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KNOWLEDGE-BASED INTEGRATED SUSTAINABLE AND NUTRITION (KISAN) PROJECT - KISAN QUARTERLY REPORT Environmental Mitigation and Monitoring Plan (EMMP)

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KNOWLEDGE-BASED INTEGRATED SUSTAINABLE AGRICULTURE AND NUTRITION (KISAN) PROJECT ENVIRONMENTAL MITIGATION AND MONITORING PLAN (EMMP)

DISCLAIMER

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

I. INTRODUCTION AND PROJECT DESCRIPTION

Winrock International received a contract from the United States Agency for International Development in Nepal (USAID/Nepal) for the Knowledge-Based Integrated Sustainable Agriculture and Nutrition (KISAN) Project. This project is part of the Feed the Future Initiative and is the flagship food security project of USAID/Nepal. The Project's overall goal is to sustainably reduce poverty and hunger in Nepal by achieving inclusive growth in the agriculture sector, increasing the incomes of farm families and improving nutritional status, especially of women and children. The project is implemented in collaboration with Nepali organizations as subcontractors.

During the first year, the project will work in ten districts in the Bheri and Rapti Zones of the Mid-Western Development Region. This multifaceted project will integrate agriculture and nutrition in order to increase agricultural production and improve the nutritional status of women, and children under the age of five.

USAID's Feed the Future Initiative has three primary and integrated components which focus on:

Component 1: Agricultural productivity

Component 2: Improved Nutrition

Component 3: Skills development (literacy, numeracy, and business/ entrepreneurial skills)

KISAN focuses on Components 1 and 2, and will achieve 7 major outputs:

Outcome 1: Farmers receive improved and increased agricultural inputs: (a) improved seed production, (b) improved system distribution of agricultural inputs; (c) improved access to credit and other financial services

Outcome 2: Improved capacity of agriculture extension workers, service providers and farmers

Outcome 3: Improved and sustainable agriculture production and post-harvest technologies and practices adopted at the farm level

Outcome 4: Improved market efficiency

Outcome 5: Increased capacity of GON and Nepali organizations for agriculture-related technology identification and dissemination

Outcome 6: Improved knowledge and behavior on agricultural, nutrition, hygiene, and sanitation practices

Outcome 7: Improved access to water and sanitation facilities

As per the contract (Section HI 9), Winrock is required to submit an Environmental Mitigation and Monitoring Plan (EMMP) with the first work plan and update it in subsequent work plans. The KISAN EMMP describes how the contractor will, in specific terms, implement all IEE and/or EA conditions that

apply to proposed project activities within the scope of the award. The EMMP includes monitoring the implementation of the conditions and their effectiveness.

2. ENVIRONMENTAL IMPACT POTENTIAL

The April 2012 Initial Environmental Examination (IEE) for the USAID/Feed the Future program, under which KISAN falls, identified aspects of the program that have the potential for adverse impacts on the environment. These anticipated impacts primarily relate to the following areas:

Anticipated Impact Areas

Outcome	Activities
Outcome 1. Farmers receive improved and increased agricultural inputs: (a) improved seed production, (b) improved system distribution of agricultural inputs, (c) improved access to credit and other financial services	Community-based seed production, marketing of quality hybrids, regional commercialization of high-quality seed and use of well-adapted seed varieties Promote small-scale irrigation technologies and multi-use water systems which may require small-scale irrigation Activities that may include use of improved pest management (including pesticides) and improved fertilizers
Outcome 2. Improved capacity of agriculture extension workers, service providers, farmers	Enhancing farmer knowledge on various topics like high-yielding and high-nutrient crops, optimal fertilizer use, IPM, organic cultivation, composting, livestock production practices, conservation agriculture, nutrient management, etc.
Outcome 3. Improved and sustainable agriculture production and post-harvest technologies and practices adopted at the farm level	Promote small-scale irrigation technologies Improved soil management techniques such as conservation tillage, composting Promote small-scale post-harvest storage facilities Promote small-scale infrastructure for fish farming or other animal husbandry activities
Outcome 4. Improved market efficiency	Facilitate and strengthen market collection centers
Outcome 7. Improved access to water and sanitation facilities	Facilitate the construction of MUS and irrigation facilities Promote the construction of latrines

Activities focused on these areas require special considerations and actions to identify and mitigate potential adverse environmental impacts. These impacts are outlined in Table I below, and include habitat conversion, threats to critical habitats for endangered species, threats to human health, fertilizer use, potential pesticide use, soil erosion, and water pollution. This Environmental Mitigation and Monitoring Plan (EMMP) provides guidance on these potential impacts, appropriate mitigation measures, monitoring measures, and a reporting schedule for the responsible parties.

The activities under Outputs 5 and 6 are expected to be primarily education, training, technical assistance, and analyses related to agricultural policy and institutional strengthening. As such, the activities under these Components would qualify for a Categorical Exclusion per 22 CFR 216.2(c)(2)(i) and (iii).

3. ENVIRONMENTAL IMPACT MITIGATION AND MONITORING

Due to their potential for adverse environmental impacts, activities outlined in the table above require special considerations and actions to identify and mitigate these potential impacts. Necessary steps are outlined in Table I below.

In order to incorporate these considerations throughout KISAN implementation, program partners, staff, and technical specialists will be oriented to the program's commitment to environmental impact mitigation and environmentally sustainable practices. Whenever possible, specialists will be encouraged to incorporate awareness-raising activities focused on environmental management and sustainable practices into assistance provided to beneficiaries.

The KISAN team will include EMMP compliance and reporting language into each sub-implementation instrument, and ensure that appropriate resources, staff, equipment, and reporting procedures are dedicated to this portion of the project. The team will ensure that sub-implementing partners have sufficient capacity to complete any environmental screening process and to implement mitigation and monitoring measures.

The following recommendations will be implemented to avoid, minimize, eliminate or compensate for environmental impacts. The grants program will support the outputs and will not fund any construction. These actions may be supplemented with guidance from the following resources:

- Environmental Guidelines for Small-Scale Activities in Africa (www.encapafrica.org/egssaa.htm)
- IFC Environmental, Health and Safety Guidelines (http://www1.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/IFC+Sustainability/Sustainability+Framework/Environmental,+Health,+and+Safety+Guidelines/)
- World Bank 1999 Pollution Prevention and Abatement Handbook (http://www1.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_handbook_ppah_wci_1319577543003)

TABLE 1: ENVIRONMENTAL MITIGATION AND MONITORING PROCEDURES

Activities	Potential Environmental Impact(s)	Mitigation Measure(s)	Monitoring Indicator(s)
<p>Output 1. Farmers receive training on improved practices leading to increased agriculture production; Output 2. Improved capacity of agriculture extension workers, service providers, farmers, health workers, caregivers, and health volunteers; Output 3. Improved and sustainable agriculture production and post-harvest technologies and practices adopted at the farm level</p> <p><i>The activities under Outputs 1, 2, and 3 will focus primarily on technical capacity building and providing information on the latest best practices and methods for increased agricultural productivity. While sustainable agricultural methods strive for environmental protection and minimal environmental impact, some special considerations may be required to minimize the potential for adverse environmental impacts.</i></p> <p><i>Note that no training on use or procurement of pesticides is approved under this EMMP. A Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) is required to be completed and approved by the USAID/Asia Bureau Environmental Officer prior to any activities related to the use or procurement of pesticides.</i></p>			
<p>Field preparation</p>	<p>Wildlife habitat destruction Risks of reducing soil fertility Increased run-off due to soil erosion, leading to increased turbidity and nutrient loading in waterway</p>	<p>Sites should be selected with as little existing vegetation and as little overlap with local wildlife habitat as possible If the area is habitat for any rare or endangered species, a trained expert in local flora/fauna should be consulted. Protect stream and river buffer areas that mitigate run-off Introduction of and training on leguminous cover plants (LCPs) and other cover crops</p>	<p>Site selection process completed properly Visual site inspection to confirm run-off controls are in place; examine for signs of excessive run-off, particularly into waterways</p>

TABLE I: ENVIRONMENTAL MITIGATION AND MONITORING PROCEDURES

Activities	Potential Environmental Impact(s)	Mitigation Measure(s)	Monitoring Indicator(s)
		Training and encouragement of organic fertilizer and soil fertility practices Promote conservation agriculture	
Planting	Potential adverse impact of introduction of non-native (orange sweet potatoes) and/or invasive species	Consult with biological and agriculture experts for guidance in selecting species adaptable to local conditions Select appropriate species, based on intended use and location Include training of nursery operators on environmental concerns and sustainable management practices	Proof/documentation of appropriate species selection
Irrigation/water resource extraction	Irrigation depletes local water supply	Water sources selected based on capacity, and sustainably utilized Water engineer consulted, if necessary Promote MIT-like drip irrigation for off-season vegetables Provided training in conservation agriculture Encourage communities to manager their watershed	Visual inspection of water supply to ensure continued water availability Community reporting of continued availability of water
Livelihood activities related to livestock raising (1)	Increased nutrient loads in waterways from manure Damaged/degraded vegetation from increased grazing; possible subsequent soil erosion/increased run-off Social impacts of land disputes from grazing, fencing, etc. Increased deforestation from harvesting fodder leaves or open-grazing	Develop and implement manure management plans Utilize sustainable grazing strategies; protect vulnerable vegetation from livestock Protect streams and riverbanks from trampling by livestock Ensure customary and/or legal rights and responsibilities of all parties are harmonized and accepted Promote stall feeding practices	Due diligence and training complete Livestock management plan that addresses potential impacts complete

TABLE I: ENVIRONMENTAL MITIGATION AND MONITORING PROCEDURES

Activities	Potential Environmental Impact(s)	Mitigation Measure(s)	Monitoring Indicator(s)
		<p>Promote sustainable rotations grazing practices</p> <p>Coordinate with Hariyo Ban and other NRM projects to ensure livestock farmers to plant trees in their communities</p>	
<p>Livelihood activities related to increased agricultural production</p>	<p>Increased nutrient loads in waterways from fertilizers, increased run-off due to cleared land</p> <p>Damaged/degraded vegetation from land clearing</p> <p>Use of heavy machinery can lead to acceleration of fertile top soil erosion and loss of residual moisture, etc.</p>	<p>Follow proper application guidelines for fertilizer</p> <p>Protect stream and river buffer areas that mitigate run-off</p> <p>Practice sustainable land clearing and crop rotation</p> <p>Encourage legume crops to enhance soil fertility</p> <p>Promote conservation agriculture practices</p> <p>Discourage traditional crop residue burning practices</p> <p>Promote mulching to preserve soil moisture, insect control, etc.</p>	<p>Due diligence and training complete</p> <p>Management plan that addresses potential impacts complete</p>
<p>Training of extension agents, service providers, etc.</p>	<p>Fertilizer and pesticide use results in harm to human health, safety, and the environment</p>	<p>Awareness raising activities includes guidelines for proper application of fertilizer including adverse effects caused by chemical pesticides, improper use of chemical fertilizer, etc.</p> <p>Encourage Integrated Pest Management (IMP) and bio-pesticides as an alternative to pesticide use.</p> <p>Other measures as defined by PERSUAP</p> <p>Improve supply and availability of organic pesticides/IPM materials through Agro vets and input dealers</p>	<p>Field visit reports</p> <p>For pesticides, other monitoring as required by PERSUAP (should one be completed)</p>

TABLE I: ENVIRONMENTAL MITIGATION AND MONITORING PROCEDURES

Activities	Potential Environmental Impact(s)	Mitigation Measure(s)	Monitoring Indicator(s)
Construction/renovation of physical facilities			
<p>Facilitating construction activities (that KISAN will not build) include, but are not limited to:</p> <ul style="list-style-type: none"> • Structures related to fish farming and/or other animal husbandry activities • Small-scale irrigation schemes, MUS, drip irrigation, plastic ponds, water storage tanks, etc. • Latrines • Collection centers <p>The guiding principles for minimizing and mitigating potential environmental impacts can be applied across each of these small-scale sub-activities. More significant construction activities will require additional detailed analysis prior to initiation of work.</p>	<p>Siting of new physical facilities/structures disruptive of communities needs/activities</p> <p>Destruction of vegetation and wildlife habitat on and around construction site</p> <p>Soil erosion may be possible as the soil excavation may be removed/run-off during monsoon rain and strong wind</p> <p>Sanitation risk from construction/demolition could include dust and debris, demolition waste, such as lead paint and other toxic materials can contaminate soil, groundwater, waterways</p> <p>Increased turbidity of run-off water due to soil erosion</p>	<p>Encourage joint participate of experts and community members in selecting sites for action</p> <p>Train communities and those engaged in construction EMMP and EIP practices such as:</p> <p>Sites should be selected with as little existing vegetation and as little overlap with local wildlife habitat as possible</p> <p>Any trees that are damaged or destroyed inadvertently during construction in and around the project site should be replaced using native species</p> <p>If the area is habitat for any rare or endangered species, a trained expert in local flora/fauna should be consulted</p> <p>Selection of site at proper places minimizing the chances of landslide and soil erosion</p> <p>Prior to demolition, determine whether toxins are present</p> <p>Maintain safeguards to contain toxins and dispose of properly</p> <p>Ensure construction crews wear protective gear</p> <p>Construction site will be graded as necessary such that water is not allowed to run off into adjacent drainages</p> <p>Where excavated soils are stored onsite, adequate measures will be implemented to</p>	<p>Community following EIA, EMMP best practices.</p> <p>Periodic community consultation</p> <p>Communities trained in:</p> <p>Site selection process completed properly</p> <p>Visual inspection of vegetation and site surroundings to ensure damage is negligible</p> <p>Technical approval (if necessary) by local flora/fauna expert</p> <p>Site analysis complete to determine presence of toxins</p> <p>Periodic site visits to ensure workers are properly protected and materials contained</p> <p>Water quality tests for contamination (if necessary)</p>

TABLE I: ENVIRONMENTAL MITIGATION AND MONITORING PROCEDURES

Activities	Potential Environmental Impact(s)	Mitigation Measure(s)	Monitoring Indicator(s)
	Construction waste and rubble create safety hazard and/or damage aesthetics	control run-off, including covering exposed soils or erection of physical barriers Remove all solid waste and rubble; dispose of in proper location	Visual site inspection to confirm run-off controls are in place; examine for signs of excessive run-off particularly into waterways/storm drains Visual site inspection to ensure site is clear
<p>Output 4. Improved Market Efficiency</p> <p><i>The activities under Output 4 are focused on creating value chain and market linkages. Most of the activities under this Output are focused on relationship building and networking between producers, marketing groups, collection centers, wholesalers, and other levels of a given value chain. These activities themselves have no inherent risk of environmental impact. However, training related to product processing to create value-added materials and any small-scale construction work of collection centers, etc would need special considerations to minimize the potential for adverse environmental impacts.</i></p>			
<p>Improper disposal of any by-products of commodity processing/value added (such as effluent from oil processing, other by-products)</p> <p>Facilitate the MPCs to establish collection centers</p>	<p>Effluent can contaminate soil and waterways due to high nutrient concentrations and biological oxygen demand</p> <p>Greater traffic, aggregation of people</p> <p>Waste disposal problems from left over or spoiled vegetables</p> <p>Increased mold, insects with greater aggregation of vegetables</p>	<p>Train MPCs in EMMP and EIA best practices such as:</p> <p>Provide guidelines for proper disposal of by-products, and include guidelines in processing training</p> <p>Training on site selection for mills, distillation units, other processing facilities, including impact of by-product disposal on water and soils</p> <p>Mandate collection centers to establish toilets</p> <p>Promote youth to establish compost business or feed business near the collection center to dispose of water</p> <p>Train Marketing Planning Committees (MPCs) on proper cleaning of collection centers</p>	<p>Technical monitoring site visits</p> <p>Training reports</p>
<p>Small scale construction (none expected)</p>	<p>Any small scale construction activities will follow the mitigation and monitoring guidelines listed in the section above</p>		

Output 5. Increased capacity of GON and Nepali organizations for agriculture-related technology identification and dissemination

TABLE I: ENVIRONMENTAL MITIGATION AND MONITORING PROCEDURES

Activities	Potential Environmental Impact(s)	Mitigation Measure(s)	Monitoring Indicator(s)
<p><i>The activities under Output 5 will focus primarily on, organizational development and strengthening. The activities in this component are not expected to have potential for adverse environmental impacts.</i></p>			
<p>Output 6. Improved knowledge and behavior on agricultural, nutrition, hygiene and sanitation practices <i>The activities under Output 6 will focus primarily on awareness raising and capacity building. The activities in this component are not expected to have potential for adverse environmental impacts.</i></p>			
<p>Output 7. Improved access to water and sanitation facilities <i>Output 7 focuses on improving access to funding, partnerships and training required to install and maintain new water systems. Key considerations include both impacts from small-scale construction and also sustainable management and use of water resources.</i> <i>KISAN will follow the WHO's guidelines for environmental sanitation and safe water found at www.who.int/water_sanitation_health.</i></p>			
Irrigation/water resource extraction	Irrigation depletes local water supply	Water sources selected based on capacity, and sustainably utilized Water engineer consulted, if necessary	Visual inspection of water supply to ensure continued water availability Community reporting of continued availability of water
Facilitate communities to engage in small scale construction	Any small scale construction will follow the mitigation and monitoring guidelines listed in the section above		

¹ USAID will not fund any construction under this project. We will facilitate local communities to establish water systems, collection centers etc., and will impart sound environmental practices to them through trainings.

5. MONITORING AND REPORT TO USAID:

Roles and Responsibilities. The KISAN team proposes an Agricultural Expert, Dr. Purushottam P. Mainali to be responsible for ensuring USAID environmental compliance requirements are met. He will also work closely with project staff, partners, and grantees to ensure that these environmental compliance considerations are incorporated into their project activities, and to provide training when necessary on environmental impact awareness and planning. He will be assisted by the Capacity Building and Training Manager, Mr. Uttam Dhakal in implementing activities related to *EMMP*.

Roles and responsibilities of the key project personnel for the environmental management and compliance of the project are summarized in Table 2 below.

TABLE 2: ROLES AND RESPONSIBILITIES

Person(s) responsible	Schedule	Tasks
KISAN Agricultural Expert,	Periodic site visits; include compliance summary in quarterly reports	Implement the mitigation actions as described in the EMMP
M&E Coordinator, District Coordinators	Ongoing oversight in the districts	Ensure staff follow and report on the EMMP
USAID COR	Periodic site visits	Oversee project activities and monitor IEE and EMMP compliance

Reporting. The approved EMMP shall be integrated into KISAN annual work plans, allowing for any necessary adjustments to activity implementation in order to minimize or avoid adverse impacts to the environment.

The KISAN team shall report the status of environmental compliance issues and the implementation of required mitigation and monitoring measures, including a review of progress, regularly during construction and as part of quarterly and annual reports to help determine if environmental mitigation and monitoring procedures are fully in place.

The USAID/Nepal Mission Environmental Officer (MEO) and the KISAN COR shall make regular spot-check site visits to consult with program implementers; determine if associated mitigation and monitoring measures are being implemented; identify unforeseen impacts; and recommend adjustments in environmental mitigation and monitoring, as needed.

6. LIMITATIONS OF THIS EMMP:

This EMMP does not provide conditions to allow for:

- The procurement or use (including training in the use) of pesticides. If pesticides will be ordered or used, a Pesticide Evaluation Report and Safe Use Action Plan (PERSUAP) shall be required.
- Assistance, procurement, or use of genetically modified organisms (GMOs). Such activities would require preparation of a biosafety assessment in accordance with ADS 201.2.12.2(b) in an amendment to the IEE approved by Asia BEO.
- GDA programs.
- Procurement or use of Asbestos Containing Materials (ACM) (i.e. piping, roofing, etc), Polychlorinated Biphenyls (PCB) or other toxic/hazardous materials prohibited by US EPA and/or other international environmental agreements and conventions, e.g. Stockholm Convention on Persistent Organic Pollutants.