

Feed the Future Innovation Lab for Integrated Pest Management



Request for Concept Note

Modeling for Biodiversity and Climate Change

Table 1. Calendar of activities.	
Activity	Date
Issuance of request for concept note	January 26, 2015
Deadline for questions	February 6, 2015
Deadline for receipt of concept notes	March 13, 2015
Review and selection of concept notes for promotion to full proposals	March 27, 2015
Requests for full proposals sent	April 3, 2015
Deadline for submission of full proposal	May 8, 2015
Proposal winner announced	May 29, 2015

This request for concept notes is issued by Virginia Tech, the Management Entity of the Feed the Future Innovation Lab for Collaborative Research on Integrated Pest Management (IPM IL). The Virginia Tech IPM IL is funded by the U.S. Agency for International Development under cooperative agreement AID-OOA-L-15-00001. The Virginia Tech IPM IL management entity offices are located at the Office of International Research, Education and Development, Virginia Tech, 526 Prices Fork Road, Blacksburg, VA 24061. For additional information please contact Dr. R. Muniappan, IPM IL Director, 540-231-3516, Email: <rmuni@vt.edu> Website: <<http://www.oired.vt.edu/ipmcrsp/>>



1. Background

The **Feed the Future (FtF) Innovation Lab for Integrated Pest Management (IPM IL)** is a USAID-funded program that supports Integrated Pest Management Research, technology transfer, and capacity building in relation to small-holder farming systems. Virginia Tech was awarded a five-year contract on November 25, 2014, to serve as the management entity of the IPM IL. The IPM IL is now inviting the submission of concept notes for modeling biodiversity and climate change in Nepal. Project activities may be proposed for four and one-half years (June 1, 2015 to November 16, 2019). Following evaluation of the concept notes, full proposals will be requested from a short-list of applicant(s).

Crop losses due to pests (insects, diseases, weeds, nematodes, birds, and rodents) are a major constraint to alleviating poverty and improving nutrition in Asia. Most estimates of production and post-harvest losses due to pests range from 30 to 40 percent. Improper use of pesticides poses a serious threat to health and biodiversity. IPM is a decision support system that uses evidence-based information to reduce losses due to pests, minimize reliance on synthetic pesticides, and foster the long-term sustainability of agricultural systems.

Integrated Pest Management (IPM) is defined as a dynamic, crop, location, and season specific program that combines all available compatible tactics that impart profit, safeguards environmental and human health, encompasses cultural sensitivities, and ensures social acceptance. Biodiversity is an integral part of IPM. Conservation biological control, a major component of IPM, is an important protector and enhancer of biodiversity in the agricultural ecosystem. Climate change and subsequent global warming is causing changes in agricultural systems and biodiversity. Very few empirical studies have been carried out on the effect of climate change on biodiversity and changes in biodiversity to document climate change. Nepal represents a diversity of climatic regimes within a distance of 180 km, a diversity found from the Florida Keys to the Arctic, making it an ideal country to conduct spatio-temporal changes in climate and, in turn, biodiversity.

Applicants are referred to the IPM IL website for additional information about the IPM IL:

<http://www.oired.vt.edu/ipmcrsp>

The new IPM IL will develop, implement, and scale up IPM packages for selected crops. Biodiversity and climate change play a critical role in IPM. To understand changes in biodiversity as a result of climate change and to empirically document it, USAID has requested a project on modeling for biodiversity and climate change as part of the overall program.

2. Overview

The IPM IL invites the submission of a concept note from US universities, CGIAR institutions, and host country research institutions that may lead to an invitation to submit a concept note to lead the project on *Modeling for Biodiversity and Climate Change* to be implemented in Nepal. Some illustrative institutions and universities for collaboration would be: Bioversity International, The International Centre for Integrated Mountain Development, CABI, National Agricultural Research Council of Nepal, Tribhuvan University, iDE, and NGOs in Nepal.

The project will:

- a. Spatio-temporally assess biodiversity by laying transects at 300 m elevation intervals starting at Terai to about 3,000 m in the Himalayas in Nepal.
- b. Conduct biodiversity surveys including soil invertebrates, above ground arthropods, and flora by laying transects at different altitudes, and data analysis and interpretation.
- c. Set up weather stations at the transect locations.
- d. Build institutional and human capacity in Nepal.
- e. Include economic and gender impact evaluations in the project.

3. Research and Activity Priorities

The overall IPM IL has four program objectives:

- Advance IPM science and develop IPM technologies, information, and systems for sound sustainable intensification;
- Improve IPM communication, education, and the ability of practitioners to manage knowledge, resulting in widespread adaptation, adoption, and impact of ecologically-based IPM technologies, practices and systems;
- Provide information and capacity building to reform and strengthen policies and national institutions that influence pest management; and
- Develop and integrate sustainable resource-based local enterprises into national regional and global markets.

In order to accomplish these program objectives, the IPM IL activities for this sub-award will include:

- Identifying and describing the technical factors affecting pest management;
- Working with collaborating groups to promote training and information exchange on participatory IPM;
- Working with collaborating groups to foster needed policy and institutional changes.

Key IPM outcomes will include:

- Advancement of ecologically-based participatory IPM science, with ecologically-based IPM technologies, information, and systems for managing key pests on important crops in Africa and Asia.
- Improvement of IPM communication, increase in capacity of host-country scientific and outreach institutions, enhancement of ability of practitioners to manage IPM knowledge, and fostering of widespread adoption of ecologically-based IPM technologies, practices, and systems, with measurable impacts.
- Increased capacity of national institutions to reform and strengthen policies that influence pest management.
- Development of sustainable, resource-based local enterprises and their integration into regional, national, and international markets.

The overall purpose of the *Modeling for Biodiversity and Climate Change* project is to model climate change and its effect on biodiversity by assessing biodiversity of soil invertebrates, above ground arthropods, and flora in a series of 300 m transects laid from Terai to about 3,000 m in the Himalayas

over a period of four and half years. Warming is expected to be greatest over land and at the most in high northern altitudes. Climate change could lead to an increase in abundance and diversity of pests as habitats become more favorable to them. Existing interactions in disturbed and new niches become favorable for invasive species. Empirical recording of changes in climate and resultant changes in biodiversity is expected.

Favorable consideration will be given to activities that involve scientists from developing countries. A portion of the budget may be reserved for activities in support of areas identified through the IPM IL research sub-award competition. Such activities would necessarily be described after the sub-awardee is selected and that process will take place after the successful application is selected. To facilitate the development of models, a strong representation of entomology, biology, ecology, climatology, network dynamics and simulation, and gender is encouraged in the project.

Applicants must demonstrate the ability to propose a conceptual approach for modeling climate change and biodiversity. Familiarity with geo-spatial modeling encompassing diversity of soil invertebrates, above ground arthropods and flora is required.

4. Capacity Building

The project should include human and institutional capacity development at both the scientist and institutional levels. Details regarding the number of trainees, disciplines, location of training, and efforts to ensure gender parity of trainees, as well as the need for training of host country nationals, should be described in the concept note. Collaboration with host country universities is encouraged and may include curriculum development, academic support consistent with research programming, short courses, and other activities that support improved institutional capacity.

Outreach activities aimed at the end-user are required for all projects. These activities can occur via direct contact with end-users by project investigators or through third party organizations such as host country extension services, host country universities, NGOs (non-governmental organizations), and NARS (National Agricultural Research Systems). Use of mass media (radio, TV, newspapers), internet, workshops and demonstrations, for technology dissemination and scaling up is encouraged.

5. Gender

USAID policy requires that gender issues be addressed as appropriate for all USAID-funded activities and that gender differences and inequalities be integrated into the consortium activities and project design. The application must present a gender analysis which discusses important gender issues. The application must explain how gender considerations and equality issues will be integrated into the design, implementation, management, knowledge sharing, capacity building, and monitoring and evaluation of the overall activities.

6. Project Design and Evaluation

The project must describe a results framework, including monitoring and evaluation, that is consistent with the overall objectives of the IPM IL supporting research, knowledge sharing, and capacity building in relation to small-holder farming systems and the ability to increase ecological intensification for the

production of food. The framework must also support national objectives (such as the National IPM Program) and will be part of the overall IPM IL Monitoring and Evaluation procedures. The project must be in compliance with USAID's Environmental Compliance Procedures described in Title 22 of the Code of Federal Regulations, Part 216 (22 CFR 216 http://www.usaid.gov/our_work/environment/compliance/22cfr216) and provide evidence of compliance with all relevant financial accounting procedures, regulatory compliance, responsible conduct of research, and the US Agricultural Terrorism Act of 2002.

7. Project Reporting

An annual work plan, budget, semiannual activity report summarizing results, impact analysis and results, trip reports, and research reports and summaries will be part of the reporting requirements. The IPM IL staff, USAID staff, and IPM IL technical advisory committee will review and provide feedback. Amendments or changes may be suggested during the annual review with respect to program and budget. Funding for the overall IPM IL budget, and for the subcontracts, is allocated on an annual basis. The project should have contingency plans in place for a 10% cut in funding to demonstrate abilities to achieve outcomes under an uncertain Federal fiscal environment.

8. Concept Note Information

Eligibility

US universities as defined under Section 296 (d) of Title XII of the Foreign Assistance Act, CGIAR centers, and host country institutions are eligible to apply as the lead institution for a period of 4.5 years. IPM IL will subcontract with the selected institution, which will then subcontract with collaborating organizations, at least one of which must include a U.S. university if not led by one. The institution making the application will be responsible for negotiating into sub-agreements with all collaborating organizations and for accounting to the Virginia Tech IPM IL Management Entity for all program accomplishments, expenditures, and reporting requirements. The concept note should identify the nature of any collaborations, the distribution of labor and activities between collaborating organizations, and the budget allocations among collaborating organizations.

The IPM IL strongly encourages concept notes from (or including) qualified Minority Serving Institutions. These include but are not limited to Historically Black Colleges and Universities, Predominantly Black Institutions, Hispanic Serving Institutions, Tribal Colleges and Universities, and Asian American, Native Alaskan and Pacific Islander Serving Institutions.

Importance of Human Resource and Institutional Capacity Development

Human and institutional capacity building (HICD) are core objectives, and concept notes should indicate how this will be strengthened. There should be a demonstration of meaningful collaboration in research and training between a lead institution and one or more Host Country institutions (public research institutions, universities, NGOs, etc.). Other partners such as U.S. universities and public and private sector research institutions (CGIAR, International agencies etc.) may also be subcontracted.

Project Funding, Budget Guidelines, and Cost Sharing

Approximately US\$ 0.8 million is available through November 16, 2019, for the project. The concept note must contain a summary budget with projects and subcontracts clearly delineated using the [budget template](#). Applicants are required to provide non-federal cost sharing that equals or exceeds any overhead earned on host country sub-awards. Favorable consideration will be given to proposals that further leverage project funding. At least 50% of the proposed budget should be spent to support host country activities. Travel costs for host and U.S. scientists should be included and explained.

Format and Evaluation of Concept Notes

Concept notes must be in English with narrative portions prepared in MS Word with Times New Roman font size 11 and 1.15 line spacing. The summary budget tables must be prepared in Microsoft Excel utilizing the attached template. Page size should be 8 ½ x 11” with 1” margins. Table 2 lists the guidelines for submission of concept notes.

Table 2. Guideline for submission.	
Component	Description
Title Page	Title; name, institution address, email, phone, and fax for lead PI at lead institution; lists members, total project budget, timeframe, and funds requested from IPM IL.
Executive Summary	Maximum one page
Narrative Description	Describes the project staff with clearly identified roles and responsibilities. Focal topics and geographic areas and research needs should be clearly articulated. Opportunities for supporting research sub-award projects, capacity building, knowledge sharing, and strategies for addressing gender issues should be described. Provide a management and staffing plan.
Anticipated Results	Provide a narrative description referring to the results framework with clear indicators of measuring project results.
Expected Impacts	Describe expected impacts and how they will be measured.
Activity Plan	Provide a timeline of activities over the 4.5-year life of the project
Budget	Provide a summary budget sheet and for the project lead institution and all project members that will receive funding. The format specified by IPM IL must be used.
Budget Justification	Provide a one-page justification/explanation of budget expenditures.
References	List references used in the concept note narrative
PI Qualifications	In one page, provide a description of the qualifications of the PI at the project lead institution and for all relevant members in the project.
Curricula Vitae	Provide the CV for each PI/collaborator whose participation is described in the concept note.

Page length and order of sections

The total page length of the concept note, excluding title page, one-page summary budget, one-page budget justification, reference list, PI qualifications, and CVs, is six (6) pages. Assemble all sections of the concept note into a single file and convert to a single pdf file for submission. The sections should appear in the following order: 1) title page, 2) executive summary, 3) narrative description, 4) anticipated

results, 5) expected impacts, 6) activity plan, 7) budget, 8) budget justification, 9) references, 10) PI qualifications, and 11) relevant CVs.

9. Selection Process

An independent Technical Advisory Committee will review and score all proposals according to the following criteria (Table 3). Input may be sought from ad hoc reviewers, host country institutions, USAID Missions, and other relevant development organizations in making the final selection.

Table 3. Criteria used for the evaluation of concept notes	
Criteria	Weight
Technical Merit, Including Management and Staffing	30%
Alignment with Target Country Research Priorities, IPM IL Goals and Objectives	20%
Knowledge Sharing and Outreach Activities	10%
Human and Institutional Capacity Development	10%
Gender programming	10%
Monitoring and Evaluation Activities	10%
Past Performance	10%

10. Submission of concept notes

Questions pertaining to concept notes should be sent to Dr. R. Muniappan, email: rmuni@vt.edu by 11:59 pm Eastern Time on February 6, 2015.

Concept notes should be submitted to Dr. R. Muniappan, email: rmuni@vt.edu by 11:59 pm Eastern Time on March 13, 2015.

Selected References

Kindlmann, P. 2012. Himalayan Biodiversity in the Changing world. Springer 226 p.

Cock, M.J.W., J.C. Biesmeijer, R.J.C. Cannon, P.J. Gerard, D. Gillespie, J.J. Jimenez, P.M. Lavelle and S.K. Raina. 2013. The implications of climate change for positive contributions of invertebrates to world agriculture. CAB Reviews 8 (028) 50 p.

Muniappan, R. and E.A. Heinrichs. 2013. Biodiversity and integrated pest management: working together for a sustainable future. Crop Protection 61 :102-103.

http://community.eldis.org/.5b9bfce3/Integrated%20ARCC%20Compendium_CLEARED.pdf