INITIAL ENVIRONMENTAL EXAMINATION

PROGRAM/ACTIVITY DATA:

Bureau/Office: Bureau for Food Security/Agricultural Research & Policy
Program/Activity Title: Feed the Future Innovation Lab for Soy Value Chain Research (UI) (Soy Innovation Lab)
Country/Region: Ethiopia, Ghana, Malawi, Mozambique, Zambia
Functional Objective 4: Economic Growth
Program Area: 4.5 Agriculture
Program Elements: 4.5.2 Ag Sector Productivity
Funding Begin: November 2013 Funding End: November 2018 LOP Amount: approx. $5M
IEE Expires: November 30, 2018
IEE Prepared by: Tracy K. Powell, BFS/ARP

Is this an IEE/CE Amendment? NO If “Yes,” Filename & Date of Original IEE: N/A

ENVIRONMENTAL ACTION RECOMMENDED:
Categorical Exclusion: X Negative Determination X
Positive Determination: □ Deferral: □

ADDITIONAL ELEMENTS:
CONDITIONS: X Biosafety: X EMMP: X PVO/NGO: N/A

RELEVANT DOCUMENTATION: N/A

SUMMARY OF FINDINGS

The Feed the Future Innovation Lab for Soy Value Chain Research aims to enhance the productivity of smallholder soy farmers and promote development of the soy value chain in sub-Saharan Africa. In partnership with national breeding programs in partner countries, the program will accomplish this by identifying, adapting, and deploying improved soybean germplasm; educating current and future soybean breeders; establishing local best practices for soy production and seed management; and identifying strategies to promote widespread adoption of improved soy production and processing technologies.

1 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.
The project will work in Ghana, Ethiopia, Malawi, Mozambique, and Zambia, and will implement the following classes of activities to enhance smallholder soy productivity and soy value chain development in sub-Saharan Africa:

1. **Network and capacity building** among soybean producers, consumers, and other value-chain actors, including:
   a. Participatory research and training with local stakeholders on improved soybean production, processing, storage, and utilization.
   b. Engaging local stakeholders in socioeconomic research to understand constraints to technology adoption and the household-level gender and nutritional impacts of adopting soybean technologies.

2. **Institutional or collective capacity building** among soybean breeders in participating countries, including:
   a. Development of educational curricula and web-based resources for current and future soybean breeders.
   b. Training of students and practitioners of soybean breeding.

3. **Upgrade mechanical and irrigation equipment** on participating soybean research stations.

4. **Laboratory or contained greenhouse-based research and/or meetings**, including:
   a. Genetic and phenotypic characterization of soybean lines under development by breeding programs.
   b. Project meetings and conferences to discuss coordination, progress, challenges, and results.

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 pesticides.

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 pesticides.

5c. **Conducting applied research exceeding 4 ha in a single location**.
   a. Field trials of new soybean varieties under development will be conducted on research stations and in farmer field trials.
   b. Agronomic trials (including tests to establish appropriate levels of fertilizer, weed and disease management strategies, etc.) will be conducted on research stations and in farmer field trials.

6. **Conducting applied research with microbial inoculants**.
   a. Agronomic field trials will be conducted to establish locally appropriate strains, levels, and strategies for rhizobial inoculation of soybean.

7. **Nutrition, Health, and/or Family Planning based research trials**.
   a. Feeding trials will be conducted to assess the impact of consuming soy-based weaning food on stunting and/or malnutrition among children.

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 class of activity associated with the Feed the Future Innovation Lab for Soy Value Chain Research project.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Recommended Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Network and capacity building among soybean producers, consumers, and other value-chain actors</td>
<td><strong>Categorical Exclusion</strong>, per 22CFR 216.2(c)(i) Education, technical assistance, or training programs</td>
</tr>
<tr>
<td>2. Institutional or collective capacity building</td>
<td><strong>Categorical Exclusion</strong>, per 22CFR 216.2(c)(i) Education, technical assistance, or training programs</td>
</tr>
</tbody>
</table>
| 3. Upgrades to mechanical and irrigation equipment at participant research stations | **Negative Determination**, subject to the following conditions:  
  - General consistency with USAID Sector Environmental Guidelines. The environmental management conditions must be generally consistent with good-practice guidance of USAID's Sector Environmental Guidelines (Agriculture and Irrigation, Construction; [http://www.usaidgems.org/sectorGuidelines.htm](http://www.usaidgems.org/sectorGuidelines.htm)). |
| 4. Laboratory or contained greenhouse-based research and/or meetings  | **Categorical Exclusion**, 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 NOT involving support for procurement or use of pesticides | **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 |
| 5b. Conducting applied research not exceeding 4 ha in a single location that DOES involve the procurement or use of pesticides | **Negative Determination**, subject to the following conditions:  
  - Appropriate pesticide 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.²  
    Such safeguards will address pesticide storage, handling and application, including the use of Personal Protective Equipment (PPE), clean-up and disposal.  
  - 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).³ |
| 5c. Conducting applied research exceeding 4 ha in a single location     | **Negative Determination**, subject to the following conditions:  
  - Appropriate pesticide 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.²  
    Such safeguards will address pesticide storage, handling and application, including the use of Personal Protective Equipment (PPE), clean-up and disposal.  
  - 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).³ |

² Per 22 CFR 216.3(b)(2)(iii) (Exceptions to Pesticide Procedures)  
³ See also restrictions on genetically engineered organisms, Section 4.
6. Conducting applied research with microbial inoculants. | Negative Determination, subject to the following conditions:

- Compliance with host country phytosanitary and import regulations for inoculum.
- Procurement and provision of high-quality inoculum (quality certified to a recognized international standard) in a sterile carrier.
- No release of genetically modified strains or strains selected for antibiotic resistance.
- Microbial strains must be diazotrophic, root-nodulating, and non-pathogenic.

7. Nutrition, Health, and/or Family Planning based research trials | Categorical Exclusion, per 22 CFR 216.2 (c)(2)(viii) Programs involving nutrition, health care or population and family planning services except to the extent designed to include activities directly affecting the environment (such as construction of facilities, water supply systems, waste water treatment, etc.)

---

**General Restrictions** (reproduced verbatim from Section 4.1 of the IEE)

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], as

---

4 See also restrictions on genetically engineered organisms, Section 4
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 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 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 support for the actual production of inoculum under Soy Innovation Lab activities.

**General Project Implementation and Monitoring Requirements**
(reproduced verbatim from Section 4.2 of the IEE)

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

1. **Implementing Partner (IP) Briefings on Environmental Compliance Responsibilities.** The Agreement Officer’s Representative (AOR) shall provide the IP with a copy of this IEE; the IP shall be briefed on their environmental compliance responsibilities by their cognizant AOR. During this briefing, the IEE conditions applicable to the IP’s activities will be identified.

2. **Development of EMMP.** For activities that are subject to one or more conditions set out in Section 3 of this IEE, 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 subcontracts and sub-grants are implemented. (In the case of large sub-grants or subcontracts, the IP may elect to require the sub-grantee/subcontractor to develop their own EMMP.)

3. **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.
4. **Integration of environmental compliance responsibilities in sub-contracts and grant 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.

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

6. **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.

7. **New or modified activities.** As part of its initial Work Plan, and all Annual Work Plans thereafter, the IP, in collaboration with their AOR, shall review all planned and ongoing activities to determine if they are within the scope of this IEE.

   If any IP activities are planned that would be outside the scope of this IEE, an amendment to this IEE addressing these activities shall be prepared for USAID review and approval. No such new activities shall be undertaken prior to formal approval of this amendment.

   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.

8. **Compliance with Host Country Requirements.** Nothing in this IEE substitutes for or supersedes IP, sub-grantee and subcontractor 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 Soy Value Chain Research.

   The IP, sub-grantees and subcontractor 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 Soy Value Chain Research (UI).

Approved:
Office Director, BFS/ARP: Robert Bertram
Date: Oct 23, 2013

Concurrence: Ronald Greenberg, BFS Bureau Environmental Officer
Date: Oct 23, 2013

Filename (USAID/BFS BEO): P:Environmental Regulations/Soy Innovation Lab/BFS IEE UI,
DATE: October 23, 2013

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 / Agricultural Research & Policy
Program/Activity Title: Feed the Future Innovation Lab for Soy Value Chain Research (Soy Innovation Lab)
Country/Region: Ethiopia, Ghana, Malawi, Mozambique, Zambia
Functional Objective 4: Economic Growth
Program Area: 4.5 Agriculture
Program Elements: 4.5.2 Ag Sector Productivity
Funding Begin: November 2013 Funding End: November 2018 LOP Amount: approx. $5M

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 Soy Value Chain Research (UI) project on the environment. Based on review of constituent activities/interventions, this IEE recommends Threshold Decisions for all aspects of the proposed project.

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 systematic compliance with this IEE 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 PROPOSED ACTIVITY

The Feed the Future Innovation Lab for Soy Value Chain Research will enhance soybean breeding efforts in sub-Saharan Africa by identifying, adapting, and deploying improved soybean

---

5 The proposal for the project was submitted by the applicants to USAID under the Research and Policy RFA issued on September 28, 2012.
germplasm in partnership with national breeding programs; educating current and future soybean breeders; establishing local best practices for soy production and seed management; and identifying strategies to promote widespread adoption of improved soy technologies. The project will work in Ethiopia, Ghana, Malawi, Mozambique, Zambia, and the U.S.

The University of Illinois Urbana-Champaign will lead the collaboration, which includes several U.S. universities (Delaware State, Mississippi State, University of Maryland Eastern Shore, and University of Missouri), the USDA, development organizations (Catholic Relief Services, the International Fertilizer Development Center, Generation Challenge, and the World Initiative for Soy and Human Health), and international and national research partners (International Institute for Tropical Agriculture, University of Ghana, Savannah Agricultural Research Institute, Jimma Agricultural Research Center, and the Agricultural Research Institute of Mozambique). Together, these partners will conduct a variety of research activities to accelerate national soy breeding programs, enhance crop productivity and quality, explore how soy can improve nutrition, and inform value chain development strategies in Ghana, Mozambique, Zambia, Malawi, and Ethiopia.

The overall goal of the project is to accelerate development of climate-resilient soybean varieties and strengthen local soy value chains. The main technical objectives of the program are:

1. Strengthen the human and institutional capacity of national soy breeding programs in sub-Saharan Africa.

2. Coordinate joint breeding efforts by US and African soybean breeding teams to develop new soy varieties with improved yield, processing traits, and biotic and abiotic stress resistance.

3. Conduct soybean agronomic research to identify local best practices in soybean production.

4. Identify strategies to improve smallholder nutrition through improved household processing and utilization.

5. Address key socioeconomic questions on how to strengthen local soy value chains most effectively.

During the proposed grant period, no transgenic activities are planned and, therefore, confined field trials of bioengineered crops are not anticipated.

The in-country research partners are the International Institute for Tropical Agriculture (IITA) in Zambia, Malawi, and Mozambique; Catholic Relief Services (CRS), International Fertilizer Development Center (IFDC), World Initiative for Soy and Human Health (WISHH), the University of Ghana; the Savanna Agricultural Research Institute (SARI) in Ghana; Jimma Agricultural Research Center in Ethiopia; and the Agricultural Research Institute of Mozambique (IIAM) in Mozambique.

Specific activities over the life of this project will include:

- Develop a soy-specific curriculum to be implemented in the region’s first Master’s Program in Plant Breeding at the University of Ghana, including six new core courses, student internship exchanges, and visiting scholar opportunities in US partner universities.
- Upgrade mechanical and irrigation equipment on participating soybean research stations.

- Introduce novel soy germplasm from U.S. institutions into African breeding programs, in order to accelerate development of soy varieties with improved yield, processing traits, and biotic and abiotic stress resistance.

- Execute standard soy breeding activities (i.e. crossing, field trials to evaluate new lines under development) on in-country breeding stations in collaboration with African breeding partners.

- Conduct on-station and participatory on-farm soybean agronomic research to identify local best practices in soybean production. Research will include production trials to identify the best varieties and cultivation practices under local conditions; assess the environmental impacts of different cultivation practices; and study the best seed selection, management, and storage practices.

- Identify strategies to improve smallholder nutrition through improved household processing and utilization. Specific activities will include feeding trials to assess the impact of consuming soy-based weaning food on stunting among children, and comparing the effectiveness of different training methods for promoting sustained soybean processing and utilization at the household level.

- Address key socioeconomic questions on how to strengthen local soy value chains. Household surveys will be administered to track and understand the impacts of interventions such as improved soybean seed, logistical support, agronomic and seed management training, credit provision, or household-scale soybean processing units.

New soybean germplasm will be developed through conventional breeding and is not expected to differ significantly from currently available soy varieties, except with respect to improved yield, processing traits, and stress tolerance.

It is expected that new soy varieties will be released during the life of the program. Such release would be made to soybean growers through IITA’s pan-African soybean network, and to participating farmers for farmer field trials through the agronomic research component of the program.

New soy varieties with increased yield and stress tolerance would improve productivity and food security for African populations, and allow smallholder farmers to produce more soy on the same or smaller land area. In terms of agronomy and production practices, new soy varieties would be substantially equivalent to soy varieties already grown in sub-Saharan Africa.

2.0 COUNTRY AND ENVIRONMENTAL INFORMATION

Agricultural productivity in sub-Saharan Africa is threatened by deteriorating soil quality, increasingly erratic rainfall, and other climatic changes predicted to jeopardize crop yields. Combined with a growing human population, these environmental factors threaten food security for many of Africa's poor.
Despite the suitability of large parts of SSA for soybean production, on-farm productivity remains low. Africa contributes less than 1% of worldwide soybean production, with current yields in the project’s target countries at 25% of the world average and about 17% of common yields in Brazil, Argentina, and the US. Increased soybean production is hindered by under-resourced African breeding programs, which struggle to develop and distribute improved cultivars that are adapted to local climate, soils, and environmental conditions. Drought, heat, and plant diseases are also major constraints, and in the face of increasing climate pressures, varietal improvement to overcome these constraints will be crucial to allowing African smallholders to share in the potential benefits of soy production.

Soybean is the fastest growing agricultural crop over the last 20 years, expanding at a rate of 8% per year. It is grown in over 85 countries on a total of almost 100 million hectares, and much of the recent expansion has occurred in lower-latitude regions of the world where food insecurity and poverty rates are highest and where poor populations are often deficient in protein consumption. The dramatic rise of soybean in global agriculture can be attributed to the nutritional value it offers users given its high protein and oil content, and the economic benefits it provides farmers by being both a highly productive and profitable crop. As global and regional demand for soybean for food and animal feed continues to grow, soy offers important opportunities to improve the income, food security, and nutrition of vulnerable African smallholders.

Climate-resilient, higher-yielding soybean varieties could also have environmental benefits. Population growth in Africa is expected to lead to more land converted to agriculture, including land that currently supports environmental services or natural biodiversity. Development and dissemination of new, higher-yielding soybean varieties may help slow or reverse the conversion of land for agricultural purposes by allowing farmers to achieve the same or higher yields on a smaller area of land. As a leguminous crop, soybean is also capable of fixing atmospheric nitrogen through its association with symbiotic rhizobial bacteria, thereby benefiting soil fertility and reducing the amount of fertilizer required to achieve robust yields.

Any variety release and dissemination activities must follow all host-country laws with respect to variety registration and seed certification.

3.0 POTENTIAL ENVIRONMENTAL IMPACTS & RECOMMENDED DETERMINATIONS

For the purpose of environmental review, proposed project interventions are grouped into the following classes of activities:

1. **Network and capacity building** among soybean producers, consumers, and other value-chain actors, including:
   a. Participatory research and training with local stakeholders on improved soybean production, processing, storage, and utilization.
   b. Engaging local stakeholders in socioeconomic research to understand constraints to technology adoption and the household-level gender and nutritional impacts of adopting soybean technologies.
2. **Institutional or collective capacity building** among soybean breeders in participating countries, including:
   a. Development of educational curricula and web-based resources for current and future soybean breeders.
   b. Training of students and practitioners of soybean breeding.
3. **Upgrade mechanical and irrigation equipment** on participating soybean research stations.
4. **Laboratory or contained greenhouse-based research and/or meetings**, including:
   a. Genetic and phenotypic characterization of soybean lines under development by breeding programs.
   b. Project meetings and conferences to discuss coordination, progress, challenges, and results.
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 pesticides.
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 pesticides.
5c. Conducting applied research **exceeding 4 ha in a single location**.
   a. Field trials of new soybean varieties under development will be conducted on research stations and in farmer field trials.
   b. Agronomic trials (including tests to establish appropriate levels of fertilizer, weed and disease management strategies, etc.) will be conducted on research stations and in farmer field trials.
6. **Conducting applied research with microbial inoculants**.
   a. Agronomic field trials will be conducted to establish locally appropriate strains, levels, and strategies for rhizobial inoculation of soybean.
7. **Nutrition, Health, and/or Family Planning based research trials**.
   a. Feeding trials will be conducted to assess the impact of consuming soy-based weaning food on stunting and/or malnutrition among children.

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

**Recommended Determinations**

The following table includes the recommended determinations for each class of activity associated with the Feed the Future Innovation Lab for Soy Value Chain Research (UI) project.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Recommended Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Network and capacity building among soybean producers, consumers,</td>
<td>Categorical Exclusion, per 22CFR 216.2(c)(i) Education, technical assistance, or training</td>
</tr>
<tr>
<td>and other value-chain actors</td>
<td>programs</td>
</tr>
<tr>
<td>2. Institutional or collective capacity building</td>
<td>Categorical Exclusion, per 22CFR 216.2(c)(i) Education, technical assistance, or training</td>
</tr>
<tr>
<td></td>
<td>programs</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| 3.      | Upgrades to mechanical and irrigation equipment at participant research stations | **Negative Determination**, subject to the following condition:  
- General consistency with USAID Sector Environmental Guidelines. The environmental management conditions must be generally consistent with good-practice guidance of USAID’s Sector Environmental Guidelines (Agriculture and Irrigation, Construction; [http://www.usaidgems.org/sectorGuidelines.htm](http://www.usaidgems.org/sectorGuidelines.htm)). |
| 4.      | Laboratory or contained greenhouse-based research and/or meetings | **Categorical Exclusion**, per 22 CFR 216 (c)(2)(ii) Analyses, studies, academic or research workshops and meetings |
| 5a.     | Conducting applied research not exceeding 4 ha in a single location and **NOT** involving support for procurement or use of pesticides | **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 |
| 5b.     | Conducting applied research not exceeding 4 ha in a single location that **DOES** involve the procurement or use of pesticides | **Negative Determination**, subject to the following conditions:  
- Appropriate pesticide 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. Such safeguards will address pesticide storage, handling and application, including the use of Personal Protective Equipment (PPE), clean-up and disposal.  
- 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). |
| 5c.     | Conducting applied research exceeding 4 ha in a single location | **Negative Determination**, subject to the following conditions:  
- Implementation of environmental best management practices (BMPs) for agriculture and irrigation. Such BMPs are available from USAID in the Sector Environmental Guidelines (available at [http://www.usaidgems.org/sectorGuidelines.htm](http://www.usaidgems.org/sectorGuidelines.htm) and [http://www.encapafrica.org/egssaa.htm](http://www.encapafrica.org/egssaa.htm)).  
- 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 submitted. |

---

6 Per 22 CFR 216.3(b)(2)(iii) (Exceptions to Pesticide Procedures)  
7 See also restrictions on genetically engineered organisms, Section 4.
I completed pursuant to 22CFR Regulation 216.3 (b)—USAID Pesticide Procedures—and duly approved. 8

<table>
<thead>
<tr>
<th>6. Conducting applied research with microbial inoculants.</th>
<th>Negative Determination, subject to the following conditions:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Compliance with host country phytosanitary and import regulations for inoculum.</td>
</tr>
<tr>
<td></td>
<td>• Procurement and provision of high-quality inoculum (quality certified to a recognized international standard) in a sterile carrier.</td>
</tr>
<tr>
<td></td>
<td>• No release of genetically modified strains or strains selected for antibiotic resistance.</td>
</tr>
<tr>
<td></td>
<td>• Microbial strains must be diazotrophic, root-nodulating, and non-pathogenic.</td>
</tr>
</tbody>
</table>

| 7. Nutrition, Health, and/or Family Planning based research trials | Categorical Exclusion, per 22 CFR 216.2 (c)(2)(viii) Programs involving nutrition, health care or population and family planning services except to the extent designed to include activities directly affecting the environment (such as construction of facilities, water supply systems, waste water treatment, etc.) |

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

8 See also restrictions on genetically engineered organisms, Section 4

IEE: Feed the Future Innovation Lab for Soy Value Chain Research, University of Illinois Urbana-Champaign 7
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 under Soy Innovation Lab activities.

### 4.2 GENERAL PROJECT IMPLEMENTATION AND MONITORING REQUIREMENTS

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

1. **Implementing Partner (IP) Briefings on Environmental Compliance Responsibilities.** The Agreement Officer’s Representative (AOR) shall provide the IP with a copy of this IEE; the IP shall be briefed on their environmental compliance responsibilities by their cognizant AOR. During this briefing, the IEE conditions applicable to the IP’s activities will be identified.

2. **Development of EMMP.** For activities that are subject to one or more conditions set out in Section 3 of this IEE, 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 subcontracts and sub-grants are implemented. (In the case of large sub-grants or subcontracts, the IP may elect to require the sub-grantee/subcontractor to develop their own EMMP.)

3. **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.

4. **Integration of environmental compliance responsibilities in sub-contracts and grant 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.

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

7. **New or modified activities.** As part of its initial Work Plan, and all Annual Work Plans thereafter, the IP, in collaboration with their AOR, shall review all planned and ongoing activities to determine if they are within the scope of this IEE.

   If any IP activities are planned that would be outside the scope of this IEE, an amendment to this IEE addressing these activities shall be prepared for USAID review and approval. No such new activities shall be undertaken prior to formal approval of this amendment.

   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.

8. **Compliance with Host Country Requirements.** Nothing in this IEE substitutes for or supersedes IP, sub-grantee and subcontractor 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 Soy Value Chain Research.

   The IP, sub-grantees and subcontractor 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.