

## INITIAL ENVIRONMENTAL EXAMINATION

### PROGRAM/ACTIVITY DATA:

**Bureau/Office:** Bureau for Food Security/Agriculture, Research & Policy  
**Program/Activity Title:** Feed the Future Innovation Lab for Integrated Pest Management (IPM Innovation Lab)  
**Award Number:** OAA-14-000018  
**Country/Region:** Bangladesh, Burma, Cambodia, Ethiopia, Kenya, Nepal, Tanzania, Vietnam<sup>1</sup>  
**Functional Objective 4:** Economic Growth  
**Program Area:** 4.5 Agriculture  
**Program Elements:** 4.5.2 Ag Sector Productivity  
**Funding Begin:** September 2014 **Funding End:** September 2019 **LOP Amount:** Approx. \$23M  
**IEE Expires:** September 30, 2019  
**IEE Prepared by:** Angela Records, BFS/ARP  
**Is this an IEE Amendment?** NO **If “Yes,” Filename & Date of Original IEE:** N/A

### ENVIRONMENTAL ACTION RECOMMENDED:

Categorical Exclusion:  Negative Determination   
Positive Determination:  Deferral:

### ADDITIONAL ELEMENTS:

CONDITIONS: X Biosafety: \_\_\_ EMMP: \_\_\_ PVO/NGO: N/A

**RELEVANT DOCUMENTATION:** N/A

### SUMMARY OF FINDINGS

The Feed the Future Innovation Lab for Integrated Pest Management (IPM Innovation Lab, or IPM IL) is an international research consortium focused on research and dissemination of IPM technologies and interventions. The program will work in Bangladesh, Burma, Cambodia, Ethiopia, Kenya, Nepal, Tanzania, Vietnam and other focus countries to be determined.

The prime awardee of the IPM Innovation Lab, Virginia Tech, acts as the Management Entity of a large consortium of partners and sub-projects with partners to be identified through a competitive

<sup>1</sup> Agricultural research and related activities (including field trials/tests) undertaken in the U.S. are subject to applicable U.S. laws and regulations, up to and including preparation of an Environmental Impact Statement (EIS). The recommended determinations and any associated conditions established in this IEE pursuant to 22CFR216 apply to activities that are implemented abroad.

subaward process managed by Virginia Tech. Subawardees may include U.S. and international universities, national and international research institutions, and diverse private-sector and civil-society entities.

Because the majority of the IPM IL's constituent activities/interventions will be determined through a subaward process conducted after award finalization, it is impossible to execute a rigorous environmental evaluation prior to USAID authorization of financing. As a result, **this IEE recommends Threshold Decisions only for activities executed by Virginia Tech in its limited role as Management Entity of the IPM IL. To ensure that USAID's requirements under 22 CFR 216 are met, this IEE also establishes a covenant and clear process for deferred environmental review of all other program activities at the earliest possible point in program design and implementation**, as well as measures to avoid irreversible commitment of resources to activities prior to the conclusion of environmental review.

Activities covered by this IEE include:

1. **Desktop studies, data analysis, program administration, workshops and meetings**, including:
  - a. Project meetings and conferences to plan program implementation, build partnerships, and select sub-awardees.
  - b. E-mails, paperwork, telephone calls, Web site development, and other standard office work as required for program administration and management.

*Anticipated environmental impacts:* Negligible. Air travel and computationally intensive modeling efforts could generate carbon emissions.

In addition to the above administrative activities, it is anticipated that IPM IL partners will execute the following core research activities:

2. **Institutional or collective capacity building** among advanced degree candidates and holders, including:
  - a. Training of Ph.D., M.S., and postdoctoral researchers in IPM research techniques and practices.
  - b. Development of educational curricula and Web-based resources for IPM researchers.

*Anticipated environmental impacts:* None.

3. **Surveys, focus groups, field days, and meetings of/with stakeholders**.

*Anticipated environmental impacts:* None.

4. **Laboratory or contained greenhouse-based research**, including:

- a. Laboratory analysis of soil, water, plant, animal, or other samples.

*Anticipated environmental impacts:* Minor. Could generate small amounts of chemical and/or solid wastes; these could cause negative impacts on environmental and human health if laboratory/institutional waste management plans are not in place.

- 5a. **Conducting applied research not exceeding 4 ha in a single location** (i.e., small-scale field trials) and NOT involving support for procurement or use of chemical pesticide or fertilizer inputs.
- 5b. **Conducting applied research not exceeding 4 ha in a single location** (i.e., small-scale field trials) that DOES involve the procurement or use of chemical pesticide or fertilizer inputs.
- 5c. **Conducting applied research exceeding 4 ha in a single location.**
- a. Collection of biophysical data on soil, water, climate, biodiversity, and other metrics relevant to agriculture and environmental health.
  - b. Agronomic trials of new crop varieties or technologies on research stations or in farmer-participatory field trials.
  - c. Agronomic management trials (including tests to establish appropriate levels of fertilizer, weed and disease management strategies, *etc.*) conducted on research stations or in farmer-participatory field trials.

*Anticipated environmental impacts:* Minimal, given the minute scale of biophysical sampling, small scale and controlled nature of agronomic trials, and low risk profile of conventional crop varieties. Utilization of pesticides and fertilizers introduces moderate human and environmental health risks if chemicals are improperly stored, applied, or disposed of.

No activities using genetically engineered organisms are currently proposed for this research effort; confined field trials or other activities involving bioengineered crops are therefore not anticipated.

### **Recommended Determinations**

The following table includes the recommended determinations for each category of activities constituting the Feed the Future IPM IL.

Activity	Recommended Determination
1. Desktop studies, data analysis, program administration, workshops and meetings.	<b>Categorical Exclusion</b> , per 22 CFR 216.2 (c)(2)(iii) Analyses, studies, academic or research workshops and meetings
2. Institutional or collective capacity building among advanced degree candidates.	<b>Categorical Exclusion</b> , per 22CFR 216.2(c)(i) Education, technical assistance, or training programs
3. Surveys, focus groups, field days, and meetings of/with stakeholders	<b>Categorical Exclusion</b> , per 22 CFR 216 (c)(2)(iii) Analyses, studies, academic or research workshops and meetings
4. Laboratory or contained greenhouse-based research.	<b>Categorical Exclusion</b> , per 22 CFR 216 (c)(2)(iii) Analyses, studies, academic or research workshops and meetings
5a. Conducting applied research not exceeding 4 ha in a single location and <u>NOT</u> involving support for procurement or use of chemical pesticides or fertilizers.	<b>Categorical Exclusion</b> , 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
5b. Conducting applied research not exceeding 4 ha in a single location that <u>DOES</u> involve the procurement or use of chemical pesticides or fertilizers.	<b>Negative Determination</b> , subject to the following <b>conditions</b> : <ul style="list-style-type: none"> <li>• 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.<sup>2</sup> Such safeguards will address pesticide storage, handling and application, including the use of Personal Protective Equipment (PPE), clean-up and disposal.</li> <li>• Pesticide-treated crops will not be used for human or animal consumption. (If crops are used for consumption, then this activity may be subject to development of a PERSUAP [see Section 4 of this IEE]: suspend activity and consult with the REA or BEO).<sup>3</sup></li> <li>• An IEE amendment will be prepared for activities that are not categorically excluded.</li> </ul>

<sup>2</sup> Per 22 CFR 216.3(b)(2)(iii) (Exceptions to Pesticide Procedures)

<sup>3</sup> See also restrictions on genetically engineered organisms, Section 4.

<p>5c. Conducting applied research exceeding 4 ha in a single location.</p>	<p><b>Negative Determination</b>, subject to the following conditions:</p> <ul style="list-style-type: none"> <li>• Implementation of environmental best management practices (BMPs) for agriculture and irrigation. Such BMPs are available from USAID in the <i>Sector Environmental Guidelines</i> (available at <a href="http://www.usaidgems.org/sectorGuidelines.htm">http://www.usaidgems.org/sectorGuidelines.htm</a>)</li> <li>• The procurement or use, promotion of, or training in use of pesticides, including herbicides and fungicides, is disallowed until such time that a Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) is completed pursuant to 22CFR Regulation 216.3 (b)—USAID Pesticide Procedures—and duly approved.<sup>4</sup></li> <li>• An IEE amendment will be prepared for specific applied research projects exceeding 4 ha in a single location. Any applied research project occurring in multiple locations may also be subject to additional environmental review.</li> </ul>
<p>6. All other activities, within the scope of the Technical Description in the IPM IL program award document.</p>	<p><b>Negative Determination with Conditions</b>, per 22 CFR 216.3 (a)(7) Environmental Review After Authorization of Financing</p> <p>For all activities that fall outside the scope of Recommended Determinations 1-6 above, the IPM IL shall comply with the environmental review process required in section 4.2(1) of this IEE (“New or modified activities”).</p>

## Implementation and Monitoring

### GENERAL RESTRICTIONS

1. **Genetically Engineered Organisms:** For purposes of compliance with USAID procedures, **Genetically Engineered Organisms** (e.g., Genetically Modified Organisms [GMOs] or Living Modified Organisms [LMOs]) are defined as “living organisms modified by genetic engineering techniques” and include plants, microorganisms, live animal vaccines (if used outside a contained area and not approved in the US), animals, and insects.

Any laboratory-based or contained facility research on genetically engineered organisms must comply with *US National Institute of Health Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules* ([http://oba.od.nih.gov/rdna/nih\\_guidelines\\_oba.html](http://oba.od.nih.gov/rdna/nih_guidelines_oba.html)), as well as any relevant host-country regulations.

This IEE does not authorize support for confined field testing, open release or commercialization of genetically engineered organisms. Support for field testing or open release of genetically engineered organisms would require successful review under USAID’s

<sup>4</sup> See also restrictions on genetically engineered organisms, Section 4

Biosafety Procedures, followed by an approved amendment to this IEE. Host country regulations and requirements would additionally need to be met.

2. **Pesticides.** All activities that fall outside of the category of applied research and field evaluation (not exceeding 4 ha in a single location), and that entail the procurement or use, or both, of pesticides shall require the development of a Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP), conducted in accordance with USAID Pesticide Procedures (22 CFR 216.3(b)).
3. **Microbial Inoculants.** All activities involving microbial inoculants are limited to applied research per the conditions outlined in Section 3.0. This IEE does not authorize the production of inoculum for non-research distribution.

## GENERAL PROJECT IMPLEMENTATION AND MONITORING REQUIREMENTS

In addition to the specific conditions enumerated in Section 3 of this IEE, all recommended determinations are contingent on full implementation of the following general implementation and monitoring requirements:

1. **New or modified activities.** As part of its initial Work Plan, all Annual Work Plans thereafter, and prior to issuance of any new sub-award or Associate Award, Virginia Tech, in collaboration with the IPM IL Agreement Officer's Representative (AOR), shall review all planned and ongoing activities to determine if they are within the scope of this IEE.

For all IPM IL activities that the AOR determines to fall outside, or extend beyond, the scope of the activities classified within this IEE, Virginia Tech or its sub-awardee shall prepare a sub-project environmental review form for approval by the AOR and the Bureau Environmental Officer of USAID's Bureau for Food Security<sup>5</sup>. Approval of the sub-project review form shall be required prior to AO approval for implementation of new activities.

**Until the AO receives either an approved sub-project review form or concurrence from the AOR that new activities fall within the scope of this IEE, the AO will not approve new sub-awards or obligate additional funding for new activities.** The Management Entity (Virginia Tech) shall not irreversibly commit funding for new activities until AO approval has been obtained.

Any ongoing activities found to be outside the scope of the approved Regulation 216 environmental documentation shall be halted until an amendment to the documentation is submitted and written approval is received from USAID. This includes activities that were previously within the scope of the IEE, but were substantively modified in such a way that they move outside of the scope.

2. **Implementing Partner (IP) Briefings on Environmental Compliance Responsibilities.** The AOR shall provide the IP with a copy of this IEE and all amendments; the IP shall be briefed on their environmental compliance responsibilities by their AOR. During this briefing, the IEE conditions applicable to the IP's activities will be identified.

<sup>5</sup> Or Acting BEO or their designee.

3. **Development of EMMPs.** For activities that are subject to one or more conditions set out in Section 3 of this IEE or its amendments, the IP shall develop and provide an Environmental Mitigation and Monitoring Plan (EMMP) for AOR review and approval documenting how their project will implement and verify all IEE conditions that apply to their activities.

The EMMP shall also identify how the IP shall assure that IEE conditions that apply to activities supported under sub-contracts and sub-grants are implemented. (In the case of large sub-grants or sub-contracts, the IP may elect to require the sub-grantee/sub-contractor to develop their own EMMP.)

4. **Integration and implementation of EMMP.** The IP shall integrate the EMMP into their project work plan and budgets, implement the EMMP, and report on its implementation as an element of regular project performance reporting.

The IP shall assure that sub-contractors and sub-grantees integrate implementation of IEE conditions, where applicable, into their own project work plans and budgets and report on their implementation as an element of sub-contract or grant performance reporting.

5. **Integration of environmental compliance responsibilities in sub-contracts and grant or award agreements.** The IP shall assure that sub-contracts and sub-grant agreements reference and require compliance with relevant elements of the IEE and any attendant conditions.

6. **Assurance of sub-grantee and sub-contractor capacity and compliance.** The IP shall assure that sub-grantees and sub-contractors have the capability to implement the relevant requirements of this IEE. The IP shall, as and if appropriate, provide training to sub-grantees and sub-contractors in their environmental compliance responsibilities and in environmentally sound design and management (ESDM) of their activities.

7. **Implementing Team monitoring responsibility.** As required by ADS 204.5.4, USAID will actively monitor and evaluate whether the conditions of this IEE are being implemented effectively and whether new or unforeseen consequences arise during implementation that were not identified and reviewed in this IEE. If new or unforeseen consequences arise during implementation, the team will suspend the activity and initiate appropriate further review in accordance with 22 CFR 216. USAID monitoring shall include regular site visits.

8. **Compliance with Host Country Requirements.** Nothing in this IEE substitutes for or supersedes IP, sub-grantee and sub-contractor responsibility for compliance with all applicable host country laws and regulations for all host countries in which activities will be conducted under the Feed the Future Innovation Lab for Integrated Pest Management.


The IP, sub-grantees and sub-contractor must comply with each host country's environmental regulations unless otherwise directed in writing by USAID. However, in case of conflict between host country and USAID regulations, the latter shall govern.


**APPROVAL OF ENVIRONMENTAL ACTIONS RECOMMENDED:**

Based on the attached description, USAID/BFS/ARP recommend that you concur with a Negative Determination with Conditions for the Feed the Future Innovation Lab for Integrated Pest Management.

Recommended by:  Date: 9-26-14  
Saharah Moon Chapotin BFS/ARP Office Director (Acting)

Concurrence:  Date: 9/29/14  
Dennis Durbin, BFS Bureau Environmental Officer (Acting)

Approved:   
Disapproved: \_\_\_\_\_

Prepared By:  Date: 9.26.2014  
Angela Records, BFS/ARP

Filename (USAID/BFS BEO): P:Environmental Regulations/IPM Innovation Lab/BFS IEE  
Virginia Tech IPM IL, DATE: September 25, 2014

The scanned, signed versions of this document (both PDF and Word) will be posted to the Agency's Environmental Compliance Database: <http://gemini.info.usaid.gov/egat/envcomp/>



# INITIAL ENVIRONMENTAL EXAMINATION

## PROGRAM/ACTIVITY DATA:

**Bureau/Office:** Bureau for Food Security/Agriculture, Research & Policy  
**Program/Activity Title:** Feed the Future Innovation Lab for Integrated Pest Management (IPM Innovation Lab)  
**Award Number:** OAA-14-000018  
**Country/Region:** Bangladesh, Burma, Cambodia, Ethiopia, Kenya, Nepal, Tanzania, Vietnam  
**Functional Objective 4:** Economic Growth  
**Program Area:** 4.5 Agriculture  
**Program Elements:** 4.5.2 Ag Sector Productivity  
**Funding Begin:** September 2014     **Funding End:** September 2019  
**LOP Amount:** Approx. \$23M

## 1.0 Background and Program Description

### 1.1 PURPOSE AND SCOPE OF IEE

In accordance with 22 CFR 216, this IEE addresses the reasonably foreseeable effects of the Feed the Future Innovation Lab for Integrated Pest Management (IPM Innovation Lab, IPM IL) on the environment.<sup>6</sup>

Because the majority of the IPM IL's constituent activities/interventions will be determined through a competitive sub-award process conducted after award finalization, it is impossible to execute a detailed environmental evaluation prior to USAID authorization of financing. As a result, this IEE recommends Threshold Decisions for a subset of activities to be conducted under the IPM IL: administrative activities executed by Virginia Tech in its role as Management Entity of the IPM IL, and a limited set of reasonably foreseeable research activities likely to be implemented by program partners.

To ensure that USAID's requirements under 22 CFR 216 are met, this IEE also establishes a covenant and clear environmental review process for all other program sub-activities at the earliest possible point in project design and implementation, as well as measures to avoid irreversible commitment of resources to activities prior to the conclusion of environmental review.

In addition, this IEE sets out project-level implementation procedures intended to assure that any conditions in this IEE are translated into project-specific mitigation measures, and to assure

<sup>6</sup> The proposal for the project was submitted by the applicants to USAID under the Feed the Future Innovation Lab for Integrated Pest Management RFA (RFA-OAA-14-000018) issued on April 15, 2014.

systematic compliance with this IEE (and any amendments) during project implementation. These procedures are themselves a general condition of approval for the IEE, and their implementation is therefore mandatory.

Agricultural research and related activities (including field trials/tests) undertaken in the U.S. are subject to applicable U.S. laws and regulations, up to and including preparation of an Environmental Impact Statement (EIS). The recommended determinations and any associated conditions established in this IEE pursuant to 22CFR216 apply to activities that are implemented abroad.

This IEE is a critical element of a mandatory environmental review and compliance process meant to achieve environmentally sound activity design and implementation.

## **1.2 BACKGROUND**

The Feed the Future Innovation Lab for Integrated Pest Management (IPM IL) is an international research consortium, led by Virginia Tech, that aims to reduce: (a) agricultural losses due to pests; (b) damage to natural eco-systems, including loss of biodiversity; and (c) contamination of food and water supplies. The IPM IL will advance IPM science and information, develop IPM technologies, catalyze institutional changes, improve IPM communication and education, and proactively link to public and private entities that disseminate IPM knowledge and products. The results will be widespread adoption and impact of ecologically based IPM technologies, practices, and systems.

The project will work in Bangladesh, Burma, Cambodia, Ethiopia, Kenya, Nepal, Tanzania and Vietnam, with additional research efforts in Feed the Future focus countries to be determined. In addition to conducting field research in its focal geographies, the IPM IL will also build human and institutional capacity through advanced degree training of agricultural researchers, as well as short-term training of farmers and other value-chain actors in technologies and practices that promote integrated pest management.

The prime awardee of the IPM Innovation Lab, Virginia Tech, acts as the Management Entity for the consortium of partners by managing sub-awards and fulfilling administrative functions for the overarching program (e.g., planning, reporting, monitoring & evaluation, and knowledge-sharing efforts). Other consortium partners will be identified through a competitive sub-award process to be managed by Virginia Tech. Sub-awardees may include U.S. and international universities, national and international research institutions, and diverse private-sector and civil-society entities.

Under the IPM IL, research partners will conduct a variety of sub-projects intended to advance agricultural production and improve livelihoods in developing countries.

Overarching objectives of the IPM IL include:

1. **Collection of baseline information** on key pests, natural enemies, existing pest management systems, local pest management knowledge, and constraints to technology adoption. Baseline surveys and participatory appraisals in focal districts for the target crops

within the target countries will be completed as well as reviews of existing literature and data.

2. **Identification of social, economic, education, policy, regulatory and other institutional factors** affecting pest management in target countries. Information will be gathered on complementary Mission-supported programs, NGOs involved in IPM training, private enterprises involved in commodity marketing and input supply, and community-based organizations.
3. **Collaborative on-farm research** to design, test, adapt, and evaluate IPM practices, packages, and strategies. Concurrent socioeconomic research will be used to: (a) identify optimal, gender-sensitive approaches for scaling up IPM adoption; and (b) assess social, gender, environmental, nutritional, and economic impacts of the IPM IL.
4. **Development and implementation of a comprehensive plan** for: (a) raising IPM awareness; (b) disseminating IPM practices and packages to farmers; (c) improving local capacity to diagnose IPM problems and to conduct IPM research; and (d) spreading IPM knowledge regionally and beyond.
5. **Design and implementation of an action plan for influencing policies and regulations** that affect the viability and spread of IPM in targeted countries. Results of analyses of social, economic, policy, regulatory, and institutional factors will be used in plan design.

### 1.3 DESCRIPTION OF ACTIVITIES

As the IPM IL Management Entity, Virginia Tech will perform the following program administration activities:

- Solicit, review, negotiate, and select competitive research proposals that advance the IPM IL's technical objectives.
- Execute and administer Associate Awards, sub-awards and/or contracts to collaborating institutions to conduct approved research and capacity building activities.
- Administer program-wide planning, reporting, monitoring & evaluation, and knowledge-sharing efforts.
- Coordinate with other organizations, institutions, and entities conducting relevant activities in the same geographies as the IPM IL.

Through a competitive sub-award process, Virginia Tech will develop a portfolio of research-for-development activities designed to meet the IPM IL's overarching technical objectives. The award process timeline will be approved by the AOR in the program's annual work plan. Though the precise nature of the sub-projects cannot be determined until applications are submitted, core research activities are likely to include:

- Research and application of IPM technologies, such as selection of pest-free, healthy seeds; seedbed solarization; use of coconut pith and plastic trays for raising seedlings; treatment of seeds or seedlings with *Trichoderma* spp., *Pseudomonas fluorescens* and *Bacillus subtilis* to stave off disease; soil application of neem cake to control nematodes; roguing to eliminate diseased seedlings; grafting on resistant rootstock to overcome soilborne diseases; use of pheromone traps for monitoring pests; growing of trap crops for pest control; use of microbial pesticides and bio-pesticides; inundative release of insects as biological control agents.

- Socioeconomic research through interviews and surveys of smallholder farmers, value-chain actors, and other relevant stakeholders.
- Improvement of human and institutional capacity through academic curriculum development and advanced degree training.

In addition to the core research activities listed above, the IPM IL will solicit proposals from U.S. university researchers who partner with developing country institutions to address topics of critical importance for integrated pest management. Specific proposals are expected to encompass:

- Adaptive research for rice IPM practices.
- New and innovative methods for rice pest management.
- Research on “scaling up” rice IPM.
- IPM policy research for rice.
- Sustainable intensification.
- Crop varietal diversity.
- Global climate change.
- Building critical skills areas in IPM.

Activities implemented under IPM IL sub-awards may require further evaluation to meet the requirements of 22 CFR 216. To ensure adequate consideration of planned activities, such evaluation will be completed once putative sub-awardees are selected, and detailed information on the proposed interventions becomes available.

## **2.0 COUNTRY AND ENVIRONMENTAL INFORMATION**

While many pests (insects, diseases, weeds, etc.) are global, agro-ecological, cultural, economic, and institutional differences dictate location-specific ecological-systems-based IPM research for effective technology transfer and scaling up. For IPM programs to succeed in an environment of scarce public resources, growing environmental concerns, and climate change, they must be structured around: (a) broad participation among complementary organizations and institutions; (b) carefully crafted plans for scaling up local successes to national, regional and global audiences; and (c) ecologically based approaches.

In order to fulfill the need for IPM research that addresses environmental constraints and threats in focus countries, the IPM IL must function effectively and responsibly within the context of local infrastructure, institutions, and legal frameworks. Though this context varies widely across the countries where the IPM IL will work, general trends observed across Feed the Future countries highlight likely operational challenges to environmentally responsible IPM research activities.

The IPM IL is expected to work with partners ranging from U.S. universities and international research institutions—which routinely meet rigorous environmental standards for research, but often lack familiarity with local conditions—to partner-country universities, national research organizations, and local private-sector and civil-society entities—which may know the local context but often lack capacity to effectively identify, monitor, and mitigate potential negative environmental impacts. Local project partners may not, for example, have institutional resources to support administration of environmental compliance measures, such as chemical inventory

control systems that track reagent expiration dates and storage conditions, or personnel qualified to train other users in safe chemical or equipment use. In contrast, international and U.S. institutions often have such capacity, but typically do not maintain a continuous in-country presence, and may inaccurately assume that local partners possess similarly high capacity to perform routine environmental compliance tasks.

Similarly, weak institutional and civil infrastructure can make it difficult for research projects in developing countries to implement standard human and environmental health measures. For example, unreliable power supplies may preclude safe operation of bio-containment facilities. Lack of trash collection and disposal facilities can prevent safe removal of standard medical, chemical, or laboratory solid waste products; lack of water treatment facilities raises similar challenges with liquid wastes. In the event of chemical exposure or machinery accidents, poor roads and lack of medical facilities can prevent victims from receiving prompt treatment. Lack of physical storage facilities can prevent secure storage of chemicals or machinery, potentially exposing minors and improperly trained individuals to unsafe situations.

In addition to issues of infrastructure and human and institutional capacity, many of the countries and regions where the IPM IL will operate lack either effective legal frameworks to ensure human and environmental safety, or lack the institutional capacity to enforce relevant codes. Food safety laws may, for instance, mandate monitoring for mycotoxin contamination or unsafe pesticide residues, but local and national authorities lack the personnel or facilities required to sample and test products. Similar, worker safety regulations that mandate provision of personal protective equipment may not be enforced, or local markets may not provide basic supplies necessary to implement them; project beneficiaries may not have access to the resources they need to safely execute project activities.

To prevent or mitigate adverse environmental impacts in pursuit of its larger research goals, the IPM IL will take these and other context-specific challenges of infrastructure, institutional, and legal capacity into consideration during activity design.

### **3.0 POTENTIAL ENVIRONMENTAL IMPACTS & RECOMMENDED DETERMINATIONS**

The IPM IL is expected to present minimal risk of adverse impacts to natural systems or human health. The purpose of this IEE is to assess these risks and to establish how the IPM IL's component research activities can eliminate or mitigate adverse environmental impacts.

Thorough evaluation of certain, potential research activities will be completed once putative sub-awardees are selected. This IEE reviews a subset of activities that can be reasonably anticipated in advance of the sub-award process, and their associated environmental risks. This includes activities executed by Virginia Tech in its role as the IPM IL Management Entity.

For the purposes of environmental review, proposed IPM IL interventions (barring those that may be implemented via the sub-award process) are grouped into the following activity categories:

1. **Desktop studies, data analysis, program administration, workshops and meetings,** including:

- a. Project meetings and conferences to plan program implementation, build partnerships, and select sub-awardees.
- b. E-mails, paperwork, telephone calls, Web site development, and other standard office work as required for program administration and management.

*Anticipated environmental impacts:* Negligible. Air travel and computationally intensive modeling efforts could generate carbon emissions.

In addition to the above administrative activities, it is anticipated that IPM IL partners will execute the following core research activities:

2. **Institutional or collective capacity building** among advanced degree candidates and holders, including:

- a. Training of Ph.D., M.S., and postdoctoral researchers in IPM research techniques and practices.
- b. Development of educational curricula and Web-based resources for IPM researchers.

*Anticipated environmental impacts:* None.

3. **Surveys, focus groups, field days, and meetings of/with stakeholders.**

*Anticipated environmental impacts:* None.

4. **Laboratory or contained greenhouse-based research,** including:

- a. Laboratory analysis of soil, water, plant, animal, or other samples.

*Anticipated environmental impacts:* Minor. Could generate small amounts of chemical and/or solid wastes; these could cause negative impacts on environmental and human health if laboratory/institutional waste management plans are not in place.

5a. **Conducting applied research not exceeding 4 ha in a single location** (i.e., small-scale field trials) and NOT involving support for procurement or use of chemical pesticide or fertilizer inputs.

5b. **Conducting applied research not exceeding 4 ha in a single location** (i.e., small-scale field trials) that DOES involve the procurement or use of chemical pesticide or fertilizer inputs.

5c. **Conducting applied research exceeding 4 ha in a single location.**

- a. Collection of biophysical data on soil, water, climate, biodiversity, and other metrics relevant to agriculture and environmental health.
- b. Agronomic trials of new crop varieties or technologies on research stations or in farmer-participatory field trials.
- c. Agronomic management trials (including tests to establish appropriate levels of fertilizer, weed and disease management strategies, *etc.*) conducted on research stations or in farmer-participatory field trials.

*Anticipated environmental impacts:* Minimal, given the minute scale of biophysical sampling, small scale and controlled nature of agronomic trials, and low risk profile of conventional crop varieties. Utilization of pesticides and fertilizers introduces moderate human and environmental health risks if chemicals are improperly stored, applied, or disposed of.

No activities using genetically engineered organisms are currently proposed for this research effort; confined field trials or other activities involving bioengineered crops are therefore not anticipated.

### **Recommended Determinations**

The following table includes the recommended determinations for each category of activities constituting the Feed the Future IPM IL.

Activity	Recommended Determination
1. Desktop studies, data analysis, program administration, workshops and meetings.	<b>Categorical Exclusion</b> , per 22 CFR 216.2 (c)(2)(iii) Analyses, studies, academic or research workshops and meetings
2. Institutional or collective capacity building among advanced degree candidates.	<b>Categorical Exclusion</b> , per 22CFR 216.2(c)(i) Education, technical assistance, or training programs
3. Surveys, focus groups, field days, and meetings of/with stakeholders	<b>Categorical Exclusion</b> , per 22 CFR 216 (c)(2)(iii) Analyses, studies, academic or research workshops and meetings
4. Laboratory or contained greenhouse-based research.	<b>Categorical Exclusion</b> , per 22 CFR 216 (c)(2)(iii) Analyses, studies, academic or research workshops and meetings
5a. Conducting applied research not exceeding 4 ha in a single location and <u>NOT</u> involving support for procurement or use of chemical pesticides or fertilizers.	<b>Categorical Exclusion</b> , 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
5b. Conducting applied research not exceeding 4 ha in a single location that <u>DOES</u> involve the procurement or use of chemical pesticides or fertilizers.	<b>Negative Determination</b> , subject to the following <b>conditions</b> : <ul style="list-style-type: none"> <li>• 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.<sup>7</sup> Such safeguards will address pesticide storage, handling and application, including the use of Personal Protective Equipment (PPE), clean-up and disposal.</li> <li>• Pesticide-treated crops will not be used for human or animal consumption. (If crops are used for consumption, then this activity may be subject to development of a PERSUAP [see Section 4 of this IEE]: suspend activity and consult with the REA or BEO).<sup>8</sup></li> <li>• An IEE amendment will be prepared for activities that are not categorically excluded.</li> </ul>

<sup>7</sup> Per 22 CFR 216.3(b)(2)(iii) (Exceptions to Pesticide Procedures)

<sup>8</sup> See also restrictions on genetically engineered organisms, Section 4.



<p>5c. Conducting applied research exceeding 4 ha in a single location.</p>	<p><b>Negative Determination</b>, subject to the following conditions:</p> <ul style="list-style-type: none"> <li>• Implementation of environmental best management practices (BMPs) for agriculture and irrigation. Such BMPs are available from USAID in the <i>Sector Environmental Guidelines</i> (available at <a href="http://www.usaidgems.org/sectorGuidelines.htm">http://www.usaidgems.org/sectorGuidelines.htm</a>)</li> <li>• The procurement or use, promotion of, or training in use of pesticides, including herbicides and fungicides, is disallowed until such time that a Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) is completed pursuant to 22CFR Regulation 216.3 (b)—USAID Pesticide Procedures—and duly approved.<sup>9</sup></li> <li>• An IEE amendment will be prepared for specific applied research projects exceeding 4 ha in a single location. Any applied research project occurring in multiple locations may also be subject to additional environmental review.</li> </ul>
<p>6. All other activities, within the scope of the Technical Description in the IPM IL program award document.</p>	<p><b>Negative Determination with Conditions</b>, per 22 CFR 216.3 (a)(7) Environmental Review After Authorization of Financing</p> <p>For all activities that fall outside the scope of Recommended Determinations 1-6 above, the IPM IL shall comply with the environmental review process required in section 4.2(1) of this IEE (“New or modified activities”).</p>

## 4. Implementation and Monitoring

### 4.1 GENERAL RESTRICTIONS

1. **Genetically Engineered Organisms:** For purposes of compliance with USAID procedures, **Genetically Engineered Organisms** (e.g., Genetically Modified Organisms [GMOs] or Living Modified Organisms [LMOs]) are defined as “living organisms modified by genetic engineering techniques” and include plants, microorganisms, live animal vaccines (if used outside a contained area and not approved in the US), animals, and insects.

Any laboratory-based or contained facility research on genetically engineered organisms must comply with *US National Institute of Health Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules* ([http://oba.od.nih.gov/rdna/nih\\_guidelines\\_oba.html](http://oba.od.nih.gov/rdna/nih_guidelines_oba.html)), as well as any relevant host-country regulations.

This IEE does not authorize support for confined field testing, open release or commercialization of genetically engineered organisms. Support for field testing or open release of genetically engineered organisms would require successful review under USAID’s

<sup>9</sup> See also restrictions on genetically engineered organisms, Section 4

Biosafety Procedures, followed by an approved amendment to this IEE. Host country regulations and requirements would additionally need to be met.

2. **Pesticides.** All activities that fall outside of the category of applied research and field evaluation (not exceeding 4 ha in a single location), and that entail the procurement or use, or both, of pesticides shall require the development of a Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP), conducted in accordance with USAID Pesticide Procedures (22 CFR 216.3(b)).
3. **Microbial Inoculants.** All activities involving microbial inoculants are limited to applied research per the conditions outlined in Section 3.0. This IEE does not authorize the production of inoculum for non-research distribution.

#### **4.2 GENERAL PROJECT IMPLEMENTATION AND MONITORING REQUIREMENTS**

In addition to the specific conditions enumerated in Section 3 of this IEE, all recommended determinations are contingent on full implementation of the following general implementation and monitoring requirements:

1. **New or modified activities.** As part of its initial Work Plan, all Annual Work Plans thereafter, and prior to issuance of any new sub-award or Associate Award, Virginia Tech, in collaboration with the IPM IL Agreement Officer's Representative (AOR), shall review all planned and ongoing activities to determine if they are within the scope of this IEE.

For all IPM IL activities that the AOR determines to fall outside, or extend beyond, the scope of the activities classified within this IEE, Virginia Tech or its sub-awardee shall prepare a sub-project environmental review form for approval by the AOR and the Bureau Environmental Officer of USAID's Bureau for Food Security<sup>10</sup>. Approval of the sub-project review form shall be required prior to AO approval for implementation of new activities.

**Until the AO receives either an approved sub-project review form or concurrence from the AOR that new activities fall within the scope of this IEE, the AO will not approve new sub-awards or obligate additional funding for new activities.** The Management Entity (Virginia Tech) shall not irreversibly commit funding for new activities until AO approval has been obtained.

Any ongoing activities found to be outside the scope of the approved Regulation 216 environmental documentation shall be halted until an amendment to the documentation is submitted and written approval is received from USAID. This includes activities that were previously within the scope of the IEE, but were substantively modified in such a way that they move outside of the scope.

2. **Implementing Partner (IP) Briefings on Environmental Compliance Responsibilities.** The AOR shall provide the IP with a copy of this IEE and all amendments; the IP shall be briefed on their environmental compliance responsibilities by their AOR. During this briefing, the IEE conditions applicable to the IP's activities will be identified.

<sup>10</sup> Or Acting BEO or their designee. .

3. **Development of EMMPs.** For activities that are subject to one or more conditions set out in Section 3 of this IEE or its amendments, the IP shall develop and provide an Environmental Mitigation and Monitoring Plan (EMMP) for AOR review and approval documenting how their project will implement and verify all IEE conditions that apply to their activities.

The EMMP shall also identify how the IP shall assure that IEE conditions that apply to activities supported under sub-contracts and sub-grants are implemented. (In the case of large sub-grants or sub-contracts, the IP may elect to require the sub-grantee/sub-contractor to develop their own EMMP.)

4. **Integration and implementation of EMMP.** The IP shall integrate the EMMP into their project work plan and budgets, implement the EMMP, and report on its implementation as an element of regular project performance reporting.

The IP shall assure that sub-contractors and sub-grantees integrate implementation of IEE conditions, where applicable, into their own project work plans and budgets and report on their implementation as an element of sub-contract or grant performance reporting.

5. **Integration of environmental compliance responsibilities in sub-contracts and grant or award agreements.** The IP shall assure that sub-contracts and sub-grant agreements reference and require compliance with relevant elements of the IEE and any attendant conditions.
6. **Assurance of sub-grantee and sub-contractor capacity and compliance.** The IP shall assure that sub-grantees and sub-contractors have the capability to implement the relevant requirements of this IEE. The IP shall, as and if appropriate, provide training to sub-grantees and sub-contractors in their environmental compliance responsibilities and in environmentally sound design and management (ESDM) of their activities.
7. **Implementing Team monitoring responsibility.** As required by ADS 204.5.4, USAID will actively monitor and evaluate whether the conditions of this IEE are being implemented effectively and whether new or unforeseen consequences arise during implementation that were not identified and reviewed in this IEE. If new or unforeseen consequences arise during implementation, the team will suspend the activity and initiate appropriate further review in accordance with 22 CFR 216. USAID monitoring shall include regular site visits.
8. **Compliance with Host Country Requirements.** Nothing in this IEE substitutes for or supersedes IP, sub-grantee and sub-contractor responsibility for compliance with all applicable host country laws and regulations for all host countries in which activities will be conducted under the Feed the Future Innovation Lab for Integrated Pest Management.

The IP, sub-grantees and sub-contractor must comply with each host country's environmental regulations unless otherwise directed in writing by USAID. However, in case of conflict between host country and USAID regulations, the latter shall govern.