Feed the Future Innovation Lab for
Collaborative Research on Sustainable Intensification (SIIL)

Request for Concept Note

Research Output Dissemination Study

Calendar

Activity	Date
Date of issuance of request for concept note	September 7, 2017
Deadline for receipt of concept note	October 5, 2017
Review and selection of concept notes promoted to full proposals	Mid-October
Date of invitations for full proposals	Late-October
Anticipated deadline for submission of full proposals	November 22, 2017

This request for concept notes is issued by Kansas State University (KSU), the Management Entity of the Feed the Future Innovation Lab for Collaborative Research on Sustainable Intensification (SIIL). The SIIL is funded by the U.S. Agency for International Development under cooperative agreement AID-OAA-L-14-00006. The SIIL management entity offices are located at Kansas State University, College of Agriculture, 108 Waters Hall, 1603 Old Claflin Place, Manhattan, Kansas 66506. For additional information about the SIIL please contact Dr. Vara Prasad, SIIL Director, E-mail: vara@ksu.edu, or visit the program's webpage: http://www.k-state.edu/siil. For questions related to this Request for Concept Note (CN) please contact Dr. Jan Middendorf, SIIL Associate Director, E-mail: jmiddend@ksu.edu.

I. Objective

The objective of the Research Output Dissemination Study is to gain a better understanding of the dissemination, use, and adoption of research outputs of the Feed the Future Innovation Labs (ILs) and Collaborative Research Support Programs (CRSPs) after they are transferred to or taken up by an entity that is facilitating their dissemination and use by end users.

II. Background

The overarching goal of the Global Food Security Strategy (GFSA) is to sustainably reduce global hunger, malnutrition, and poverty. Research investments are an important component to the implementation of the GFSA because research supplies the innovations necessary to increase and sustain agricultural productivity and improve the nutritional status of women and children. A key element of the research investments involves leveraging the scientific expertise of U.S. university researchers to advance developing country agriculture in close collaboration with local and regional research institutions. GFSA now supports a portfolio of 24 U.S. university-led Feed the Future Innovation Labs (ILs) involving over 60 U.S. colleges and universities, the CGIAR, private sector, industry and others.

The IL research outputs are measured by monitoring their progress annually against indicators developed by the Feed the Future (FtF) Initiative that are relevant to the scope of their project. The indicator that all ILs and research projects report on is the following:

- *4.5.2(39) [aka.EG.3.2-7]: Number of technologies or management practices in one of the following phases of development –*
    - *Phase I (under research)*
    - *Phase II (under field testing)*
    - *Phase III (made available for transfer)*

Although the process may be more elaborate and may vary by category of innovation, the phases within this indicator follow the typical conceptualized pathway of an innovation when moving from the lab testing phase to the phase when it is ready to be transferred and disseminated. The data on this indicator is captured in the Feed the Future Monitoring System (FTFMS) and is considered an output level indicator.

The extent to which the developed technologies or innovations are being used by farmers and others along the value chain are not captured under this indicator. Once the ILs complete their research and produce the innovation, they may transfer the innovation to the private sector, national agriculture research or extension systems, or other entities that facilitate its dissemination to intended users. After the transfer, the ILs may have very limited involvement in the process and thus have little to no knowledge of how, or whether, the innovation is being used. This presents a challenge when trying to communicate the ILs' contribution to higher level outcomes or the linkages to the impact level of FtF.

After consultation on a strategy for better measuring the research impacts of the ILs, the Bureau for Food Security (BFS) supported the SIIL to conduct a Research Uptake Study that was completed in December 2016. The main objective of the study was to develop a survey and analyze the dissemination and uptake of the Phase III technologies or innovations produced by the ILs. The results from the study helped foster a better understanding of how the innovations from the ILs were being transferred to organizations that were facilitating their dissemination and adoption.

The Research Uptake Study reflected the survey responses from 12 of the 24 Feed the Future Innovation Labs on 130 innovations. These innovations were largely categorized as biological (39%), management and cultural practice (35%), and mechanical and physical (14%) in nature. Of the 130 surveyed innovations, 105 (81%) were reported as transferred to a dissemination entity. There were 182 cases of innovation uptake that involved 96 unique entities. These entities included host country government organizations (34%), the private sector (24%), host country academic organizations (18%), and non-governmental organizations (10%). Results from the survey clearly indicate that there are numerous innovations that have been developed by ILs and are being taken up by various dissemination entities. However, the survey results did not elaborate on how innovations are reaching and being used by end users at scale.

Therefore, the BFS requested the SIIL to launch the Research Output Dissemination Study. This next stage will follow a subset of those innovations further down the impact pathway to gain a better understanding of how the innovations are disseminated and how they are used by the

intended end users. The Research Uptake Study and the Research Output Dissemination Study will together provide both quantitative and qualitative data to demonstrate the outcomes of the ILs on the broader FtF objectives and goals. In addition, there is interest in learning about better approaches for systematically tracking the outcomes and impacts of future research investments.

III. Overview of Research Output Dissemination Study

The Research Output Dissemination Study is designed to improve the understanding of the pathways to adoption, and eventually the impact, of BFS research investments. The Research Output Dissemination Study will:

1) determine if and how dissemination, use and adoption of a subset of transferred innovations identified in the Research Uptake Study is occurring;

2) observe how entities working on dissemination, use, and adoption are working through commercial, public and partnership pathways, and engaging with entities in each of these spheres including the ILs during the dissemination process;

3) evaluate the design and implementation of the dissemination plans and relevant enabling environment factors for the innovations according to market analysis techniques as well as scaling theory and practice; and

4) provide analysis of the current and potential outcomes and impacts of the innovations on the target groups.

Dissemination, use and adoption are complex processes, which make them challenging to monitor and measure. However, they are all important components of the research impact pathway, and thus, must be considered in a research assessment that seeks to measure actual and projected impact[1]. There have been both recent and ongoing calls to re-conceptualize adoption as a process that is much more complex than previous studies that presented the adoption process as binary and linear with insufficient emphasis on other important aspects of technological change[2]. Therefore, this study will be an attempt to advance the BFS's understanding of dissemination, use and adoption in general as well as document dissemination in a manner that will both begin to elucidate the multidimensional impacts of BFS research outputs and inform the design of the final phase of the research impact assessment.

There has been a significant amount of research on diffusion modeling, characterizing dissemination pathways, and creating market and alternative strategies for scaling new technologies[3]. However, there are still gaps in both knowledge and implementation of the process prior to achieving scale where innovations have been developed but have not reached widespread adoption. This gap represents a critical bottleneck to accelerating the impact of

[1] Alex, G. (1998). Assessing Agricultural Research: Towards consensus on a framework for performance and impact assessment. The World Bank, Washington, DC.

[2] Glover, D. and J. Andersson. (2016). The adoption problem; or why we still understand so little about technological change in African agriculture. Outlook on agriculture, 45(1):3-6

[3] Johnson, M. (2015). Literature Review: Scaling agricultural technologies and innovation diffusion. Management Systems International, Arlington, VA.

research investments[4]. Moreover, it has been recognized that scaling up, or the promotion of widespread adoption of innovations, typically requires systemic changes in value chains and market systems, which is generally not a straightforward, easily replicable process[5].

The concept of the innovation system further informs the dissemination process[6]. An agricultural innovation system is a network of organizations and individuals (ILs, USAID Missions, input/service suppliers, producers, manufacturers, NGOs, retailers, government entities, etc.) that bring new agricultural innovations into economic use in conjunction with the institutions and policies that affect the behavior and performance of the actors within the system[7]. It has been recognized by others, and exemplified during the Research Uptake Study, that IL innovations may be transferred to multiple entities before reaching the end user, and any investigation into impact should consider such circumstances as they can further characterize the dissemination pathways of these particular innovations to the end user at scale[8]. Additionally, the ILs that participated in the Research Uptake Study reported that they continued to engage with the recipient entity in approximately 65% of the cases of innovation transfer, and it would be useful to further characterize how ILs engage the recipient entities both before, during and after the innovation transfer process. As an illustrative example, the innovation introduction and scaling efforts of the Purdue Improved Crop Storage (PICS) bags were shared by various stakeholders including Purdue University, USAID, private sector partners, community-based organizations, international non-governmental organizations and the public sector[9].

IV. Scope of the Research Output Dissemination Study

The scope of the Research Output Dissemination Study is to understand how the IL innovations are being disseminated and used; and where applicable and feasible, the study should capture adoption as well. This Request for CN and eventual Request for Proposal (RFP) is designed to identify experts that can conduct further analysis of the dissemination plans of the entities where IL innovations have been transferred and conduct follow-on field work of selected innovations to collect qualitative and quantitative data on their actual use and dissemination. It will be important to identify and consider the effects of the enabling environment on dissemination (i.e. the political, social, market and regulatory environment that may facilitate or constrain the dissemination of the interested innovation in the target area.) Additionally, the network of various key individuals and groups within the relevant agricultural innovation systems in the

[4] National Academies of Sciences, Engineering, and Medicine. (2017). Review of science, technology, innovation and partnership (STIP) for development and implications for the future of USAID. Washington, DC: The National Academies Press. doi:10.17226/24617.

[5]Kohl, R., Foy, C. and G. Zodrow. (2017). Synthesis report: Review of successful scaling of agricultural technologies. Management Systems International, Arlington, VA.

[6] Pray, C., Masters, W. and S. Ayoub. (2017). Impacts of Agricultural Research on Poverty, Malnutrition and Resilience.

[7]World Bank. (2012). Agricultural innovation systems: An investment sourcebook. Washington, DC.

[8]Klerkx, L., Mierlo, B. and C. Leeuwis. (2012). Chapter 20: Evolution of systems approaches to agricultural innovation: concepts, analysis and interventions. *Farming Systems Research into the 21st Century: The New Dynamic.* Darnhofer, I., Gibbon, D., and B. Dedieu (eds.), Springer Science+Business Media, Dordrecht

[9]Foy, C. and M. Wafula. (2016). Scaling up of hermetic bag technology (PICS) in Kenya. Management Systems International, Arlington, VA.

target countries, including international research institutions such as the ILs and CGIARs, should also be considered for analysis. The contribution of ILs and other partners in the dissemination pathway could include but is not limited to innovation transfer, knowledge sharing, innovation or product development feedback, supply chains and performance monitoring.

The data from the Research Uptake Study should also be analyzed further by the selected experts in order to gain more understanding of the research uptake process and how it links to the dissemination process. The analysis will uncover trends in the research uptake process that should help to further inform the Research Output Dissemination Study as well as highlight opportunities to accelerate research impacts.

The Research Output Dissemination Study aims to include 5 to 10 IL innovations that are being disseminated actively in 3 to 4 target countries. The IL innovations will be a subset of the innovations from the Research Uptake Study that were identified as innovations of which transfer is complete and the recipient entity (or next user) is working to maintain the transfer. The subset of innovations will represent various:

1) types of dissemination entities (i.e. private, NGO, governmental, academic);
2) categories of innovation (i.e. biological, chemical, mechanical and physical, management and cultural, other, etc.);
3) economic archetypes of innovations (e.g. public goods, private goods, common goods, etc.), which is useful for identifying their suitability for private or public delivery pathways[10]; and,
4) ILs as the origin of the innovations. Country selection will be determined using information from the Research Uptake Study and will seek to identify countries where multiple innovations are being disseminated for efficiency and contextual comparison.

The types of food security-related innovations that may be included in the study are diverse. Examples include seeds of improved crop varieties (e.g. disease-resistant beans, insect resistant cowpea), management and production practices (e.g. plant grafting technologies, animal and aquaculture feeds), financial products (i.e. index-based insurance), and other technologies (e.g. solar dryers, crop moisture meters, biological pest and disease control technologies).

Possible Methodologies and Considerations

The awardee will need to develop a framework that will set out how they will evaluate dissemination, use and adoption of the selected innovations. The preferred framework will draw upon current understandings of scaling theory, diffusion and adoption of innovations theory, and agriculture innovation systems concepts.

A preliminary desk review should be followed by complementary field-based analyses. The awardee should expect to implement both quantitative and qualitative analyses to evaluate dissemination of the selected innovations. Documents such as the relevant project management and monitoring reports will be made available and analyzed as part of the desk review process.

[10]Feed the Future: Building Capacity for African Agricultural Transformation Project (Africa Lead II). (2016). Early Generation Seed Studies Synthesis Report.

Key informant interviews of those with experience and knowledge of the innovation transfer and dissemination process should be completed including IL staff, partners and subawardees, dissemination entity staff, and local experts such as national agricultural research center staff. In-person stakeholder interviews and field visits will be crucial to understanding the innovation in context. The field-based analyses should include the collection of observational data on how the product performs in the context of its target region, how the various organizations and individuals within the innovation systems and value chains interact, and how the end users interact with the product and engage with the members of the innovation system. Quantitative data related to potential user population, speed of diffusion, initial uptake and reuse, and new user acquisition cost should be acquired and may include production and sales records, if available, as well as data from other sources such as national agricultural research centers and international socioeconomic sources, if applicable.

In addition, there are a considerable number of tools that can be employed to evaluate dissemination, use and adoption of the selected number of the 105 innovations that have been reportedly transferred including population-representative surveys, key informant interviews, focus group discussions, market analyses, social network evaluations, econometric modeling, geospatial technology, and other more novel techniques such as genotyping for crop varietal identification[11]. Tools selected must be commensurate with the project budget.

It is important that the dissemination studies are carried out in a manner that will allow USAID to use the information to improve the effectiveness of their research programming and communicate actual and potential impact of its research investments. Issues to consider include ensuring representative sampling is done in a manner to allow for generalizable results, applying considerable deliberation into the development of any survey instruments utilized, pre-setting common standards and definitions, storing and collecting data in a manner that most efficiently facilitates its further use and analysis by USAID, and giving further thought to common implicit assumptions that underlie adoption studies[12].

Additionally, any interviews, surveys or econometric modeling performed must be informed by ethnographic techniques[13], social constructionist approaches to science and technology studies, and adoption theory[14]. Enabling environments also have a significant impact on dissemination, use and adoption including cultural influences on decision-making, government policy, regulations, and market factors. At the farmer level, access to resources such credit, land tenure, and awareness and perceptions of innovations influence the decision to use and adopt a particular

[11]Walker et al., (2014). Measuring the Effectiveness of Crop Improvement Research in Sub-Saharan Africa from the Perspectives of Varietal Output, Adoption, and Change: 20 Crops, 30 Countries, and 1150 Cultivars in Farmers' Fields. Synthesis Report for Objectives 1 and 2 of Bill & Melinda Gates Foundation's Diffusion and Impact of Improved Varieties in Africa (DIIVA) Project

[12] Doss, C.R. 2003. Understanding Farm Level Technology Adoption: Lessons Learned from CIMMYT's Micro Surveys in Eastern Africa. CIMMYT Economics Working Paper 03-07. Mexico, D.F.: CIMMYT.

[13] Mazuze, F. (2007). Analysis of Adoption of Orange-Fleshed Sweetpotatoes: The Case Study of Gaza Province in Mozambique. Institute of Agricultural Research of Mozambique.

[14] Bandiera, O. and I. Rasul. (2002). Social Networks and Technology Adoption in Northern Mozambique. The Suntory Centre.

innovation[15]. Scaling theory and its emphasis on indirect beneficiaries and spillover will also be important to consider. Georeferenced household data will enable further analysis of the data as well as visualization of beneficiary profiles and innovation diffusion. Genotyping, if employed, would be useful to overcome the challenges associated with varietal identification and attribution when assessing diffusion and adoption.

V. Eligibility

All types of US and non-US entities are eligible to apply provided they are not excluded from U.S. Government acquisition and assistance awards (this may be verified through the U.S. Government System for Award Management at https:www.sam.gov/portal/public/SAM and by checking the U.S. Department of Treasury Office of Foreign Assets Control List of Specially Designated Nationals (SDNs) and Blocked Persons and by checking the United Nations Security Designation Lists). It is the applicant's responsibility to ensure that no individuals or organizations proposed for participation in the proposal activities are excluded by the U.S. Government. After award, it is the recipient's responsibility to ensure that no transactions are conducted with excluded parties.

The SIIL strongly encourages applications from, or for applicants to include, qualified Minority Serving Institutions including, but 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.

Interested applicants must submit their CN no later than 11:59 pm Central Time on October 5, 2017. Invitations to submit full proposals will be extended within approximately 3 weeks of the CN submission deadline. Full proposals must be submitted by 11:59 pm Central Time on November 22, 2017 for consideration, and awards will be made approximately one month later. The anticipated start date of the project is January 1, 2018 with an end date of December 31, 2018.

VI. Anticipated Deliverables for Project Reporting

An initial work plan, preliminary findings, and evaluation reports, along with an activity report summarizing trip reports will be part of the reporting requirements. The anticipated deliverables for the awardee are as follows:

1. Initial Work Plan
2. Preliminary Findings - After Initial Work Plan is approved
    a. Further analysis of Research Uptake Study data
    b. 1-2 pages per selected innovation that outlines rationale for selection and findings from the document analysis and identifies the information that will be collected during the field-based site visits (e.g., definition, scalabity assessment, proposed user population; etc.);
3. Draft Evaluation Report

[15] Adesina, A. and M. Zinnah. (1993). Technology characteristics, farmers' perceptions and adoption decisions: A Tobit model application in Sierra Leone. Agricultural Economics, 9:297-311.

4. Final Evaluation Report & Data

The SIIL staff and USAID staff will review documents and provide feedback. Amendments or changes may be suggested during the review and implementation process.

VII. Project Funding and Budget Guidelines

This is a short-term research project with a duration of up to 12 months starting on January 1, 2018 to December 31, 2018. The intent of the Request for Proposal is to fund one proposal up to US $500,000. The CN must contain a summary budget with costs allocated to project activities clearly delineated using the template available at:

http://www.k-state.edu/siil/documents/rods_cn/SIIL-RODS-CN-Budget-Template.xlsx

Budgets should reflect non-federal cost sharing. There are no matching requirements although USAID and SIIL will give favorable consideration to budget proposals that leverage funding, where appropriate.

VIII. Guidelines for Submission

All Concept Notes (CNs) should be submitted at: https://rfx.piestar.com/siil/42 beginning September 7, 2017 but not later than 11:59 pm Central Time on October 5, 2017. To submit, all applicants will need to create an account by following the detailed submission instructions in the link above. If you have technical difficulties with the submission, click on "Help" within Piestar proposals. The CN will need to be uploaded in a single pdf file and contain the following components in the required format outlined in the table below:

Component	Description
Title Page	Project title, PI, Co-PIs and collaborator names (if applicable), along with titles, institution name, institution address(es), emails, phone numbers, and fax for lead PI at the lead institution List of collaborating organizations, if applicable Total project budget requested from SIIL
Executive Summary	Maximum one page
Narrative Description	Describe project design and methodologies Describe project team expertise along with roles and responsibilities
Anticipated Results/ Expected Outcomes	Provide a logic model articulating goal, objectives, and expected outcomes
Activity Plan	Provide a timeline of activities over the 12-month project period
Budget	Provide a summary budget sheet for the project lead institution and all project partners that will receive funding. The format specified by SIIL must be used.
Budget Justification	Provide a one-page justification/explanation of budget expenditures
References	List references used in the CN narrative
PI Qualifications	Provide a one-page description of the qualifications of the PI at the project lead institution and for all relevant project partners

Curricula Vitae	Provide a two-page CV for each PI/collaborator whose participation is described in the CN

The Concept Note should be no more than five (5) pages in length, excluding title page, one-page summary budget, one-page budget justification, reference list, PI qualifications, and CVs. The narrative must use Times New Roman font size 11; single spaced, with 1" margins. The name of the lead institution and page numbers should be indicated in the header on each page.

Assemble all sections of the CN into a single file and convert to a single pdf file for submission. The sections should appear in the following order: title page, executive summary, narrative description, anticipated results and expected impacts, activity plan, budget, budget justification, references, PI qualifications, and relevant CVs.

IX. Selection Process

The Concept Note will be reviewed according to the following criteria.

Criteria
• Technical merit (e.g., framework, project design, and methodologies)
• Logic model articulating goal, objectives, and expected outcomes
• Activity implementation plan and timeline
• Team composition, qualifications, and expertise
• Budget (e.g., adequacy, reasonableness, and effectiveness for size and scope)