CHSW) for pregnant and lactating women (PLW) and women with children under two to learn about key nutrition and hygiene practices  
Facilitate provision of Iron Folic Acid for pregnant women and for first three postpartum months (by CHSW)  
Facilitate deworming of SAPLING participants (pregnant women in 2nd trimester, adolescents at 6-month intervals, children 12 months to 5 years at 6-month intervals) |
| 2.1.4: Organize nutrition fairs and cooking demonstrations | Organize and facilitate annual nutrition fairs at community level, including booths for cooking demonstrations, farming demonstrations, nutrition information and DRR strategies  
Organize and facilitate participatory cooking demonstrations in villages by local NGOs, whereby women cook together and learn methods of optimal nutrient retention |
| 2.1.5: Provide Nutrition in Emergencies (NIE) training for Ministry of Health and Family Welfare (MOH&FW) staff at supervisory positions and Disaster Management Committees (DMCs) | Facilitate training for union and upazila DMCs (UzDMC) and MOH&FW supervisory staff on nutrition considerations in emergency settings (e.g. nutrition concerns, good practices, where to get information during and after an emergency, being mindful of the needs of both men and women, children, and the elderly, awareness of risk factors to look for in the affected population, such as marketing or increased sales of formula leading to interrupted exclusive breastfeeding, or gender insensitive disaster shelters or spaces) |

| Sub-Purpose 2.2: Improved health of household | 2.2.1: Design and implement Behavior Change Communication (BCC) around Nutrition and Water, Sanitation and | Develop context-appropriate BCC strategy for nutrition and WASH messages |
| 2.2.1: Design and implement Behavior Change Communication (BCC) around Nutrition and Water, Sanitation and Hygiene (WASH) | child nutrition through courtyard sessions and individual counseling, crop calendars showing what to plant seasonally and food plate posters with ideal food plates, both of which are also visual and color coded) Conduct BCC activities at the HH level through individual counseling by CHSW during home visits regarding key nutrition and hygiene practices (e.g. 12-month pregnancy and postpartum calendar that begins in the fourth month of pregnancy and supports optimal behaviors and nutrition - including family support, for each month, food cards with systems of colored stars that indicate nutritional value) Conduct BCC activities at the community level through courtyard sessions on general hygiene and nutrition-related issues with emphasis on infant and young child feeding (IYCF), as well as separate sessions for adolescent girls on key topics (e.g. menstruation, adolescent nutrition, adolescent rights to delay childbirth) Conduct social mobilization activities to engage key stakeholders and community influencers in promotion of nutrition and WASH messages (e.g. TBAs, representatives of union parishads, GOB line agencies, community leaders) Facilitate modified Community Led Total Sanitation (CLTS) approach to mobilize community for improved sanitation, using community champions, regular consultations and community monitoring of WASH projects and practices |
| pregnant & lactating women, adolescent girls and children under five | |
| | |
| 2.2.2: Promote the use of improved sanitation technologies and systems | Identify and introduce simple appropriate technologies (e.g., tippy taps, standard pit with water seals or off-set water seal toilets) Train and support HHs by FFs on use and maintenance of sanitation facilities and tippy taps (and reinforcement of hygiene messages) Train HHs and rural sanitation marts on production of WASH materials (e.g. sanitation slabs) and installment and repair |
| 2.2.3: Increase access to safe water supply technologies and infrastructure | Identify and introduce safe water supply options in collaboration with the Department of Public Health Engineering (DPHE) e.g. protected shallow wells (to be raised in flood prone areas), tube wells, ring wells, rain water harvesting tanks and cisterns or possible more elaborate systems, such as piped gravity-fed water systems drawing from nearby springs, infiltration galleries or deep set pumps Form Water User Committees (WUC) at the community level to be responsible for infrastructure maintenance, fee for service management and water testing |

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financial management and accountability mechanisms (e.g. locally made lock boxes and record keeping per SILC methodology, HH contributions)

Facilitate linkages between WUCs and suppliers of sanitation materials to enable access to water supply system materials

Train HHs on alternate methods of treating water (e.g. clean cloth filters, boiling, collection of rainwater in cisterns)

Develop, in cooperation with DPHE and local government, a model to engage the private sector to support rural water supply services, and water treatment supplies at affordable prices

Construct/repair small-scale guide-walls where necessary through Cash for Work (CFW) projects and community contributions to provide water for farmers during the dry season

**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**

Table 5 below outlines the sub-purposes, activities and relevant sub-activities under Purpose 3 that will help strengthen the gender equitable ability of people, HHs, communities, and systems to mitigate, adapt to and recover from man-made and natural shocks and stresses in alignment with the SAPLING program description. (A full description of approved program activities can be found in the SAPLING DFAP application.) For the numbering of sub-purposes and activities, the first number corresponds to the Purpose number, the second number corresponds to the Sub-Purpose number, and the third number corresponds to the Activity number.

**Table 5: Purpose 3 Activities Summary**

<table>
<thead>
<tr>
<th>Sub-Purpose</th>
<th>Activity</th>
<th>Sub-Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Purpose 3.1: Gender equitable resilience strategies are increased for target people and households to protect their lives and livelihoods from man-made and natural shocks and stresses.</td>
<td>3.1.1: Assist vulnerable households in developing preparedness strategies and action plan for shocks</td>
<td>Orient vulnerable HHs on equitable DRR measures and their importance, including important steps to take after receiving an early warning (EW) signal from UDMC (e.g. packing clothes and supplies, protecting food and water stockpiles, protecting key personal documents, etc.)</td>
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<td></td>
<td>Support HHs to develop DRR action plans by preparing a list of concrete preparedness activities, based on low-input best practices that have previously worked in the CHT (e.g. tying down roofs, vaccinating livestock, income generation through homestead gardens, savings of grain and cash, use of mosquito netting, and elevating latrines)</td>
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<tr>
<td></td>
<td></td>
<td>Disseminate DRR messages determined during HH planning process using songs, dances, dramas and other information, education and communication (IEC) materials to promote the</td>
</tr>
</tbody>
</table>
| Sub-Purpose 3.2: Communities are strengthened to mitigate and recover from man-made and natural shocks and stresses | 3.1.2: Assist households to develop a variety of strategies to protect productive assets | Orient HHs on identified risk reduction measures to protect diversified productive assets and livelihoods  
Conduct Community Risk Assessment (CRA) with HHs to inventory assets and adopt strategies to protect them against man-made and natural shocks  
Facilitate linkages between community representatives and local authorities, such as Agriculture and Livestock officers, to understand and provide access to services available to protect livelihood assets (e.g. crop insurance programs managed by the Asian Development Bank (ADB) and livestock vaccinations to protect them from flood-related diseases) |
| 3.1.3: Assist vulnerable households to access social safety nets to recover from stresses | Identify and orient vulnerable HHs eligible for social safety net programs by the Para Disaster Management Committees (PDMC)  
Train vulnerable HHs on accessing government social safety net programs in Unions where they exist (e.g. voluntary group feeding, voluntary group development, work creation programs, support for widows, maternity allowances)  
Develop and strengthen community structures and systems at the village level in collaboration with Union administration and community stakeholders, drawing from existing human and natural resources in the communities as well as CFW support from the government and project  
Facilitate linkages between PDMC and relevant government line agencies through annual meetings on social safety net services |
| Sub-Purpose 3.2: Communities are strengthened to mitigate and recover from man-made and natural shocks and stresses | 3.2.1: Form and support para (village)- level DMCs to lead DRR activities | Form PDMC in each village  
Train PDMC members on skills required to fulfill committee functions, e.g. support of CRAs, facilitation of Risk Reduction Action Plans (RRAP), facilitation of Emergency Contingency Plans, formation and capacity building of task forces, mobilization of resources, monitoring DRR work at HH and para levels, conducting emergency needs assessments, and coordinating responses in times of emergency  
Facilitate community sensitization meetings by PDMC members on specific DRR issues to improve knowledge about natural and man-made hazards and appropriate mitigation measures |
<p>| Sub-Purpose 3.2: Communities are strengthened to mitigate and recover from man-made and natural shocks and stresses | 3.2.2: Assist PDMC to develop community RRAP | Develop RRAPs at the Para Level based on actions identified to address DRR challenges at the HH level (e.g. HH savings, secondary livelihoods) and community level (e.g. road improvements, embankment repair, sanitation, food storage) |</p>
<table>
<thead>
<tr>
<th>3.2.3: Promote community strategies to address/mitigate the hazards of environmental degradation through geo-spatial mapping and awareness raising</th>
<th>Quarterly and semi-annual review, and revision if necessary, of RRAPs by PDMC and UDMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct geo-spatial mapping of all communities, to be shared with Union and UzDMCs for future planning</td>
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<tr>
<td>Facilitate workshops by UDMC and Ministry of Environment and Forest (MoEF) to discuss with community members and in schools on destructive environmental practices, e.g. slash and burn cultivation, deforestation and excessive tobacco farming, review current behaviors and identify steps to protect resources</td>
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<tr>
<td>Conduct campaign to raise awareness about alternatives to traditional or adapted jhum cultivation, (e.g., prohibiting burning, planting crops that enrich rather than deplete soil, reforestation and forest management approaches, watershed management practices, and use of non-chemical farm inputs), using BCC messages defined through formative research</td>
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</tr>
<tr>
<td>Promotion of demonstration plots to test new practices identified by the project or community leaders, led by key community agriculture champions</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>3.2.4: Facilitate establishment of capable gender-equitable community task forces to prepare for and respond to disasters</th>
<th>Form village or ward-level community task forces by PDMC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train community task forces on critical functions before, during and after shocks, e.g. EW dissemination, shelter management, search and rescue, first aid, water and sanitation, and livelihoods</td>
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<tr>
<td>Facilitate participatory sessions aimed at understanding roles and needs of all HH members change in the event of a disaster, as well as different mobility approaches and access to resources</td>
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<tr>
<td>Train community based task force members on key actions and needs</td>
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<tr>
<td>Promote regular monitoring by task force members to verify that inputs equally reach all HHs and reflect the needs of the broader community</td>
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<tr>
<td>Engage task force to accompany FFs during HH visits to discuss disaster preparedness</td>
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<th>3.2.5: Increase community knowledge on approaches to mitigate man-made stresses</th>
<th>Conduct peace building sessions as part of DRR planning and prevention processes in an effort to rebuild or strengthen inter-personal relationships, within the home and between communities</th>
</tr>
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<tr>
<td>Conduct training for youth and community leaders in every union to promote a culture of</td>
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</table>
| Sub-Purpose 3.3: Local Government DRR and disaster recovery systems are strengthened | 3.3.1: Form and train UDMCs to develop Disaster Management Plans (DMP), with support from Regional and UzDMCs | Form or reactivate UDMC in all target Unions
Train UDMCs, Regional DMCs and UzDMCs on key national disaster preparedness policies, skills to support PDMC DRR planning processes, gender-specific needs during disasters and how to ensure assessment and planning processes are equipped to address these needs appropriately. Prepare Union RRAPs, mobilize resources and navigate the GOB budget planning process
Develop Union DMPs, which are informed by community CRA and RRAP processes and Para-level input
Develop Union level RRAP by UDMC, informed by PDMC RRAPs and circulated for reviewing by communities, particularly women and youth
Train UDMC, PDMC and community stakeholders to verify that earmarked development resources reflect the disaster preparedness and mitigation needs of the Union
Observe national and international days, e.g., National Disaster Preparedness Day (NDPD) and International Day for Disaster Reduction (IDDR), Women Day and Environment Day |
| --- | --- | --- |
| 3.3.2: Link communities to District, Upazila and Union DMC structures and to national Climate EWS | Conduct training for DMC, district, upazila and union officials at each level on the importance of real-time information for community preparedness, improving transparency and linking to government systems to help ensure timely and appropriate preparations and responses
Form PDMC EW teams (youth)
Conduct training of EW teams on disseminating proper EW messages without inciting panic and ensuring men and women receive timely information simultaneously
Provide equipment and initial inputs for EW team supply kits, e.g. megaphones, radios, to be |

| 3.2.6: Facilitate funding of government approved mitigation projects from community DRR plans, using project, community and government contribution | Identify small-scale infrastructure improvements from the RRAP that can be supported through CFW, in consultation with UDMC and PDMC
Advocate/rehabilitate/construct small-scale mitigation projects approved by the local government and organized by UDMC, with priority given to those that support multiple communities or have the potential to strengthen inter-community relationships | Identify violent methods to address conflict
Integrate peace building in CRA process, RRAP development workshops and Nurturing Connection© sessions |
1.3 PURPOSE AND SCOPE OF IEE

The purpose of this IEE is to examine the potential environmental consequences of activities proposed under SAPLING, particularly any potentially negative environmental impacts, and to propose appropriate Threshold Determinations for each activity, pursuant to USAID 22 CFR 216. For all negative environmental impacts identified, mitigation measures have been proposed, which are outlined in the draft EMMP (Annex 1). This IEE and EMMP serve to ensure that SAPLING activities can be implemented, managed and monitored in a sustainable manner with minimal environmental impact.

During the preparation of this IEE, SAPLING consulted project partners, project staff and community level stakeholders regarding possible environmental and socio-economic effects of project activities to be implemented over the Life of Project (LOP), including possible mitigation and enhancement measures. SAPLING is committed to implementing all project activities with minimal negative impact on the environment, and plans to benefit the
environment where possible. At the community level, people were asked about the potential environmental consequences of program implementation based on their understanding and experiences of causes, effects and possible mitigation measures of proposed works to be undertaken.

This IEE was prepared based on field observations, assessment and evaluation of potential environmental features, review of documents and secondary information. Environmental consequences of proposed activities were assessed, evaluated and categorized following 22 CFR 216. The EMMP has been developed in line with adverse as well as positive effects, indicating potential mitigation measures and clarifying management as well as monitoring mechanism.

This IEE recommends Threshold Decisions for each project activity that is based on information and analysis sufficient to reach one of four possible conclusions:

- **Categorical Exclusion (CE):** activities have no adverse effect (i.e. training, technical assistance; not to include any infrastructure rehabilitation).
- **Negative Determination (ND):** no significant adverse effects expected for activities which are well defined over life of the award, if implemented with conditions or mitigation measures specified to ensure no adverse effect.
- **Positive Determination (PD):** potential for significant adverse effect of one or more activities; appropriate environmental review required.
- **Deferral (D):** elements not well defined; activities will not be implemented until Project IEE is approved.

When an intervention or an activity is likely to have significant adverse environmental impact, the IEE provides a factual basis for the Positive Threshold Decision and indicates if an Environmental Assessment (EA) or an Environmental Impact Statement is required for the activities. In the case of SAPLING, the IEE determined that an EA is not required.

If needed, the IEE can be amended to include any new activities that are not covered herein. SAPLING will adapt existing environmental suitability checklists for environmental screening of demonstration plots for agriculture and aquaculture and they will be included in the Project EMMP when developed.

### 2. COUNTRY AND ENVIRONMENTAL INFORMATION

#### 2.1 LOCATIONS AFFECTED

SAPLING will work to reduce food and nutrition insecurity in all 24 unions and two pourosoivas within the upazilas of Thanchi, Lama, Ruma, Rowangchari and Bandarban Sadar within the Bandarban District of the CHT. A political map showing the territorial boundaries is shown in Figure 1, Map of SAPLING Working Area.
Map Showing the Location of SAPLING Working Areas

Figure 1: Map of SAPLING working area (source: LGED Upazila Map)
Geographic Isolation: The CHT are extremely remote, and vastly underdeveloped and underserved in terms of infrastructure, economic growth activities and government services. Poor road and bridge infrastructure in Bandarban District makes access to markets difficult for many communities, increasing the cost of transporting goods and reducing market availability and HH food consumption. This is particularly true from June through October in Bandarban district when the Sangu and Mathamuhuri rivers are flooded and footpaths turn to mud. This situation usually occurs every year during the monsoon season (rainy season), as in 2015 when Bandarban received excessive rain along with other parts of country, resulting in soil erosion that caused significant damage to the property and lives of the hills residents of Bandarban Sadar Upazila, Lama Upazila and Ruma Upazila, isolating many remote villages and impeding the evacuation of vulnerable groups after natural disasters.

2.1.1. LAND USE AND LIVELIHOODS
The pressure on the land of the CHT will continue to increase. The land use of the whole CHT has been broadly categorized into four classes including non-agricultural, agricultural, forest and fallow land, with 38% of the CHT considered forest area, 36% fallow land, 20% agricultural land and 6% non-agricultural land. In Bandarban, 41% of the area is classified as fallow land, 37% forest land and 20% of agricultural land.⁷
Figure 2: Land use Map of SAPLING working areas (source: LGED upazila map)
**Agriculture:** The majority of rural HHs in CHT are dependent on agriculture related activities for producing food and income. Over 50% of the annual net income of all CHT HHs comes from different agriculture related sources. Food and cash incomes are generated by at least one agricultural related activity. Agricultural activities include ploughing lands, shifting cultivation, paid wage labor, livestock and poultry rearing, trees/nurseries, fruit gardening, fishing and making agriculture implements. The share of agriculture related annual income is higher in local ethnic HHs than in the Bangalis (63% vs. 49%). Among the ethnic groups, the Khumi, Marma, Mro and Bawm people generate more than 67% of their net annual HH income from agriculture related activities. More than 35 different types of crops are cultivated in CHT annually. Agriculture crops including fruits and trees provide both subsistence uses and cash incomes for local ethnic groups. But the main cultivated crops are limited to seven including rice paddy, turmeric, ginger and banana. Cotton and sesame were once valuable cash crops but have gradually declined in recent years due to a decline in productivity. Different fruit species (i.e. banana, jackfruit, mango and litchi) have gradually replaced shifting cultivation crops due to increasing demand for cash incomes. The CHT region is one of the highest fruit production regions in Bangladesh. Banana is a commonly produced horticulture crop in the region that is mostly cultivated in shifting cultivation areas with other crops for cash incomes that people harvest during fallow periods. More than 25% of HHs produce banana in their annual farming plots and home gardens. The annual yield of banana is about 88,000 tons, which is considerably higher than other fruits. However, pineapple, jackfruit and papaya production also contribute significantly to the average HH economy. There are also increasing levels of pineapple production as potential source of cash income, particularly in the last two decades. Jhum cultivation and Tobacco are the most prominent agricultural activities in the Bandarban district including other areas of CHT, contributing to environmental degradation due to the current production practices used.

**Jhum cultivation** (slash and burn agriculture) is the process of growing crops by first clearing the land of trees and vegetation and burning thereafter): The amount of land available in the CHT has been reduced for indigenous jhum agricultural production, prompting a shift away from environmentally friendly-traditional practices. Jhum cultivators were obliged to shorten the fallow cycles and farm the land more intensively, sometimes dropping the fallow cycle entirely. Areas previously considered unsuitable for jhum were brought under cultivation and steeper lands are being worked with greater intensity, resulting in further soil nutrient depletion and topsoil erosion, especially during the monsoon season (June – October). This results in high and rapid water runoff during monsoon season, with streams that ultimately turn into trickles or dry up later in the year. In the dry winter months, there can be no water for irrigation purposes for up to six months. Meanwhile, the low input levels of nutrient and organic matter contribute to poor soil health and subsequent crop yields.

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8 The Chittagong Hill Tracts Development Facility (CHTDF)-UNDP 2009
Family members sowing seeds in a shifting cultivation plot in Bandarban district (left) and weeding management after paddy cultivation in Bandarban district (right). (Source: Ronju Ahammad/Charles Darwin University)

Tobacco cultivation:
Tobacco is one of six major cash crops alongside jute, cotton, sugarcane, tea, and betel leaf in Bangladesh. It is also one of the most important cash crops in almost all areas of CHT, particularly in Bandarban. People cultivate tobacco in October–January and harvest in April–May of the following year. In recent years, tobacco expansion increased by 304% in the region; initially there were 300 ha of tobacco under cultivation in Bandarban, which increased to 1,922 ha in 2005–2006 an increase of 540%. In 2010–11, 4,232 ha of tobacco was under cultivation in Bandarban district. The highest areas of tobacco production are located in Bandarban and Khagrachari districts. At present, approximately 28,050 ha of land are under tobacco cultivation in Bandarban, with the highest concentration of tobacco farming as a cash crop in Lama sub-district. Tobacco is largely grown as a monocrop by intensive farming (i.e. application of fertilizers, pesticides, irrigation and labor) for six months of the year. Although it has increasing acceptance among the local farmers as a cash crop, the economic benefits are less than the cost production inputs. As a result, there has been no expansion of tobacco farming areas since the 2007/2008 season. At present, tobacco farming competes with at least 20 food crops, causing a decline in availability of local food production areas and soil fertility. There are also negative effects on forests as tobacco curing, packaging and rolling tobacco for cigarettes requires a large amount of fuelwood.

2.1.2: ECOLOGICAL RESOURCES AT RISK AND IMPACTS ON HUMAN POPULATION

Forests: HH fuelwood, food, medicines, shelter building materials and agricultural implements are common uses of forest resources in Bangladesh. Forest and trees provide direct and indirect economic benefits to local communities in Bandarban, as well as to the CHT as a whole and national economy. Timber, bamboo, rattan, fuelwood, fruits and different types of grasses are the major sources of forest-based annual income. But most of the forestlands are barren, covered with grass or with scattered trees and bamboo. In terms of forest types, primary forests and...
plantation forests cover more than 70% of land areas in all three districts. The major plant species in the region are tropical wet evergreen/semi-evergreen and deciduous, and are classified as ‘hill forests.’ Among the plantation coverage, teak (Tectona grandis) is the dominant type of plant in both government and private forestlands. Primary forests only make up approximately 15% to 20% of the total forestlands in Bandarban district. The remaining area is largely secondary forest with mixed natural and planted forests (i.e. a mix of naturally regenerating bamboo and planted timber species) and monoculture forests.

Table 6: Classification of forest area (ha) *(Bangladesh Forest Department [BFD], 2002-2003)*

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<thead>
<tr>
<th>Sl No</th>
<th>Classification</th>
<th>Bandarban (Area in Ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reserve and Protected forest (RF&amp;PF)</td>
<td>107,739</td>
</tr>
<tr>
<td>2</td>
<td>Acquired Forest</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Unclassed Forest</td>
<td>15,639</td>
</tr>
<tr>
<td>4</td>
<td>Total Forest Area under control of Forest Department</td>
<td>123,378</td>
</tr>
<tr>
<td>5</td>
<td>Unclassified State Forest (USF)</td>
<td>200,066</td>
</tr>
<tr>
<td>6</td>
<td>Khas Forest Area</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>Planted Forest (private)</td>
<td>26,184</td>
</tr>
</tbody>
</table>

From 1989 to 2003, an estimated 170,000 hectares of dense forest (about 50% of the original total area) were lost in the CHT (Bandarban, Rangamati and Khagrachari). Deforestation in the CHT is a result of inadequate forest management practices by communities and local industries, driven mostly by the demand for timber wood and tobacco cultivation. Destructive activities, such as unregulated timber and bamboo harvesting, improper road alignments and construction, short rotation *jhum* and soil-exhausting root crop cultivation on steep slopes, have greatly changed the natural protective vegetation of the upland areas. An influential tobacco industry is incentivizing HHs in Bandarban to replace subsistence food production with tobacco, offering cash loans, seeds and planting materials. Some 60-70,000 Metric Tons (MTs) of firewood are burned annually to support tobacco kilns, further adding to deforestation. The result is the cutting down of large swaths of trees and forests that might otherwise protect top soil and support more consistent food production.

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Figure 3: Forest cover map of Bangladesh and encircled forest areas in Chittagong Hill Tracts
The Forest Department is responsible for the protection and promotion/extension of forests. There are no specific fuelwood trees in the CHT. Most of the timber is used as fuel before the tree is fully grown (from 5 to 15 years). Some environmentally-friendly fuel and timber varieties for the CHT in the SAPLING project area include mangium, rain tree, mahogany, and chompa.

**Water:** Different studies reveal that about 5% of HHs actually have access to tube-wells. The low rate of ownership of water facilities by CHT people is directly related to their poor economic status. Where tube-wells do exist, those are often out of order and are rarely repaired or properly maintained. There are also high concentrations of iron in the groundwater. The hilly paths, poor road infrastructure and the remote location of villages mean that collecting safe water is physically very demanding, and made worse in the rainy season.

Ground water conditions in Bandarban district are different from other parts of Bangladesh since the aquifer systems in hilly areas are not equally distributed. Very few areas in the CHT have the scope to install tube wells to extract water for both drinking and irrigation purposes.

Visible signs of watershed degradation such as the drying up of rivers and lakes, and seepage of water sources, are present in the CHT and are resulting in shortages of drinking water, siltation of river beds and lakes, frequent flash flooding, deforestation, loss of biodiversity, soil erosion and landslides. Over 30% of HHs assessed by HKI in rural areas of the CHT while 75% of 30% are using surface water, and 25% of 30% reported using tube well, piped, or public tap water. As the area is mountainous and digging tube wells is very difficult in rocky ground, people are primarily dependent on rain, waterfalls or lake water. Water is often retrieved from rivers and streams, canals, ring wells, and upland waterfalls.

**Soil:** The dominant soils in Bandarban district are deep, well drained, yellowish brown sandy loam to loamy sand. They occur in the dissected plains in the western part of the CHT. They are developed on unconsolidated sandstones. Minor valleys occupy a small part of this unit. There are three soil types in the dissected plains and one in the flat valley bottoms known as Hazaribak (55%), Teiabil (25%) and Kaptai deep soil (20%) and Karnaphuli (5%) respectively.

Although geological erosion is expected, slope cultivation, deforestation and high intensity rainfall cause accelerated erosion in steep hilly areas. This type of erosion causes soil degradation in the upper and lower catchment area. Soil erosion is especially high in the first year of Jhum fallow and under mono-culture timber plantations such as teak.

**Landslides:** Rainwater washes loose soil of the open-cut hills into rivers, canals, lakes and other water bodies, causing massive silting. This causes harm in two ways. First, the sandy topsoil of the hills damages the fertility of the agricultural lands, and second, as the rivers and lakes fill up, the frequency of flash floods increases.

Landslides are a major cause of erosion, often exceeding 10,000 tons per sq km in a year.\(^\text{14}\) They are common in the hilly areas of southeastern Bangladesh, particularly in the Districts of

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Bandarban and Rangamati. Nearly every year landslides block roads during the rainy season, cutting of the town of Bandarban from other areas of the country.\(^{15}\)

**Climate variabilities in Bandarban:** Bandarban has the highest rainfall among the three CHT districts. Bandarban district experiences 3,121 mm mean annual rainfall of which 18% occurs in the dry period and the remaining 82% occurs in the wet season. The mean annual temperature is 26 degrees Celsius and the mean maximum and minimum temperature varies from 26°C to 36°C. Highest temperatures are observed in March and October. Mean humidity is approximately 78% in Bandarban. Maximum humidity occurs during July and August and minimum occurs in January and February. Mean wind speed is approximately 170 knots per day (KPD). High wind speed is generally observed in June, July and August and low wind speed is observed in the months of November and December. Highest evapotranspiration is generally observed in the Bandarban area. The evapotranspiration in Bandarban is 560 mm and 796 mm in wet and dry season respectively.\(^{16}\)

**Impact of Climate Change on these Resources:**
The combination of increasing population, land scarcity and poverty often results in deforestation, which is a major cause of environmental degradation. In the CHT, people continue to practice jhum cultivation (slash and burn agriculture) although there is insufficient land and space to do so. This practice of shifting cultivation and associated burning has destroyed almost all the primary forest and 37% of the total forest cover has been lost.\(^{17}\)\(^{18}\)\(^{19}\)

A risk of soil erosion exists in hilly areas from the time when a tree, bushes and grass removal has been started. Soil erosion problems arise when this soil cover is removed through over grazing, burning, tillage and deforestation although they can be acerbated by excessive drought or rain. In the CHT, soil erosion occurs due to a number of causes, including rain, storms and flash flood; deforestation; shifting cultivation; improper agricultural practices and road construction. Major factors affecting soil erosion are soil properties, climate, vegetation, topography, cultivation practices and socioeconomic factors. Uncontrolled use of forest land, population pressure on land and forest product resulted quick and serious deterioration of the forest, degradation of hill slopes, silting up over of river etc.

Land degradation contributes to climate change that may bring many physical changes including intense heat waves, severe droughts, ice melting, powerful storms, more destructive floods and rising sea level. The loss of soil fertility and potential production, watershed siltation through erosion and soil degradation facilitates natural disaster.

Soil erosion in the hilly areas negatively affects water bodies such as rivers, canals, ponds, wetlands etc. through siltation process. Due to sedimentation in the low lying water bodies and wetlands, storage of water is decreasing resulting in floods, damage of crops and aquatic resources.

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resources. These changes in turn affect food security and the habitability of low lying regions as well as local ecosystems.20

2.2 NATIONAL ENVIRONMENTAL POLICIES AND PROCEDURES

The main sources of environmental law are the Constitution, statutory laws and by-laws, customs, traditional perceptions and practices, international conventions, treaties and protocols. Environmental laws in Bangladesh are related to the protection of the environment, ecology and ecosystem. Law enforcement in Bangladesh is consistent with two approaches: Cooperative Approach, which focuses on the development of a continuing relationship between the enforcer and polluter, and Confrontational Approach, which focuses on penalizing activities.

Large industries like forestry and fisheries were established under the Permanent Settlement Regulation (1793) and were controlled by feudal lords during the colonial British Regime in Bangladesh. Related environmental laws include the Irrigation Act (1976), Private Fisheries Protection Act (1889), Forest Act (1927), Smoke Nuisance Act (1905), Fatal Accidents Act (1855), Public Parks Act (1904), and Coal Mine Labor Welfare Act (1947).

During the Pakistan Regime, environmental law was not satisfactory due to political instability, lack of environmental concern and an overall lack of government initiatives. Related environmental laws include the Protection and Preservation of Fish Act (1950), Embankment and Drainage Act (1959), Pure Food Ordinance (1959), Government Fisheries Ordinance (1959), Private Forest Ordinance (1959), and Agricultural Pesticides Ordinance (1971).

More environmental laws have been passed since Bangladesh declared independence in 1971 including the Bangladesh Wildlife Preservation Order (1973), Environment Pollution Control Ordinance (1977) (repealed later), Bangladesh Environment Policy (1992), Bangladesh Environment Conservation Act (1995), Bangladesh Environment Conservation Rules (1997), and Bangladesh Environment Court Act (2000). Environmental laws in Bangladesh are based on the guiding principles stated in the Bangladesh National Environmental Policy (1992), which draw upon guiding principles proposed at two UN environmental conferences (Stockholm, 1972; Rio de Janeiro, 1992).


The Bangladesh National Environmental Policy approved in May 1992 sets out the basic framework for environmental action, together with a set of broad sectoral action guidelines. Key

20 Rahman M M. 2008. Soil erosion in hilly areas affecting biodiversity and climate change and its biological conservation

Department of Environment, Ministry of Environment and Forests, Bangladesh.
elements of the policy include maintenance of the ecological balance and overall progress and
development of the country through protection and improvement of the environment; protection
of the country against natural disasters; identification and regulation of all types of activities that
pollute and degrade the environment; ensuring proper Environmental Impact Assessment (EIA)
prior to undertaking industrial and other development projects; and ensuring sustainable use of
natural resources.

The Bangladesh Environmental Conservation Act (ECA) of 1995 is the flagship piece of
environmental legislation. It provides the official definition of pollution, as well as
comprehensive guidance on conservation of the environment, improvement of environmental
standards, and control and mitigation of environmental pollution. Together with the
Environmental Conservation Rules (1997), the ECA set a new standard for conservation of the
environment. The Conservation of Playing Field, Open Space, Garden and Natural Water Body
Act (2000) also contains provisions for environmental conservation. Furthermore, the
Environment Court Act (2000; amended in 2010) established a special court to hear matters
related to the environment.

The Ministry of Environment and Forests (MoEF) is responsible for the planning, promotion,
coordination and oversight of the implementation of environmental and forestry programs, and
oversees all national environmental matters. The Department of Environment developed the
National Sustainable Development Strategy (NSDS), which identifies Bangladesh Strategic
Priority Areas (SPAs), including agriculture and rural development as well as environment and
natural resources. SAPLING will ensure that it is in line with GOB policies and procedures.

The Flood Forecasting and Warning Centre (FFWC) of the Bangladesh Water Development
Board (BWDB), established in 1972, is responsible for river flood forecasts and flood warnings
during the flood season. At present, the FFWC issues river stage forecasts for 21 stations on
major and medium-sized rivers where slowly rising floods occur, formulated for lead times of 24
hours, 48 hours and 72 hours. The Bangladesh Meteorological Department (BMD) is responsible
for forecasts and warnings of tropical cyclones and storm surges from the Bay of Bengal.

The Local Consultative Groups (LCG) Bangladesh, composed of the Secretary, Economic
Relations Division, Ministry of Finance, GOB, and 39 Bangladesh-based representatives of
bilateral donors, International Monetary Fund (IMF), World Bank (WB), Asian Development
Bank (ADB) and the UN agencies, has an Environment Sub-Group. The LCG Sub-Group aims
to identify shared environmental concerns and maintain a constructive dialogue with the GOB
and development partners. The LCG Sub-Group has discussed a broad range of issues and made
suggestions regarding the necessary institutional arrangements to ensure close coordination
among GOB departments regarding poverty-environment linkages.

3. EVALUATION OF ACTIVITY/PROGRAM ISSUES WITH RESPECT TO
ENVIRONMENTAL IMPACT POTENTIAL

The activities implemented by SAPLING are small scale in nature. As such, it is not anticipated
that any SAPLING program activities will have a significant adverse environmental effect,
provided that the mitigation and monitoring measures recommended in Section 4 are faithfully
implemented. Recommended environmental determinations for program activities fall under the
categories of CE and NDC in accordance with criteria outlined in 22 CFR 216. No activities
received a recommendation for a PD or a Deferral.
A discussion of potential environmental impacts for each activity is presented below. Activities are grouped by Purpose. For the numbering of activities below, the first number corresponds to the Purpose number, the second number corresponds to the Sub-Purpose number, and the third number corresponds to the Activity number.

**Purpose 1: Increased equitable access to income and nutritious foods for both males and females**

**Activity 1.1.1: Microenterprise development for poor and extreme poor households (HHs):**

**Sustainable agriculture practice promotion:**
Crop yields and income-generating capacities of project participants will be improved by using better agricultural production techniques. Training on techniques such as contour farming, raised-bed technology, use of vegetative strips as water buffers, companion planting, intercropping, trough irrigation, integrated pest management (IPM), and use of organic fertilizers will be offered to project participants to increase yields and incomes while at the same time protect the environment. *There are no adverse effects on the environment from classroom training on sustainable agricultural techniques. It is anticipated that the training will result in the uptake of more environmentally friendly agricultural practices by the participants and thus have a positive impact.*

Contour farming is a method of cultivating sloping land in which crops are planted in strips along the contour lines using soil erosion control measures, such as contour hedgerows. In 2011, HKI conducted an assessment of contour farms under construction by participant farmer groups in the M2W2 project in Laxmichari Upazila in Khagrachari District of the CHT. The study looked at the appropriate steepness of slope and intercropping, mulching, and erosion control measures. The assessment identified multiple cropping, close planting, strip cropping, mulching, cover cropping, tillage, partial weeding etc.; cropping patterns in the CHT that can retain soil fertility and increase productivity.²¹

*Crop cultivation can pose a threat to the environment* in numerous ways including degradation of marginal and fragile lands, deforestation, loss of biodiversity, introduction of exotic species, soil erosion, nutrient depletion, loss of wildlife habitat, displacement of more appropriate land uses and reduction in water quality due to farm runoff. *However, when properly managed, crop production can enhance agrobiodiversity, erosion control, soil fertility and economic well-being.*

Proposed sustainable agriculture practices of contour farming, hedgerows, terracing, bunds, raised-bed technology, vegetative strips as water buffers, (source: Sudibbo Kranti Khisha)
companion planting, intercropping, trough irrigation, and IPM can reduce soil erosion, moisture losses, and pest infestations. Application of agroforestry methods can improve wildlife habitats, biodiversity, water retention capacity, soil permeability and provide a source of renewable energy. *Adoption of these practices is a positive step toward climate change adaptation.*

Projected increased temperatures signal greater evaporation rates. Practices that retain moisture (e.g. vegetative strips, trough irrigation) efficiently utilize available water. Agroforestry creates a vegetative upper story that provides shade and reduces soil and air temperatures in close proximity. Trees are also essential consumers of the greenhouse gas carbon dioxide. The proposed sustainable agriculture practices are therefore expected to *benefit the environment.*

**Soil Fertility and Erosion Control:**

Injudicious application of chemical or organic fertilizers to improve soil nutrients *can constitute an environmental threat,* as fertilizers can cause pollution when they are applied more heavily than crops can absorb or when they are washed or blown off the soil surface before absorption by crops. Excess nitrogen and phosphates can leach into groundwater or run off into waterways, negatively affect lakes, streams, reservoirs and ponds, and lead to an explosion of algae which suppresses other aquatic plants and animals. While organic fertilizers are absorbed more easily into the environment with fewer side effects, excessive application and runoff of nutrient-rich water may also negatively affect watersheds.

Based on recommendations from the M2W2 assessment and experience of other projects working in hilly areas around the world, SAPLING will address erosion and soil fertility issues by intercropping and planting hedgerows respectively. For soil erosion control, the assessment report recommended two varieties of grass: *Vetiveria zizanoides* (vetiver grass) and *Thysanolaena maxima* (broom grass). Although they are not nitrogen fixing plants, there are many additional benefits of using these grasses, from crop protection to income generation. Therefore, the hedgerows will be planted using a mixture of nitrogen-fixing and erosion-controlling plant species. Depending on the location, suitable locally available nitrogen-fixing hedgerow species will be chosen such as *Bogamedula* (*Tephrosia candida*), and a local variety of pigeon pea (*Cajanus cajan*) to control soil erosion. Pineapple and banana rows will be planted with annual root cash crops, like turmeric, ginger, and taro, to help control erosion. Additionally, short-term fruit trees, such as papaya, will also be planted between rows for certain crops like turmeric, ginger, and taro. Finally, SAPLING will utilize a number of other simple technologies for sustainable land management (SLM), including basket and trench composting, bio-fencing, contour trenching, mulching, and deep planting to prevent soil erosion. The promotion of these natural soil erosion control and fertility improvement techniques are expected to minimize damaging HH practices and thus have a *positive impact on the environment.*
Pest management: Pesticides pose a risk to the environment and human health if improperly used, including contamination of soil and water, harm to non-target organisms, destruction of natural pest control systems, and pest resurgence and resistance. SAPLING will promote the crop-based IPM approach, which encourages farmers to use natural pest control methods but allows the use of chemical or organic pesticides as a last resort to save their crops. The project will not directly promote any chemical pesticides. However, recognizing that it is common for farmers to use pesticides on their crops for disease and pest control, the project will train participants in the safe and judicious use of pesticides in accordance with the mission-wide PERSUAP.

Small animal husbandry: SAPLING will promote poultry, goat, and pig production to increase availability and accessibility of animal food sources, and nutritional messaging to encourage utilization. The project will aim for HH level production of 6 to 12 chickens and one pig/goat. It will also assist participants to build poultry sheds and adopt improved feeding practices. A one-day participatory training on poultry-rearing techniques will cover improved feeding practices. A one-day participatory training on poultry-rearing techniques will cover supplemental feeding, how to separate chicks from hens during the first 10 to 15 days, how to select appropriate breeds, and how, when, and why to vaccinate. Refresher trainings will stress application of skills and knowledge.

Awareness events will be held with participant HHs, headmen/Karbaris, Upazila Livestock Officers, veterinarians and other local elites, to educate the broader community on livestock rearing practices and the need for proper vaccination to build herd immunity. Deworming will also be promoted. Community-based vaccinators (male and female youth) will be chosen in each upazila, trained to provide vaccinations, and linked to the Department of Livestock Services (DLS). HHs will also receive technical assistance from the project’s technical team.

There can be significant negative effects on the environment if livestock and poultry are not properly managed because livestock can be affected by many different types of diseases (e.g., viral, bacterial, ecto-parasites and endo-parasites, etc.) and create waste. Viral and bacterial diseases can be easily transmitted from infected to non-infected poultry and livestock. Inappropriate use of veterinary drugs and improper disposal of related medical waste can pollute the surrounding environment. Improper management and burial of poultry and livestock that die as a result can cause air and water pollution. Certain zoonotic diseases (e.g., anthrax, brocelosis etc.) can even be transmitted to humans. Animal waste can also be a health hazard and contribute to environmental problems, as farmyard manure is often allowed to deteriorate on the ground or contaminate water systems.

SAPLING will incorporate training on appropriate disease and waste management to avoid loss of animal assets by HHs, as well as potential health hazards to the HH members and surrounding neighbors. While inappropriate use of veterinary drugs and improper disposal of related medical waste could have potential negative effects on the environment, due to the small-scale nature of these activities and awareness raising by the project, no significant adverse effects are expected.

Aquaculture: There are numerous environmental concerns regarding aquaculture. These concerns are discussed in USAID’s Sectoral Environmental Guidelines for Fisheries and Aquacultures. Large-scale aquaculture is generally not considered feasible for the CHT due to its mountainous nature, but small-scale aquaculture is feasible and has good potential as an IGA that will improve both HH nutrition and income.
Through working with WorldFish as a technical partner, SAPLING will provide training in good aquaculture practices (GAP) to all its field facilitators and promote aquaculture where/when feasible and sustainable. SAPLING will work with participants to identify ponds and creeks in Bandarban district and also train them in GAP. Primarily, the project will adapt the WorldFish developed “polyculture model”, which combines fast growing native and exotic carp species and short cycle self-recruit fishes like tilapia and ‘mola’, which is also a highly micronutrient rich small fish. However, final selection of fish species will be done with the producers and will be culturally appropriate. The polyculture system focuses on raising several fish species together that will not harm or compete with each other for food and space. Additionally, cuchia (Monopterus cuchia), a type of eel fish consumed by ethnic people, is found throughout Bangladesh, including hilly areas. SAPLING will adapt cuchia culture technology developed by WorldFish in other areas of Bangladesh to the CHT context. SAPLING will also establish a need-based community “fish nursery” in selected paras/villages to raise and supply larger size fish fingerlings to the surrounding communities in a timely manner.23

Rice-fish farming is a proven technology that benefits rice farmers by providing fish as an additional crop to increase HH consumption and income. It increases rice production by 5-10%, reduces rice pest and disease infestation and weeds due to fish activity in the rice fields and leads to reduced use of harmful chemicals. Rice-fish farming has been successful in the hilly areas of Indonesia and China.24 SAPLING will carry out adaptive research on rice-fish farming in a limited scale and then scale up through dissemination of the refined technology in wider areas.

There could be minimal adverse and/or positive effects on the environment from small-scale aquaculture, such as resource optimization with the complementary utilization of land and water. If not properly managed, potential negative environmental impacts include loss of native species; pollution of water due to overuse of fertilizers; and the killing of predator fish by chemicals like rotenone, which can also have a negative impact on environment and human health.

Business management skills training: No harmful effects to the environment are foreseen from actions related to training project participants in business management skills.

Post-harvest management training: 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. Classroom training on post-harvest management of crops has no negative effects on the environment, but may have indirect positive effects on the environment by improving post-harvest practices.


24 Halwart M and Gupta MV (eds.) 2004. Culture of fish in rice fields. FAO and The WorldFish Center
Expanded off-farm production: SAPLING will conduct an assessment of off-farm production opportunities. It is anticipated that these opportunities will include handicrafts and hand-weaving. Traditional handicraft production is an important marker of identity and culture for the indigenous communities in Bandarban district, and as such it is vital for local communities to preserve and develop these skills. Providing assistance to producers in off-farm production includes skills training in production techniques and business. Participants will be selected based on an assessment of social vulnerability, interest and current productive activities. Although traditional handicraft and hand-weaving can have negative effects on the environment due to wastewater produced by using chemicals and surface water for bleaching and dyeing, SAPLING will promote natural dyes and train producers in wastewater management to mitigate effects which may have an overall positive effect due to improved practices adopted by both target and non-target populations. In the case of SAPLING, the activities supported in this arena will be very small-scale and are not anticipated to have any significant adverse effects. (Photos 25)

Activity 1.2.1: Promote Homestead Food Production (HFP)
Under the HFP model, producer groups, Village Model Farms (VMF) and Leader Farmers (LF) will be identified and organized. Trainings will incorporate topics on sustainable agriculture practices, soil fertility, soil erosion control, pest management, small animal husbandry, aquaculture, post-harvest management and small business management. Threats and benefits of these actions to the environment are discussed under Activity 1.1.1. Additional key actions promoted under the HFP model are establishment of demonstration plots, gender and nutrition training for the HH, establishment of a system to promote access to quality inputs and market negotiation skills, technical training for LFs and regular HH visits to provide extension services.

There are no anticipated direct effects to the environment from the gender and nutrition trainings, the establishment of a system or technical training to the LFs to become local service providers.

Demonstration plots:
The establishment of demonstration plots/ponds will normally be on LF property though some exceptions could occur based on different ethnic group practices. Previously undeveloped land or

marginal land will not be sought for the establishment of demonstration plots for HFP. Demonstration plots/ponds will promote actions that are in alignment with national and other climate change adaptation initiatives. Practices promoted on demonstration plots/ponds are discussed under Activity 1.1.1 and are expected to have a *direct and indirect effect on the environment* through adoption and dissemination of these practices. During implementation, participating farmers may apply pesticides to the demonstration plots as part of practicing and demonstrating improved pest management practices that they are learning. Farmers will be responsible for procuring any pesticides used on the demonstration plots as their own cost share contribution. SAPLING will not procure pesticides for this activity. However, training on use and application of pesticides will be provided in accordance with the PERSUAP. There is a risk to human health and the environment if farmers apply pesticides used on demonstration plots in excess or contrary to manufacturer’s recommendations, and/or do not use proper Personal Protective Equipment (PPE).

**Seed and sapling providers:**
LFs will be supported to become local service providers of seed and saplings. Nurseries will not promote exotic or invasive plant species. On the contrary, seed producers will follow the Mari Seed Model that focuses on preserving indigenous vegetable seeds. These activities will *provide a benefit to the environment* by preserving agro-biodiversity and possibly promote climate change adaptation by expanding availability to local varieties with natural drought tolerance and pest resistance. Small plastic sheathes are typically used to transport seedlings and saplings. Arbitrary disposal of these plastic bags could potentially have a *negative effect on the environment*. SAPLING will work with LFs, nurseries and participant producers to develop a waste reduction, reuse and disposal plan to minimize plastic bags littering the environment.

**Activity 1.2.2: Link microenterprise producers to markets and create a demand for products coming out of the CHT**
Actions under this activity focus on enabling project participants to become market actors. Potential environmental effects of some actions under this activity (such as post-harvest production for “new market” penetration and value addition) have been discussed under other activities. Aggregation of produce is one method for obtaining entrance to formal markets. Although collection point management systems will be promoted, no construction of collection centers is contemplated under this activity. It is anticipated that actions under Activity 1.2.2 will have *no significant negative effect on the environment*.

**Activity 1.2.3: Introduce Savings and Internal Lending Communities (SILC)**
The establishment of SILC may have an *indirect positive effect on the environment*. As designed, this approach invites Agriculture Extension agents to SILC meetings to speak about improved production practices that SILC participants could fund. SILC groups are self-selecting and open to all community residents, i.e., participation is not limited to other project specific eligibility criteria such as those criteria applied to HFP. In that sense, through SILC, SAPLING may reach a greater audience in its promotion of sustainable agricultural practices.

**Activity 1.2.4: Improve access to water for irrigation, livestock and aquaculture**
*Potential negative effects on the environment* may occur if proper mitigation measures are not taken with regard to the capture and retention of water. To be considered are loss to the aquatic ecosystem by creating stagnant water in previously flowing channels, loss to biodiversity, risk of increased cases of cholera, dysentery, malaria and typhoid, or disturbance in local ecology as well as impact on downstream users who may be deprived of water or subject to pollution.
Furthermore, loss of top soil and water pollution due to sedimentation and run-off may be negative results of irrigation schemes if mitigation measures are not taken.

**Purpose 2:** Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls

**Activity 2.1.1: Train government and non-government health service providers including traditional birth attendants and the traditional healthcare practitioners and agriculture extension workers on Essential Nutrition Actions-Essential Hygiene Actions (ENA-EHA) framework**

As mentioned above in Section 1.2, SAPLING will use the ENA-EHA framework as its core technical approach to improve the nutritional status of women and children, including adolescent nutrition, in target communities. The ENA-EHA framework will be integrated, through training, into existing delivery platforms, including health service providers in the Community Clinics, Upazila Health Complexes, district hospital, and the CHSW. SAPLING (HKI staff) will directly provide the ENA-EHA Training of Trainers (TOT) to the Civil Surgeons Office, the health implementation arm of the Hill District Councils, and CHSWs. All pregnant and lactating women and mothers of children under two years of age will receive the ENA-EHA training from the CHSWs. Training of agriculture, fisheries, and livestock extension agents provides another point of delivery for key nutrition messages as participants interact with these individuals. Finally, traditional health service providers, including village doctors and healers and Community Skilled Birth Attendants (CSBAs) will receive ENA-EHA training, including adolescent nutrition.

While the EHA-EHA messages do encourage the consumption of micronutrient-rich foods such as those grown through HFP, use of improved sanitation technologies, and use of healthcare services, all of which might have indirect negative effects if related activities are not implemented using appropriate mitigation measures, the training itself is expected to have no negative effects on the environment.

**Activity 2.1.2: Introduce the Nurturing Connections© gender transformative/sensitive approach across program elements**

The project will use a gender transformative approach developed and tested in Bangladesh called Nurturing Connections© to address gender inequality issues that affect women’s position and decision-making power in the HH. This approach engages men and women, separately and together, in a series of exercises that build their communication skills to address various HH and community dynamics such as roles and behaviors, power relations, and decision making patterns. Participatory and non-formal learning methods (e.g., role play, story-telling, drawing pictures, and games) are used to challenge intra-HH inequalities that contribute to food insecurity and malnutrition. There are no anticipated direct effects to the environment from implementation of this activity.

**Activity 2.1.3: Promote Essential Nutrition Actions (ENA), Essential Hygiene Actions (EHA) and Adolescent Nutrition at the community level**

Following the “1000 Days” approach to prevent malnutrition, which includes the period from conception through two years of age, all HHs in a community with pregnant and lactating women and women with children under two, will be invited to participate in courtyard sessions facilitated by CHSWs to learn about nutrition and hygiene. No adverse impact to the environment from this activity is anticipated.
Activity 2.1.4: Organize nutrition fairs and cooking demonstrations
The project will organize and implement different types of fairs at the community level as an opportunity for food and poultry producers to demonstrate techniques and sell their products. Booths will be set up for cooking demonstrations, farming demonstrations, nutrition information and disaster risk reduction strategies. Local influential people will be invited, along with health service providers. The project participants will be invited to talk about their successes and challenges. There will also be theater and games for children. Nutrition, handwashing, and other WASH strategies will be promoted to reinforce messages received via other mechanisms. As part of the overall nutrition training strategy, implementing partners will organize and facilitate small-scale participatory cooking demonstrations based outdoors to highlight cooking methods that preserve the nutrient value of food. There are no adverse impacts to the environment anticipated for this activity.

Activity 2.1.5: Provide Nutrition in Emergencies (NIE) training for Ministry of Health and Family Welfare (MOHFW) staff at supervisory positions and Disaster Management Committees (DMCs)
In the context of environmental emergencies and conflicts, maintaining good nutrition practices is critical to helping people recover physically, for example, encouraging and enabling mothers to continue exclusive breastfeeding. NIE supports nutrition and hygiene practices in emergency settings when community structures and resources may be weakened. UDMC members will be trained to disseminate messaging on ENA and EHA post emergency, but will support Purpose 2 generally through improved knowledge and practice of nutrition-related behaviors. Other disaster risk management strategies will be addressed in activities under Purpose 3.

This activity will convene union and upazila DMCs and MOHFW supervisory staff to discuss and learn about nutrition concerns, good practices, where to get information during and after an emergency, and being mindful of the needs of men and women, children, persons with disabilities and the elderly. All UDMCs and MOHFW supervisors from the SAPLING target areas will receive NIE training. NIE trainings will benefit those affected by disasters as staff will be prepared to provide guidance and will be aware of risk factors to look for in affected populations, such as creating gender sensitive disaster shelters or spaces. No adverse impact to the environment from this activity is anticipated.

Activity 2.2.1: Design and implement Behavior Change Communication (BCC) around Nutrition and Water, Sanitation and Hygiene (WASH)

Nutrition:
The BCC intervention will aim to positively impact the first 1,000 days of life, changing the knowledge, attitudes and practices of pregnant and mothers on proper Infant and Young Child Feeding (IYCF), including early initiation of breastfeeding and exclusive breastfeeding for the first six months, with complementary feeding from six months onwards. Previously designed and tested BCC materials will be introduced to families, such as the 12-month pregnancy and postpartum calendar that begins in the fourth month of pregnancy and supports optimal nutrition and health practices for the first 1,000 days of life.
groups by color coding and playing games. Other tools include crop calendars showing what to plant seasonally and food plate posters with ideal food plates, both of which are also visual and color coded. BCC activities will engage entire HHs whenever possible, highlighting women’s role in ensuring the family’s nutritional health. No adverse effects on the environment are anticipated as a result of the design, training and implementation of the nutrition BCC strategy.

**Hygiene and sanitation practices:**
The project will develop a strategy to introduce and encourage uptake of safe water, sanitation and hygiene (WASH) behaviors. A modified Community-Led Total Sanitation (CLTS) approach based on community champions, regular consultations and community monitoring of WASH projects and practices will be applied. Key individuals, such as youth and community leaders who have the ability to influence sanitation practices, will be identified. Messages will focus on the link between sanitation and health, cultural beliefs preventing adoption of good hygiene, and existing positive practices, and will be bolstered through the use of dramas, songs and other traditional media. When possible, the project will leverage existing materials by WASH actors including other USAID projects and UNICEF.

The project will support exchange visits to model villages for influential Para Development Committee (PDC) members, so positive practices can be observed and carried back to their communities. All field staff will be trained to understand, monitor and highlight safe hygiene and sanitation practices in addition to implementation of WASH behavior change activities using the USAID “Designing Behavior Change: Water, Sanitation and Hygiene” curriculum to which HKI contributed.

There are no direct effects to the environment anticipated as a result of promoting the WASH BCC strategy. However, there are potential indirect positive effects on the environment including improved management of sanitation facilities and defecation practices which may prevent contamination of water supplies, improved water treatment and storage.

**Activity 2.2.2: Promote the use of improved sanitation technologies and systems**
SAPLING will present HHs with a range of simple appropriate technologies that can be purchased from the local market or made at home by poor HHs, as well as slightly more advanced options for others. Examples include Tippy Taps, standard pits with water seals, or offset water seal toilets. Sanitation activities can have negative impacts on the environment including the contamination of water sources and surrounding environment, as well as the occurrence of fecal and waterborne diseases, if facilities are poorly maintained. The improper disposal of refuse can have a significant effect on the health of communities, and can lead to pollution of surface water, as rain washes refuse into rivers and streams. There may also be a significant risk of groundwater contamination. Refuse disposed of in storm drains may cause blockages and encourage fly and mosquito breeding. Alternately, proper construction, use and maintenance of sanitation technologies, in conjunction with the BCC messages mentioned in Activity 2.2.1, will have positive impacts on the environment.

**Activity 2.2.3: Increase access to safe water supply technologies and infrastructure**
SAPLING will promote safe water supply technologies in communities based on assessments of geographical and hydro-geological conditions. Options include protected shallow wells (to be raised in flood-prone areas), tube wells, ring wells, rain water harvesting tanks and cisterns, or possibly more elaborate systems, such as piped gravity-fed water systems drawing from nearby springs, infiltration galleries or deep set pumps. In terms of installation, although SAPLING will...
improvement/installation related to provision of water including those commonly undertaken under cash for work, or small-scale professional service contracts that require some level of skilled labor. However, primarily it will promote installation or improvement of safe water supply infrastructure which will be funded by others. SAPLING will also work with the Department of Public Health Engineering (DPHE) to identify appropriate standard designs. These efforts will be linked with hygiene promotion around water treatment (e.g., boiling water, aqua tabs). Negative effects on the environment and human health can result due to poor construction practices or if the standards and design are not followed, including contamination of ground water, soil erosion and consumption of unsafe water. Adverse impacts on the environment and people’s health may be elevated if the water points are not properly operated or maintained. Alternately, with proper design, construction, operation and maintenance of safe water points, in conjunction with the promotion of water treatment, this activity may have positive 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**

**Activity 3.1.1: Assist vulnerable HHs in developing preparedness strategies and action plans for shocks**
The project will work with men and women (together and separately) to promote HH preparedness plans. HHs will also participate in CRA, and prioritize actions that will benefit those experiencing high levels of food insecurity, nutritional stunting, and exposure to natural and man-made shocks as determined by the community in PRA exercises used to identify the most vulnerable. This would have indirect benefits to the environment as participants will be more capable to develop preparedness strategies for shocks to reduce environmental vulnerability, such as the elevation of latrines to prevent contamination of water sources or the surrounding environment. Many of these strategies will be linked to activities under Purpose 1 and 2.

**Activity 3.1.2: Assist HHs to develop a variety of strategies to protect productive assets**
As part of the CRA, SAPLING will help HHs inventory their assets and adopt strategies to protect them against man-made and natural shocks. Project FFs will link community representatives with local authorities such as Agriculture and Livestock officers to understand services available to protect livelihood assets. Individuals will be trained to administer livestock vaccines to protect them from flood-related diseases. HHs that are heavily dependent on agriculture or rearing small livestock for their livelihoods are particularly vulnerable to seasonal shocks. The project will assist them to diversify their livelihoods under Purpose 1. There are no adverse effects to the environment anticipated under this activity.

**Activity 3.1.3: Assist vulnerable HHs to access social safety nets to recover from stresses**
Government safety net programs are currently functioning in some Unions to support HHs after a natural disaster or other shock. The project FFs will train highly vulnerable HHs on how to access existing government safety net programs to support HHs after natural disasters or other shocks, involving Union Parishads and UDMCs. Examples include voluntary group feeding, voluntary group development and 40-day work creation programs for men and women, as well as ongoing safety net programs to support widows, and maternity allowances for women. Together with the Union administration, the project will develop and strengthen community structures and systems at the para (village) level. These structures and systems will draw upon existing human and natural resources from within the community to improve community
government and the project in the form of CFW. All design processes promoted/facilitated by the project will incorporate men, women, elderly, people with disabilities and youth to ensure plans reflect diverse needs. No adverse effects on the environment are anticipated under this activity.

Activity 3.2.1: Form and support Para-level DMCs to lead DRR activities
The project will help create PDMC in villages, consisting of five to seven members, with a minimum of three female members, to be selected by the community based on demonstrated leadership ability and interest in disaster management. FFs, the DRR Manager and UDMC will train PDMC members on the skills required to fulfill their functions, including training community members in disaster preparedness, EW dissemination, evacuation coordination and assistance, performing emergency assessments, and acting as the key link between the community and UDMC. This activity is expected to have no major effects on the environment.

Activity 3.2.2: Assist PDMC to develop community RRAP
The project FFs will work with UDMC members to facilitate inclusive DRR planning, starting with a CRA to prioritize local DRR challenges. CRA is a participatory process for assessing hazards, vulnerabilities, risks, ability to cope, and preparing coping strategies. It uses secondary data, observation, and participatory discourses to identify, analyze and evaluate the risk environment of a particular community. The CRA addresses the comprehensive resilience of a community regarding food security and nutrition issues, in addition to human-made and natural shocks. It focuses not only on the direct loss of lives and property as a result of a disaster but also long-term effects such as loss of livelihoods and HHs’ ability to provide for their families. Community members will devise actions to address these challenges, and develop a RRAP, including both HH-level (HH savings, secondary livelihoods) and community-level actions (road improvements, embankment repair, sanitation, food storage). No direct impact on the environment is anticipated for the development of RRAPs by PDMC, although an indirect positive effect on the environment can be expected with the implementation of mitigation and recovery actions identified in the RRAPs.

Activity 3.2.3: Promote community strategies to address/mitigate the hazards of environmental degradation through geo-spatial mapping and awareness raising
The project will work to increase awareness of alternatives to traditional or adapted jhum cultivation, such as discouraging burning, planting crops that enrich rather than deplete soil, reforesting and forest management approaches, watershed management practices, and use of non-chemical farm inputs, linking to activities under Purpose 1. Dialogs will be held to facilitate community leaders to pose their own solutions while also learning about alternative natural resource management (NRM) practices that have worked within the South Asia region, such as planting of pineapple or coffee as cash crops, crop and land rotation, and selective trimming of forests as an approach to forest management (linking to agriculture activities under Purpose 1). Demonstration plots will be promoted to test new practices, led by key community agriculture champions. The spatial maps will be provided to the Union and Upazila DMCs for future analysis and development of strategies to improve environmental safeguards. The geo-spatial mapping and awareness raising activities themselves are not anticipated to have any direct impact on the environment, there may be indirect positive effects on the environment through implementation of promoted changes in agricultural practices and watershed management.

Activity 3.2.4: Facilitate establishment of capable gender-equitable community task forces to prepare for and respond to disasters
To increase resilience of HHs against shocks, SAPLING will work with PDMCs to form village
will represent a cross section of the population, including women and youth and the most vulnerable, and will be trained to carry out critical functions before, during and following a shock (e.g., EW dissemination, shelter management, search and rescue, first aid, water and sanitation, and livelihoods). SAPLING will facilitate participatory sessions aimed at understanding how roles and needs of all HH members change in the event of a disaster. SAPLING will also determine how women and men have different mobility and access to resources in the event of a disaster. Task force members will help train other community members and engage in regular but informal monitoring to ensure that all inputs reach intended HHs and reflect the needs of the broader community. Members will also assist FFs in conducting HH visits to discuss preparedness and gather input during the DRR process. No direct impact on the environment is expected from the establishment and training of these community task forces.

**Activity 3.2.5: Increase community knowledge on approaches to mitigate man-made stresses**

To improve environmental management, SAPLING will also help communities mitigate potential violence. Field assessments have identified land disputes between indigenous and Bengali communities to be among the shocks experienced in CHT, as well as domestic violence. SAPLING will integrate sessions on peacebuilding into DRR planning and prevention processes in an effort to rebuild or strengthen inter-personal relationships, within the home and between communities. Trainings will be held with youth and community leaders in every union who are well placed to advance a culture of peace within the CHT, promoting non-violent methods to address conflict. Additionally, peacebuilding will be raised by project facilitators during the CRA process and integrated into RRAP development workshops and Nurturing Connections© sessions. There are no direct effects on the environment anticipated under this activity but there may be indirect positive effects by helping reduce man-made stresses on the environment through conflict resolution.

**Activity 3.2.6: Facilitate funding of government approved mitigation projects from community DRR plans, using project, community and government contribution**

A lack of adequate infrastructure in the CHT, such as connector roads to allow evacuation, contributes significantly to the vulnerability of the population to natural disasters. Water resource management projects are needed to increase the availability of water during the dry season, creek and valley projects have the potential to support aquaculture as a secondary livelihood, and construction of market stalls may improve market functions. Project staff will consult with the UDMC and PDMC to identify small-scale infrastructure improvements from the RRAP that can be supported through CFW during the project period. Recruitment for CFW will have clear eligibility criteria and an emphasis will be placed on recruitment of women.

Community RRAPs might include community sporting and cultural events or inter-communal construction projects to upgrade existing community centers, which could help reduce inter-ethnic tensions. While SAPLING will implement a few of the schemes prioritized within the RRAP through its CFW program, typically the types of schemes identified require skilled labor
communities to seek donors to meet documented needs. SAPLING will not support any large-scale RRAP projects; these activities will be carried out with the support of the GOB. SAPLING will primarily be involved in facilitating the CRAs and the GOB’s incorporation of identified priorities in RRAPs.

CFW projects, which involve relatively simple improvements/construction that can be achieved with supervised unskilled labor will be implemented between November and May to avoid the monsoon season. For example, to protect lives and properties in the CHT from landslides during monsoon season, the government has supported initiatives by the Soil Research and Development Institute (SRDI) to construct guide walls on the downsides of hill valleys. This type of infrastructure has proven successful and is well accepted by the CHT community. SAPLING will identify locations where guide walls must be constructed or repaired, and will coordinate with SRDI for these activities. The construction/rehabilitation of guide walls can lead to changes in land use and farming practices, affect water quality, and ultimately contribute to socio-cultural changes. Guide walls can lead to increased sedimentation, potential changes in vegetation cover, and increased water pollution. Drainage systems, while essential on poorly drained fields, may negatively affect associated ecosystems due to chemical and nutrient effluent discharge. The constructions of these guide walls have potential negative effects on the environment, but activities supported by SAPLING are small-scale in nature and are therefore not anticipated to have significant adverse effects on the environment if the appropriate mitigation measures are taken.

**Activity 3.3.1: Form and train UDMC to develop DMPs, with support from Regional and Upazila DMCs**

SAPLING will help establish UDMCs where they did not previously exist, and strengthen their capacity to fulfill their functions by conducting training, sponsoring monthly meetings, and providing assistance to members as they initiate new roles at the community level. No direct effects anticipated to the environment under this activity.

**Activity 3.3.2: Link communities to District, Upazila and Union DMC structures and to national Climate EWS**

Disciplined coordination between community-based, local and national EWS is critical for timely and appropriate responses by all relevant stakeholders in the event of a potential natural or human-made emergency. SAPLING will strengthen these systems using a community-led approach in developing RRAPs with local government and the existing efforts and information at higher levels so that the different nexuses in the system effectively support one another to prepare for and respond to the range of climactic and human-made shocks that affect CHT. SAPLING will arrange for annual mock drills in advance of rainy season to test the system and track the speed and accuracy of information passing from one leg of the system to the next. Following each drill, the SAPLING DRR Manager will work with communities and the various government DMCs to review the process and improve the response capacity of the system as a whole. There are no direct negative effects on the environment anticipated under this activity.

**Activity 3.3.3: Establish a community-based Conflict EWS**

There is no system in the CHT to monitor conflict and its potential to escalate into violence. SAPLING will recommend a community-based system that links to the UDMCs. It will present the system to the UDMC and UzDMC, securing permission from the Chairman to set up the system. Once accepted by the Union and Upazila DMCs, SAPLING will promote the system to local civil society organizations, private companies, and relevant government authorities. A
and link this analysis to local and national efforts charged with improving relationships within the CHT to help inform decisions related to governance and resource allocation by providing objective input around potential flags such as land or water disputes or youth bulges. *No direct impact on the environment* is anticipated under this activity but it may have *indirect positive effects on the environment* by resolving conflicts through negotiation.

4. RECOMMENDED MITIGATION ACTIONS (INCLUDING MONITORING AND EVALUATION)

4.1 RECOMMENDED PROJECT IEE DETERMINATIONS

In this section, a threshold determination is recommended for each project activity. Pursuant to 22 CFR 216.2(c)(1)(i) and (2)(i)(ii)(iii) (v) and (xiv), a **CE** is recommended for activities involving start up, coordination, meeting, training, research and studies, analysis, market analysis, market linkage, development allocation of resources, information and knowledge development, outreach, as well as activities related to nutrition and health care, except those activities having direct effect on environment as defined 22 CFR 216. (c)(2)(viii). Pursuant to 22 CFR 216.3(a)(2)(iii), a **NDC** is recommended for project activities related to agriculture and livestock production, construction of sanitation and water infrastructure, and DRR projects. Table 6 outlines the activities and their respective threshold determinations under each Purpose.

For the activities recommended as NDC, mitigation measures are described in section 4.2 as well as the draft EMMP attached as **Annex 1**. Once the intervention sites are determined, SAPLING will develop a detailed EMMP for each site in alignment with this initial version, and the final EMMP will be submitted to USAID for review and approval. SAPLING will ensure the implementation of all the mitigation measures determined in IEE and monitor all IEE conditions.

SAPLING will follow the conditions for negative determination, which include meeting and following environmental rules, standards, regulations, laws, and policies of the GOB and strictly following USAID Environmental Compliance 216 CFR 22; updating environmental compliance and ensuring coordination with USAID; updating partner NGOs as regular part of performance reporting on environmental compliance and training to the field staff e.g. FFs, union and upazila coordinators, technical officer (horticulture) and technical officer (animal husbandry) on pest control methods and safer use of pesticides for selected crops; and demonstration of proper use of PPE and dissemination of information on safer use of pesticides to farmers at Farmer Field Days (FFDs) that are held in conjunction with the agriculture demonstration plots to ensure compliance with USAID Environmental regulation 216, as well as training on Environmental Suitability checklist to examine the suitability of proposed demonstration plots with regard to physical, biological, and human health considerations.
Table 7: Recommended IEE Determination of SAPLING project activities

<table>
<thead>
<tr>
<th>Purpose 1</th>
<th>Sub-purposes</th>
<th>Activities</th>
<th>Threshold Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased equitable access to income and nutritious foods for both males and females</td>
<td>1.1: Increased sales and profitability from IGAs/markets</td>
<td>(1.1.1) Microenterprise development for poor and extreme poor households</td>
<td>Negative Determination with Conditions as per 22 CFR 216.3(a)(2)(iii)</td>
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<td></td>
<td>1.2: Increased homestead agriculture production of nutritious foods</td>
<td>(1.2.1) Promote Homestead Food Production (HFP)</td>
<td>Negative Determination with Conditions as per 22 CFR 216.3(a)(2)(iii)</td>
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<tr>
<td></td>
<td></td>
<td>(1.2.2) Link microenterprise producers to markets and create a demand for products coming out of the CHT</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.2.3) Introduce Savings and Internal Lending Committees (SILC)</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1.2.4) Improve access to water for irrigation, livestock and aquaculture</td>
<td>Categorical Exclusion as per 22 CFR 216.3(a)(2)(iii)</td>
</tr>
<tr>
<td>Purpose 2</td>
<td>Sub-purposes</td>
<td>Activities</td>
<td>Threshold Determination</td>
</tr>
<tr>
<td>Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls</td>
<td>2.1: Adequate and equitable distribution and consumption of safe and diverse nutritious foods in households</td>
<td>(2.1.1) Training of government and non-government health service providers, including traditional birth attendants, traditional healthcare practitioners, and agriculture extension workers on Essential Nutrition Actions Plus (ENA+) framework</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.1.2) Introduce the Nurturing Connections© gender transformative/sensitive approach across program elements</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.1.3) Promote Essential Nutrition Actions (ENA), Essential Hygiene Actions (EHA) and Adolescent Nutrition at the community level</td>
<td>Categorical Exclusion as per 22 CFR 216.3(c)(2)(viii)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.1.4) Organize nutrition fairs and cooking demonstrations</td>
<td>Categorical Exclusion as per 22 CFR 216.3(c)(2)(viii)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.1.5) Provide Nutrition in Emergencies (NiE) training for Ministry of Health and Family Welfare (MOHFW) staff at supervisory positions and Disaster Management Committees (DMC)</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.2.1) Design and implement Behavior Change Communication (BCC) around Nutrition and Water, Sanitation and Hygiene (WASH)</td>
<td>Categorical Exclusion as per 22 CFR 216.3(c)(2)(viii)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.2.2) Promote the use of improved sanitation technologies and systems</td>
<td>Negative Determination with Conditions as per 22 CFR 216.3(a)(2)(iii)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.2.3) Increase access to safe water through appropriate water supply technologies and infrastructure</td>
<td>Negative Determination with Conditions as per 22 CFR 216.3(a)(2)(iii)</td>
</tr>
<tr>
<td>Purpose 3</td>
<td>Sub-purposes</td>
<td></td>
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<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: Gender equitable resilience strategies are increased for target people and households to protect their lives and livelihoods from man-made and natural shocks and stresses 3.2: Communities are strengthened to mitigate and recover from man-made and natural shocks and stresses 3.3: Local Government DRR and disaster recovery systems are strengthened</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activities</th>
<th>Threshold Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>(3.1.1) Assist vulnerable households in developing preparedness strategies and action plans for shocks</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.1.2) Assist households to develop a variety of strategies to protect productive assets</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.1.3) Assist vulnerable households to access social safety nets to recover from stresses</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.2.1) Form and support para (village) – level Disaster Management Committees (DMC) to lead Disaster Risk Reduction (DRR) activities</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.2.2) Assist Para Disaster Management Committees (PDMC) to develop community Risk Reduction Action Plans (RRAP)</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.2.3) Promote community strategies to address/mitigate the hazards of environmental degradation through geo-spatial mapping and awareness raising</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.2.4) Facilitate establishment of capable gender-equitable community task forces to prepare for and respond to disasters</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.2.5) Increase community knowledge on approaches to mitigate man-made stresses</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.2.6) Facilitate funding of government approved mitigation projects from community DRR plans, using project, community and government contribution</td>
<td>Negative Determination with Conditions as per 22 CFR 216.3(a)(2)(iii)</td>
</tr>
<tr>
<td>(3.3.1) Form and train Union DMCs (UDMC) to develop Disaster Management Plans (DMP), with support from Regional and Upazila DMCs (UzDMC)</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.3.2) Link communities to District, Upazila and Union DMC structures and to national Climate Early Warning Systems (EWS)</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
<tr>
<td>(3.3.3) Establish a community-based Conflict Early Warning System (EWS)</td>
<td>Categorical Exclusion as per 22 CFR 216.2(c)(2)(i)</td>
</tr>
</tbody>
</table>
4.2 MITIGATION, MONITORING, AND EVALUATION

Mitigation measures have been considered for all activities recommended for a Negative Determination with Conditions, pursuant to 22 CFR 216.3(a)(2)(iii). Mitigation measures will be identified and managed within the program period (September 2015 – September 2020) to avoid, minimize, and reduce adverse environmental impacts. A draft detailed EMMP is attached as Annex 1.

SAPLING will utilize experiences from other projects to incorporate best practices and lessons learned from a range of interventions, including agricultural production, market development, improving DRR mitigation measures (e.g., small scale guide wall repair) through CFW, introduction of new technologies in water and sanitation, and aquaculture. According to the plan, activities proposed under each purpose, potential impacts and mitigation measures as recommended in Annex 1 - EMMP will be monitored through pre-designed monitoring formats and checklists in keeping with the program M&E plan to assure recommended mitigation measures are being implemented and managed properly. Moreover, an evaluation of approximately 5% of selected interventions (6 out of 25 activities) will be assessed for environmental impact and to ensure mitigation measures have been properly followed. EMMP indicators will be used to measure environmental impacts and ensure compliance in the implementation of recommended mitigation measures. SAPLING allocated approximately 3% of its LOA budget to the management of environmental mitigation. SAPLING will also conduct awareness raising on appropriate environmental management, including providing training on Safe Use of Pesticides following the mission-wide PERSUAP, and adapt (for CHT) and utilize training materials on Integrated Pest/Weed Management, and Integrated Manure Management and GAP.

Purpose 1: Increased equitable access to income and nutritious foods for both males and females

Activity 1.1.1: Microenterprise development for poor and extreme poor households (HHs)

Sustainable agriculture practice promotion

Recommended Mitigation Measures:

Training and dissemination of information on pest management and safer use of pesticides by the SAPLING project, may include recommendations and demonstrations on proper use of specific pesticides. Since this activity falls under USAID’s definition of pesticide “use”, in accordance with 22 CFR 216.3(b), this training will apply the relevant recommendations contained within the 2015 USAID Bangladesh Mission-level PERSUAP, including the Safer Use Action Plan (SUAP) contained within. The project will prepare a “Pesticide Safer Use Action Plan and Compliance Tracker” per the format provided in the 2015 Mission-level PERSUAP and the SUAP will be incorporated by reference into the project’s EMMP.

Recommended Monitoring Plan

- Monitor use of PPE pesticides use by producers
- Monitor adoption of safe use and IPM practices by producers
- Monitor application of environmental checklists to ensure that FFs fill them out appropriately and completely for each high value crop field per producers
- Verify that agricultural plots meet checklist guidelines
**Recommended Evaluation Plan**

- Evaluate percentage of producers who applied improved and environmentally sustainable use of insecticides and pesticides out of total trained producers who received training on improved and environmentally sustainable use of pesticides—quarterly as per crop calendar
- Evaluate percentage of producers who applied IPM practices out of total producers who received training on IPM practices—quarterly as per crop calendar
- Evaluate number of FFs who fill out environmental checklist appropriately and completely for each proposed plot—quarterly as per crop calendar
- Evaluate percentage of plots that meets the site selection requirements—quarterly as per crop calendar

**Soil Fertility and Erosion Control**

**Recommended Mitigation Measures**

- Apply several simple technologies for SLM, including basket and trench composting, bio-fencing, contour trenching, mulching, and deep planting. A key recommendation to correct erosion and soil fertility problems was intercropping and the planting of hedgerows. Based on the assessment and experience from M2W2, depending on location, suitable nitrogen-fixing hedgerow species which are locally available will be planted, such as Bogamedula (Tephorosia candida) and a local variety of pigeon pea (Cajanus cajan).
- Promote two varieties of grass for soil erosion control: Vetiviera zizanoides and Thysanolaena maxima (broom grass). These will help to control soil erosion and be missed with nitrogen-fixing species to increase fertility. Promote intercropping—for example, pineapple and banana rows will be planted with annual cash root crops like turmeric, ginger, and taro, to help control erosion. Additionally, short term fruit trees, such as papaya, will also be used in between rows for some crops.
- Develop IPM based Pest Management Plans (PMPs) for each target crop to reduce pesticides hazards
- Promote the use of organic fertilizers/compost manure instead of chemical fertilizers
- Train in record keeping and monitoring
- Use checklists to examine the suitability of crop production plots with regard to physical, biological, and human health considerations

**Recommended Monitoring Plan**

- Monitor use of basket and trench composting, bio-fencing, contour trenching, mulching, and deep planting for HFP
- Monitor planting of suitable nitrogen-fixing hedgerow species such as Bogamedula (Tephorosia candida) and a local variety of pigeon pea (Cajanus cajan)
- Monitor soil erosion control through planting two types of grasses such as Vetiviera zizanoides and Thysanolaena maxima (broom grass)
- Monitor application of homestead environmental checklists to ensure that they are filled out appropriately and completely for each proposed homestead plot

**Recommended Evaluation Plan**

- Evaluate percentage of basket and trench composting and number of bio-fencing, contour trenching, mulching, and deep planting for HFP—quarterly as per crop calendar
- Evaluate percentage of suitable nitrogen-fixing hedgerow species such as Bogamedula (Tephorosia candida) and a local variety of pigeon pea (Cajanus cajan) within the HFP plots- quarterly as per crop calendar
- Evaluate total decimal of land attained soil erosion control through planting two types of grasses such as Vetiviera zizanoides and Thysanolaena maxima (broom grass) - annually
- Evaluate number of FFs in conjunction with the farmers who fill out environmental checklist appropriately and completely for each proposed HFP plot - annually as per crop calendar
- Evaluate data from the checklists to determine uptake of mitigation measures

**Pest and disease Management**

**Recommended Mitigation Measures**
- SAPLING will train all its producers on ‘Safe Use of Pesticides” following USAID/Bangladesh 2015 mission-wide PERSUAP. Key training topics must include the following:
  - Definition of pesticides
  - Pesticide risks and the understanding that pesticides are bio-poisons.
  - Concepts of Active Ingredients (AI) vs. formulated products.
  - Classes of pesticides and the concept that specific pesticides are effective only against a certain class of organism.
  - Concept of proper application rates and pesticide resistance and techniques for avoiding resistance.
  - IPM, Safer Purchase, Transport, Storage,
  - Mixing, Application, Reentry and pre-harvest Intervals, Clean-up and Disposal, including specific treatment of PPE.
  - Pesticide First Aid and Spill Response.
  - Reading and interpretation of pesticide labels --- particularly to understand PPE requirements and other precautions, dosage rates, and to identify AIs, and expiration dates.
  - Proper sprayer operation and maintenance.

**Recommended Monitoring Plan**
- Monitor use of PPE on HFP plots
- Monitor adoption of safe use and IPM practices by participating producers
- Monitor application of HFP environmental checklists to ensure that they are filled out appropriately and completely for each proposed HFP plot

**Recommended Evaluation Plan**
- Evaluate number of producers who use PPE during pesticides mixing and spraying - as per crop calendar
- Evaluate number of producers adopted safe use and IPM practices - quarterly as per crop calendar
- Evaluate number of FFs in conjunction with the farmers who fill out environmental checklist appropriately and completely for each proposed HFP plot - quarterly as per crop calendar
- Evaluate uptake from trainings conducted for participants on safe use and IPM approaches - quarterly as per crop calendar
Small Animal Husbandry

**Recommended Mitigation Measures:**
- Train producers on cleaning of poultry and goat/pig rearing hut and shed
- Train producers on disposal and dumping of poultry and goat/pig fecal matter to nearby safe dumping / collection corners
- Train producers to control odor, insects and mosquito breeding around the poultry and goat/pig rearing farm
- Train producers on composting manure
- Train producers on how to compost slurry

**Recommended Monitoring Plan**
- Monitor cleaning of poultry and goat/pig rearing hut and shed.
- Monitor disposal of poultry and pig/goat fecal
- Monitor the control of odors, insects and mosquito breeding grounds around the poultry and goat/pig rearing farm.
- Monitor composting methodology
- Monitor preparation of slurry

**Recommended Evaluation Plan**
- Evaluate percentage of producers who properly maintain a small-scale compost pit - quarterly
- Evaluate percentage of producers who prepare slurry properly - quarterly
- Evaluate percentage of producers who clean poultry and goat/pig rearing hut and shed regularly - quarterly
- Evaluate percentage of producers who maintain the poultry and goat/pig rearing farm free of odors, and insects - quarterly
- Evaluate percentage of producers who disposal of poultry and pig/goat fecal properly - quarterly

Aquaculture

**Recommended Mitigation Measures:**
- Develop and use Environmental Due Diligence Review (EDDR) checklist for potential aquaculture demonstration plots
- Promote fingerlings (puna) from hatcheries rather than from natural bodies of water to reduce the burden on the ecosystem
- Test water PH levels
- Train producers in the application of GAPs, including proper feed preparation and application method and disease management
- Encourage traditional practices, such as netting and drying of pond, for capturing predator fish
- Train producers in the use of PPE and appropriate disposal of dead fish
- Train participants to apply balanced doses of organic and chemical fertilizers to the cultured water body. Hormonal treatment will be discouraged.

**Recommended Monitoring Plan**
- Monitor aquaculture demo plots using EDDR checklist
- Monitor application of GAPs
- Monitor use of balanced doses of organic and chemical fertilizers
Monitor use of traditional practices such as netting and drying of pond for capturing predators

**Recommended Evaluation Plan**
- Evaluate percentage of aquaculture producers applying GAPs out of total trained quarterly
- Evaluate percentage of producers properly using organic and chemical fertilizers quarterly
- Evaluate percentage of producers applying traditional practices such as netting and drying of pond for capturing predators quarterly

**Expanded off-farm production – Hand weaving and Handicraft**

**Recommended Mitigation Measures:**
- Provide training for the participants to improve and/or adopt environmentally friendly production techniques for activities such as weaving, making silk string, dyeing, etc.
- Raise awareness of producers on environmental management practices and encourage their use in off-farm activities supported
- Foster value-addition and diversification of off-farm activities by linking them to other sectors, such as agriculture and tourism
- Reuse water from the various rinsing steps involved in dyeing and other activities in order to increase the efficiency of water (most common in the processing of handicrafts)

**Recommended Monitoring Plan:**
- Monitor use of training knowledge quarterly
- Monitor awareness sessions for environmental management practices like re-using wastewater, appropriate discharge, etc. quarterly
- Monitor efficiency of water use if applicable quarterly

**Recommend Evaluation Plan:**
- Evaluate percentage of participants who applied improved practices for off-farm production out of trained participants who received training on improved practices for off-farm production quarterly
- Evaluate percentage of participants who are reusing wastewater related to what they produced out of total trained participants who received training on environmental management practices like re-using wastewater quarterly
- Evaluate water reusing practices at HHs for off-farm production quarterly

**Activity 1.2.1: Promote Homestead Food Production (HFP)**

**Establishment of Demonstration Plots**

**Recommended Mitigation Measures**
In order to mitigate the risks and potential impacts associated with use of pesticides, SAPLING will apply the USAID/Bangladesh 2015 Mission-wide PERSUAP, including the SUAP contained within. The project will prepare a “Pesticide Safer Use Action Plan and Compliance Tracker” per the format provided in the 2015 Mission-wide PERSUAP and the SUAP will be incorporated by reference into the project’s EMMP. Mitigation measures include application of the training materials on safe use and handling of pesticides that have been reviewed and approved for use by the USAID/Bangladesh 2015 mission-wide PERSUAP. SAPLING will also develop and use a checklist to examine the suitability of...
proposed demonstration plots with regard to physical, biological, and human health considerations

**Recommended Monitoring Plan**
- Monitor use of PPE on demonstration plots
- Monitor adoption of safe use and IPM practices by participating producers
- Monitor demo plots using environmental checklists
- Verify final demo plot site selection meets checklist guidelines

**Recommended Evaluation Plan**
- Evaluate percentage of producers who applied improved and environmentally sustainable use of insecticides and pesticides out of total trained – quarterly as per crop calendar
- Evaluate percentage of producers who applied IPM practices out of total trained – quarterly as per crop calendar

**Activity 1.2.4: Improve access to water for irrigation, livestock and aquaculture:**

**Recommended Mitigation Measures**
- Conduct environmental screening prior to the construction of small-scale water retention structures as part of the site selection process
- Monitor harvested water to ensure it does not become a breeding ground for mosquitos
- Promote fish production such as Tilapia Nilotica to reduce mosquito population
- Educate communities not to bath or washing clothes in water reserves
- Ensure natural over-flow of water by only constructing very low barrier for retention
- Train communities to protect water sources to reduce likelihood of contamination
- Train members of the community to maintain and properly use constructed water reservoirs

**Recommended Monitoring Plan**
- Monitor use of Environmental Checklist for site selection
- Monitor for incidences of cholera, diarrhea and malaria infestation within near water retention areas
- Monitor protection of water sources/captured water
- Monitor application of training by the community
- Monitor water quality

**Recommended Evaluation Plan**
- Evaluate percentage of communities protecting water sources after receiving training - quarterly
- Evaluate incidences of cholera, diarrhea and malaria infestation within near water retention areas - quarterly
- Evaluate percentage of participants properly maintaining water retention areas after receiving training – quarterly
- Evaluate water quality – quarterly
Purpose 2: Improved nutritional status of children under five years of age, pregnant and lactating women and adolescent girls

Activity 2.2.2: Promote the use of improved sanitation technologies and systems

Recommended Mitigation Measures

- The project will encourage the use of lined pits to prevent contamination of water sources, as well as using lime or ash to kill fecal bacteria and raise awareness for fecal management and disposal of solids through posters, leaflet and flip chart, courtyard meeting, relevant video documentary as well as established outlet of the toilets into the safe distances.
- Frequent visits by FFs will reinforce the need to clean the toilets, water containers and tippy taps regularly and to ensure soap is available in multiple locations throughout the HH, along with reminders about critical times to wash hands.
- FFs will work closely with emergency task forces to confirm that safe hygiene practices are monitored and widely adopted in preparation for emergencies, when the potential for water-borne diseases rises.
- Work with private companies to source WASH materials, including replacement parts, and encourage development of rural sanitation marts. Marts have enjoyed great success in other parts of Bangladesh producing cost effective affordable sanitary materials at the local level and ensuring that trained personnel are locally available to assist families.
- SAPLING will support training for HHs on production of materials (e.g., sanitation slabs), and on installment and repair.

Recommended Monitoring Plan

- Monitor use of lined pits to prevent contamination of water sources
- Monitor use of lime or ash to kill fecal bacteria
- Monitor awareness session on fecal management and disposal of solids
- Monitor HHs’ practices including cleaning of toilets, water containers and tippy taps

Recommended Evaluation Plan

- Evaluate percentage of participants who use lined pits – quarterly
- Evaluate percentage of participants who use lime or ash for killing fecal bacteria – quarterly

Activity 2.2.3: Increase access to safe water through appropriate water supply technologies and infrastructure

Recommended Mitigation Measures

- Analyze possible environmental shocks and stressors of target locations like flooding, soil erosion, landslides, water level scarcity, arsenic contamination, etc. as part of the site selection process taking into consideration local geology and hydrological consequences on a case by case basis.
- Train communities to protect water sources from contamination through use of fencing and/or covering
- Test water for arsenic and other requirements before installation of water retention structures
- Explore rainwater harvesting possibilities and initiate rainwater harvesting where appropriate
o Train communities to reduce the risk of pesticide contamination of surface water following USAID/Bangladesh 2015 mission-wide PERSUAP allowed pesticides training

**Recommended Monitoring Plan**
- Monitor use of water protection mechanisms incorporated by stakeholders
- Monitor arsenic contamination and other heavy metals if/as appropriate
- Monitor training on safe use of water (both surface and ground) for participants
- Monitor rainwater harvesting initiation
- Monitor training on safe use of pesticides for participants

**Recommended Evaluation Plan**
- Evaluate percentage of communities that adopt water protection practices such as fencing, covering etc. – quarterly
- Evaluate percentage of producers who applied improved and environmentally sustainable use of insecticides and pesticides out of total trained producers trained – quarterly

**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**

**Activity 3.2.6: Facilitate funding of government approved mitigation projects from community DRR plans, using project, community and government contributions**

**Recommended Mitigation Measures**
- Develop and use a checklist to examine the suitability of proposed projects with regard to physical, biological, and socio-economic considerations
- Promote proper positioning of construction sites and adherence to best engineering practices
- Incorporate standard mitigation measures per type of rehabilitation/construction activity such as revegetation, planting trees or hedgerows, etc. into scheme designs

**Recommended Monitoring Plan**
- Monitor use of checklist to examine the suitability of construction sites
- Monitor the introduction of recommended mitigation measures per type of activity (to be detailed in EMMP)
-Monitor sites for required health and sanitation (designated breast feeding area, first aid kit, latrine, etc. on site to be detailed in EMMP)

**Recommended Evaluation Plan**
- Evaluate percentage of improvement/construction sites applying appropriate mitigation measures – weekly per CFW scheme or other funded by SAPLING
- Evaluate percentage of sites practicing required health and sanitation per type of site (to be detailed in EMMP) – weekly per CFW scheme or other funded by SAPLING
5. SUMMARY OF FINDINGS

5.1 ENVIRONMENTAL DETERMINATIONS

The IEE determines that possible environmental impacts may result from activities related to expanding off-farm production; improving access to water for irrigation, livestock and aquaculture; increasing production of nutritious foods; promoting the use of improved sanitation technologies and systems; increasing access to safe water through appropriate water supply technologies and infrastructure, improvement of roads or other infrastructure, water resource management, and water capturing projects. The possible negative impacts may include disposal of wastes to water sources and soil, inappropriate use of chemical fertilizers and pesticides, agricultural run-off to water sources, soil erosion, water quality deterioration, increase of vector and fecal-borne diseases, risks to workers health and safety, and diminishing of aquatic and terrestrial biodiversity. Health and nutritional activities are predicted to have no environmental impact. The adverse impacts from the mentioned activities will be minor as SAPLING activities are small-scale in nature and/or be mitigated by following the determined mitigation measures. SAPLING will not implement any activity which has a PD and requires an EIA.

5.2 CONDITIONS

SAPLING project activities will meet the environmental regulatory requirements of 22 CFR 216 and the GOB.

- SAPLING will prevent harm to the environment by observing best practice in environmental mitigation and monitoring
- Staff, partners and project participants will be trained to measure the environmental impacts and determine mitigation measures
- Technologies such as seed treatment, IPM weed/pest, contour farming, hedgerow etc. which are environmentally sustainable and affordable by the local communities will be promoted
- If SAPLING plans any new activities outside the scope of the approved Regulation 216 environmental documentation, it shall prepare an amendment to the documentation for USAID review and approval. No such new activities shall be undertaken prior to receiving written USAID approval of environmental documentation amendments.
- SAPLING will monitor the environmental factors to ensure compliance with the IEE and EMMP.
- For any activities involving pesticides, SAPLING will strictly follow the USAID/Bangladesh 2015 mission-wide PERSUAP
- SAPLING will not introduce any species that can be a threat for the native species and biodiversity of the project implementing areas. If SAPLING would like to introduce any species that are exotic to the local ecosystem, this will be discussed with the MEO and an assessment will be conducted and submitted to USAID for approval.
- SAPLING will follow best practices and national and international standards for disposing of used project materials. SAPLING will comply with environmental regulation in every aspect of the grant process.
- Any project interventions or activities added which could have a negative impact on the environment, will be discussed with the MEO immediately and the IEE and EMMP will be amended and submitted to USAID for review, feedback and approval. All the mitigation measures will be strictly ensured according to the approved amendment.
### ANNEX 1: ENVIRONMENTAL MITIGATION AND MONITORING PLAN (EMMP)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Potential Adverse Impacts and Risks</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Parties</th>
<th>Monitoring Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity 1.1.1: Microenterprise development for poor and extreme poor households</strong>&lt;br&gt;<strong>Sustainable agriculture practice promotion:</strong>&lt;br&gt;○ Surface water and soil contamination and risks to human health due to the use of chemicals (farmers may use pesticides and chemical fertilizers)&lt;br&gt;○ Training materials and pesticide-related information that is poorly communicated or is misused or misinterpreted by the trainee/recipient could have potential negative environmental impacts&lt;br&gt;○ Potential risk to biological environment (aquatic, terrestrial, wetland, endangered species, and beneficial plants and animals) and public health</td>
<td>○ Introduce the USAID/Bangladesh 2015 mission-wide PERSUAP and provide training and disseminate information about proper selection, application and how to safely use pesticides consistent with the “safer use Action Plan” or SUAP and how and when to use Personnel Protective Equipment (PPE)&lt;br&gt;○ Follow relevant recommendations and apply specific mitigation measures related to training described within the Safer Use Action Plan (SUAP) in the USAID Bangladesh 2015 Mission-wide PERSUAP&lt;br&gt;○ Prepare “Pesticide Safer Use Action Plan and Compliance Tracker”&lt;br&gt;○ Adapt training materials on safe use and handling of pesticides that have been reviewed and approved for use in the USAID/Bangladesh 2015 mission-wide PERSUAP</td>
<td>Environment specialist&lt;br&gt;Manager, Livelihoods &amp; Food Security&lt;br&gt;Technical Officer (Horticulture)</td>
<td># of participants trained on safe use&lt;br&gt;% of participants using chemicals&lt;br&gt;% of participants trained properly applying safe use&lt;br&gt;Tracker filled out and maintained</td>
<td>quarterly</td>
</tr>
<tr>
<td><strong>Soil Fertility and Erosion Control:</strong>&lt;br&gt;○ Injudicious application of chemical or organic fertilizers to improve soil nutrients can constitute an environmental threat&lt;br&gt;○ Fertilizers can cause pollution when they are applied more heavily than crops can absorb or when they are washed or blown off the soil surface before absorption by crops&lt;br&gt;○ Excess nitrogen and phosphates can pose potential risk to biological environment (aquatic, terrestrial,</td>
<td>○ Apply several simple technologies for sustainable land management (SLM), including basket and trench composting, bio-fencing, contour trenching, mulching, and deep planting&lt;br&gt;○ Promote the use of organic fertilizers/compost manure instead of chemical fertilizers&lt;br&gt;○ Prepare “Pesticide Safer Use Action Plan and Compliance Tracker”</td>
<td>Environment specialist&lt;br&gt;Manager, Livelihoods &amp; Food Security&lt;br&gt;Technical Officer (Horticulture)</td>
<td>% of farmers who use basket and trench composting&lt;br&gt;% of farmers who apply bio-fencing, contour trenching, mulching, and deep planting for HFP</td>
<td>Quarterly</td>
</tr>
<tr>
<td>Pest management:</td>
<td>SAPLING will promote the Integrated Pest Management (IPM) approach</td>
<td>Environment specialist, Manager, Livelihoods &amp; Food Security, Technical Officer (Horticulture)</td>
<td># of hectares under improved technologies or management practices as a result of USG assistance (Technology type: Soil-related fertility and conservation, Water management) (FFP 15)</td>
<td>Quarterly</td>
</tr>
<tr>
<td>-----------------</td>
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<td>-------------</td>
</tr>
<tr>
<td>○ Pesticides pose a risk to the environment and human health if improperly used</td>
<td>○ Adapt training materials on safe use and handling of pesticides that have been reviewed and approved for use in the USAID/Bangladesh 2015 mission-wide PERSUAP</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Small Animal Husbandry:</td>
<td>SAPLING will organize deworming &amp; vaccination campaigns for livestock and poultry. Focus will also be placed on training on proper shed management to reduce outbreaks of and contain diseases like viral, bacterial, ecto-parasites, endo-parasites etc.)</td>
<td>Environment Specialist, Technical Specialist (Animal Husbandry), Field Facilitators</td>
<td>% of farmers who use small scale compost pit</td>
<td>Quarterly</td>
</tr>
<tr>
<td>○ Livestock can be affected by different types of diseases like viral, bacterial, ecto-parasites and endo-parasites etc. If any poultry and livestock are affected by viral and bacterial diseases that might be transmitted to the other poultry &amp; livestock which are not affected, it can cause significant loss of life (to other animals). It may also cause air pollution and water pollution in the case that any livestock or poultry carcasses are not well managed (buried). Even zoonotic disease (e.g.,</td>
<td>○ SAPLING will train participants on selection and use of pesticides or formulations with lower biological persistence that can be useful for managing resistance for</td>
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</table>
anthrax, brocelosis etc.) can be transmitted to the human body
- Animal waste can be a health hazard and cause environmental problems, as farmyard manure is often allowed to deteriorate on the ground water systems and accumulating in inland water bodies, making the water unfit for human consumption
- Inappropriate use of veterinary drugs and improper disposal of related medical waste could have potential negative effects on the environment
- Livestock can be affected by ecto-parasites such as flies, gnats, fleas, midges, ticks and flies. Insecticides continue to be the primary means of control for ecto-parasites on livestock but there are concerns over resistance and residue problem.

<table>
<thead>
<tr>
<th>Aquaculture:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Loss of native species from the water bodies</td>
</tr>
<tr>
<td>- Pollution of water due to overuse of fertilizers</td>
</tr>
<tr>
<td>- Killing of predator fish by chemicals like rotenone</td>
</tr>
<tr>
<td>Promote fingerlings (puna) from hatcheries rather than from natural bodies of water to reduce the burden on the ecosystem</td>
</tr>
<tr>
<td>Train on Good Aquaculture Practices (GAP)</td>
</tr>
<tr>
<td>Encourage traditional practices, such as netting and drying of pond, for capturing predator fish</td>
</tr>
</tbody>
</table>

Livestock and poultry production.
Insecticides with short residual lives tend to slow the development of resistance due to reduced exposure. However, application of pesticides for the control of livestock pests is a minor use category and the side effects are not a major concern compared to uses in agronomic crop production.

- SAPLING will work closely with DLS for disease control, including incorporating key messages into training (e.g., bio-safety, mobile technology messages and linkage with agro-vets)
- Composting will be promoted
- Regular cleaning of poultry and goat/pig rearing hut and shed will be promoted
- Disposal and dumping of poultry and goat/pig fecal disposal to nearby safe dumping / collection corners will be promoted
- Controlling odor, insects and mosquito breeding around the poultry and goat/pig rearing farm will be promoted
- Composting slurry will be promoted

Training on disease control of livestock
- % of farmer who compost slurry
- % of farmers who clean poultry and goat/pig rearing hut and shed regularly
- % of farmers who dumping of disposal of poultry and pig/goat fecal properly

| Technical Officer (Fisheries) |
| Environment Specialist |
| Technical Officer (Horticulture) |
| # of producers trained in GAP |
| % of producers using hatcheries fingerlings |
| % of producers trained applying GAP |

Quarterly
<table>
<thead>
<tr>
<th>Activity 1.2.1: Promote Homestead Food Production (HFP)</th>
<th>Expanded off-farm production-handicraft and hand weaving:</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Contamination of nearby soil and ground and/or surface water from bleaching and/or dyeing silk and/or other fibers</td>
<td>o Train participants to improve environmental performance such as reusing wastewater, using natural dyes, and increasing the efficiency of water use in the processing of handicrafts</td>
</tr>
<tr>
<td></td>
<td>Environment specialist</td>
</tr>
<tr>
<td></td>
<td>Manager, Livelihoods &amp; Food Security</td>
</tr>
<tr>
<td></td>
<td>Technical Officer (Horticulture)</td>
</tr>
<tr>
<td></td>
<td>% of producers using traditional practices such as netting and drying of pond</td>
</tr>
<tr>
<td></td>
<td># of documented trainings and awareness sessions on environmental management</td>
</tr>
<tr>
<td></td>
<td>% of participants who are re-using wastewater, natural dye etc.</td>
</tr>
<tr>
<td></td>
<td>Quarterly</td>
</tr>
<tr>
<td>Establishment of Demonstration plots:</td>
<td>o 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</td>
</tr>
<tr>
<td>o Improper use of chemical pesticides threatening human health and the environment (aquatic, terrestrial, flora, fauna and human health).</td>
<td>o Follow the USAID Bangladesh 2015 Mission-wide PERSUAP that includes recommendations and specific mitigation measures related to safe use</td>
</tr>
<tr>
<td>o Inappropriate adaptation of agricultural practices by farmers and farmers’ groups; for example, continuing to grow crops in monoculture or applying chemicals injudiciously</td>
<td>o Use and follow Material Safety Data Sheets on safe chemical use and storage</td>
</tr>
<tr>
<td></td>
<td>o Adapt training materials on safe use and handling of pesticides that have been reviewed and approved for use in the USAID/Bangladesh 2015 mission-wide PERSUAP</td>
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<tr>
<td></td>
<td>o Develop and use a checklist to evaluate environmental suitability of potential demonstration plots</td>
</tr>
<tr>
<td></td>
<td>Environment specialist</td>
</tr>
<tr>
<td></td>
<td>Manager, Livelihoods &amp; Food Security</td>
</tr>
<tr>
<td></td>
<td>Technical Officer (Horticulture)</td>
</tr>
<tr>
<td></td>
<td># of documented trainings and learning sessions on safe use</td>
</tr>
<tr>
<td></td>
<td>Tracker filled out and maintained</td>
</tr>
<tr>
<td></td>
<td># of hectares under improved technologies or management practices as a result of USG assistance (Technology type: Soil-related fertility and conservation, Water management) (FFP 15)</td>
</tr>
<tr>
<td></td>
<td>Annually</td>
</tr>
</tbody>
</table>
| Activity 1.2.4: Improve access to water for irrigation, livestock and aquaculture (Capturing rainwater or diverting other surface water to create temporary water reservoirs or ponds) | o Loss to aquatic ecosystem by creating stagnant water in flowing channels, loss to biodiversity, or implementing interventions in ecologically protected areas  
   o Loss of top soil and water pollution due to sedimentation and run-off from irrigation schemes  
   o Risk of increased cases of malaria  
   o Risk of increased cases of cholera, dysentery and typhoid  
   o Impact on downstream users who may be deprived of water or subject to pollution | o Develop and use environmental screening checklist before commencing construction  
   o Confirm natural over-flow of channel water  
   o Protect reservoir from contamination  
   o Train communities on safe use of water reservoir  
   o Promote fish production such as Tilapia Nilotica to reduce mosquito population  
   o Ensure low height (not more than 1m) of barriers to allow natural over-flow of water for continued access by downstream users | Food security and livelihood Manager Environment specialist  
   % of farmers who applied improved technologies or management practices as a result of USG assistance (Technology type: Soil-related fertility and conservation, Water management) (FFP 15) | # of checklists filled  
   # of structures built  
   % of reservoirs protected | Quarterly |

| Activity 2.2.2: Promote the use of improved sanitation technologies and systems | o Poor sanitation can pollute surface water, as rain washes refuse into rivers and streams  
   o There may also be a significant risk of groundwater contamination which can be transported to shallow Wells or nearby surface water sources. A poorly designed latrine may also serve as a breeding ground for disease-carrying vectors | o Encourage the use of lined pits to prevent contamination of water sources.  
   o Ensure construction or promotion of construction designs are area appropriate, taking into consideration the high water table, and dense population. Recommendations published by the GOB Department of Public Health and Environment Specialist  
   % of participants who use lined pit toilets | DRR Manager; Environment Specialist  
   % of participants who use lime or ash for killing fecal bacteria | Quarterly |
| Activity 2.2.3: Increase access to safe water through appropriate water supply technologies and infrastructure | Potential negative impacts include the contamination of ground water, soil erosion, and consumption of unsafe water if standards and design are not maintained properly  
- Adverse impacts on the environment and people’s health may be elevated if the water points are not maintained and operated well.  
- Using pesticides may cause surface water pollution due to farming activities  
- Contamination of water due to poor construction practices | Train communities to protect water sources from contamination through use of fencing and/or covering  
- Test water for arsenic and other requirements before installation of water retention structures  
- Explore rainwater harvesting possibilities and initiate rainwater harvesting where appropriate  
- Train communities to reduce the risk of pesticide contamination of surface water following USAID/Bangladesh 2015 mission-wide PERSUAP allowed pesticides training | DRR manager Environment Specialist  
- % of participants who applied improved and environmentally sustainable use of insecticides and pesticides out of total trained  
- % of communities that adopt water protection |
| Activity 3.2.6: Facilitate funding of government approved mitigation projects from community DRR plans, using project, community and government contributions | ○ Land use changes, effects on water quality, changes in farming practices and socio-cultural changes | ○ Develop and use a checklist to examine the suitability of proposed constructions with regard to physical, biological, and socio-economic considerations |
| ○ Increases in erosion and sedimentation, changes in vegetation cover, water pollution and water logging | ○ Proper positioning of construction sites and adherence to best engineering practices | ○ Worker health and safety concerns can be addressed through proper training, adhering to safety procedures and ensuring the use of protective clothing and equipment |
| ○ Deforestation and loss of biodiversity | DRR manager Environment Specialist | % of improvement/construction sites applying appropriate mitigation measures |
| | | % of sites practicing required health and safety per type of site |
| | | Quarterly (with weekly monitoring per CFW or other scheme funded by SAPLING) |

practices such as fencing, covering etc.
## ANNEX 2: ENVIRONMENTAL MONITORING AND EVALUATION REPORT

<table>
<thead>
<tr>
<th>Description of Mitigation Measure</th>
<th>Responsible Party for Mitigation Measure Implementation</th>
<th>Monitoring Methods</th>
<th>Estimate of Cost</th>
<th>Results</th>
<th>Mitigation Effectiveness</th>
<th>Recommended Adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sustainable agriculture practice promotion (Activity 1.1.1):</strong></td>
<td>Environment specialist Manager, Livelihoods &amp; Food Security Technical Officer (Horticulture)</td>
<td># of documented trainings and learning sessions on safe use Tracker filled out and maintained Field visits</td>
<td>As per training calendar</td>
<td>-</td>
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</tr>
<tr>
<td>o Follow relevant recommendations and apply specific mitigation measures related to training described within the Safer Use Action Plan (SUAP) in the USAID Bangladesh 2015 Mission-wide PERSUAP</td>
<td></td>
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<tr>
<td>o Prepare “Pesticide Safer Use Action Plan and Compliance Tracker”</td>
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<tr>
<td>o Adapt training materials on safe use and handling of pesticides that have been approved in the USAID Bangladesh 2015 Mission-wide PERSUAP</td>
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</tr>
<tr>
<td><strong>Soil Fertility and Erosion Control (Activity 1.1.1):</strong></td>
<td>Environment specialist Technical Officer (Horticulture)</td>
<td>% of producers using basket and trench composting % of producers applying</td>
<td>Field visits Quarterly</td>
<td>Will be estimated while developin g detail EMMP and incorporated into</td>
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<tr>
<td>o Apply several simple technologies for SLM, including basket and trench composting, bio-fencing, contour</td>
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trenching, mulching, and deep planting.

- Promote the use of organic fertilizers/compost manure instead of chemical fertilizers
- Follow relevant recommendations and apply specific mitigation measures related to training described within the Safer Use Action Plan (SUAP) in the USAID Bangladesh 2015 Mission-wide PERSUAP
- Prepare “Pesticide Safer Use Action Plan and Compliance Tracker”
- Adapt training materials on safe use and handling of pesticides that have been reviewed and approved for use in the USAID/Bangladesh 2015 mission-wide PERSUAP
- Develop and use a checklist to evaluate environmental suitability of potential demo plots

<table>
<thead>
<tr>
<th><strong>Pest Management</strong> (Activity 1.1.1):</th>
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</thead>
<tbody>
<tr>
<td><strong>Training and dissemination of information on proper selection,</strong></td>
</tr>
<tr>
<td>Environment Specialist</td>
</tr>
<tr>
<td>Manager, Livelihoods &amp; Food Security</td>
</tr>
<tr>
<td>Environment Specialist</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bio-fencing, contour trenching, mulching, and deep planting for HFP</strong></th>
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</thead>
<tbody>
<tr>
<td>% of producers using organic fertilizers/compost</td>
</tr>
<tr>
<td># of documented trainings and learning sessions on safe use</td>
</tr>
<tr>
<td>Tracker filled out and maintained</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Field visits</strong></th>
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<tbody>
<tr>
<td>As per crop calendar/ As per training</td>
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<tr>
<th><strong>Implementation Year budget</strong></th>
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<tr>
<td>Small animal husbandry (Activity 1.1.1):</td>
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<tr>
<td>----------------------------------------</td>
</tr>
<tr>
<td>o Soil erosion by overgrazing, destroys vegetation, and damages the forest by stripping tree bark and destroying tree seedlings.</td>
</tr>
<tr>
<td>o Crops can be destroyed and drinking water sources contaminated by stray livestock</td>
</tr>
<tr>
<td>o Animal waste can be a health hazard and cause environmental problems, as farmyard manure is often allowed to deteriorate on the ground</td>
</tr>
<tr>
<td>o Manure releases methane and nitrous oxides in the atmosphere as greenhouse gases, as well as releases free nitrates and</td>
</tr>
</tbody>
</table>
phosphorus into the deeper layers of soil, entering underground water systems and accumulating in inland water bodies, making the water unfit for human consumption

<table>
<thead>
<tr>
<th><strong>Aquaculture (Activity 1.1.1):</strong></th>
<th>Technical Officer (Fisheries)</th>
<th>Field visits</th>
<th>Quaterly</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Promote fingerlings (puna) from hatcheries rather than from natural bodies of water to reduce the burden on the ecosystem</td>
<td>Environment Specialist</td>
<td>% of producers uses hatcheries fingerlings</td>
<td>% of producers applying GAP</td>
</tr>
<tr>
<td>o Train producers in GAP</td>
<td>% of producers applying traditional practices such as netting and drying of pond</td>
<td>% of producers applying GAP</td>
<td></td>
</tr>
<tr>
<td>o Encourage traditional practices, such as netting and drying of pond, for capturing predator fish</td>
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</table>

<table>
<thead>
<tr>
<th><strong>Expanded off-farm production- handcraft and hand weaving (Activity 1.1.1):</strong></th>
<th>Environment specialist</th>
<th>Field visits</th>
<th>Quaterly</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Train participants to improve environmental performance such as reusing wastewater</td>
<td>Manager, Livelihoods &amp; Food Security</td>
<td>% documented trainings and awareness sessions on environmental management</td>
<td>% of participants who are re-using</td>
</tr>
<tr>
<td>o Raise awareness of using natural dye, waste-water reusing etc. and encourage their use</td>
<td></td>
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</tr>
<tr>
<td>Demonstration plots (Activity 1.2.1):</td>
<td>Environment specialist</td>
<td># of documented trainings and learning sessions on safe use; Tracker filled out and maintained</td>
<td>Field visits</td>
</tr>
<tr>
<td>- Follow relevant recommendations and apply specific mitigation measures related to training described within the Safer Use Action Plan (SUAP) in the USAID Bangladesh 2015 Mission-wide PERSUAP</td>
<td>- Prepare “Pesticide Safer Use Action Plan and Compliance Tracker”</td>
<td>- Adapt training materials on safe use and handling of pesticides that have been reviewed and approved for use in the USAID/Bangladesh 2015 mission-wide PERSUAP</td>
<td>- Develop and use a checklist to evaluate environmental suitability of potential demo plots</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Access to water for irrigation, livestock and</th>
<th>Environment specialist</th>
<th># of checklist filled</th>
<th>Field visits</th>
<th>Quarterly</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>aquaculture (Activity 1.2.4):</strong></td>
<td><strong>Sanitation technologies (Activity 2.2.2):</strong></td>
<td></td>
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</tr>
<tr>
<td>Develop and use environmental screening checklist before commencing construction</td>
<td>Encourage the use of lined pits to prevent contamination of water sources</td>
<td></td>
<td></td>
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<tr>
<td>Confirm natural over-flow of channel water</td>
<td>Promote lime or ash to kill fecal bacteria</td>
<td></td>
<td></td>
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<tr>
<td>Promote protection of reservoir from contamination</td>
<td>Raise awareness on fecal management and disposal of solids through posters, leaflet and flip chart, courtyard meeting, relevant video documentary as well as established</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trained communities on safe use of water reservoir</td>
<td>DRR Manager</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Promote fish production such as Tilapia Nilotica) to reduce mosquitos</td>
<td>Environment Specialist</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Build retention structures with low height (not more than 1m) to ensure natural over-flow of water</td>
<td>% of participants who use lined pits</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Food security and livelihood Manager</strong></th>
<th><strong># of structures built</strong></th>
<th><strong>% of risk reduction of cholera, diarrhea and malaria infestation within the small scale reservoirs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>% of participants who protecting water reservoirs after receiving training</td>
<td>Field visits</td>
<td></td>
</tr>
</tbody>
</table>

| Quarterly | - | - | - | - |

82
<table>
<thead>
<tr>
<th>Safe water infrastructure (Activity 2.2.3):</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>o Train communities to protect water sources from contamination through use of fencing and/or covering;</td>
<td>DRR manager Environment Specialist</td>
</tr>
<tr>
<td>o Test water for arsenic and other requirements before installation of water retention structures</td>
<td>% of communities that adopt water protection practices such as fencing, covering etc.</td>
</tr>
<tr>
<td>o Explore rainwater harvesting possibilities and initiate rainwater harvesting where appropriate</td>
<td>Field visits Quaterly - - - - -</td>
</tr>
<tr>
<td>o Train communities to reduce the risk of</td>
<td>- - - - - - -</td>
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<tr>
<td>outlet of the toilets into the safe distances</td>
<td>- - - - - - -</td>
</tr>
<tr>
<td>o Reinforce the need to clean the toilets, water containers and tippy taps regularly</td>
<td>- - - - - - -</td>
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<tr>
<td>o Work with private companies to source WASH materials, including replacement parts, and encourage development of rural sanitation marts.</td>
<td>- - - - - - -</td>
</tr>
<tr>
<td>o Support training for HHs on production of materials (e.g., sanitation slabs), and on installment and repair</td>
<td>- - - - - - -</td>
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</tbody>
</table>
pesticide contamination of surface water following USAID/Bangladesh 2015 mission-wide PERSUAP allowed pesticides training

<table>
<thead>
<tr>
<th>DRR Mitigation Projects (Activity 3.2.6):</th>
<th>DRR manager Environment Specialist</th>
<th>% of improvement/construction sites applying appropriate mitigation measures</th>
<th>% of sites practicing required health and safety per type of site</th>
<th>Field visits</th>
<th>Quaterly</th>
<th>-</th>
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<tbody>
<tr>
<td>o Develop and use a checklist to examine the suitability of proposed constructions with regard to physical, biological, and socio-economic considerations</td>
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<tr>
<td>o Proper positioning of construction sites and adherence to best engineering practices</td>
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<tr>
<td>o Worker health and safety concerns can be addressed through proper training, adhering to safety procedures and ensuring the use of protective clothing and equipment</td>
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</table>
Title II Environmental Status Report Facesheet

**Title of Program:** Sustainable Agriculture and Production Linked to Improved Nutrition Status, Resilience and Gender Equity (SAPLING)

**Awardee:** Helen Keller International (HKI)

**Host Country or Region:** Bangladesh

**Award Number:** AID-FFP-A-15-00010

**Life of Activity:** FY2015 - FY2020

**Fiscal Year of Submission:** FY 2016

<table>
<thead>
<tr>
<th>Funding Begin: 01/10/2015</th>
<th>LOA Amount: $28,777,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding End: 30/09/2016</td>
<td>Sub-Activity Amount</td>
</tr>
</tbody>
</table>

**ESR prepared by:** Md. Kamrul Hasan Bhuiyan; Environment Specialist

<table>
<thead>
<tr>
<th>Date: 12/04/2016</th>
</tr>
</thead>
</table>

**Date of Previous ESR:** N/A

**Date of most recent IEE:** N/A Revised draft submitted April 7, 2016

**Contact:** Chief of Party

**Name:** Treena Bishop

**Phone Number:** 9886958

**Email:** TBishop@hki.org

A. **Status of the Initial Environmental Estimate**

[ ] No revisions or modifications of the Initial Environmental Examination (IEE) are needed.

[X] An IEE (SAPLING project) is submitted to USAID for approval

The SAMPLING IEE (second draft) was submitted and reviewed back on May 2, 2016. The process is still ongoing and pending approval. No conditions have been stipulated as yet.

B. **Status of Fulfilling Conditions in the Initial Environmental Estimate, including Mitigation and Monitoring**
An Environmental Status Report (ESR) describing compliance measures taken is attached.

Improved mitigation measures were adopted to better reduce environmental impacts. An ESR describing these improved compliance measures taken is attached.

C. Food for Peace Approval of the Environmental Status Report

Food for Peace Mission or Regional Office, as appropriate*:

Food for Peace Officer

[Signature]
Date: 5/4/2016

Environmental Officer

[Signature]
Date: 5/4/2016

Food for Peace, Washington:

Erika J. Clesceri
Date: 9/20/2016
A. Status of the Initial Environmental Assessment

A1. Modified or New Activities

SAPLING’s Initial Environmental Examination (IEE) has not yet been approved. It was originally submitted to USAID on January 17, 2016, and then based on feedback the draft was revised and submitted 07 April 2016. Feedback on that again received at 02 May 2016 and based on that feedback the revision is ongoing. The SAPLING IEE was prepared based on the activities described in the program proposal. After the approval of IEE, SAPLING will follow the IEE, including the recommended mitigation measures. If any new activities are contemplated for inclusion into SAPLING that are not included in the IEE, the IEE will be amended as per USAID regulations.

Resolution of Deferrals

SAPLING’s draft IEE does not contain deferrals.

A2. Updates to the Initial Environmental Examination

Based on the above, is an updated IEE needed?

☐ Yes (If yes, attach here.) ☒ No

If the previous documentation was a categorical exclusion submission, is an updated categorical exclusion needed to deal with new categorical exclusions for new activities?

☐ Yes (If yes, attach here.) ☒ No ☐ Not Applicable
B. Status of Filling Initial Environmental Examination Conditions

At submission time of this ES the Environmental Mitigation and Monitoring Plan (EMMP) included in the program IEE is yet to be approved. However the program includes below the monitoring and mitigation measures that are part of the proposed EMMP to ensure effective management and program implementation.

B1. Recommended IEE Determinations, Mitigation, Monitoring and Evaluation from IEE

Activities under negative determination with conditions with probable environmental impacts and possible mitigation measures of FY 2016 given in below Table – 1 (Subject to revision and update following the review and approval of the IEE Recommendations). Please note that this only covers FY16 activities

<table>
<thead>
<tr>
<th>Program Activities</th>
<th>22CFR Citation</th>
<th>Potential Impact Issues</th>
<th>Mitigation</th>
<th>Monitoring and Evaluation</th>
</tr>
</thead>
</table>
| Microenterprise development for poor and extreme poor households | 216.3(a)(2)(iii) | • Surface water and soil contamination and risks to human health due to the use of chemical (farmers may use pesticides and chemical fertilizers)  
• Training materials and pesticide-related information that is poorly communicated or is misused or misinterpreted by the trainee/recipient could have potential negative environmental impacts. | • Introduce the USAID/Bangladesh 2015 mission-wide PERSUAP and provide training and disseminate information on proper selection, application and how to safely use pesticides consistent with the “safer use Action Plan” or SUAP and how and when to use Personnel Protective Equipment (PPE) | Monitoring and Evaluation will be done by the Environmental Specialist, Manager (Livelihoods & Food Security) and Technical Officer (Horticulture) through documented semi-annual and spot-check site visits.  
Project performance monitoring will track # of documented trainings and learning sessions on safe use.  
The tracker will be filled out and maintained. |
<table>
<thead>
<tr>
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</thead>
</table>
| Training of households on commercial crop production and post-harvest management | 216.3(a)(2)(iii) | • Training materials and pesticide-related information that is poorly communicated or is misused or misinterpreted by the trainee/recipient could have potential negative environmental impacts.  
• Potential risks are posed to biological environment (aquatic, terrestrial, wetland, endangered species, and beneficial plants and animals) and public health. | • Follow relevant recommendations and apply specific mitigation measures related to training described within the Safer Use Action Plan (SUAP) in the USAID Bangladesh 2015 Mission-wide PERSUAP.  
• Prepare “Pesticide Safer Use Action Plan and Compliance Tracker”.  
• Adapt training materials on safe use and handling of pesticides that have been reviewed and approved for use in the USAID/Bangladesh 2015 mission-wide PERSUAP. | Monitoring and Evaluation will be done by the Environmental Specialist, Manager (Livelihoods & Food Security) and Technical Officer (Horticulture) through documented semi-annual and spot-check site visits.  
Project performance monitoring will track # of documented trainings and learning sessions on safe use.  
The tracker will be filled out and maintained. |
| Traditional Handicrafts and Hand weaving | 216.3(a)(2)(iii) | • Contamination of nearby soil and ground and or surface water (may require to use chemicals in addition to the use of natural dyes for bleaching certain colors of silk).  
• Use of surface water in the process of bleaching and dyeing creates wastewater. | • Train participants to improve environmental performance such as reuse of wastewater and techniques for handicraft quality control.  
• Raise awareness regarding using natural dye, reuse of waste-water, etc., and encourage their use.  
• Reuse of water from the various rinsing steps in order to increase the efficiency of water use in the processing of handicrafts. | Monitoring and Evaluation will be done by the Environmental Specialist, Manager (Livelihoods & Food Security) through quarterly and spot check site visits.  
Project performance monitoring will track:  
• # of documented trainings and awareness sessions on environmental |
<table>
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<tr>
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</thead>
</table>
| Promote Homestead Food Production (HFP)  | 216.3(a)(2)(iii)| • Pesticides used can potentially lead to acute human poisoning, chronic human poisoning, toxic effects on plants and animals in aquatic, wetland, terrestrial ecosystems, contamination of surface and groundwater, and affect air quality. | • Apply several simple technologies for sustainable land management (SLM), including basket and trench composting, bio-fencing, contour trenching, mulching, and deep planting.  
• Promote the use of organic fertilizers/compost manure instead of chemical fertilizers.  
• Follow relevant recommendations and apply specific mitigation measures related to training described within the Safer Use Action Plan (SUAP) in the USAID Bangladesh 2015 Mission-wide PERSUAP.  
• Prepare a “Pesticide Safer Use Action Plan and Compliance | management  
• % of participants who are re-using wastewater, natural dye etc.  
The tracker will be filled out and maintained.  
Monitoring and Evaluation will be done by the Environmental Specialist, Manager (Livelihoods & Food Security) and Technical Officer (Horticulture) through documented quarterly and spot-check site visits.  
Project performance monitoring will track:  
• % of farmers who uses basket and trench composting  
• % of farmers who apply bio-fencing, contour trenching, mulching, and deep planting to the homestead food production  
• % of farmers who uses organic fertilizers/compost |
<table>
<thead>
<tr>
<th>Program Activities</th>
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<tbody>
<tr>
<td>Poultry and Livestock Production</td>
<td>216.3(a)(2)(iii)</td>
<td>• Livestock can be affected by different types of diseases like viral, bacterial, ecto-parasites and endo-parasites etc. If any poultry and livestock are affected by viral and bacterial diseases that might be transmitted to the other poultry &amp; livestock which are not affected, it can cause air pollution and water pollution in the case that any livestock or poultry die after diseases and dead body will not be well managed (buried). Even zoonotic disease (e.g, anthrax, brocelosis etc) can be transmitted to the human body.</td>
<td>• SAPLING will organize Deworming &amp; Vaccination campaigns for livestock and poultry. Focus will also be placed on training on proper shed management to reduce outbreaks of and contain diseases like viral, bacterial, ecto-parasites, endo-parasites etc.)&lt;br&gt;• SAPLING will train participants on selection and use of pesticides or formulations with lower biological persistence that can be useful for managing resistance for livestock and poultry production. Insecticides with short residual lives tend to slow the development of resistance due to reduced</td>
<td>• # of training conducted on disease control of livestock&lt;br&gt;• % of farmers who applied training knowledge after received training on disease control of livestock&lt;br&gt;• Integrated Nutrient (Manure) Management (IMM) plan prepared.&lt;br&gt;• Environmental compliance monitoring and reporting done by the Environmental Specialist/Technical specialist (Animal Husbandry).&lt;br&gt;• Conduct and document quarterly, monthly and/or spot-check site visits.</td>
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<tr>
<td>Program Activities</td>
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<td>Mitigation</td>
<td>Monitoring and Evaluation</td>
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<td></td>
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<td>causing risks to public health.</td>
<td>exposure. However, application of pesticides for the control of livestock pests is a minor use category and the side effects, are not therefore a major concern compared to uses in agronomic crop production. SAPLING will work closely with the Department of Livestock Services for disease control, including incorporating key messages into training (e.g., bio-safety, mobile technology messages and linkage with agro-vets).</td>
<td>• An environmental compliance monitoring tracker will be completed that includes:</td>
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<td>Livestock can be affected by ectoparasites such as flies, gnats, fleas, midges, ticks and flies. Insecticides continue to be the primary means of controls for ectoparasites on livestock but there are concerns over resistance and residue problem.</td>
<td></td>
<td>- % of farmer practicing Integrated Nutrient (Manure) Management (IMM)</td>
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<td>Soil erosion due to overgrazing, destruction of vegetation, and damage to the forest by stripping tree bark and destroying tree seedlings.</td>
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<td>Crops can be destroyed and drinking water sources contaminated by stray livestock.</td>
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<td>Animal waste can be a health hazard and cause environmental problems, as farmyard manure is often allowed to deteriorate on the ground.</td>
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<td></td>
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<td>Manure releases methane and</td>
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<td></td>
<td></td>
<td>Prevention of Water Contamination</td>
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<td>• Water contamination will be</td>
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<td></td>
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<td>Manure Management</td>
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**SAPLING Project**

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<table>
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<tr>
<th>Program Activities</th>
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<th>Mitigation</th>
<th>Monitoring and Evaluation</th>
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</thead>
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<td>nitrous oxides in the atmosphere as greenhouse gases, as well as releases free nitrates and phosphorus into the deeper layers of soil, entering underground water systems and accumulating in inland water bodies, making the water unfit for human consumption.</td>
<td>prevented by using safe manure handling and storage procedures as recommended by the US Department of Agriculture or similar agencies.</td>
<td>Performance monitoring will be done by the Environmental Specialist and Technical Officer (Fisheries) and documented in quarterly, monthly and/or by spot-check site visits reports. Environmental monitoring will track:</td>
</tr>
</tbody>
</table>
| Aquaculture        | 216.3(a)(2)(iii) | • Conversion of natural water bodies to aquaculture.  
• Loss of native species from the water bodies.  
• Pollution of water due to over use of fertilizers.  
• Killing of predator fish by chemicals like rotenone. | • Promote fingerlings (puna) from hatcheries rather than from natural bodies of water to reduce the burden on the ecosystem.  
• Develop Good Aquaculture Practice (GAP) guidance that addresses proper feed preparation and application method and disease management.  
• Encourage traditional practices, such as netting and drying of ponds, for capturing predator fish. | • # of training and technical support in management skills  
• % of farmers use good aquaculture practice  
• % of farmers use traditional practices such as netting and drying of ponds |
<table>
<thead>
<tr>
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<th>Potential Impact Issues</th>
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</tr>
</thead>
</table>
| Creation of demonstration plots for high value nutritious crops and aquaculture plots | 216.3(a)(2)(iii) | • Improper use of chemical pesticides threatening human health and the environment (aquatic, terrestrial, flora, fauna and human health). | • 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.  
• Follow the USAID Bangladesh 2015 Mission-wide PERSUAP that includes recommendations and specific mitigation measures related to safe use.  
• Use and follow Material Safety Data Sheets on safe chemical use and storage.  
• Adapt training materials on safe use and handling of pesticides that have been reviewed and approved for use in the USAID/Bangladesh 2015 mission-wide PERSUAP.  
• Develop and use a checklist to evaluate environmental suitability of potential demonstration plots. | The tracker will be filled out and maintained.  
Performance monitoring will be done by the Environmental Specialist, Activity Manager (Livelihoods & Food Security) and Technical Officer (Horticulture).  
Site visits will be reported on a quarterly/monthly and/or spot-check basis.  
Project performance monitoring will track:  
• # of documented trainings and learning sessions on safe use.  
The environmental compliance tracker will be filled out and maintained. |
| Identification and training of Village Model Farmers on sustainable HFP | 216.3(a)(2)(iii) | • Negative impacts may result from inappropriate adaptation of agricultural practices by farmers and farmers’ groups; for example, continuing to grow crops in monoculture or applying chemicals injudiciously  
• A major problem associated with monoculture is the potential for greatly diminished soil fertility  
• Injudicious application of chemicals can constitute an environmental threat, as fertilizers can cause pollution when they are applied more heavily than crops can absorb or when they are washed or blown off the soil surface before absorption by crops  
• Excess nitrogen and phosphates can leach into groundwater or run off into waterways, negatively affecting lakes, streams, | • Apply several simple technologies for sustainable land management, including basket and trench composting, bio-fencing, contour trenching, mulching, and deep planting.  
• Promote the use of organic fertilizers/compost manure instead of chemical fertilizers.  
• Stress and apply specific mitigation measures related to training described within the Safer Use Action Plan (SUAP) in the USAID Bangladesh 2015 Mission-wide PERSUAP.  
• Prepare “Pesticide Safer Use Action Plan and Compliance Tracker”.  
• Adapt training materials on safe use and handling of pesticides that have been reviewed and approved for use in the USAID/Bangladesh 2015 mission-wide PERSUAP.  
Monitoring and Evaluation will be done by the Environmental Specialist, Manager, (Livelihoods & Food Security) and Technical Officer (Horticulture) through documented quarterly/annually and spot-check site visits.  
Project performance monitoring will track:  
• # of documented trainings and learning sessions on safe use  
• % of farmers who uses basket and trench composting  
• % of farmers who apply bio-fencing, contour trenching, mulching, and deep planting to the Village Model Farms  
• % of farmers who uses organic fertilizers/compost  
The tracker will be filled out and maintained. |
reservoirs and ponds, and lead to an explosion of algae which suppresses other aquatic plants and animals.

- The project will provide training and disseminate information around proper selection, application and safe use of pesticides in various applications. The intended result of the trainings and provision of information is to increase the technical capacity and working knowledge of project participants to safely select and use pesticides as part of an IPM approach. The environmental consequence of increased effective and judicious of pesticides – including the application of IPM approaches such as biological and mechanical controls – will be beneficial.
- Potential contamination to human health and the environment (aquatic, terrestrial, flora and fauna)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Code</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capturing rainwater or diverting other surface</td>
<td>216.3(a)(2)(iii)</td>
<td>Loss to the aquatic ecosystem by creating stagnant water in</td>
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<td>• Develop and use environmental screening checklist before</td>
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<td>Monitoring and Evaluation will be done by the</td>
</tr>
<tr>
<td>Improve access to safe Water (drinking and irrigation), Sanitation and Hand washing facilities (increased availability of water sources)</td>
<td>Potential negative impacts include the contamination of ground water, soil erosion, and consumption of unsafe water if standards and design are not maintained properly.</td>
<td>Train communities to protect water sources from contamination through use of fencing and/or covering.</td>
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</tbody>
</table>
| Water to create temporary water reservoirs or ponds | flowing channels, loss of biodiversity, or implementing interventions in ecologically protected areas.  
  - Loss of top soil and water pollution due to sedimentation and run-off may have negative impacts to small scale irrigation.  
  - Risk of increased cases of malaria and other infectious diseases such as cholera, dysentery and typhoid.  
  - Impact on downstream users who may be deprived of water or subject to pollution | commencing construction.  
  - Confirm natural over-flow of channel water.  
  - Reservoir will have fencing to protect water from contamination.  
  - Trained communities on safe use of water reservoir.  
  - Malaria risk can be reduced by fish such as Tilapia Nilotica.  
  - Cholera, dysentery and typhoid risk can be reduced if the reservoir is fenced, if drinking water is boiled, and if people do not bathe in or wash clothes in the reservoirs.  
  - Impact on downstream users can be reduced if the structures have a low height (not more than 1m) to ensure natural over-flow of water. |

**Environmental Specialist and Manager (Livelihoods & Food Security) through documented quarterly and spot-check site visits.**

Project performance monitoring will track:  
- # of checklists filled;  
- # of structures in-built;  
- % of risk reduction of cholera, diarrhea and malaria infestation within the small scale reservoirs;  
- % of participants who use protection in the water reservoirs after received training

The tracker will be filled out and maintained.
<table>
<thead>
<tr>
<th><strong>Promote the use of improved sanitation materials and systems at HHs level</strong></th>
<th>216.3(a)(2)(iii)</th>
<th><strong>Project performance monitoring will track:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Poor sanitation can pollute surface water, as rain washes refuse into rivers and streams.</strong></td>
<td><strong>% of participants who use lined pits;</strong></td>
</tr>
<tr>
<td></td>
<td><strong>There may also be a significant risk of groundwater contamination, which can be transported to shallow Wells or nearby surface water sources. A poorly designed latrine may also serve as a breeding ground for disease:</strong></td>
<td><strong>% of participants who use lined pits;</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Encourage the use of lined pits to prevent contamination of water sources. Any construction or promotion of construction designs would be area appropriate, taking into consideration the high water table, and dense population. Recommendations published by the GOB Department of Public Health Engineering, on pit latrine installation or ring slab latrines will be followed, including</strong></td>
<td>Monitoring and Evaluation will be done by the DRR manager and Environment Specialist through documented monthly and spot-check site visits.</td>
</tr>
</tbody>
</table>

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<table>
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<tr>
<th>Facilitate funding of</th>
<th>216.3(a)(2)(iii)</th>
<th>• Land use changes, effects on</th>
<th>• Develop and use a checklist to</th>
<th>Monitoring and Evaluation</th>
</tr>
</thead>
</table>

- Refuse disposed of in storm drains may cause blockages and encourage fly and mosquito breeding.
- Ensuring that they are at least 30 feet from shallow hand tube Wells (depth 240 fee).
- Promote lime or ash to kill fecal bacteria.
- Raise awareness on fecal management and disposal of solids through posters, leaflets and flip charts, courtyard meetings, and relevant video documentaries, as well as establish an outlet of the toilets at safe distances.
- Reinforce the need to clean the toilets, water containers and tippy taps regularly.
- Work with local households or private companies to source WASH materials, including replacement parts, and encourage development of rural sanitation marts.
- Support training for households on smart production of materials (e.g., sanitation slabs), and on installment and repair.
- Lime or ash for killing fecal bacteria;
- % of beneficiaries who applied training knowledge on marts production of materials (e.g., sanitation slabs) out of total trained beneficiaries

The tracker will be filled out and maintained.
| government approved mitigation projects from community DRR plans, using project, community and government contributions as per RRAP | water quality, changes in farming practices and socio-cultural changes.  
- Increases in erosion and sedimentation, changes in vegetation cover, and changes in water pollution and drainage systems can cause water logging.  
- Deforestation and loss of biodiversity. | examine the suitability of proposed constructions with regard to physical, biological, and socio-economic considerations.  
- Proper positioning of construction sites and adherence to best engineering practices.  
- Worker health and safety concerns can be addressed through proper training, adhering to safety procedures and ensuring the use of protective clothing and equipment. | will be done by the DRR manager and Environment Specialist through documented monthly/quarterly and spot-check site visits.  
Project performance monitoring will track:  
- % of improvement/construction sites applying appropriate mitigation measures  
- % of sites practicing required health and safety per type of site  
The tracker will be filled out and maintained. |
B2. Status of Activities (Mitigation and Monitoring)
SAPLING has not yet started field activities. In order to do so, two requirements must first be fulfilled: approval of the IEE by USAID and receipt of that approval in writing, and completion of the host country agreement (HCA) negotiation process with the Government of Bangladesh.

Environmental Monitoring and Evaluation
In ensuring the maintenance of the Environmental Mitigation and Monitoring tracking table/checklist, the SAPLING Environmental Specialist will play a pivotal role in developing staff capacity and the documentation of environmental monitoring outcomes. The Environmental Specialist will also conduct spot checks and record environmental compliance issues using the monitoring tools. Immediately after a spot check, the Environmental Specialist will share his findings with USAID and the SAPLING team, and will prepare and distribute field trip reports to inform management decisions in the case observations require corrective action.

As part of staff capacity building on general and USAID environmental compliance procedures, as well as the USAID/Bangladesh 2015 mission-wide PERSUAP, the Environmental Specialist will facilitate a two-day training for all upazila and union level field staff, including implementing partners (IP), beginning in quarter three of fiscal year (FY) 2016, as well as a one-day refresher training at the beginning of the FY17.

C. SAPLING Recommendations for Beyond Compliance and Institutionalization of Environmentally Sounding Practices

For SAPLING, environmental compliance is a cross-cutting issue within each activity described in the program description. The project will adopt practices that are environmentally sound, locally acceptable and affordable. The proposed environmental practices will be employed by project participants and compared with existing (common) practices.

SAPLING Environmental Mitigation and Monitoring Plan (EMMP)
SAPLING submitted a revised version of its draft IEE to USAID for approval on April 7, 2016. Feedback on that again received at 02 May 2016 and based on that feedback the revision is ongoing. SAPLING will also develop a detailed EMMP in the current FY 2016 that will address all potential adverse impacts (physical, biological and socio-economic) identified and submit to USAID for approval. Following approval of the EMMP, SAPLING will update the EMMP as per requirements.