



Bureau for Resilience and Food Security

INITIAL ENVIRONMENTAL EXAMINATION AMENDMENT

PROJECT/ACTIVITY DATA

Project/Activity Name:	Feed the Future Innovation Lab for Horticulture
Geographic Location:	South Asia - Nepal, Bangladesh
Amendment (Yes/No), if Yes indicate # (1, 2...):	Yes - Amendment 2
Implementation Start/End Dates (FY or M/D/Y):	10/1/2021 – 09/30/2026
Specify Amended End Date:	September 30th, 2026
Solicitation/Contract/Award Number:	7200AA21LE00003
Implementing Partner(s):	University of California, Davis
REFS Tracking ID:	RFS-23-09-005
Tracking ID of related IEEs:	BFS-20-03-002
Tracking ID of Other, Related Analyses:	none

ORGANIZATIONAL/ADMINISTRATIVE DATA

REFS Implementing Office:	REFS Center for Agriculture-Led Growth (CA)
Other Involved Operating Units:	USAID/Nepal, USAID/Bangladesh
Prepared by:	Daniel Bailey, Archie Jarman
Date Prepared:	9/15/2023

ENVIRONMENTAL COMPLIANCE REVIEW DATA

Analysis Type:	Initial Environmental Examination (IEE) Amendment
Environmental Determination:	Categorical Exclusion; Negative Determination with Conditions
IEE Expiration Date:	September 30th, 2026
Climate Risk Management Analysis:	2 low / 2 medium risks identified and addressed

PROJECT/ACTIVITY SUMMARY

The Feed the Future Innovation Lab for Horticulture is implementing three separate research projects in the South Asia Sub-Region. The specific countries where activities will occur are Nepal and Bangladesh.

Activities under this IEE amendment will end prior to the end date of the Prime Award - September 30th, 2026

Activities include a combination of small-scale research trials, both confined and in the field. Field trials that are at field sites will be closely monitored by project teams. In addition to these agronomic trials, projects will implement a combination lab analysis, market analysis, capacity strengthening, establishment of small-scale training centers, and social analyses. A summary of project activities follows:

Nepal: Conduct on-farm trials with native biocontrol isolates to test their capacity to suppress soilborne pathogens and weeds in tomato and pepper production system using a gender-balanced participatory action research (PAR) approach. Assess disease and weed suppression, yield, quality and soil health improvement, economic feasibility, and farmers’ perceptions of and willingness to adopt the new technologies. Develop and verify production schemes and postharvest technologies to demonstrate the potential of horticulture technologies for sufficient family income and to formulate policies and guidelines which contribute to easy access to resources and funds to the youth.

Nepal and Bangladesh: Identify high yielding varieties of fruit and vegetables using field trials and develop strategies to increase access to and adoption of quality planting materials. Identify the barriers to participation in urban horticulture by women and youth. Develop a GIS-based spatial multi-criteria decision technique to assess urban horticulture potential.

ENVIRONMENTAL DETERMINATIONS

Upon approval of this document, the determinations become affirmed, per Agency regulations (22CFR216).

Table 1: Environmental Determinations

Projects/Activities	Categorical Exclusion Citation	Negative Determination
Project/Activity 1: Confined trials or monitored field trials	Applied research and capacity building that does NOT exceed 4 ha in a single location and DOES involve support or procurement of chemical pesticide, insecticide, or fertilizer input	Negative Determination, subject to the following conditions: · Appropriate pesticide and/or fertilizer use protocols to safeguard the health of research personnel and to protect local ecosystems are developed and implemented, based on toxicological and environmental data for the proposed pesticides or fertilizers. Such safeguards will address pesticide storage, handling and application, including the use of Personal Protective Equipment (PPE), cleanup and disposal.

		<ul style="list-style-type: none"> Follow recommendations of PERSUAPS referenced in this IEE amendment.
Project/Activity 2: Confined trials or monitored field trials without pesticides	Conducting applied research not exceeding 4 ha in a single location and NOT involving support for procurement or use of chemical pesticides or fertilizers.	Categorical Exclusion, per 22 CFR 216.2(c)(2)(ii) Controlled experimentation exclusively for the purpose of research and field evaluation which are confined to small areas and carefully monitored.
Project/Activity 3: Desktop studies, data analysis, program administration, workshops and meetings.	Desktop studies, data analysis, program administration, workshops and meetings.	Categorical Exclusion, per 22 CFR 216.2 (c)(2)(iii) Analyses, studies, academic or research workshops and meetings
Project/Activity 4: Capacity strengthening centers	Establishment of training centers that include the demonstration of production practices and postharvest practices	<p>Categorical Exclusion, per 22CFR 216.2(c)(i) Education, technical assistance, or training programs</p> <p>Note: no technologies established will be considered permanent structures and are capable of removal.</p>

CLIMATE RISK MANAGEMENT

The proposed activities listed above may be impacted by the effects of climate change in South Asia. Potential climate change stressors for the region include increased temperatures, drought, and flooding due to shifting rainfall patterns. Rainfall events are expected to increase in frequency and intensity. These stressors pose a potential risk to agricultural activities as weather events may impact crop timing, yield, and water availability. Extreme weather also poses the threat of damage to experimental plots and infrastructure, increases soil erosion as well as increased incidence of pests and disease, all of which could disrupt field trials.

Pursuant to the ADS 201mal, USAID must factor climate resilience into international development programs to the extent allowable by law, assessing and addressing climate risk, as appropriate.

Consistent with ADS 201.3.4.5, if climate risk has not been adequately assessed at the strategy or project level, or if the risk rating was not exclusively determined to be “Low”, climate risk must be assessed, with plans specifying mitigation actions at the activity level.

The Climate Risk Screening below summarizes activity-level climate risk management, including programmatic components, identified risk and associated mitigation measures. The IP will implement identified actions during the life-of-project and report back regularly to the activity manager on the status of their implementation, to enable smooth oversight and ensure sustainability of developmental objective.

Although the agronomic trials are all small research plots, climate risk management will be considered throughout their implementation. As part of these trials, good agricultural practices will be followed to limit any input that may generate greenhouse gas emissions to only the essential application rate. Furthermore, research into improving soil health and the production of crops that are climate tolerant will inform other growers on how they can alter practices to reduce irrigation needs and other inputs while still achieving effective yields. Where possible, if plastic is utilized in the agronomic trials in any capacity, efforts will be made to preserve and upcycle the plastic or determine the alternatives to the use of plastic.

Trainings will typically be held locally in order to not only minimize travel (and emissions) but to meet the convenience of intended recipients of the trainings. Centers established for training or research will not require construction - these are sites that will display low-cost technologies that can help farmers improve production and also postharvest outcomes. The reduction in postharvest losses will also decrease the level of methane emissions from perished horticulture crops.

According to Climate Risk Management for USAID Project and Activities ADS 201 “The goal of CRM is to both render USAID’s work more climate resilient (i.e., better able to anticipate, prepare for and adapt to changing climate conditions and withstand, respond to and recover rapidly from disruptions) and to avoid maladaptation (i.e., development efforts that inadvertently increase climate risks).” Agronomic research trials and postharvest management interventions will be aligned to help smallholder producers become more climate resilient through the use of better suited varieties, climate smart agriculture approaches, and the better preservation of commodities for home consumption or sale.

Activity	Risks	Risk Rating	How Risks are Addressed	Opportunities to Strengthen Climate Resilience
Project/Activity 1: Confined trials or monitored field trials	Changing weather patterns: unreliable rainfall, drought, increasing temperatures, pest impacts.	Medium - due to the small research trial size, climate change risk is medium, but we cannot predict weather for seasons targeted for research trials	Use of GAP. Building of soil health. Use of IPM (Monitor, Identify, Control (mechanical), Biocontrol, Chemical Control, Evaluate). The activity will address any adverse effects on program implementation through proactive climate mitigation planning.	Encourage practices that build soil health, utilize abiotic stress tolerant varieties, use of efficient irrigation practices (while considering recycling, life cycle of the plastic). Track weather patterns in the area. Opportunity to sensitize key stakeholders and communities at national, provincial, municipal, and local levels on the importance of

Activity	Risks	Risk Rating	How Risks are Addressed	Opportunities to Strengthen Climate Resilience
				<p>climate change risks and their impacts during training.</p> <p>Opportunity to lay the groundwork for field trials for new crop varieties that have enhanced resistance to abiotic and biotic stressors.</p>
<p>Project/Activity 2: Confined trials or monitored field trials without pesticides</p>	<p>Changing weather patterns: unreliable rainfall, drought, increasing temperatures, pest impacts.</p>	<p>Medium - due to the small research trial size, climate change risk is medium, but we cannot predict weather for seasons targeted for research trials.</p>	<p>Use of GAP. Building of soil health. Use of IPM (Monitor, Identify, Control (mechanical), Evaluate). The activity will address any adverse effects on program implementation through proactive climate mitigation planning.</p>	<p>Encourage practices that build soil health, utilize abiotic stress tolerant varieties, use of efficient irrigation practices (while considering recycling, life cycle of the plastic). Track weather patterns in the area.</p> <p>Opportunity to sensitize key stakeholders and communities at national, provincial, municipal, and local levels on the importance of climate change risks and their impacts during training.</p> <p>Opportunity to lay the groundwork for field trials for new crop varieties that have</p>

Activity	Risks	Risk Rating	How Risks are Addressed	Opportunities to Strengthen Climate Resilience
				enhanced resistance to abiotic and biotic stressors.
Project/Activity 3: Desktop studies, data analysis, program administration, workshops and meetings.	Unpredictable weather patterns. Storms and floods could damage infrastructure; road, house, water, health, communication and other services. Heat waves, droughts and floods could injure communities and individual. This could impact capacity to administer the program or conduct training.	“Low” Impact of climate risks on the implementation of this largely desk-based activity is considered Low.	Much of this activity requires desk-based implementation and will therefore not be affected by climate change during LOP. The activity will address any adverse effects on program implementation through proactive climate mitigation planning.	Opportunity to sensitize key stakeholders and communities at national, provincial, municipal, and local levels on the importance of climate change risks and their impacts during training.
Project/Activity 4: Capacity strengthening/ training centers	Unpredictable weather patterns. Storms and floods could damage infrastructure; road, house, water, health, communication and other services. Heat waves, droughts and floods could injure communities and individual. This could impact capacity to conduct training at a field site or at a center location.	“Low” Impact of climate risks on the implementation of this largely capacity strengthening activity is considered Low.	The activity will address any adverse effects on program implementation through proactive climate mitigation planning.	Opportunity to sensitize key stakeholders and communities at national, provincial, municipal, and local levels on the importance of climate change risks and their impacts during training.

LIMITATIONS OF THIS INITIAL ENVIRONMENTAL EXAMINATION

The determinations recommended in this document apply only to projects/activities and sub-activities described herein. Other projects/activities that may arise must be documented in either a separate IEE, an IEE amendment if the activities are within the same project/activity or other type of environmental compliance document and shall be subject to an environmental analysis within the appropriate documents listed above.

Other than projects/activities determined to have a Positive Threshold Determination, it is confirmed that the projects/activities described herein do not involve actions normally having a significant effect on the environment, including those described in 22CFR216.2(d).

In addition, other than projects/activities determined to have a Positive Threshold Determination and/or a pesticide management plan (Pesticide Evaluation Report Safe Use Action Plan - PERSUAP), it is confirmed that the projects/activities described herein do not involve any actions listed below. Any of the following actions would require additional environmental analyses and environmental determinations:

- Support project preparation, project feasibility studies, or design for activities listed in §216.2(d)(1);
- Affect endangered and threatened species or their critical habitats per §216.5, FAA 118, FAA 119;
- Provide support to extractive industries (e.g. mining and quarrying) per FAA 117;
- Promote timber harvesting per FAA 117 and 118;
- Lead to new construction, reconstruction, rehabilitation, or renovation work per §216.2(b)(1);
- Support agro-processing or industrial enterprises per §216.1(b)(4);
- Provide support for regulatory permitting per §216.1(b)(2);
- Lead to privatization of industrial facilities or infrastructure with heavily polluted property per §216.1(b)(4);
- Research, testing, or use of genetically engineered organisms per §216.1(b)(1), ADS 211;
- Assist the procurement (including payment in kind, donations, guarantees of credit) or use (including handling, transport, fuel for transport, storage, mixing, loading, application, clean-up of spray equipment, and disposal) of pesticides or activities involving procurement, transport, use, storage, or disposal of toxic materials. Pesticides cover all insecticides, fungicides, rodenticides, etc. covered under the Federal Insecticide, Fungicide, and Rodenticide Act per §216.2(e) and §216.3(b).

REVISIONS

Per 22CFR216.3(a)(9), when ongoing programs are revised to incorporate a change in scope or nature, a determination will be made as to whether such change may have an environmental impact not previously assessed. If so, this IEE will be amended to cover the changes. Per ADS 204, it is the responsibility of the USAID A/COR to keep the REFS BEO informed of any new information or changes in the activity that might require revision of this environmental analysis and environmental determination.

Table 1. List of Requested Approved Pesticides - Nepal/Bangladesh

Active Ingredient	Pesticide Type	PERSUAP Title and Link to ECD File	EPA Reg Number
2,4-D, ethyl ester	Herbicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	
Azadirachtin	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	2217-836
<i>Bacillus subtilis</i>	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	
<i>Bacillus thuringiensis</i>	Herbicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	
Bifenazate	Herbicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	228-740
Bromadiolone	Rodenticide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	12455-133
Captan	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	11678-1
Chlorantraniliprole	Insecticide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	100-1318
Chlorfenapyr	Herbicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	241-366
Copper Oxychloride	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	45002-6
Cypermethrin	Insecticide	Programmatic Pesticide Evaluation Report FAW	100-1000

Active Ingredient	Pesticide Type	PERSUAP Title and Link to ECD File	EPA Reg Number
Dimethoate	Herbicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	19713-231
Dimethomorph	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	268800
Emamectin Benzoate	Insecticide	Programmatic Pesticide Evaluation Report FAW	74779-18
Fenamidone	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	264-693
Glyphosate	Herbicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	100-1113
Imidacloprid	Insecticide	Programmatic Pesticide Evaluation Report FAW / Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	1021-2527
Indoxacarb	Herbicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	100-1481
Kasugamycin	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	70506-430
Malathion	Insecticide	Programmatic Pesticide Evaluation Report FAW / Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	19713-288
Mancozeb	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	100-1158
Metalaxyl	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	71532-36

Active Ingredient	Pesticide Type	PERSUAP Title and Link to ECD File	EPA Reg Number
Metribuzin	Herbicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	100-1672
Neem Seed Oil	Insecticide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	100079-1
Pyrethrins	Insecticide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	1021-1067
Spinosad	Insecticide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	62719-523
Sulfur	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	
Tebuconazole	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	42750-99
Thiamethoxam	Insecticide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	45002-44
<i>Trichoderma</i>	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	67990
Garlic extract	Insecticide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	
Acephate 50% + Imidacloprid 1.8% 51.8 SP	Insecticide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	70506-242
Copper oxychloride 35% + Metalaxyl 15% WP	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	

Active Ingredient	Pesticide Type	PERSUAP Title and Link to ECD File	EPA Reg Number
Metalaxyl 4%+ Mancozeb 64%	Fungicide	Knowledge Based Integrated Sustainable Agriculture and Nutrition Project (KISAN II)	100-1269

Table 2. List of Requested Fertilizers

Product Name/Type	Ingredients	Organic or Inorganic	Application
DAP	18% N 46% P 0% K – N:P:K	Inorganic	The fertilizer will be applied pre-planting and during vegetative to flowering states through fertigation and surface application by spreading measured quantities (near root-zone).
Urea	46%N	Inorganic	The fertilizer will be applied pre-planting and during vegetative to flowering states through fertigation and surface application by spreading measured quantities (near root-zone).
Muriate of Potassium	60% P	Inorganic	The fertilizer will be applied pre-planting and during vegetative to flowering states through fertigation and surface application by spreading measured quantities (near root-zone).