

Feed the Future Innovation Lab for Integrated Pest Management



Request for Concept Note

Innovative scientific research and technology transfer to develop and implement integrated pest management strategies for rice pests in Cambodia

Table 1. Calendar of activities

Activity	Date
Issuance of request for concept note	April 20, 2015
Deadline for questions	May 8, 2015
Deadline for receipt of concept notes	May 28, 2015
Review and selection of concept notes for promotion to full proposals	June 18, 2015
Requests for full proposals sent	June 25, 2015
Deadline for submission of full proposal	July 10, 2015
Proposal winner announced	July 24, 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-00A-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 cooperative agreement on 25, 2014 to serve as the management entity of the IPM IL. The IPM IL will develop, implement, and scale up IPM packages for selected crops. The IPM IL is now inviting the submission of concept notes designed to develop and implement *Innovative scientific research and technology transfer to develop and implement integrated pest management strategies for rice pests in Cambodia* combined with gender and human and institutional capacity building activities.

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.

USAID has identified this project on the management of rice pests in Cambodia as part of the overall program.

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

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

2. Overview

The IPM IL invites the submission of a concept note from U.S. universities, CGIAR and other international agricultural research institutions, and host country research institutions that may lead to an invitation to submit a full proposal to lead the project. Some illustrative Cambodian institutions and universities for collaboration are: Directorate of Agriculture, Royal University of Agriculture, Prekleap National College of Agriculture, CEDAC (NGO), CARDI (Cambodian Agricultural Research and Development Institute) and CAVAC (Private IPM business). Potential international collaborating agencies are, ADB (Climate- Resilient Rice Commercialization Program), CABI, IRRI, FAO, GIZ (Germany), existing USAID/Cambodia agricultural development projects, IAPPS and National Agricultural Research Institutes and Universities in the U.S.A., Asia, Europe, and Australia. Collaboration with Sustainable Intensification and other Innovation Labs is also encouraged. Project activities may be proposed for 4.25 years (August 1, 2015 to October 31, 2019). Following evaluation of the concept notes, full proposals will be requested from a short-list of applicants.

The previous IPM IL (IPM CRSP) emphasized the development of IPM packages for selected crops by addressing problems faced by the farmers by developing technologies alternative to the use of synthetic chemical pesticides. However, IPM IL does encourage use of low toxicity pesticides when biological control and other non-chemical control practices are not sufficient to control the pest/disease problem.

The project should:

- a. Diagnose major diseases, insect, mite, and nematode pests of rice and develop alternative technologies where synthetic chemical pesticides are now used as a primary control tactic.
- b. Develop rice IPM technologies and packages for the major rice ecosystem.
- c. Implement specific activities that support USAID Mission objectives with respect to IPM on rice. Research activities must be conducted at experiment stations and in farmers' fields with the use of appropriate statistical designs. The project must partner with relevant and appropriate host country organizations and may partner or significantly link with other U.S. universities, the CGIAR system, International Research and Development Centers of Agriculture, institutions in other countries, and development community partners. The project applicants should demonstrate links to and leverage from the work of other relevant projects and avoid unnecessary duplication.
- d. Transfer IPM technology to rice producers through a dynamic technology transfer program.
- e. Plan and conduct economic and gender impact evaluations of the IPM technologies and packages developed.

3. Research and Activity Priorities

Program objectives:

- Advance IPM science and develop IPM technologies, information, and systems for sound sustainable intensification;
- Improve IPM communication and education, and the ability of the 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 achieve the IPM IL program objectives, the project should:

- Identify and describe the technical factors affecting pest management;
- Identify and describe the social, economic, political, and institutional factors affecting pest management;
- Perform sound economic analysis comparing IPM approaches vs. traditional non-IPM approaches;
- Work with collaborating groups to design, test, evaluate, and disseminate appropriate participatory IPM technologies, packages, and strategies;
- Work with collaborating groups to promote training and information exchange on participatory IPM; and
- Work with collaborating groups to foster needed policy and institutional changes.

Sub-areas of inquiry:

(A) Adaptive Research for IPM Practices –The IPM system in Cambodia needs to be improved through adaptive research. Successful practices used in neighboring countries should be tested on-station and on-farm, demonstrated in farmer fields, and mass disseminated to farmers through an effective technology transfer approach. The project should 1) strengthen agricultural extension services for IPM; 2) strengthen and reorient applied and adaptive research; 3) strengthen the coordination between research and extension services; and 4) train farmers, research scientists, and technology transfer staff.

(B) New and Innovative Methods for Pest Management – New and innovative approaches to the development of IPM strategies should include management tactics for insects, nematodes, diseases, weeds, and vertebrate pests.

(C) Research on “Scaling up” Rice IPM –The project should evaluate approaches to scaling up rice IPM to assess which approach or combination of approaches is most cost-effective in reaching the masses with a sustainable IPM message that reduces pest losses and pesticide use and raises incomes for limited-resource farmers. Technology transfer through the involvement of value chain projects, private companies that produce agricultural inputs, and supply chain dealers is encouraged.

(D) IPM Policy Research –Policy analysis is an integral part of a successful IPM program. Policies that encourage the development of IPM and discourage the abuse of pesticides are crucial for economic development, the environment, and human health. An IPM policy research sub-project should be designed to promote the institutionalization of national plant protection policies.

Key IPM outcomes expected:

- Advancement of ecologically-based participatory IPM science, with ecologically-based IPM technologies, information, and systems for managing key rice pests in Cambodia.
- 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 and promotion of sustainable, resource-based local enterprises (especially local private sector producers of biological control agents) and their integration into regional, national, and international markets.
- A high degree of support of, complementarity with, and service to USAID/Cambodia objectives and existing field projects.

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. 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), 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 project design. The application must present a gender analysis that discusses important gender issues relevant to appropriate IPM research, development and extension activities. 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 project.

6. Project Design and Evaluation

The project must describe a results framework, including monitoring and evaluation, which is consistent with the overall objectives of the IPM IL: supporting research, knowledge sharing, and capacity building. It must include a plan for assessing economic, environmental, health, and gender impacts of its activities.

7. Environmental Compliance

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.

8. 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 hence 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.

9. Concept Note Information

Eligibility

U.S. universities as defined under Section 296 (d) of Title XII of the Foreign Assistance Act, CGIAR and other international agricultural research centers, and host country institutions are eligible to apply as the lead institution for a period of 4.25 years. The 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 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 for concept notes to include, 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, AIRCA, International agencies etc.) may also be subcontracted.

Project Funding, Budget Guidelines, and Cost Sharing

Approximately **US\$ 2.0 million** is available through October 31, 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 which 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 membership with clearly identified roles and responsibilities of all members. 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 4.25-year life of the project
Budget	Provide a summary budget sheet 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 budget summary, one-page budget justification, reference list, PI qualifications, and CVs, is 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.

10. 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 and IPM IL 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%

11. 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 May 8, 2015.

Concept notes should be submitted to Dr. R. Muniappan, email: rmuni@vt.edu by 11:59 pm Eastern Time on May 28, 2015.

Selected References

Cother, E.J., D.H. Noble, R.J. Van De Ven, V. Lanoiselet, G. Ash, N. Vuthy, P. Visarto and B. Stodart. 2010. Bacterial pathogens of rice in the Kingdom of Cambodia and description of a new pathogen causing a serious sheath rot disease. *Plant Pathology* 59: 944-953.

Gurr, G.M., S.D. Wratten, W.E. Snyder and D.M.Y. Read (Eds.). *Biodiversity and Insect Pests: Key Issues for Sustainable Management*. John Wiley & Sons, Ltd., UK. 339 p.
<http://onlinelibrary.wiley.com/book/10.1002/9781118231838>

Heinrichs, E.A. (ed.). 1994. *Biology and Management of Rice Insects*. International Rice Research Institute, Los Baños (Philippines) and Wiley Eastern Limited, New Delhi. 779 p.

Heinrichs, E.A. and O.M. Mochida. 1984. From secondary to major pest status: the case of insecticide-induced rice brown planthopper, *Nilaparvata lugens*, resurgence. *Prot. Ecol.* 7: 201-218.

Heong, K.L., M.M. Escalada, N.H. Huan, V. H. Ba Ky, L.V. Thiet and H.V. Chien. 2008. Entertainment-Education and rice pest management: A radio soap opera in Vietnam. *Crop Protection* 27:1392-1397.

- Heong, K.L. and B. Hardy (eds.). 2009. *Planthoppers: new threats to the sustainability of intensive rice production systems in Asia*. Los Baños (Philippines): International Rice Research Institute. 460 p.
- Heong, K.L. and K.G. Schoenly. 1998. Impact of insecticides on herbivore-natural enemy communities in tropical rice ecosystems. Pp 381-403 in P.T. Haskell and P. McEwen Eds., *Ecotoxicology: Pesticides and Beneficial Organisms*, Chapman and Hall London.
- Jahn, G.C., K. Bunnarith, P. Sophea and Chanty. 1997. Pest Management in Rice. P. 83-91 In Nesbitt, H.J., ed. *Rice Production in Cambodia*, Manila (Philippines): International Rice Research Institute. 112 p.
- Jahn, G.C., J.A. Litsinger, Y. Chen and A.T. Barrion. 2007. Integrated Pest Management of Rice: Ecological Concepts. p. 315-366 In: Koul, O. and G.W. Cuperus (eds.). *Ecologically Based Integrated Pest Management*. CAB International, Wallingford, UK 462 p.
- Kenmore, P.E. 1991. Indonesia's Integrated Pest Management—a Model for Asia. FAO Rice IPM Programme, FAO-Manila, Philippines.
- Nesbitt, H.J. 1997. *Rice Production in Cambodia*. Cambodia-IRRI-Australia Project. International Rice Research Institute, Manila (Philippines). 112 p.
- Norton, G.A. K.L. Heong and J. A. Cheng. (2014). Future planthopper management: Increasing the resilience of rice systems. **In** *Rice Planthoppers: Ecology, Management, Socio Economics and Policy*. Ed. by Heong, K.L.J.A. Cheng and M.M. Escalada, Springer, Dordrecht. pp. 211-227.
- Settle, W.H., H. Ariawan, E.T. Astuti, W. Cahayana, A.L. Hakim, D. Hindayana, A.S. Lestari and Pajarningsih. 1996. Managing tropical rice pests through conservation of generalist natural enemies and alternative prey. *Ecology* 77(7) 1975-1988.
- Shui-Chen Chiu. 1979. Biological control of the brown planthopper. p. 335-355 In: *Brown planthopper: threat to rice production in Asia*. International Rice Research Institute, Los Baños, Philippines. 376 p.
- Teng, P. 1994. Integrated Pest Management in Rice. *Expl. Agric.* 30:115-137.