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EVALUATION

Final Evaluation of the Agricultural Innovation Partnership Project

August 2014

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FINAL EVALUATION OF THE AGRICULTURAL INNOVATION PARTNERSHIP PROJECT

FINAL PERFORMANCE EVALUATION

September 2014

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ACRONYMS

AAU	Assam Agricultural University
AEISP	Agriculture Education and Innovation System Project
AIP	Agricultural Innovation Partnership
BHU	Banaras Hindu University
CASA	Church's Auxiliary for Social Action
FGD	Focus Group Discussion
FSSAI	Food Safety and Standards Authority of India
FTF	Feed the Future
GI	Group Interview
Gol	Government of India
ICAR	Indian Council of Agricultural Research
IFFCO	Indian Farmers and Fertilizer Cooperative
IP	Intellectual Property
KII	Key Informant Interview
KVK	Krishi Vigyan Kendras
NGO	Non-Governmental Organization
NRM	Natural Resources Management
OSU	Ohio State University
OTTC	Office of Technology Transfer and Commercialization
SAU	State Agricultural University
SI	Social Impact, Inc.
SVPUAT	Sardar Vallabhbhai Patel University of Agriculture and Technology
TCL	Tata Chemicals Ltd.
TDIIA	Technology Dissemination and Income Improvement Activities
TNAU	Tamil Nadu Agricultural University
ToT	Training of Trainers
US	United States
USAID	United States Agency for International Development
VC	Vice Chancellor

EXECUTIVE SUMMARY

PROJECT BACKGROUND

The Agricultural Innovation Partnership (AIP) was initiated in 2011 with the goal of improving the livelihoods of rural populations through several education-related activities to create technical

innovations, teaching capacity, and develop extension links within Indian higher educational institutions. These innovations were intended to diversify agricultural productivity and strengthen rural development to be more responsive to local market demands. At the time of the evaluation, the project was in the fourth year of implementation and was coming to a close.

EVALUATION PURPOSE AND EVALUATION QUESTIONS

The objective of this review is to conduct a final performance evaluation of the Agriculture Innovation Partnership (AIP) project, a Feed the Future (FTF) project implemented through partnerships between United States (US) land grant and Indian universities. The specific purpose of the evaluation is to gain an independent assessment of the AIP project's performance to provide lessons learned and help guide the Mission on future project design under the FTF program.

Evaluation Questions, Design, Methods, and Limitations

The specific evaluation questions were as follows:

1. What lessons/recommendations from the innovations under this project can inform and/or feed into USAID/India's future strategy and have potential for global scale-up?
2. Of the 30-plus courses that have been developed, which courses are perceived by key stakeholders to be best suited to train individuals in the modern labor market, and what has led the various stakeholders to draw these conclusions?
3. To what extent has the AIP model of partnership between universities been successful in building the capacity of the selected universities to transfer and replicate practices with other Indian universities? What recommendations do key stakeholders make to adapt this model of partnership at universities for implementation in other regions?
4. To what extent did the AIP interventions address gender issues in agricultural education and extension in agricultural universities?
5. Of all the program components, which factors and interventions do stakeholders perceive to have the most potential for transfer to other institutions? Which are perceived to have the highest potential for development impact and long-term sustainability and why?
6. What are the specific factors, both contextual and programmatic, that stakeholders perceive to have contributed to the successful uptake of AIP's activities (if uptake occurred)?

The evaluation process involved individual and group interviews of a qualitative nature with AIP implementers and beneficiaries. Since the project was still ongoing and many activities were still in the ramping-up stages of implementation, the team is unable to determine the long-term impacts of project activities.

The activities reviewed most closely by the team included curriculum and training courses, teaching excellence, e-learning, food product development, and extension (including mobile solutions). In combination, these activities create a continuum that includes the universities farm and rural households, and enterprises.

FINDINGS AND CONCLUSIONS

Evaluation Question 1

Findings

E-learning users and faculty stated that with professors taking an interest in the e-learning system, there is an increase in interaction between students and faculty. However, there is no organized “feedback system” between students and faculty regarding the relationship of the e-learning tools and the classroom lectures. AIP has also organized one-day awareness trainings for 3,009 farmers (as of March 2014), and then worked with universities and KVK teams to provide post-training follow-up and assistance. AIP has provided KVK extension agents with mobile devices to respond to farmers’ problems in real time, and 78% of farmers (1056/1351) report they have received an answer to a question they submitted using the mobile application.

Conclusions

There is demonstrated success for e-learning, Technology Dissemination and Income Improvement Activities (TDIIA) trainings, mobile tablets, and certificate courses. The partnership between universities and KVK teams to provide post-training follow-up and assistance from the TDIIA trainings appears to have been valuable to training participants, and such a model could be a positive lesson learned to consider for strategy and scale-up. Though the fixed cost of mobile solutions may be high, the accelerated information sharing feature that it brings may contribute to an increase in productivity on the part of farmers.¹

Evaluation Question 2

Findings

The seven certificate courses developed in the AIP program transfer skills to farmers and small entrepreneurs in rural localities using a combination of faculty, extension agents, university researchers, NGOs, and private corporations. Of the 23 subject matter interventions suggested by various agribusinesses in the BHU/SVPUAT survey, 13 were addressed to some extent within the 27 courses developed by AIP for inclusion in the university curricula

Conclusions

AIP has addressed many of the agricultural and labor skill issues that have been raised through the baseline surveys and from general research on the technical agriculture needs in India. The certificate courses train individuals to better manage their farm enterprises and meet local market conditions. Private sector participation ensures an added focus on commercialization of farm produce. These programs also offer an opportunity to develop courses that can be directed to specific skills related to agribusiness skills in rural areas.

Evaluation Question 3

Findings

Teaching excellence workshops were conducted for faculty in all three universities with the introduction of a Training of Trainers (ToT) model. They are incorporating elements of student evaluation throughout their classes and including learner-centered teaching approaches.

¹ The evaluation team did not comment on any actual or perceived increases in productivity, as observation and measurement of productivity outcomes from AIP are beyond the scope of this evaluation.

Conclusions

The shared experiences between the US partners and the Indian state agriculture universities (SAUs) have resulted in faculty at all three partner universities enhancing their training skills and, more importantly, demonstrating improved teaching methods. In particular, the ToT methodologies emphasized by the US professors have improved teacher ability to train other faculty members. Suggestions from the Sathguru management staff for expanding the adaption of this AIP model include providing information at various educational forums, such as the Dean's Committee meetings and the Annual Vice Chancellors Conference of Agriculture Universities.

Evaluation Question 4

Findings

Women participants in trainings expressed great interest in the trainings and their hopes for more training opportunities. The low number of women trainees is the result of many social and economic factors.

Conclusions

Women expressed great interest in commercializing their farm enterprises, as related during interview discussions with women in various trainings. Women belong to cooperatives and self-help groups for entrepreneurial reasons, which could serve as venues for taking training to the villages. Though the project did see participation from women, this participation was not necessarily intentional, and there were not project activities cited that were explicitly geared toward reducing the gaps between males and females in the agricultural sector. There remain substantial opportunities to address gender in project activities.

Evaluation Question 5

Findings

When the media studios are completed at each of the three universities, this will facilitate the taping of lectures, adding to the current library of lectures in the system. The mobile devices also have the potential to provide solutions to farmers' problems, while the certificate courses encourage best practices on farmers' fields and assist in starting businesses. The Indian partner universities' interest in this program was demonstrated by their investments made in the system—indicating potential for sustainability. The plan to use agricultural products in the processing of food products for commercialization offers an opportunity to expand farmers' sales and income from providing raw materials. Since there is no monitoring system in place, the impact on student learning is difficult to determine.

Conclusions

There is a clear set of models developed that can easily be transferred to other institutions. TDIIA trainings and the use of the tablet devices have improved Krishi Vigyan Kendras (KVK) extension relations with farmers. Each of these activities is potentially sustainable, but they do not generate income and are thus dependent on government or external funding. The e-learning program has a high initial fixed cost, in that universities need to be willing to invest in media studios, e-learning equipment, and faculty training, but once the infrastructure is in place, it seems that it can be sustained. Should non-partner universities be willing to make this initial investment, this will greatly improve the potential for transfer to other institutions.

Evaluation Question 6

Findings

The three partner universities have made substantial commitments to the e-learning programs, including equipment, space, and staff time. Ten food products are in the research and development stage among the three universities within the AIP partnership. An additional three products have been commercialized through the AIP system. External subject-matter experts, the involvement of local NGOs, private sector companies, and cooperatives in the trainings, as well as KVK follow-up with farmers have all contributed to the success of the TDIIA one-day awareness training programs.

Conclusions

The support of the partner universities to the AIP efforts at introducing innovations into the learning process has been instrumental in uptake. AIP funding played a decisive role in initiating activities in the absence of university budgets. Food product development and commercialization testing, approval, and authorization processes curtail progress and uptake.

Recommendations

1. A feedback mechanism should be put in place immediately to better determine the results and impact of AIP innovations and activities through the end of the project. AIP might consider a monitoring relationship with the Indian Council of Agriculture Research (ICAR) that would look at ongoing project activities and also consider sustainability issues as innovations and support systems are put in place.
2. AIP activities should be assembled as “packages” for introduction to government and university forums as formal presentations for inclusion in future education and extension development activities.
3. AIP should prepare a proposal suggesting that the certificate courses and the university-to-farmer extension model be incorporated into a regularly funded program at each university.
4. AIP’s criteria for acceptance to trainings and venues should be revised to allow for more women participants in the program.
5. A proactive approach to completing the development of these various activity models and presenting them to other SAUs through ICAR should be a priority for the balance of this Work Plan year for AIP.
6. AIP should generate a proposal, in conjunction with ICAR, the universities, and state governments—including budgets and staffing—for support to the e-learning system, extension service and mobile device program, and the certificate training program.
7. Food product development should be linked to private-sector programs that can overcome some of the long-term issues facing the commercialization of food products.
8. AIP should study the university-to-farmer relationship to better understand the sustainability issues so that a potentially beneficial program does not end with AIP.

EVALUATION PURPOSE AND EVALUATION QUESTIONS

EVALUATION PURPOSE

The objective of this review is to conduct a final performance evaluation of the Agriculture Innovation Partnership (AIP) project, a Feed the Future (FTF) project implemented through partnerships between United States (US) land grant and Indian universities. The specific purpose of the evaluation is to gain an independent assessment of the performance of the AIP project to provide lessons learned and help guide the Mission on future project design under the FTF program. The results of this evaluation, conducted by a team of evaluators from Social Impact (SI), will assist the Mission in identifying which activities were effective or ineffective in terms of agricultural education and extension, private-sector engagement, and enhancing innovation in targeted agricultural Indian universities. United States Agency for International Development (USAID)/India will use this evaluation to inform a) potential new designs that increasingly focus on agricultural education systems and b) the extension of the AIP project in Malawi. Since AIP is an innovative project, the evaluation is an opportunity to draw lessons learned for potential scale-up and application in new country contexts in Africa.

EVALUATION QUESTIONS

The evaluation approach was designed to answer questions that address aspects of performance and process. SI reviewed the statement of work for the AIP evaluation and suggested some amendments to the evaluation questions. The revised questions that SI responded to in this evaluation are:

1. What lessons/recommendations from the innovations under this project can inform and/or feed into USAID/India's future strategy and have potential for global scale-up?
2. Of the 30-plus courses that have been developed, which courses are perceived by key stakeholders to be best suited to train individuals in the modern labor market, and what has led the various stakeholders to draw these conclusions?
3. To what extent has the AIP model of partnership between universities been successful in building the capacity of the selected universities to transfer and replicate practices with other Indian universities? What recommendations do key stakeholders make to adapt this model of partnership at universities for implementation in other regions?
4. To what extent did the AIP interventions address gender issues in agricultural education and extension in agricultural universities?
5. Of all the program components, which factors and interventions do stakeholders perceive to have the most potential for transfer to other institutions? Which are perceived to have the highest potential for development impact and long-term sustainability and why?
6. What are the specific factors, both contextual and programmatic, that stakeholders perceive to have contributed to the successful uptake of AIP's activities (if uptake occurred)?

PROJECT BACKGROUND

The AIP, a \$5.5 million project under a Memorandum of Understanding with the Ministry of Agriculture, was launched under the FTF initiative in India with the objective to reduce rural poverty and hunger in the Indo-Gangetic Plains. The overall objective of USAID/India's Food Security Program is to advance India's role as a "strategic partner" in strengthening food security in India and globally. AIP, a continuation of the Agriculture Education and Innovation System Project (AEISP), has this same goal, but focuses on decreasing by 15 percent the number of those in rural populations living on less than \$1.25 per day (purchasing power parity).

AIP aims to accomplish this objective through enhancing the capacity for teaching, research, and extension work at Indian higher educational institutions, thereby promoting innovation, diversification, and growth in agricultural productivity and rural development to meet the needs of a market-led agricultural system. Improving this capacity will lead to strengthened local institutions that will deliver new tools, skills, and competencies for agricultural development to better address hunger and food insecurity. Improving the capacity of agricultural institutions will also improve farmers' access to the latest scientific knowledge, innovations, and technologies. Moreover, AIP will enhance the quality and effectiveness of agriculture education, specifically undergraduate education, and lay the foundation for a long-term partnership between US higher education institutions, or a consortium of educational institutions, and a group of Indian higher education institutions to enhance the agricultural higher education system in India. This will contribute to India's agricultural development and help position the country as a driver of agricultural knowledge, innovations, and technology transfer in the South Asia region.² The AIP project activities include: i) reforming existing and developing new agriculture curricula so that those trained in agriculture develop the skills needed to meet market demand; and ii) better linking universities to enterprises and extension.

The university linkages to support this capacity building included three Indian state agricultural universities—Banaras Hindu University (BHU), Assam Agricultural University (AAU), and Sardar Vallabhbhai Patel Agriculture and Technical University (SVPUAT)—and six US universities led by Cornell University. Management of the AIP project was the responsibility of the Indian consulting firm Sathguru Management Consultants, based in Hyderabad. The capacity-building activities of the AIP project were curtailed in 2013 with a 40 percent reduction in the budget under Project Amendment 3 (June 2013). At that time, the exchange travel of faculty from the Indian and US universities was also curtailed, leading to a more limited level of implementation, particularly the curriculum development initiative. Nevertheless, implementation of most activities continued, but (as the description below will detail) by the time of the evaluation it had not achieved many of the anticipated objectives nor had impacts on project beneficiaries been measured.

² USAID|India (2013). Agriculture Innovation Partnership (Agricultural Innovation Partnership) Program; Amendment 3. India: New Delhi

EVALUATION METHODS AND LIMITATIONS

EVALUATION TEAM

The evaluation team (hereinafter referred to as “the team”) is comprised of one international Senior Evaluation Methods Specialist, Robert Resseguie; an international Senior Agriculture Specialist, Dr. Mark A. Balschweid; and a local Agricultural Specialist, Dr. Arunachalam Rajagopal. Mr. Resseguie led the evaluation, applying evaluation methodologies to analyze India’s agricultural education and extension systems, while Dr. Balschweid and Dr. Rajagopal supported the evaluation through their extensive knowledge of agricultural development challenges faced within the region.

Evaluation Methods

Upon issuance of the contract modification releasing the funds for the AIP evaluation, the team held an initial SI and field team conference call to kick off the evaluation process. The team initiated an offsite review of documents and other materials provided by USAID. The project website (www.aginnovation.org) served as another important source of information (Annex V).

The document review included a review of baseline data, targets and performance reports as provided in the quarterly reports since inception, other project planning and implementation documents provided by USAID, the implementing partners and online sources, and some secondary sources.

After an in-brief in Delhi with USAID staff, the team traveled to project sites in Hyderabad, Assam, and Uttar Pradesh to conduct key informant interviews (KIIs), and group interviews (GIs) with key project personnel and beneficiaries. The team submitted an evaluation Work Plan (see Annex II), which was reviewed and approved by USAID, upon arrival. The evaluation work plan detailed the methodology, potential limitations, and the site visit schedule.

A site visit schedule was proposed by the AIP management team and, following review by the team and USAID, the schedule was finalized (Annex III). The team visited the major project sites, including the three universities where AIP worked—Banaras Hindu University (BHU, two campuses), Assam Agricultural University (AAU, two campuses), Sardar Vallabhbhai Patel University of Agriculture and Technology (SVPUAT)-two food-processing businesses and a dairy cooperative between Jorhat and Guwahati, a farming village near Guwahati, a KVK extension center in Meerut, and the offices of the Indian Council of Agricultural Research (ICAR). The team selected these sites in collaboration with AIP project staff and USAID. These sites encompass AIP’s project activities and were the primary locations for project implementation. Given the time constraints, the distances to travel, and the number of sites to visit, each university location was visited over a one- to two-day period. During the whole-day road trip from Jorhat to Guwahati in Assam, several stops were made along the highway to visit a food-processing entrepreneur, a dairy cooperative, and some staff from the College of Fisheries under AAU. In all, there were 12 individual sites visited where activities were ongoing (see Annex III).

Site visits mainly involved activities taking place on the various campuses—the e-learning labs, food technology labs, and faculty classrooms. Off campus, the team had opportunities to visit two women entrepreneurs involved in food processing which they had learned from AIP/university sources, a dairy cooperative that included both men and women, a village site where KVK officers were employing the

mobile tablet devices for interaction with farmers, and a KVK agriculture center where a one-day awareness training was being conducted with assistance from Tata Chemicals Ltd. (TCL), a partner with AIP in this project.

The primary data-collection method was qualitative interviews, for which the team used a semi-structured interview protocol (see Annex IV) to allow for adding or modifying questions for the interviewers to further explore information from stakeholders. The team reached out to key AIP partners at the institutional, agribusiness, and farm levels—including faculty and administrative staff in the universities, students at undergraduate and graduate levels, private industry representatives, targeted groups for agricultural extension, and other beneficiaries of AIP, such as farmers (see Annex VI).

The team selected appropriate questions from the data-collection instrument depending on the key informant activity involvement. Topics discussed during KIIIs were directed to the activity the person was involved with under the project. Farmers and local entrepreneurs were questioned about the trainings and extension services they received through the project and what changes they were experiencing on their farms or in their businesses.

Following the field work and interviews, additional questions were posed via email and phone to specific faculty and AIP management staff to supplement the data and information base. This follow-up correspondence resulted from team reviews and discussion of the information collected and recognition of the need for clarification and confirmation of the information.

Faculty, KVK staff and students were informed by the universities of the evaluation visit and were available to meet with the team for group interviews. A number of farmers and rural entrepreneurs were in ongoing trainings at some of the universities, mostly TDIIA one-day awareness trainings or 30-day certificate programs. It was from these groups that the farmer and rural entrepreneur individuals were selected for discussions and interviews. All of these discussions and interviews were done in groups of at least three or more. Faculty members, KVK extension officers, and students were also mostly interviewed in groups. Additional discussions were held with university administrators—Vice Chancellors and Deans of Colleges—some in larger groups and others on an individual basis. Given that most of the interviews were done in small groups, the team was able to meet with 227 individuals: 53 women (23 percent) and 174 men (77 percent). Table I presents a summary of the individuals interviewed.

Table I: Types of Interviewees

Type of Respondent	Total	Males	Females
Administration/VCs	3	3	0
Faculty	61	49	12
KVK staff	27	25	2
Students	47	34	13
Project implementers	9	7	2
Private sector/NGOs	5	3	2
Farmers	65	45	20
ICAR/government	7	7	0
USAID	3	1	2
Total	227	174	53

The team reviewed the qualitative data collected through key informant interviews and group interviews to identify activities and findings and how they responded to the six evaluation questions posed in the evaluation scope of work. The interviews followed the path of the activity the respondents were involved with—e-learning, product development, mobile solutions, etc. The information being sought was the status of activities and the influence of AIP on the activity. For the groups composed of farmers, for example, the discussion was more informal and focused largely on their farm enterprises, training received from AIP, and interactions with KVK extension officers.

DATA ANALYSIS

The team reviewed the information accumulated at the end of each day for reliability and to formulate an analytical picture of project progress and issues. The team compared notes and reached out to key informants for clarification and additional information as needed. The themes that the team kept in mind in the review sessions were related to key words in the six evaluation questions (transferability, sustainability, building capacity, etc.), which were in turn discussed and analyzed in the context of the various activities (curriculum, e-learning, product development, etc.).

To triangulate evaluation findings, the team accessed archived reports (quarterly and annual reports), information gathered from stakeholder presentations, and data collected from question/answer sessions. In addition, reviewers conducted member checks with respondents and stakeholders to ensure validity of the data collected.

LIMITATIONS

1. The evaluation time frame was somewhat limited due to summer leave for university faculty and delayed start-up of the evaluation. Therefore, the team operated under an accelerated fieldwork schedule, and conducted more group interviews than originally planned. Through small group interviews, the team was able to interview 222 people. Additionally, the team worked with USAID and AIP/Sathguru to develop a site visit schedule that would provide a snapshot view of the AIP project in a very limited amount of time. Though the team was able to gather information about all types of activities AIP undertook, the depth of this information is very limited due to the rapid data collection schedule. For instance, the team was only able to interview students from a goat production certificate course, which can be categorized under AIP's curriculum development activities. However, AIP developed many other certificate programs, and the team was unable to identify respondents that participated in other courses.
2. The AIP project implementers proposed the site visit schedule, which was reviewed and revised by the team and later agreed upon by the team and USAID. The team also sought to make contact with individuals that were not included on the original list of suggested interviews to mitigate bias, including faculty, farmers, and students.
3. Given the timeline, the team did not have an opportunity to pilot-test the data-collection instruments and make adjustments, as the fieldwork began immediately after arrival. Consequently, the team discovered that some of the questions originally selected were inappropriate for the individuals and groups to be interviewed. The interviewees the team met were knowledgeable about the "activities" of the project they were involved with (e-learning, curriculum, mobile devices, etc.), but in most cases they were not aware of the connections to the broader questions of the evaluation (transferability, sustainability, uptake, etc.). Farmers and students were mostly unaware of the AIP project and were able to reflect only on what they knew of the immediate activities—including subject-matter trainings, their farming activities, and the lectures provided through the e-learning system. Some faculty interviewed

were more aware of AIP than others, but were mostly focused on the immediate activities of their departments, such as product development, extension and trainings, and certificate courses. Therefore, engaging them in discussions related to the six evaluation questions, which were focused on transferability, sustainability, building capacity, adaptability, successful uptake, etc., was difficult, as these broader issues had not been discussed within the universities prior to the evaluation. As a result, some interviews and discussions were initiated with an unstructured agenda to accommodate the status of the respondents. For this reason, the team focused on activity-related questions in the interviews and then interpreted the responses to address the six evaluation questions. Given the semi-structured nature of the evaluation process, following the initial interviews and the limitations of the original set of questions, the team was able to make adjustments in the questions as necessary.

4. The geographical spread of the project activities, along with the numerous participating institutions and beneficiaries, limited the amount of time spent at each site. Only one farm visit was possible, but quite a few farmers who had or were currently participating in AIP trainings were interviewed.
5. There were limitations on the availability of faculty and students as the school year had come to a close during the evaluation period. Faculty was asked to return to the universities for the evaluation. Students had mostly departed, except for those few living in close proximity to the university who came back for the evaluation. Therefore, there is some selection bias in the sample of respondents, as the team was only able to interview students with easy access to the university.
6. The team met a wide variety of project beneficiaries to discuss project activities and their involvement. The evaluation employed a qualitative data and information interview–gathering methodology, combined with a semi-structured approach depending on the role of the respondents in project activities. The wide variety of respondents, the differences in implementation progress across the three universities, and the inability to conduct actual surveys of beneficiaries and activities limited the availability of hard and consistent activity data. The group interviews did not always lend themselves to in-depth probing for information and observation.
7. In addition, the nature of this summative evaluation limits observations and interviews to one point in time, as any follow-up, other than email correspondence, was not possible within the period of performance for the evaluation.
8. Most of the project activities are still ongoing, with long implementation timelines (e.g., product development, curriculum development), making it difficult to determine impacts. Additionally, for many of the activities related to training and capacity building, project impacts will likely take place over a longer time period than the life of the project. The findings for this evaluation in effect become “interim” impacts.
9. The time limits inhibiting the evaluation process precluded any determination of what might have happened without the project. The team was unable to visit non-participants and non-beneficiaries to determine their progress over the same time period of the project. The team was unable to conduct any original activity-specific surveys to determine outcomes or benefits to stakeholders.
10. The qualitative data collected is based upon a purposive sample. The nature of this methodology does not allow for generalizing the data to the population being studied in this project, but represents the “point-in-time” responses of those key informants interviewed.

FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This section of the report describes the findings from the evaluation in terms of the various activities implemented by AIP, where the relevant activities are related to the particular evaluation question being addressed. The conclusions are drawn directly from the findings to answer the evaluation question, followed by recommendations that provide suggestions as to how to apply the lessons learned from the findings and conclusions moving forward.

Findings for evaluation question 1

What lessons/recommendations from the innovations under this project can inform and/or feed into USAID/India's future strategy and have potential for global scale-up?

Findings for e-learning

The e-learning program provides a model for enhancing the learning experience of students and greater interaction with professors. E-learning programs require relatively low technology skills, allowing for cost effectiveness as a larger population can be reached; interest on the part of faculty and students; and a demonstrated willingness of the government and universities to invest in this technology. Each of these was demonstrated during the interviews.

E-learning programs have been ongoing at various Indian universities for several years. One faculty member interviewed at SVPUAT stated that “e-learning is still at ground level [at SVPUAT] compared to other universities.” However, AIP assistance has elevated this program with the support of two faculty members from Cornell University, who introduced this program to the three partner SAUs through trainings in 2012. Participants at the initial training at AAU included 21 faculty members and 566 students. At BHU, 126 faculty and 314 students were trained in the e-learning system. One faculty member from SVPUAT participated in an e-learning workshop at Cornell University. These trainings led to further Training of Trainers (ToT) workshops for faculty at all three universities. The number of lectures and programs available at the three partner universities is over 400 (see Table 2).

Table 2: E-Learning Courses Available to Students³

	BHU	AAU	SVPUAT	Shared with all 3 Universities
Video lectures	190	28	15 (22 – BHU & AAU)	
Study material (Word doc/PDF)	38 courses	20 courses	30 courses	
Cornell University video lectures	16			70
TNAU University (PDF)				Agriculture graduate program courses (1065 lectures of 41 courses)

Use of the technology is evidenced by the numbers of students engaging the systems at the universities. Since March, 500 out of 529 students have obtained log-in capability at SVPUAT in Meerut. Another 1,726 students are using the system at AAU; 373 students in the Agriculture College at BHU Varanasi are using the e-learning system. Four students interviewed at SVPUAT expressed their satisfaction with the use of online lectures to “supplement the classroom lectures,” providing additional course-related information, while the additional subject-matter programs available from Cornell University and Tamil Nadu Agricultural University (TNAU) in India have allowed them to “broaden their subject [matter] horizons.” These four students also indicated that they are in “better contact with professors” mostly via email, but also through face-to-face discussions.

The three faculty members and the four students interviewed at SVPUAT stated that with professors taking an interest in the e-learning system, there is an increase in interaction between students and faculty. Professors now “suggest various programs” for students to look at as supplemental learning exercises, according to the students. At AAU, where the program had an earlier start, there are 28 lectures on the system. For one of the courses in Home Science, the faculty has revised the course twice, using more improved teaching methods, such as facilitated learning in lieu of lecture.

There is no organized “feedback” system between students and faculty about the relationship of the e-learning tools and the classroom lectures at any of the three partner universities. Respondents stated that informal feedback often occurs by word of mouth and email correspondence. The faculty members at SVPUAT indicated that a feedback system is planned and “may be in place this summer.” This feedback mechanism would likely involve regular course evaluations, to be completed by students at the end of each course. The need to put a formal feedback mechanism in place was one of the most widely voiced recommendations by beneficiaries of the e-learning program at each university.

AIP is providing equipment for the new media studios being constructed at each university at a cost of \$8,000 for each studio. Both students and faculty interviewed at SVPUAT expressed optimism that these studios would further increase and improve the online learning program. The Government of India (GoI) and universities, for their part, have procured the computers for the universities and for the e-learning system. There are 200 in use at BHU and 50 at SVPUAT, and computers are now located in the hostels at the universities. This media equipment will facilitate videotaping of the lectures so that they can be posted

³ During field work, the AIP management team made presentations describing the project to the evaluation team. The data cited here comes from these presentations.

on public online forums (such as YouTube), allowing students to access the e-learning content from anywhere, not just computer labs at the university. This is already happening on a limited basis at AAU but has the potential for scale-up according to faculty and students.

Findings for product development

Bringing a new product to market is at least a year-long process. This includes the development of prototypes, validation for safety issues, scaling up the production process, and market surveys.

All new food products require review and authorization or approval through the Food Safety and Standards Authority of India (FSSAI). A product manufacturer needs to obtain a food business operator's license, which both of the women entrepreneurs who were interviewed and who are involved in the pickling processes have obtained.

Other issues that impede the actual commercialization through private-sector entrepreneurs include a lack of financing sources, uncertain markets and raw material supplies, pricing issues for raw materials, lack of funding for licensing or FSSAI approval, high start-up costs, product standardization issues.

Meghalee Food Products is a woman-owned business that AAU licensed for two new products—fish and poultry pickling. When interviewed, the owner mentioned that her problems included “marketing and packaging.” She went on to say that “local farmers and entrepreneurs need help in technology, marketing, and financing.” One advantage that she enjoys is having been in the food processing business since 1997 and has income from those other products to support these new ventures.

Findings for Technology Dissemination and Income Improvement Activities (TDIIA) trainings

An AIP initiative to organize one-day awareness trainings for farmers and entrepreneurs resulted in trainings for 3,009 farmers. The focus of the trainings was on local crops suitable for home consumption and for commercialization in local markets, including rice, potatoes, sugarcane, tea, floriculture, and others (see Annex VII). This initiative engaged university faculty and university-based KVK extension teams to facilitate and follow up on these trainings.

Some technical aspects of the trainings were provided by the public-private partnership organized by AIP through TCL. TCL provided subject-matter specialists for some of these trainings, especially for balanced fertilizer application and natural resources management (NRM) practices. There are many local NGOs, such as Church's Auxiliary for Social Action (CASA), Sitajakhala Dugdha Utpadak Samabay Samittee Ltd., and cooperatives such as Indian Farmers and Fertilizer Cooperative (IFFCO), which participated in the training.

AIP worked with the universities and KVK teams to provide post-training follow-up and assistance. This included the provision of seeds and other inputs, such as fertilizer, from the Gol and the provision of advisory services through more frequent extension visits to participating farmers.

Farmers interviewed at the three sites pointed out this new aspect of the training. Comments by some of the farmers in the group interviews at BHU included: “Nobody [extension agents] visited our field earlier. After the training these officers have visited us and provided the required advice about crop cultivation.” Most of the farmers interviewed suggested that the period of the training should be more than one day and include more practical field visits in the program.

AIP organized an impact assessment study in the BHU area in 2013, which indicated that crop yields in the 2013 crop season increased by 22 percent for peas and 34 percent for potatoes.⁴ The farmers interviewed for the survey attributed the increases to the new seeds and better technology adoption learned in the 2012 training (see Table 3).

Table 3: Impact Assessment of Training Program Results—BHU⁵

Detail	Number or Percentage
Number of farmers trained	792
Farmers interviewed	120
Women farmers	18%
Percentage of farmers diversified from paddy to maize	20%
Percentage of farmers diversified from wheat to peas and potatoes	15%
Yield increase of potatoes	33.67%
Yield increase of maize	26.37%

Similarly, a study by SVPDAT in 2014 indicates that the yield of sugarcane per hectare (Ha) has increased from 70 tons to 83 tons (see Table 4). One farmer in an interview stated that the yield of sugarcane on his farm has increased from 60 tons to 70 tons per hectare due to better cultivation practices after training. Many farmers interviewed have also confirmed that their yields have increased due to cultivation practices following the awareness trainings. Farmers interviewed in Meerut indicated that the yield increase in sugarcane is mainly due to best management practices adopted with regard to selection of suitable crop varieties and new techniques—including the application of proper fertilizer and weed control.

Table 4: Yield of Sugarcane per Hectare before and after the Training (SVPDAT)⁶

Details	Per Hectare Yield (MT)
Before the training	70.30
After the training	82.86

Note: 120 farmers were interviewed out of the 792 that were trained

Findings for mobile solutions

The introduction of mobile solutions (Android tablets) to provide farmers with information and advice related to crop cultivation, weather conditions, market information, etc., is an innovation under AIP. Android tablets have been distributed to KVK extension agents to create farmer databases and provide real-time solutions to field problems. The device can also be used in field training programs by KVKs. A total of 47 devices have been distributed to the three SAUs for KVKs covering about 15,343 farmers.

⁴ 2013

⁵ *Ibid.*

⁶ The professor of soil science at SVPDAT Meerut made a presentation to the AIP evaluation team regarding the impact assessment of TDIIA on June 27, 2014. The findings presented here come from this presentation.

The use of Android tablets was introduced at BHU and AAU in 2013 and at SVPUAT in March 2014. Many farmers interviewed indicated that they received quick and useful answers from extension agents about the crop cultivation problems. Out of 11 farmers interviewed in BHU South Campus at Mirzapur, seven have utilized the mobile device through the KVK to diagnose their crops or help with soil fertility. However, 13 women farmers interviewed in the same place stated that “they have not seen the mobile tablets and are not aware of their uses.” Six of these 13 women have their own cell phones.

In Assam, AIP reported that of 15,241 farmers registered with the mobile application, 1,351 have raised questions about crop problems and 1,056 have received answers from the application.⁷ According to farmers interviewed, it can take from two minutes to two days to receive an answer, depending upon the problem and where the KVK has to go for the answer. Many farmers interviewed in the village of Kulhati under Kamrup district in Assam indicated they have benefited from the information provided by KVK officials using this device. Their queries were related to different subjects, such as animal husbandry, vegetable production, floriculture, pest attacks, and animal health.

Findings for curriculum development

The certificate program courses, which can last up to 30 days, combine best practices as well as research content and can be modified based upon trainee needs. According to the teaching faculty for AAU’s Goat Production Certificate program, the first training was modified to make it “more practically oriented and to improve hands-on learning.” The course director indicated that “they’ve modified the facilities and the location of the practicum.” These changes were made based upon the post-evaluation of students/trainees involved in the first certificate course offering in goat production and faculty feedback.

The team observed a Goat Production Certificate course at AAU and spoke with faculty, extension agents, and students participating in the course. Respondents all shared comments of the relevant information taught and the connection with faculty and extension agents who provide follow-up assistance for questions that arise after the course is completed. Farmer participants from a poultry production certificate course offered through AAU indicated that practical training is the most useful aspect to the course. According to the AAU faculty member who developed the Goat Production Certificate program, “farmers often call extension KVKs or the teaching faculty of the program for follow-up information.” Though there is no formal system for tracking farmers’ requests for follow-up information, extension agents cited pest and insect issues to be among the most common calls for assistance. As a pharmacologist, this faculty member stated that farmers may forget many of the specific concepts once they get home, which is why it is essential for faculty and extension agents to be available for follow-up.

CONCLUSIONS FOR EVALUATION QUESTION 1

As USAID considers how AIP innovations can feed into future strategy and global scale-up potential, it should consider the experiential lessons from the project. First, the evaluation team found that there was no organized feedback system, and it is therefore difficult to quickly discern which courses are working well and which need further adjustment. With e-learning, the team recognized a demand among students to be able to access the e-learning content from anywhere, rather than just in university computer labs. This feedback demonstrated not only the value of the e-learning content, but also the importance of making this content accessible to achieve increased learning outcomes and have a broader effect on the target population. From student and faculty reactions, it is clear that e-learning is a program that can be

⁷ Directorate of Extension Education (undated). mAIP solutions; Assam: Jorhat

expanded rapidly at universities and that can have early impacts⁸ on student learning and faculty interaction.

Regarding product development, the lengthy process for bringing a new product to market is due to necessary permissions, and as a result, this activity comprised a smaller proportion of the AIP project. Given the permissions needed and the lengthy process, as well as the varying requirements for bringing a product to market in different countries, this activity does not lend itself well to global transfer and scaling.

The partnership between universities and KVK teams to provide post-training follow-up and assistance from the TDIIA trainings seemed to be valuable to training participants, and such a model could be a positive lesson learned to consider for strategy and scale-up. Through this university-to-farmer relationship, the short-term and one-day awareness trainings are encouraging farmers to incorporate more “best practices” in their farm enterprises. At the time of the evaluation, an impact survey was underway in Meerut and Assam to determine the benefits to farmers from AIP-sponsored awareness trainings and KVK follow-up; the survey is expected to be completed in the fall of 2014. Indeed, the positive feedback from farmers, coupled with more frequent farm visits from KVK officers using tablet devices, indicates that the effort to link the university research capability, the KVK extension service, and the private and NGO sectors with the ultimate beneficiary—the farmer—is improving.

Related to the KVK support, the mobile solutions facilitated rapid responses to queries by farmers. This timely receipt of information allowed farmers to address identified problems with their crop. Though the fixed cost of mobile solutions may be high, the accelerated information sharing feature that it brings may contribute to an increase in productivity on the part of farmers. That said, one lesson to consider in future strategy and scale up is that such solutions should be responsive to gender dynamics. The team observed that male and female farmers were experiencing the mobile solution activity in different ways, so it will be important to consider how to allow both males and females to benefit from the activity in an equitable way. Though mobile phone use is prevalent in India, implementers should gather sex-disaggregated data on mobile phone use in the intervention sites for future projects and observe how readily women and girls are able to access mobile phones.

Future development strategies that involve universities and extension can use the innovative models created within the AIP project as “packages” in project designs. While still in the early stages, there is demonstrated success with four of these “models”—e-learning, TDIIA trainings, mobile tablets for data and information, and certificate courses—to meet immediate agriculture production and enterprise-oriented market demands. These models have generated government and university interest and investment in support of establishing and maintaining the programs. These four “models” exhibit characteristics for development in many countries and as such could be packaged and transferred to other programs. Food product development for commercialization presents a similar “model” but requires more private-sector involvement than AIP has been able to provide.

The certificate course model for creating training programs to meet rural manpower and production needs could be packaged as off-the-shelf courses to SAUs and other countries. The input from agribusiness and industry to target regional labor and market shortages can be accommodated by certificate courses, which provide flexibility, timeliness in delivery, and collaborative partnerships needed for delivering best practices to area producers and entrepreneurs.

⁸ Impacts in this report refer mainly to comments as reported by interviewees and not from the team’s direct measurement of any AIP intervention.

RECOMMENDATIONS FOR EVALUATION QUESTION 1

These “models” should be assembled as “packages” for introduction to government and university forums as formal presentations for inclusion in future education and extension development activities. Sample budgets should be created to demonstrate the level of funding required for each, both for start-up and for sustainability, as well as the manpower requirements.

E-learning content should be made publicly available and accessible beyond campus access. This would allow for increased potential for transfer to other institutions. Training activities shouldn't be a single capacity building activity, but should be accompanied with technical assistance and follow-up so that knowledge gained from trainings and certificate programs can be converted into actual application and use of skills.

An overriding recommendation that covers most of the evaluation questions is that feedback mechanisms should be put in place immediately to better determine the results and impact of the various AIP innovations and activities to provide the necessary information for an end-of-project status report. Sathguru should work with the partner universities to establish systems for measuring student use and benefits from e-learning, conduct surveys of the two women enterprises to determine their profitability and the specific issues they face to better understand how the university system can better assist them, and more closely monitor the benefits accruing to farmers from the mobile device system being used by the KVKs. Other activities should establish similar feedback and monitoring systems in these final months of the project.

FINDINGS FOR EVALUATION QUESTION 2

Of the 30-plus courses that have been developed, which ones are best suited to train individuals for the modern labor market and why?

Baseline surveys⁹ were conducted during the implementation phase of the project in the three university areas in which the project was operating – SVPUAT, BHU, AAU. Only the BHU/SVPUAT survey observed the perceived needs of agri-businesses for future employee skills to determine the types of courses that the State Agricultural Universities (SAUs) should be offering to students to prepare them for employment in the agri-business sector. Respondents to the baseline survey included agri-businesses from several locations around India beyond the Assam and Uttar Pradesh regions. By the time the baselines were completed, AIP had already embarked on the development of courses for inclusion in the university curricula (See Annex VIII, Table 1). Nevertheless, of the 23 subject matter interventions suggested by various agri-businesses in the BHU/SVPUAT survey, 13 were addressed to some extent within the 27 courses developed by AIP for inclusion in the university curricula (see Annex VIII, Table 2). Another list of 26 suggested courses from the baseline survey to make graduates more job ready indicates that 16 AIP courses address these concerns within the 27 courses developed by AIP for inclusion in the university curricula (see Annex VIII, Table 3).

Many of the AIP courses directly and indirectly address the suggestions from the agri-businesses interviewed in the baseline survey, although there was little indication that courses were developed in response to the results. This line of questioning was not pursued at the time of the evaluation. A few examples of subject areas where the AIP courses and activities addressed the interventions suggested by

⁹ The baseline surveys were completed in 2013.

agribusinesses include attention to current agricultural technologies (various crop technology courses developed), veterinary science and animal husbandry courses, commercial agriculture (the development of food processing technologies and moving these technologies to local entrepreneurs), and rural development and extension programs (through the KVK extension staff trainings and use of mobile solutions at the farm level).

In addition to the labor skill needs as identified by the agri-businesses interviewed, there are other critical areas that need to be addressed to resolve agriculture and small enterprise expansion issues in rural areas across India, and particularly in the regions where the project is active (see Annex VIII, Table 4). Some of these have been included to some extent in the courses developed under the AIP project. A description of these areas and how AIP has addressed them through the development of courses is discussed below.

1. Water management is an ongoing issue with Indian agriculture, covering a range of issues – flooding, scarcity, timely availability either through irrigation or monsoon variability, control through dams and reservoirs. None of these issues were addressed by AIP in the development of courses.

2. Soil management is an ongoing issue for agriculture in India, particularly as farm size per family decreases through the distribution of land within families. AIP course development addressed this issue to a limited extent through courses in the use of Bio-Pesticides, studies in Plant Health and Organic Farming.

3. To address the ongoing imbalances in the demand and supply of food and agriculture produce, AIP developed several courses and activities within the universities. Courses in crop production, food processing and best practices were made available to farmers and rural private sector entrepreneurs. These included Food and Agri-business Management, technical subjects in production such as fish, goats, poultry, animal husbandry, dairy, vegetables, seed production, and food processing.

4. Post-harvest handling is generally a large issue in the food supply chain, but has not been directly addressed by AIP. On-farm assistance for improved production has been addressed through the TDIIA and mobile solutions programs to provide short training technical courses combined with on-farm follow-up by the extension staff of the KVKs. Using mobile devices, the extension staff and farmer relationship has improved and farmers are better able to address production problem in a timely manner.

4. In the general agriculture sector, technical skills training to address various farm enterprise activities covering a wide range of subject areas at the university level. AIP course development included crops and animal husbandry to encourage student's awareness in the following subject areas: Dairy Technology, Milk Production and Quality Control, Dairy Production, Dairy Technology, Veterinary Science and Animal Husbandry, Poultry Farming, Animal Husbandry, Meat Technology, Fish Production and Management.

5. Food processing is an important component for the development of agriculture in rural areas of India. Development of this sector will encourage farm production, provide additional sources of food products for rural populations, and increase the demand for skilled and unskilled labor in small rural enterprises. These issues are being addressed through several AIP courses that have been developed for the universities. These include Food Processing, Fruit and Vegetable Processing, Safe/Hygienic Practices for Sweet Makers & Street Food Vendors, Bakery Technology, and Food and Agribusiness Management.

Of all the components in this project, curriculum development served as the AIP priority for developing innovative programs. Curriculum development activities in the AIP project were influenced by members of private agricultural industries who participated in the initial planning sessions in April 2011. These sessions were focused on agricultural science, animal science, and food science as priority areas of growth for India.

In many instances, this input helped to guide the technical domain for many of the activities in the AIP project. Emphasis for the curricula program was on four distinct delivery packages: degree courses (four-year B.S.), diploma courses (six months to two years), certificate courses (up to 30 days), and vocational courses (one week).¹⁰ New degree courses only get the chance to be approved in every four-year cycle, require the highest level of national approval, and it takes a four-years before the students will graduate to the work force with this degree. Some existing courses have been revamped, but no results exist from these courses as yet.

The only diploma program assessed was BHU's Seed Technology and Marketing course—the only one that has been taught. The faculty indicated that the first group graduated in May 2014 and they had collected no data to this point to assess the program. Of the ten diploma courses developed, six of them are still awaiting approval based upon the 2012–13 annual report.

A short telephone survey of five KVK and extension agents revealed another potential training need for farmers. All but one individual surveyed identified marketing as a key training need and common issue for farmers.

Farmers are recruited to the certificate programs at AAU from the KVK districts. KVK staff are then asked to submit the names of appropriate individuals for the certificate program trainings. Faculty at AAU indicated that the KVKs look for farmer recruits who meet the minimum qualifications for participation—that is, they are able to read and write, and are at least 18 years of age—and then recommends them for the certificate program training at the university.

Based upon feedback from participants and faculty in certificate courses, the short duration of these hands-on training courses can prepare farmers for rural enterprise commercial opportunities on their farms in areas that include fish production, floral design, poultry production, and goat production.

The certificate courses are designed to train individuals to expand their farm enterprises to meet growing markets for agricultural produce (see Annex VIII). Efforts are ongoing to modernize outdated curriculum. For instance, according to a dean at AAU, prior to the Goat Production Certificate program, “It was difficult to identify the objectives of the focus for education in goat production; it was very broad.” The curriculum focus was narrowed to increased goat meat production, along with the introduction of entrepreneurship and improved management practices. A focus on women farmers' involvement in goat production was introduced into the program in anticipation of more participation by women in the certificate program.

Several farmers indicated that after returning home from certificate course training they shared their knowledge with other producers in their villages. A faculty member involved in the goat production training indicated that “participants will become master trainers and are trained in how to teach others.” He continued, “in a recent training, the trainees went to a community where goat producers were invited to join a discussion. As they had questions, the trainees provided the answers to practice their ability to interact with farmers. This is a planned part of the program—farmer/trainee interaction.”

¹⁰ Vocational courses were created (five each) and offered (two each) as a part of the AIP curriculum development activities, but due to the compressed timeline of the review the team was unable to meet with faculty members and gather data for the vocational courses.

The seven certificate courses developed in the AIP program transfer skills to farmers and small entrepreneurs in rural localities using a combination of faculty, extension agents, NGOs, and private corporations. Faculty involved in teaching the Goat Production Certificate program indicated that skill transfer included information related to common diseases, selection of goats for breeding, difficulty in kidding, lice problems, and pneumonia. For dairy production, transferrable skills include mitigating high feed costs, addressing common diseases, and the financial skills necessary to run an enterprise. The importance of washing hands, effective vaccination schedules, and effective techniques in artificial insemination was also mentioned. These concepts and skills were taught through the direct involvement of faculty veterinarians, KVK extension agents, and NGO representatives.

CONCLUSIONS FOR EVALUATION QUESTION 2

AIP has addressed many of the agricultural and labor skill issues that have been raised through the baseline surveys and from general research on the technical agriculture needs in India. AIP course development does not seem to have been a direct result of these surveys and studies, but since they are common to the agriculture sector in India, the courses developed clearly touched on these subject matter issues.

Developing degree courses requires a long-term effort and the results are far into the future. This activity has not progressed very far and will show very limited results. Though the degree courses may be preparing students well for the modern labor market, the programs created by AIP have not been in existence long enough to determine whether this is the case, and the team was unable to assess longer-term effects of the degree programs.

Certificate courses address real demands from farmers for actionable information that can have a relatively quick impact at the farm level. The certificate courses provide instructional programs that address current rural-based community needs for farm production and commercialization. Based on a review of the course list and discussions with faculty, each of the certificate courses is suited to train individuals to better manage their farm enterprises and meet local market conditions. Their focus on management of the farm enterprise assures adherence to the best practices being provided. Private-sector participation ensures an added focus on commercialization of farm produce, and as production and market demands change, the certificate courses are flexible enough to adjust. The university-to-farmer link established through the certificate training programs creates farmer confidence in the assistance being provided.

Diploma programs offer an opportunity to develop courses that can be directed to specific skills not necessarily related to agriculture, but rather to agribusiness skills in rural areas. Following manpower studies, selected courses that last for six months to two years would provide technical skills that are in demand in rural areas.

RECOMMENDATIONS FOR EVALUATION QUESTION 2

AIP should prepare a proposal suggesting that these certificate courses and the university-to-farmer model be incorporated into a regularly funded program of the university. The appeal should also be made to the state governments, through ICAR, for budgets and faculty necessary to continue this program on a sustainable basis. With limited funding available for curriculum development activities, future strategies should prioritize certificate programs that allow program participants to walk away with actionable information that can immediately be applied in their everyday professions.

FINDINGS FOR EVALUATION QUESTION 3

3a. To what extent has the AIP model of partnership between universities been successful in building the capacity of the selected universities to transfer and replicate practices with other Indian universities?

The AIP agreement stated that the selected institutions are “expected to develop into models for multidisciplinary agricultural education that will influence the agricultural higher education system at the regional and national level to effectively cater to the emerging needs of the farming and agribusiness communities.”¹¹ The primary vehicle for transferring knowledge and practices was supposed to be knowledge sharing events (according to the agreement); however, the quarterly and annual reports reveal little evidence that this has occurred. The project activities have occurred in collaboration almost exclusively with selected universities, and there is little record that these universities have transferred or replicated practices with other Indian universities. The January-March 2014 quarterly report, though, has one report of knowledge transfer as it relates to library practices. In February 2014, BHU and Cornell University hosted a two-day collaborative workshop on “Research Support Services in the Agriculture and Life Sciences Library and e-learning” with the goal to share achievements made by BHU Library and apply them for improvement of library systems and management in other SAUs in India.

Findings for e-learning

Technical assistance to the three partner universities has created a cadre of faculty that is capable of training other individuals in the establishment of an e-learning system within a university. Two faculty members have also participated in a workshop in the US to enhance their e-learning skills, which can then be passed on to other faculty and students. As mentioned elsewhere, this program is growing in terms of the number of courses available to students (from 94 in late 2013 to over 400 now) and the number of students using the system (no system is in place yet for tracking student usage).

Findings for product development

The Intellectual Property (IP) Office in AAU, with AIP assistance, including technical assistance from US partner universities, has been instrumental in providing licensing training, organizational assistance, and making contacts with the private sector—in particular with the two women entrepreneurs for the pickling business. The IP Office is part of the Office of Technology Transfer and Commercialization (OTTC), the office tasked with making the links between the products developed at the university and interested private-sector entrepreneurs. Thus far in the project, the IP Office has authority only to license products, not issue patents. At present there is only one OTTC, located at AAU. The manager of IP at AAU maintains a relationship with his counterpart at Cornell University through regular phone and email contact.

With technical assistance from AIP in 2012, the product development program at SVPUAT initiated the development of new products. The director for Food Technology participated in two workshops in the US in 2011. Upon his return, he held a workshop for 54 participants in 2012 and their well-equipped lab facility (provided by the university) has been actively developing bakery, potato, and fruit-based products. Since none of the products are ready for commercialization, the Food Technology department has not been actively engaged with these participants. However, the bakery businessman who attended continues to express an interest in some of the bakery products being developed.

¹¹ AIP Agreement Amendment 3, page 6

Findings for curriculum development and teaching excellence

Improved classroom teaching efforts were observed at BHU, AAU, and SVPUAT. Teaching excellence workshops were conducted for faculty in all three universities with the introduction of a ToT model by a professor from the University of Illinois. Master trainers from AAU attended a two-day training in Delhi put on by the University of Illinois in July 2012 to address ways in which Indian institutions of higher learning can achieve excellence in teaching and learning methodologies. Attendees included vice chancellors (VCs), senior faculty members, and top officials from various AIP partner universities. They currently meet monthly via conference calls. Lead faculty from the University of Illinois attended both the workshop in Delhi and one in the Jorhat area. Topics covered in the workshop include teaching philosophy, experiential learning, active learning, classroom evaluation, and evaluation of teachers by students. As a result of the workshop, BHU, SVPUAT, and AAU have started drafting work plans, in collaboration with the University of Illinois, for the creation of centers for teaching excellence.

Efforts to improve classroom teaching at BHU included the establishment of a 12-member steering committee, with plans to conduct a series of teaching workshops in the fall of 2014. The workshops planned include the basics of learning, curriculum development, effective teaching methodologies, and evaluation.

Based upon interviews with AAU's master trainers and faculty they have trained, AAU has adopted the ToT model, as introduced by their US partners, to generate widespread interest in, and adoption of, improved teaching practices. Three of AAU's seven master trainers and seven faculty trained by the master trainers indicated that "younger faculty are embracing teaching improvement by including experiential learning in their classrooms and moving away from lecture-only formats. They are incorporating elements of student evaluation throughout their classes and including learner-centered teaching approaches." AAU faculty selected as trainers participated as facilitators of teaching excellence. AAU has utilized resources in the existing Educational Technology Cell to establish a Teaching Excellence Center.

A cornerstone of the Teaching Excellence program is regular student feedback to teachers that encourages learner-centered teaching practices. New teaching strategies that were shared by US partners and adopted by AAU faculty include cooperative learning, question-and-answer exchanges, ongoing student assessment of faculty, and use of audio/visual technology during lessons. Students commented that teachers are frequently asking questions of students so that everyone is engaged in the lesson and creating a climate of participation in the classroom.

At SVPAUT, professors involved in curriculum development have provided leadership for teaching excellence since March 2014 when AIP was revitalized on the Meerut campus following a long delay in project documentation approvals. Three trainings are scheduled to address 1) the basics of teaching; 2) innovative teaching strategies and obtaining student feedback; and 3) effective classroom communication and discussions. A Teaching Excellence Center has been established using an existing facility for the purpose of developing effective teaching strategies and another room is being converted for additional space dedicated to advanced teaching strategies.

CONCLUSIONS FOR EVALUATION QUESTION 3

With the assistance of the US partner universities, the e-learning activity presents a model that will be ready for transfer and replication to other institutions and universities as soon as a mechanism is in place to encourage other SAUs to engage this model.

While the food product development activity has not moved many products to commercialization, the US university counterparts have worked with SAU faculty in food science departments to develop recipes for products and establish food lab procedures and have initiated the licensing process to protect the recipes developed by the university. This is a potential model for transfer to other universities.

The shared experiences between the US partners and the Indian SAUs have resulted in faculty at all three partner universities enhancing their training skills, but more importantly, demonstrating improved teaching methods. The ToT methodologies emphasized by the US professors have improved teachers' ability to train other faculty members and further spread their newly acquired knowledge. These training skills represent a capacity to transfer innovations to other Indian universities should there be an opportunity. However, outside of the three participating SAUs, there has been no transfer of innovative practices to other universities and no mechanism has been established for this exchange with universities outside of the partnership.

Improvement of faculty teaching performance varied among AIP partner universities, depending upon the commitment of faculty members and with the amount of release time provided to pursue excellence in teaching. Evidence at AAU pointed to faculty who successfully employed ToT methods that provided significant gains in teacher interest and practice. All three groups interviewed at AAU—including master trainers, faculty who participated in the training, and students of faculty who were trained—all gave high marks for the lessons learned from US partner universities and faculty in methods for improving classroom teaching.

SVPUAT and AAU dedicated space for a Teaching Excellence Center where faculty can participate in ongoing mentoring and digital recording of their teaching for playback, coaching, and reflection.

Though the activities show potential for transfer, transfer to other institutions may not have been in the agreement with partner universities,¹² and was not a core component of the AIP project design. As a result, there is little evidence to date that the practices promoted by AIP have been transferred to and replicated in other Indian universities.

RECOMMENDATIONS FOR EVALUATION QUESTION 3

3b. What recommendations do key stakeholders make to adapt this model of partnership at universities for implementation in other regions?

The suggestions for expanding the adaption of this AIP model include providing information at various educational forums, e.g. the Deans Committee meetings and the Annual Vice Chancellors Conference of Agriculture Universities. AIP has plans for a workshop involving all SAUs and ICAR in January 2015 to showcase developed innovations and seek interest among the universities. To make this model available for adaptation in other regions, the partner universities should fund the travel of other SAU university faculty for hands-on observation and training as to how the partnership models have been working. AIP should develop a mechanism or system for encouraging other universities to look at the various innovations and then, through ICAR, be able to incorporate them into their programs. This could result from establishing a series of forums among the SAUs to exchange ideas and innovations.

¹² The evaluation team did not have access to university agreements, and was thus unable to confirm whether transfer to other institutions was included in their statements of work.

The evaluation team also recommends that transfer and replication to non-partner institutions be made an explicit intended result of the project, so that project activities can be specifically designed to prepare partner institutions well for transfer and replication.

FINDINGS FOR EVALUATION QUESTION 4

4. What is the effect of the AIP interventions in addressing gender issues in agricultural education and extension in agricultural universities?

The AIP Agreement Amendment 3 states that “the project should give priority to ensure that interventions across all areas of this project include an appropriate level of participation of women as beneficiaries and as agents of change and project partners.” The findings below show how AIP addressed gender in each of its activity areas.

Findings for curriculum development

The initial efforts to develop courses to address gender issues at the three universities involved a professor from Ohio State University (OSU) who visited in 2012 and conducted workshops at BHU and SVPUAT.¹³ However, this assistance was curtailed in 2013 when USAID Amendment 3 was issued, reducing the travel budget for US and Indian university faculty visits. Following the OSU faculty visit, one professor at SVPUAT had initiated a course entitled “Women Leadership and Entrepreneurship,” which was taught for the first time during the spring semester 2014. This professor is a fisheries specialist and began leading the gender program in 2013. She is only filling in as a gender specialist until a permanent faculty person can be hired. This course was developed outside of the AIP project at the initiative of the professor.

The baseline surveys conducted by AIP included some focus on gender issues at the three universities.¹⁴ In general, across all three, respondents stated that gender-oriented curricula were weak at the undergraduate level. Women did receive support for transportation, security, medical assistance, and reservations for courses. Female faculty members received maternity leave, income tax benefits, and transportation assistance. There is a general absence of gender components in the curriculum, with one statement by a faculty member in the baseline survey going so far as to say “conspicuous by its absence.”¹⁵ Women students represent about 51 percent of the student body at AAU and about 33 percent at BHU and SVPUAT. There is no indication that AIP activities have contributed to any change in these numbers.

Although not within the purview of AIP, it is interesting to note that among university staff, at BHU there are nine women among the 146 total staff (6 percent), two of whom are department heads; at SVPUAT, there are 22 women out of 122 total staff (18 percent), two of whom are designated officers in charge; and at AAU, there are 91 women out of 491 total staff (18.5 percent), seven of whom are department heads.

¹³ Rakowski, C. A. (2013). AIP Report: Developing and Implementing Courses on Women and Gender in Agriculture. Unpublished manuscript, Ohio State University, Columbus, Ohio.

¹⁴ Agricultural Innovation Partnership (2012). Report on the Baseline Survey Conducted at BHU and SVPUAT. India: Hyderabad

¹⁵ M Agricultural Innovation Partnership (2013). Mapping the Road to an Innovative Agriculture Education System; A Report on the Baseline Survey Conducted at Assam Agricultural University, Jorhat, Banaras Hindu University, Varanasi & Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut. India: Hyderabad

Of the 20 SAU faculty members who participated in the exchange workshops at US universities, only one was female. The possible reasons for this low number, as cited by key informants, include leadership choices favoring male faculty, lack of female faculty in the disciplines of the workshops, or inability to travel abroad for extended stays for cultural reasons. However, there are no verifiable data to substantiate these reasons.

Findings for product development

Of the two food products that AIP was involved in commercializing, the two entrepreneurs involved were women in the Assam region. The main reason for the commercialization of the two products through these two women entrepreneurs was because they were already in the food processing business and were interested in expanding their business with these two new products.

One group of women, who are members of a dairy co-op in Assam, mentioned during the discussion that they also have a women's self-help group which they use to promote ideas, participate in trainings, seek financing, and attempt to market their farm products. Apparently these groups are widespread in the Assam region. However, AIP is not working with the women's self-help group.

Findings for TDIIA and mobile solutions

From the team's observations, AIP had little effect on women's participation in agricultural education and extension in the agricultural universities. AIP Indicator Results for the second quarter of this fiscal year indicate that 97 out of 652 participants in trainings were women (about 15 percent). In the one-day awareness trainings, the number of women attending continued to be low over the course of the AIP project. The only indicator report with trainings disaggregated was for 2013, which showed that female participation in training was at about 15 percent. Discussions with AIP staff confirmed that this number has been consistent over the course of the project and there was no requirement on the university to invite equal numbers of men and women to the trainings. This low participation, as cited by faculty and KVKs, continues because of the difficulty that women have leaving their home and traveling some distance to these trainings. According to the director of extension for AAU, literacy is not necessarily one of the criteria for acceptance to trainings. But with a female literacy rate in Assam around 60.5 percent, that could be an issue keeping many women from participating in trainings.¹⁶ Other selection criteria include expressions of interest, being known to the local KVK representatives, and the present mix of crops on their farm. Nevertheless, women who were participating in trainings at the time of the evaluation and agreed to be interviewed expressed great interest in the trainings and hopes for more opportunities. Farm-level data on women benefiting from AIP trainings and extension work may be available when the current farm survey being conducted for the SVPUAT Meerut and AAU Assam regions is completed in the fall.

According to AIP reports, as of March 2014, only 393 out of 3,009 participants in the TDIIA extension trainings were women (about 13 percent of the total). This is slightly less than the participation of women in other training programs conducted in the region. For example, the Horticulture Produce Institute in Uttar Pradesh, where AIP has been working, reported that out of 2,527 farmers who attended training programs from March 2009 through January 2014, only 410 women participated—about 16 percent.¹⁷ The awareness about mobile tablets among women farmers was very low, as found in our interviews in BHU–Mirzapur. In fact, in one location, none of the women had any knowledge of the tablets in use.

¹⁶ The national literacy rate for women is about 48 percent, according to the Gender Assessment USAID/India, February 2010.

¹⁷ Horticulture Produce Management Institute (2014). http://www.hpmi.co.in/seminar_workshop.php. HPMI Website

The low number, as cited by KVK officers and faculty, is likely the result of many social and economic factors—including taboos on men and women meeting together, distance to trainings, inability to leave the household due to additional responsibilities for women, inadequate advertising about the training, and a low literacy rate. These findings are characteristic for north Indian states, like Uttar Pradesh, as generally women are discriminated against in many walks of life. A study on women’s mobility in India indicates that only 40 percent of rural women are allowed to go to the market alone.¹⁸ The same opinion was expressed in the interviews with agriculture extension students at BHU who are involved with farmers for organizing training programs and the use of mobile tablets.

Among the 20 KVK teams under the AAU extension program, there are 59 female extension scientists, or about 50 percent of all extension scientists (there are six to seven agriculture scientists on each team). Recruitment for the KVK teams is based on a written test and personnel interview. However, there is no data to show how many women farmers are visited by KVK officers. One of the problems is that women are involved with farming activities but the male counterpart is considered the farm’s decision maker and thus receives most of the attention. Similarly, women are not generally concerned with constraint issues such as inputs, financing, and marketing. These are considered the domain of the male counterpart in the farm household.

CONCLUSIONS FOR EVALUATION QUESTION 4

Cultural and education reasons keep women from many training opportunities. AIP is not responsible for the selection of trainees from the villages, but could exert more influence over this process. Women express great interest in commercializing their farm enterprises, as related during interview discussions with women in various trainings. Women belong to cooperatives and self-help groups for entrepreneurial reasons, which could serve as venues for taking training to the villages. There is a lack of an adequate feedback system among the various AIP activities to determine the causes of low participation by women. In the area of curriculum, there is little evidence that AIP has had any impact on gender issues at the three universities, either in population numbers, changes in benefits or support for women, or in courses that address gender issues—except for the one course cited.

Though the project did see participation from women, this participation was not necessarily intentional, and there were not project activities cited that were explicitly geared toward reducing the gaps between males and females in the agricultural sector. There remain substantial opportunities to address gender in project activities.

RECOMMENDATIONS FOR EVALUATION QUESTION 4

AIP needs to work with SAUs to find ways to bring more training opportunities to women at the village level. Participation could possibly increase by working through cooperatives and women’s self-help groups. Criteria for acceptance to trainings and venues could be revised to ensure more female participants are selected in training programs. Other possible formats could be “women only” sessions for the trainings, using the local school facility in the village, or a part-time course that allows work at home and half-time attendance at the training. Another suggestion, found in the Gender Assessment USAID/India,¹⁹ included the use of audiovisual materials in trainings for women who might not be literate. With the completion of

¹⁸ Upadhyay, R. (undated). Women’s empowerment in India-an analytical overview. Retrieved from <http://asiafoundation.org/resources/pdfs/womensempowermentindiabriefs.pdf>

¹⁹ Gender Assessment USAID/India, February 2010.

the e-learning media studios, this approach would be very possible. One of the participants in the Fisheries Training also heads a rural NGO that presents plays at the village level, mainly to introduce health lessons. This type of activity could also be considered for presenting agriculture messages at the village level to increase women's participation in trainings.

FINDINGS FOR EVALUATION QUESTION 5

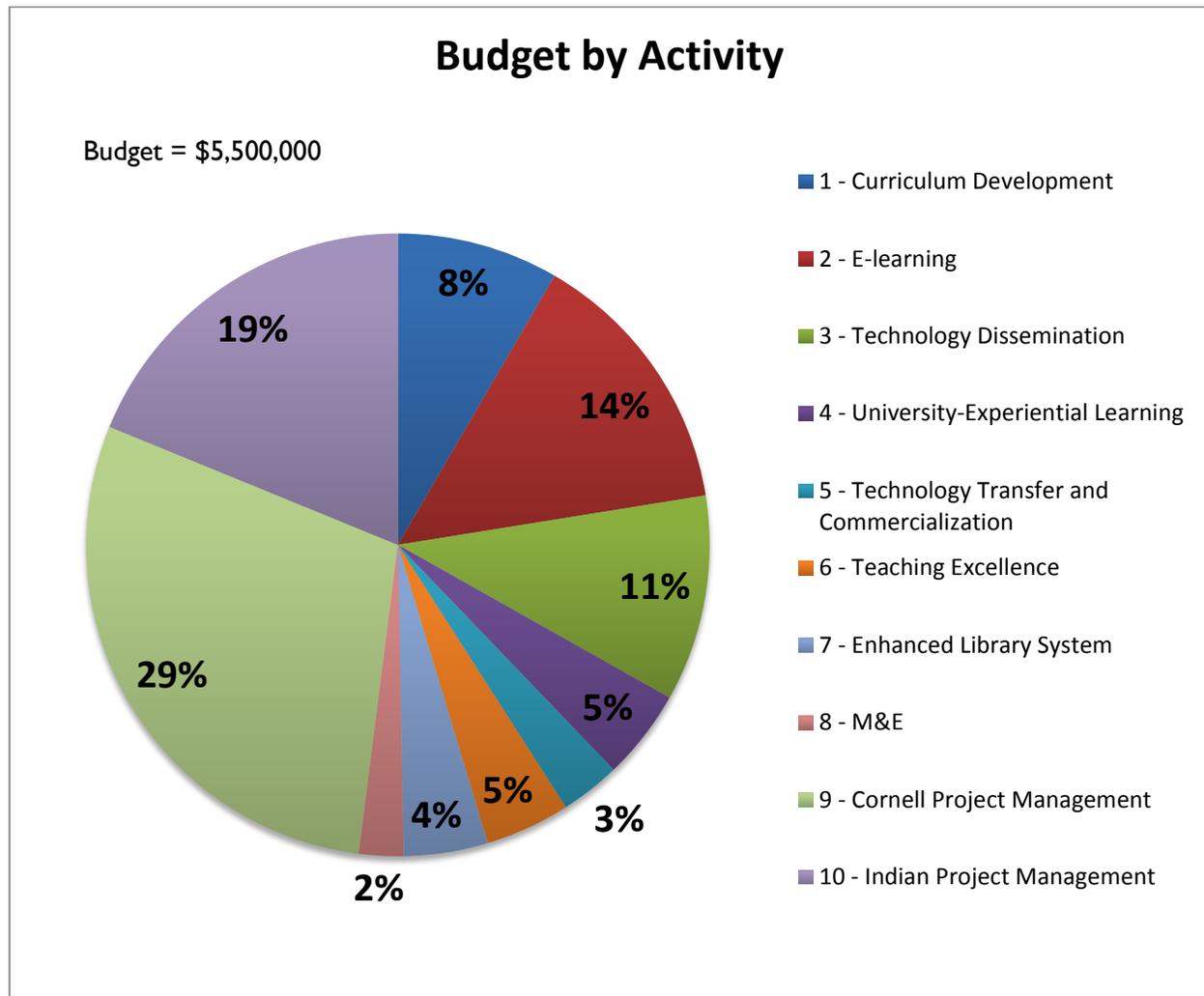
Of all of the program components, which factors and interventions do stakeholders perceive to have the most potential for transfer to other institutions? Which are perceived to have the highest potential for development impact and long-term sustainability and why?

Findings for e-learning

The e-learning program has been expanding at the three universities. As mentioned earlier, the number of lectures and subject-matter programs developed at the universities now stands at over 400 and is increasing. An additional 70 lectures are available from Cornell University, along with lectures from 41 courses at Tamil Nadu Agriculture University (TNAU). As of June 2014, 5,986 faculty members received USG supported short-term agricultural sector training activities, including e-Learning—exceeding the target of 5,950 faculty members. Though this indicator exists at the output level, if AIP also achieves its results at an outcome level, it could demonstrate potential for development impact.

From a resource allocation standpoint, e-Learning comprises of 14 percent of AIP's budget (see Chart 1 below). E-learning comprises the largest proportion of AIP's budget for direct project implementation (not management activities).

Chart I: Budget by Activity



At the time of the evaluation, one university (SVPDAT) was in the process of setting up a media studio to facilitate the taping of lectures, adding to the current library of lectures and videos in the system. The current taping of lectures involves a camera and YouTube downloads (currently only at AAU). The three professors interviewed at SVPDAT expressed their confidence that these studios would “improve the quality of the lectures” and greatly increase the number of lectures available to students, with the added benefit of making them available off-campus.

SVPDAT has established a system of student volunteer trainers for new students learning the e-learning system. Many new students come from rural areas and, according to the faculty and students, their “internet technical skills are not very high.” To meet this challenge, a group of student volunteers, including the four interviewees, provide free tutoring services for these new students.

A draft e-learning policy was presented at a Library Science and E-Learning Workshop sponsored by AIP in February 2014. This policy is intended to provide an organizational structure for the e-learning system when approved and implemented. It is currently being vetted through the three partner universities and

ICAR. AIP is in the process of forming faculty consultative groups to oversee the development of the e-learning program at the three universities.

The partner universities' interest in this program has been demonstrated by the investments made in the system, including computer equipment, classroom space, and faculty, and indicates potential for sustainability. Based on comments from faculty and students, the use of the system is "popular with students" and students are using the e-learning system to "reinforce regular classroom lectures." One student at SVPUAT suggested that the system should be "available off-campus to expand the reach and online time to more students."

At AAU, the e-learning staff estimates that 47 percent of faculty participates in using the e-learning system; however, there was no physical evidence of where this number came from. If this is true, though, this statistic would indicate that the system has made a favorable impact on the professors.

Since there is no feedback or tracking systems in place, the impact on student learning is difficult to determine. Part of the feedback and tracking problem at SVPUAT and BHU is that there is no specific faculty member assigned to manage the program. Part-time faculty members manage the system, although they have other teaching responsibilities. Staff turnover presents another threat to sustainability for the e-learning program. University staff trained in e-learning may be transferred to other institutions, as happened at BHU.

The four students interviewed at SVPUAT indicated that they log on to the system on average three to five times per week. Students at the other universities also indicated that they would like to have access to the system off-campus. This wider access would provide more students with study and learning opportunities that would improve their classroom performance. Broader access to the system would also ensure that more students use the system and create greater demand for online lectures.

Findings for product development

The university food science departments develop new products for local tastes and markets. They are active, have equipment in the labs (pre-AIP), train staff and students, and continue to produce new products. The plan to use agricultural products in the processing of food products for commercialization can have a significant impact on farmers as a source of raw materials as well as on private businesses in selling new products to market—though this has only happened in three cases thus far. Faculty at each university pointed out that product development and licensing require long time frames before products are ready to come off the shelf for commercialization, which impedes impact and sustainability in a relatively short-term project life.

Two local women entrepreneurs have licensed the two products to come out of the AIP food products program from AAU. These two women already had several products in their processing business. Their business is small but active, although they struggle a bit with the two pickling products at the moment. They are working to overcome the issues of markets and packaging. However, they did not have any visible records to indicate if their various enterprises were profitable. In addition, the regional Purabi Dairy Cooperative has acquired the dairy product technology (mango lassi, a dairy product) under the AIP program.

In October 2014, AIP will fund a product development and commercialization showcase in conjunction with AAU's food science department and IP/OTTC. Participants will be invited from eight different states. There will be seven products showcased, including bio-pesticide, bio-fertilizer, malted weaning baby food, plant-based veterinary medicines, a tea plucking basket, animal-based products, and pickled poultry and

fish. The purpose of the showcase is to demonstrate the potential marketability of these products and encourage entrepreneurs to commercialize them.

Findings for mobile solutions

The mobile devices have demonstrated their potential for impact at the farm level by providing solutions to farmers' problems. Many farmers interviewed in the sites/training centers in BHU and AAU indicated that they received useful inputs from extension agents related to their queries about their field problems. For example, one farmer in BHU–Mirzapur told the team that his mango crop was affected by a pest that was not diagnosed properly by local input dealers, who had prescribed the wrong pesticides. However, the local KVK agent, with the help of the tablet information, was able to make the proper diagnosis, obtain answers, and suggest remedies. The ability to resolve problems in the field and view solutions on the tablet are encouraging advances for farmers. They have reported receiving advice and assistance on various topics including cultivation, floriculture, horticulture, and animal husbandry.

As mentioned in Evaluation Question 1, many farmers interviewed in the village of Kulhati under Kamrup district in Assam indicated that they have benefited from the information provided by KVK officials using the tablets. Their queries were related to subjects such as animal husbandry, vegetable production, floriculture, etc., with most questions related to soil issues, pest attacks, and animal health.

The Assistant Director General of ICAR mentioned, “Extension needs to be delivering the information critical to farmers. Accessing mobile technology is important, but it is much localized at this point. There isn't an articulated national plan for spreading information. India needs a mobile revolution in the rural areas.” The limited success exhibited by the KVK use of the mobile devices could begin to meet this need for “spreading information” between the farmers and the university extension and research departments.

There are 47 devices currently in use by KVK extension centers in the three SAUs. Other organizations and institutions, such as Rajendra Agriculture University-Bihar, TNAU, and the Tamil Nadu state government, are using this technology in their agriculture extension programs. At the time of the evaluation, the AIP management team, in conjunction with SVPDAT and AAU staff, was undertaking farm-level data collection to serve as a basis for university as well as government decision-making and planning strategies. There is also interest in this technology by ICAR, as mentioned earlier. However, sustainability issues involving the equipment to support a national program for SAUs and KVKs, including the high start-up costs for the software, and the additional support needed for KVK logistics, have deterred this process thus far.

Findings for curriculum development

Certificate courses can be adapted to local conditions and markets, and feedback from trainees can immediately inform future certificate course offerings to ensure that they provide the most relevant and timely technical content for meeting local producer needs. These courses, combined with the university program for encouraging the relationship between the university, the KVK extension service, agriculture research departments, possible private-sector collaborators, and eventually the participating farmers, have great potential for encouraging best practices on farmers' fields, increasing production, and improving the potential for the commercialization of farm enterprises.

As of June 2014, 68 new courses have been developed with AIP support—45 percent above the target of 47 courses. However, AIP has only met 51% of its target for the number of courses launched (target = 45, actual = 22). There have been seven certificate courses developed, approved, and used in training programs for farmers and rural small-scale entrepreneurs. Although faculty trainers confirmed that some farmers who participated in the training called them afterwards with questions—verifying their use of the

practices taught in the certificate courses—no specific numbers for participants were located in the literature, and project administrators were unable to articulate the number of call-in farmers during the interview process. In addition, evidence is lacking to articulate income improvement or enterprise success for those participating in the certificate courses (the Farmer Impact Survey mentioned above refers to participants in the one-day awareness training programs).

Farmers interviewed who had attended an earlier training indicated that they initiated improved practices as a result of participating in the Goat Production Certificate program. These practices included increased sanitation for their goat herd, more effective vaccination schedules, and more selective breeding practices. For poultry farmers who participated in the Poultry Production Certificate course, they indicated improved practices—including improvements in the construction of their chicken coops and improved water treatment practices. Both farmer groups spoke of informally training others in the village on the knowledge and practices gained during the certificate courses. Based on comments during the interviews with participants from the certificate courses, farmers seem to embrace the best practices being taught.

BHU faculty considers the curriculum development efforts for certificate training activities to be sustainable after the AIP project closes. One of the directors mentioned that the courses could be integrated into the routine farmer training program. Other staff members at AAU have also agreed that the certificate training programs should continue. One staff member at BHU, though, questions the sustainability of the training programs, pointing to the weekend timing of the trainings as evidence that faculty do not have time during the school week for the trainings.

CONCLUSIONS FOR EVALUATION QUESTION 5

There is a clear set of models that have been developed that can be easily transferred to other institutions. Faculty members and administrators expressed their confidence in the transfer of certain innovations to other universities from within the three-university partnership. E-learning, teaching excellence, certificate training programs, and TDIIA-mobile solutions activities are making a difference among farmers and are prime candidates for packaging as model programs. None of these programs have been completed in the sense that they are still in the development or ramping-up stage, making it difficult to know what the complete packages might look like as models for transfer.

E-learning is growing in use and has begun to change the student-professor relationship in the universities. When completed, there will be a cadre of faculty trainers, students skilled in the system, media studios for taping lectures, a link with US universities for subject-matter videos, and a policy to guide the development of the system, all contributing to longer-term sustainability at partner institutions. The e-learning program has a high initial fixed cost, in that universities need to be willing to invest in media studios, e-learning equipment, and faculty training, but once the infrastructure is in place, it seems that it can be sustained. Should non-partner universities be willing to make this initial investment, this will greatly improve the potential for transfer to other institutions. Based on interviews and discussions, the e-learning program is already positively impacting students—although there is no organized feedback data available to measure this impact. As a package, this could serve as a model for transfer to other universities. Up to this point, e-learning has only demonstrated measurable results at the output level, and at the time of the evaluation, a study was underway to collect information at an outcome level among farmers. There may be a way to determine changes in learning outcome through application of e-learning programs, but an indicator to measure this was not included in the AIP monitoring and evaluation plan. Because e-learning receives the greatest percentage of funding for direct implementation of project activities, one would expect measurable positive outcomes as a result. The positive student and faculty feedback, however, does provide a glimpse of the potential for development impact, and some initial signs of return on investment.

The two women who commercialized the two food products claim that adding these new products has had a positive impact on their business, but no records are kept that measure the level at this point. Food product commercialization is a long-term endeavor and the overall impacts will not be known for some years. As already mentioned earlier in the report, the evaluation team sees little potential for transfer in product development activities.

The introduction of the mobile solutions tablet technology has led to a new relationship between the universities and farmers—establishing a system that provides answers to farmers and farm-level data back to the university. The key to the success of this system, and its appeal to other Indian universities, will be the ability of the tablets to respond to farmers' questions about production issues. As with e-learning, there is an initial investment in purchasing mobile technology equipment, but with this initial investment, there is relatively high potential for sustainability and development impact. As a technology-based solution, this intervention also has relatively high potential for transfer, with some capacity building among universities and KVK extension agents.

TDIA trainings and the use of the tablet devices have improved KVK extension relations with farmers and created some impressive yields, which were demonstrated in the impact survey from 2013 referred to earlier. Interviews with these training participants indicate their satisfaction with the results from the introduction of new technologies and best practices on their farms. However, the KVK training program depends on funding for travel and meals to entice farmers to travel long distances for trainings and for the KVK officers to travel to villages. Based upon the localized nature of the certificate courses and their short duration (up to 30 days), as well as steps that BHU and AAU have taken to integrate them into their education programs, they offer the potential for long-term sustainability and replication to other institutions with similar agricultural production practices. These training programs are not completely functioning in the partner universities but are sufficiently understood and developed to be considered as models for transfer. The practical nature of the certificate courses has led to almost immediate application by farmers, contributing to their potential for development impact. Additionally, it is promising that farmers that have participated in certificate courses have later been able to share the knowledge gained with their villages. Additionally, curriculum development comprises only eight percent of the project budget and, with the evidence of application by farmers, could yield a favorable return on investment. It is important to note, though, that while AIP is overachieving against its targets for developing new courseware, it is underachieving by about half in launching this courseware. So, as it stands now, only 22 of the 68 courses had been launched, and beneficiaries do not have access to 46 of the developed courses, which could potentially diminish the development impact.

Sustainability is the real issue and one can only speculate as to the potential for state government and university funding sources. By themselves, several activities and innovations are sustainable, such as e-learning and the extension activities. However, given the external support system required, i.e., budgets and staff, the potential diminishes considerably. A critical aspect of sustainability as the project comes to a close will be to demonstrate the value of AIP activities so that institutions are willing to use their funding and resources to invest in the equipment and training necessary to put activities such as e-learning and mobile solutions in place.

Each of these activities is potentially sustainable, but they do not generate income and so are dependent on government or external funding. AIP is able to promote programs with government offices, like ICAR, but there has been very little activity to date for securing funding to support these programs in the future. As mentioned elsewhere, AIP plans to hold a seminar in January 2015 to promote AIP innovations to ICAR and representatives from a number of SAUs.

RECOMMENDATIONS FOR EVALUATION QUESTION 5

A proactive approach to completing the development of these models and presenting them to other SAUs through ICAR, with budgets for start-ups and sustainability, should be a priority for the balance of this Work Plan year for AIP. ICAR expressed interest in the mobile solutions link with extension activities that should be pursued as part of the sustainability planning by AIP.

AIP should generate a proposal, in conjunction with ICAR, the universities, and state governments, for continued support of e-learning, the tablet program with extension services, and the certificate training programs.

In future projects, more detailed external periodic monitoring systems should be put in place to generate information about project impacts and impediments to achieving project objectives that would allow project implementers to determine the effectiveness of their activities and make changes as necessary. Future projects might consider a monitoring relationship with ICAR that would look at ongoing project activities and also consider sustainability issues as innovations and systems are put in place.

AIP should study the university-to-farmer relationship to better understand the sustainability issues so that a beneficial program does not end with AIP. Before transfer or replication, the administration of recipient universities should be vetted to ensure they are in agreement with project activities and have the resources to support the activities.

Future projects may also benefit from a balanced approach between curriculum development and curriculum implementation. If efforts are focused exclusively on curriculum development, implementers run the risk of creating courseware that does not reach the beneficiaries, perhaps due to the number of approvals needed to launch curricula.

AIP, and future implementers, may also want to explore profit generation models for e-learning or mobile solutions to cover the up-front costs of equipment purchase. Models that involve a small membership fee for access to online learning content, or small fees for access to KVK extension agents through mobile technology, could offset some of these costs and improve sustainability of project activities.

FINDINGS FOR EVALUATION QUESTION 6

6. What are the specific factors, both contextual and programmatic, that stakeholders perceive to have contributed to the successful uptake of AIP's activities (if uptake occurred)?

Findings for e-learning

As mentioned earlier, the three partner universities have made substantial commitments to the e-learning programs, including equipment, space, and staff time. The students interviewed at each university indicate an increasing level of informal interaction with professors. This includes advice from the professor “to listen and watch certain lectures” and other subject-matter videos as supplements to the classroom. The students interviewed also indicated that they are occasionally in email contact with the professor when they have questions.

As expressed by the faculty interviewed at SVPUAT, the partially completed media studio is increasingly being used by professors to create lectures for the e-learning system. At AAU, lectures are being taped, mostly on YouTube, and revised on a regular basis.

The establishment of the computer labs and media studios as well as the ready availability of lectures and subject-matter videos provides a greater learning experience. Students interviewed said that the e-learning system “is very innovative” and the increasingly wide range of courses available provides useful supplemental learning materials.

Findings for product development

Ten products are currently in the research and development stage or are completed and on the shelf within the three universities under the AIP partnership (see Table 5). Of these, one has been transferred to a dairy cooperative and two have been licensed through the IP system, which AIP assisted in establishing at AAU in 2012. The ten products in the research and development stage will be seeking interested entrepreneurs for dissemination. AIP has sponsored five workshops intended to introduce local entrepreneurs to agriculture product processing as a business—either a new business or an expansion of an existing business. One training at AAU in 2012 included 26 local entrepreneurs. The result was the two women entrepreneurs who went into the pickling business. No others have yet invested in the processing business through AIP.

Table 5: Food Product Development List

Trials ongoing at various universities
1. Papaya candy, AAU
2. Ginger candy, AAU
3. Ginger squash, AAU
4. Ginger RTS (ready-to-serve) juice, AAU
5. Pineapple candy, BHU
6. Jackfruit candy, BHU
7. Bakery products, SVPDAT
8. Potato products, SVPDAT
9. Dried mango, SVPDAT
10. Dried pineapple snacks, AAU
AAU products all need more trials
Products developed and commercialized with AIP assistance
Pickled fish, AAU
Pickled poultry, AAU
Mango lassi, AAU
AAU products commercialized, pre-AIP (information from Dr. Purna Barua)
Bt chickpea
Swine fever vaccine
Baby food (Assam mix)
Fish feed
Animal feed concentrate (Vetmin)
Local banana based baby food (Bhimvita)

AIP provided funds and TA to support training and a workshop where the products were introduced. Also, as mentioned earlier, one professor from SVPDAT attended workshops at US universities.

In addition to the products that AIP has been working with, there are a number of others that have been in the system of the three universities pre-AIP (see Table 5 above). They include six food products that had already been disseminated by AAU to small entrepreneurs before the licensing process was introduced by AIP.

Food product development at SVPDAT includes baked goods, cookies from potatoes, and dried mango. One local baker, who participated in the 2012 workshop, is interested in some of the bakery products, but SVPDAT is not ready to commercialize its products until the licensing agreement documentation is complete.

The university food science departments continue to operate in facilities with university funding. Aside from the support of trainings, AIP has provided some equipment to AAU for the food processing department—a hot air dryer and a juicer. These food science departments have experienced staff, some of whom have been trained in the US or in-country training programs, and also food processing equipment from before the arrival of AIP.

Getting a product ready for market involves approval from FSSAI, which is about a year-long cycle within the university that involves the development of prototypes, validation for safety and sensory properties, scaling up the production process, and the introduction to potential entrepreneurs. Interested entrepreneurs then need to agree to the university IP licensing process before gaining access to the product recipe.

Findings for TDIIA and mobile solutions

Under AIP, KVKs have worked as trainers in the one-day awareness programs and have been encouraged to engage in follow-up activities with participating farmers. The introduction of the tablets by AIP has provided an incentive for KVKs to work more closely with farmers and provide them with practical advice. The provision of additional funds (about USD 1,000) for each training under AIP to meet the costs of farmers' travel and their logistics for attending the training has been critical to the success of the trainings. In addition, external subject-matter experts (including faculty and KVK staff), the involvement of local NGOs, private-sector companies and cooperatives in the trainings, and follow-up with farmers have contributed to the success of the TDIIA program. The topics chosen for training are based on the local demands of the farmers, with a focus on products that can be commercialized. The mobile technology has also contributed to the KVKs' closer relationship and increased follow-up with farmers. The leadership in the partner universities has exhibited interest in developing this relationship between the KVK and the farmers.

Findings for curriculum development

The new director for the Institute of Agricultural Sciences at BHU indicated that BHU had established effective work plans for activities such as curriculum development and e-learning. Prior to the new director's recent appointment, faculty indicated that some elements of the AIP supported program, such as e-learning, were completely inactive. Reviewers were told by the director that some members of the original group of BHU faculty selected to travel to the US for faculty exchanges were not carefully selected and, upon returning to BHU, made no efforts to transfer what they learned to the rest of the faculty.

Successful AIP program activities, such as BHU's Curriculum Development and AAU's Teaching Excellence and Certificate courses, are the result of strong and effective leadership. Observations of the review team and discussions with faculty have highlighted the benefits of strong and committed leadership to promote project activities. These activities were initiated by administrators appointing faculty members whose interests aligned with the activities they were assigned. However, there is no formal feedback mechanism in place to determine how teachers are performing.

CONCLUSIONS FOR EVALUATION QUESTION 6

The support of the partner universities to the AIP efforts at introducing innovations into the learning process is instrumental in uptake, requiring active university leadership. As discussed at one university, when the administrator was not enthusiastic, shown by the lack of support for faculty returned from workshops at US partner universities, activity progress stagnated. Another delay in project implementation occurred when the vice chancellor at SVPUAT insisted that additional approvals from ICAR be obtained—curtailing program activities for almost a year. It is clear that buy-in from faculty and administrators, as well as strong leadership in support of AIP project activities, was instrumental to the successes in university activities.

AIP funding played a decisive role in initiating activities in the absence of university budgets. For example, funding the TDIIA trainings and procuring the tablets and software were critical to establishing this extension–university–private sector–farmer relationship. This relationship was initiated at the universities when the farmer training programs were established. More active student and professor relationships have resulted from the establishment of the e-learning systems. Food product development and commercialization activities, though not moving many products off the shelf, have used AIP funding and technical assistance to develop new product ideas, conduct workshops to explain these products to the private sector, and establish a licensing system to control the use and spread of new recipes. Food product development and commercialization testing, approval, and authorization processes curtail progress and uptake.

The TDIIA training and mobile solutions tablet programs have demonstrated success through the university to farmer relationships inherent in the program. Indications of improved crop yields and animal production from farmers interviewed provide some sense of satisfaction with the technologies being promoted. In general, ongoing network connectivity problems, insufficient numbers of KVK staff, shortages of operational budgets, occasional technical problems with the tablets, and the potential high cost of the tablet software will be limiting factors in the uptake of this activity.

RECOMMENDATIONS FOR EVALUATION QUESTION 6

University and state government funding options need to be explored before programs are put in place if uptake is to be achieved. Food product development should be linked to private-sector programs that can overcome some of the long-term issues facing the commercialization of food products.

AIP should work with the universities to develop feedback systems that will stay in place post-AIP. These would cover various aspects of each activity, like student use of the e-learning system and measures of impact on learning, tracking farmer questions and solutions through the extension service, follow-up with food product–processing businesses to determine success and problems, and others. The universities could use this information to justify proposals and budgets to state governments and ICAR for continuing and expanding the uptake of some of the more successful activities.

LESSONS LEARNED

1. Agriculture and education activities need longer-term commitments. The potential for success is demonstrated in some of the AIP activities, but even limited evidence will not be available before the project ends.
2. Ensure funding up front for activities. Although government funding can never be assured, greater efforts could be made to include host government funding of certain activities from the beginning. Obtaining host government resources at the initial stages of project would lend some assurance of sustainability.
3. Some AIP activities needed more directed follow-up after a training or innovation introduction. Many of the AIP interventions included involvement up to the end of a training or the turnover of a technology, at which point responsibility for implementation was left to the beneficiary or the university. For example:
 - a. more monitoring of participants following trainings in agriculture to determine farmers' uptake from the training;

- b. product development assistance to entrepreneurs who have accepted the new products but may be having market, raw material, or processing issues;
 - c. a system for tracking the use and development of the e-learning activity and how it is progressing and impacting students' learning;
 - d. early cost studies of the software for the mobile solutions tablets to determine if this technology would actually be transferrable and replicable.
4. There seems to be too many US universities involved where one could provide all the technical assistance necessary for AIP. This “consortium” system may be an administrative burden on the implementing partner (Sathguru in this case) and less efficient in terms of budget expenditures for administration and overhead.
 5. There were too many activities under this project, given the limited funding and time frame. In hindsight, the investment created only incremental changes with limited chance for success in some activities—food product development and curriculum (degree programs), for example.
 6. There was not a clear strategy for replication to other Indian universities. In order to improve prospects for replication, project activities should be designed in such a way that partner universities are obligated and equipped to transfer the practices to other universities, perhaps working through existing partnerships.

ANNEXES

ANNEX I: EVALUATION STATEMENT OF WORK

STATEMENT OF WORK

Evaluation of Agricultural Innovation partnership (AIP) Project

I PROJECT INFORMATION:

- **Project Title: Agricultural Innovation Partnership (AIP)**
- **Start-End Dates: December 9, 2010 to September 31, 2014**
- **Budget: \$5.5 Million**
- **Project Description:**

Under the Feed the Future (FTF) Initiative, the overall objective of USAID/India's Food

Security Program is to advance India's role as a "strategic partner" in strengthening food security in India and globally. The Agricultural Innovation Partnership (AIP), a \$5.5 million project

under a Memorandum of Understanding with the Ministry of Agriculture, was launched under this initiative in India with the objective to reduce rural poverty and hunger in the Indo-Gangetic Plains. The AIP project aims to accomplish this objective through enhancing the capacity for teaching, research, and extension work at Indian higher educational institutions. This will improve agricultural education and India's agricultural extension system, thereby promoting innovation, diversification and growth in agricultural productivity and rural development that meet the needs of a market-led agricultural system. The AIP project activities include: i) reforming existing and developing new agriculture curricula so that those trained in agriculture develop the skills needed to meet market demand; and ii) better linking universities to enterprises and extension.

AIP is implemented through partnerships between U.S. Land Grant and Indian universities. It is led by Cornell University with five additional U.S. university partners: University of California/Davis, University of Georgia, University of Illinois at Urbana-Champaign, Ohio State University and Tuskegee University. The Indian partner institutions are State Agricultural Universities (SAUs): Banaras Hindu University (BHU) at Varanasi and Sardar Vallabhai Patel University for Agriculture and Technology (SVPUAT) in Meerut, both in the northern state of Uttar Pradesh; and Assam Agricultural University (AAU) at Jorhat in eastern India. In addition

to formal education interventions, the AIP project partners with the Government of India's extension system and the private sector, namely Tata Chemicals and John Deere, to disseminate information about new agricultural technologies.

Since December 2013, Malawi's Lilongwe University for Agriculture and Natural Resources (LUANR) has been implementing the AIP program as well. The AIP work in Malawi will not be evaluated under this Statement of Work.

Program Components

The AIP project has two components: 1) strengthen agricultural education, extension and administrative capacity at agricultural education institutions; and 2) foster the agricultural innovation ecosystem through partnerships with the private sector, technology transfers, and commercialization models.

1. Component 1: Improve agricultural education and extension at targeted Indian institutions

Under this component, the activities are designed to revamp the curricula and improve extension and administrative capacity at targeted agricultural universities. The agriculture curricula,

syllabi, and course materials were revamped at the undergraduate level to match current market demands and existing and future challenges in agricultural development.

1.1. Institutional Capacity Building

Institutional capacity building included activities that developed knowledge and skills among students and faculty, supported by establishing institutional infrastructure and creating new processes for efficient and effective course delivery. Some of the identified areas are e-Learning, library systems strengthening, curriculum development, and teaching excellence.

a) Curriculum Development

To achieve this goal, AIP identified the gaps between current curricula and industry needs, then linked Indian faculty with US land-grant partners for training and the development of new curricula. AIP has developed 30 degree and short-term courses in the partner universities. Over

77 per cent of the new and revamped courses developed with AIP's assistance have been approved and launched. Some examples of these new and revamped curricula and courses include: gender-based courses, a new animal nutrition curriculum, a work plan for developing B.Sc. courses in animal nutrition, specialized courses in feed formulation technology, and new vocational courses in the areas of veterinary services, animal and dairy sciences, and food science.

b) Technology Transfer Centers

AIP introduced innovations throughout the supply chain to address technology translation opportunities, with the aim of strengthening the competitive advantage of Indian farmers by enhancing their understanding of how to commercialize agricultural products. AIP supported the establishment of an Office of Technology Transfer and Commercialization (OTTC) in the partner universities to help addresses concerns about intellectual property and licensing of technology.

c) Teaching Excellence

To address changing teaching methodologies in India, AIP worked closely with partnering Indian SAUs to introduce teaching excellence tools for faculty and students and facilitated the creation of Teaching Excellence on university campuses. This involved modern methods of teaching, examination, evaluation methods and use of software for scientific data analysis.

d) E-Learning:

AIP has introduced e-Learning techniques in agricultural education, transforming communication, knowledge delivery and student engagement through digital learning. All three partner universities have Online Learning and Training (OLAT), an online learning management system, and have been trained and given equipment to help capture and create e-Learning material.

e) Library Science Development

One of AIP's focus areas was to improve library resources at Indian SAUs through the development and better use of printed and online resources. AIP implemented e-Learning, e-resource development and digitization of study materials to increase accessibility and ensure the long-term preservation of these educational resources. AIP also implemented the Indian version of The Essential Electronic Agricultural Library (TEEAL) to create a nationwide network of libraries for easy access to resources by the academic community.

1.2.Extension

One of the AIP's major extension initiatives is teaching farmers simple natural resources management techniques and the use of information and communication technologies. It introduced an Android-based tablet application which is easy to use, requires minimum training support, and serves as a one-stop solution for all queries related to agriculture. This unique mobile solution, developed and delivered by AIP partners, has provided real-time online interactive solutions to resource poor farmers in the Assam region and Uttar Pradesh for seeking solutions on crop management.

For improving the incomes and livelihoods of farmers and small-scale entrepreneurs, AIP launched its Technology Dissemination and Income Improvement Activity (TDIIA) in alliance with Krishi Vigyan Kendras (Farm Science Centers).

2. Component 2 - Fostering the Innovation Ecosystem

a) Experiential Learning

AIP introduced several innovative practices for agricultural students and professionals to receive real-world exposure to both practical and experiential learning in the agriculture and rural development sectors. AIP's e-Learning and mobile solutions displayed their transformative potential for extension professionals in improving farm productivity and farmers' income.

AIP's TDIIA organized several training programs to sensitize farmers on improved farming methods, the efficient use of natural resources, marketing, and income generation.

AIP has supported interdisciplinary exchanges between Indian and U.S. faculty, staff and students. AIP partners from U.S. and Indian universities participated in Cornell's International Agricultural and Rural Development (IARD) courses. Since 2011, AIP has sponsored representatives from Indian agricultural university partners to participate in various executive education programs organized by Cornell University and the Center for Executive Education at Sathguru Management Consultants.

b) Technology Commercialization

Small and Medium Enterprises (SMEs) in India do not have easy access to proven technologies that they can adopt and use to deliver affordable products. AIP facilitated the process in BHU, SVPUAT and AAU to support the adoption of innovations by SMEs in nutraceuticals, value added food, feed and fiber. Faculty members from partnering universities engaged in technology translation and delivery for small enterprises and marginal farmers. SMEs secured access to these technologies to produce processed foods that are market ready. AIP engaged partners in outreach efforts for these technologies that created commercial impact. AIP partnered in showcasing highly relevant technologies to industry for building technology transfer process.

II. STATEMENT OF WORK

a) Evaluation Purpose

The overriding purpose of this end-term evaluation is to gain an independent opinion of the AIP project's performance in order to provide lessons learned and help guide the Mission on future project design under the Feed the Future program. The results of this evaluation will assist the Mission in learning about what worked, what did not work, and why these activities were effective or ineffective in terms of agricultural education and extension, private sector engagement, and enhancing innovation in targeted agricultural universities in India.

b) Evaluation Questions:

This evaluation will answer the following questions:

- What lessons/recommendations from the innovations under this project can inform and/or feed into USAID/India's future strategy and have potential for global scale-up?
- Of the thirty plus courses that have been developed, which ones are best suited to train individuals for the modern labor market and why?
- To what extent has the AIP model of partnership between universities been successful in building the capacity of the selected universities to transfer and replicate practices with other Indian universities? What are the prospects for applying this model of partnership at universities in other developing countries?
- What is the effect of the AIP interventions in addressing gender issues in agricultural education and extension in agricultural universities?
- Of all of the program components, which factors and interventions have the most potential for transfer to other institutions and which have the highest potential for development impact and long term sustainability and why?
- What are the specific factors, both contextual and program interventions that contributed to the successful uptake of AIP's activities?

c) Intended Uses or Other Audiences for the Evaluation:

The primary intended user of this evaluation is USAID/India, particularly the Food Security Office (FSO) and Mission management. FSO will be particularly interested in the findings and recommendations concerning the effects of this project and the lessons learned. This information will inform the extension of the AIP project in Malawi and facilitate the transfer of AIP activities to other Indian SAUs.

The next intended users are the Department of Agricultural Research and Education (DARE) and the Indian Council for Agricultural Research (ICAR), Ministry of Agriculture, Government of India. As the premier institutions dealing with agricultural education and the extension curriculum, these evaluation findings will provide evidence on the necessity and the usefulness

of the new and innovative courses. Cornell University, in partnership with ICAR, will implement a broader program on curriculum reform and use the findings from this evaluation as a tool for future design.

USAID/India will use this evaluation to inform potential new designs that increasingly focus on agricultural education systems, including institutional capacity building and partnering with the private sector.

The secondary audience would be local institutions, other donors, and perhaps other USAID Missions worldwide.

ANNEX II: FINAL EVALUATION OF AGRICULTURAL INNOVATION PARTNERSHIP (AIP) PROJECT: WORK PLAN



FINAL EVALUATION OF AGRICULTURAL INNOVATION PARTNERSHIP (AIP) PROJECT

Work Plan

USAID/India

Limited Internal Distribution

June

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Attachments:

1. Evaluation Matrix
2. Sample questionnaire format
3. Itinerary and timeline
4. List of partner institutions and businesses
5. List of project beneficiaries – Faculty and Students
6. AIP activity priority list

Acronyms

ADP Area Development Plan
AFPRO Action for Food Production
AKI Agricultural Knowledge Initiative
CII Confederation of Indian Industry
CRPs Community Resource Persons
FAO Food and Agriculture Organization of the United Nations
GAP Good Agricultural Practices
GDP Gross Domestic Product
GoI Government of India
HKB Hariyali Kisan Bazar
IFPRI International Food Policy Research Institute
IGIDR Indira Gandhi Institute of Development Research
IHDA Indian Horticultural Development Alliance
IRRI International Rice Research Institute
ITC Indian Tobacco Company
LOP Life of Project
M&M Mahindra & Mahindra
MANAGE National Institute of Agricultural Extension Management
MSU Michigan State University
NHB National Horticulture Board
PIKA Partnerships for Innovation and Knowledge in Agriculture
PPP Public-Private Partnerships
QCI Quality Council of India
RBH Rural Business Hub
RGCT Rajiv Gandhi Charitable Trust
Rs. Indian Rupees
RWC Rice and Wheat Consortium
SHG Self Help Groups
SOW Scope of Work
TNAU Tamil Nadu Agricultural University
UP Uttar Pradesh
US United States
USG United States Government
USAID United States Agency for International Development
UW University of Wisconsin-Madison
WSHG Women's Self Help Groups

EVALUATION PURPOSE

The objective of this exercise is to conduct a final performance evaluation of the Agriculture Innovation Partnership (AIP) Project, a Feed the Future (FTF) project implemented through partnerships between US Land Grant and Indian universities. The specific purpose of the evaluation is to gain an independent opinion of the AIP project's performance in order to provide lessons learned and help guide the Mission on future project design under the FTF program. The results of this evaluation will assist the Mission in learning about what worked, what did not work, and why these activities were effective or ineffective in terms of agricultural education and extension, private sector engagement, and enhancing innovation in targeted agricultural universities in India. USAID/India will use this evaluation to inform potential new designs that increasingly focus on agricultural education systems and to inform the extension of the AIP project in Malawi. Since AIP is an innovative project, the evaluation is an opportunity to draw lessons learned for potential scale up and application in new country contexts in Africa.

Social Impact (SI) is pleased to present the United States Agency for International Development (USAID) Mission to India with the following technical approach for the final performance evaluation of the Agriculture Innovation Partnership (AIP) project. SI will conduct a mixed-methods performance evaluation to assist the Mission in learning about what worked, what did not work, and why these activities were effective or ineffective. Our team will be led by Senior Technical Advisor (STA), Dr. Sarah Edith Jones and Senior Evaluation Methods Specialist/Team Leader (TL) Robert Resseguie. The Senior Agriculture Specialist, Dr. Mark A. Balschweid and the local Agricultural Specialist, Dr. Arunachalam Rajagopal, will support the performance evaluation. In addition, an SI HQ-based research assistant (RA) will support the team with data entry, coding, and analysis. Dedicated SI-based program staff, Dr. Ash Pachauri (in-country representative), Ms. Paige Mason (Program Manager) and Ms. Erin Crossett (Program Assistant) will support the team with logistics and quality assurance.

The evaluation approach will be designed to answer questions that address aspects of both performance and process. SI has reviewed the statement of work for the AIP evaluation, and suggests some amendments to the evaluation questions. The revised questions that SI will respond to in this evaluation are:

7. What lessons/recommendations from the innovations under this project can inform and/or feed into USAID/India's future strategy and have potential for global scale-up?
8. Of the thirty plus courses that have been developed, which courses are perceived by key stakeholders to be best suited to train individuals in the modern labor market, and what has led the various stakeholders to draw these conclusions?
9. To what extent has the AIP model of partnership between universities been successful in building the capacity of the selected universities to transfer and replicate practices with other Indian universities? What recommendations do key stakeholders make to adapt this model of partnership at universities for implementation in other regions?

10. To what extent did the AIP interventions address gender issues in agricultural education and extension in agricultural universities?
11. Of all of the program components, which factors and interventions do stakeholders perceive to have the most potential for transfer to other institutions. Which are perceived to have the highest potential for development impact and long term sustainability and why?
12. What are the specific factors, both contextual and programmatic, that stakeholders perceive to have contributed to the successful uptake of AIP's activities (If uptake occurred)?

The Evaluation Matrix table (Attachment 1) outlines the primary research questions, the outcomes of interest, potential data collection activities, as well as potential respondent categories. This table helps outline the teams overall design and methodological approach.

PROPOSED METHODOLOGIES

Upon issuance of the contract modification releasing the funds for the AIP evaluation, the team will hold an initial SI and field team conference call to organize for the kickoff of the evaluation process. The team will initiate an off-site review of documents and other materials provided by USAID including: “teaching excellence tools,” baseline data and reports, target and performance reports, project design documents, project work plans, as well as any data collected through performance monitoring. The project website (www.aginnovation.org) is another important source of information. The team will finalize a draft Work Plan for presentation to USAID prior to arrival in India. This Work Plan will provide USAID/India with a summary of the evaluation methodology, data collection tools and interview protocols for the evaluation field work.

The work plan will be finalized during the proposed Team Planning Meeting (TPM) with USAID on the first working day in India, before the team departs for the field work. The TPM will provide USAID/India and the team an opportunity to present the purpose, expectations and agenda of the assignment, to clarify expectations and discuss future utilization of the evaluation to ensure that the team is responding effectively to the Mission's needs. The team will present a range of possible methods and approaches for collecting and analyzing the information and data which is required to address the evaluation questions. A preliminary itinerary for the site visits will also be presented for discussion and approval by USAID/India.

The team planning meeting will also allow for the team and USAID/India to clarify team members' roles and responsibilities, establish the timeline, refine the methodology, and discuss and finalize evaluation questions. The primary data collection method involves qualitative interviews, for which the team will use a semi-structured approach to allow for adding or modifying questions for the interviews to further explore information from stakeholders.

Following the TPM meeting with USAID/India and the resolution of issues and agreement on the Work Plan, the team will then travel to project sites in Hyderabad, Assam and Uttar Pradesh to conduct key informant interviews (KIIs) and focus group discussions (FGDs) with key project personnel and beneficiaries.

Given the current timeline, the team will not have an opportunity to pilot test the data collection instruments and make adjustments. However, given the semi-structured nature of the evaluation process, following the first day of interviews, the team will meet to discuss the interview process and make adjustments as necessary, being careful not to deviate excessively from the original instruments.

The evaluation process will involve individual interviews, structured group discussions, document review, site visits, and secondary data. Document reviews will include a review of baseline data, targets and performance reports as provided in the quarterly reports since inception, and other project planning and implementation documents provided by USAID and the implementing partners. The team will reach out to key AIP partners at the institutional, agri-business and the farm level, which includes faculty and administrative staff in the universities, students at undergraduate levels, and private industry representatives, targeted groups for agricultural extension, and other beneficiaries of AIP, including farmers.

The team will organize the qualitative data collected through key informant interviews and focus group discussions, in order to identify themes that will respond to the 6 evaluation questions posed by USAID. This will also help identify aberrant cases that may warrant further investigation by USAID following the evaluation. These data collection methodologies will be discussed with and approved by the USAID/India FSO and the Program Support Office prior to the start of the field work.

Through the various interviews and other approaches, the team may identify case studies for further investigation, if timing and opportunity contribute to obtaining the data, which provide strong illustrative examples of AIP's performance.

Data Collection

Data sources that the team will utilize, review and analyze include: project design documents, project proposals, baseline reports, annual work plans, M&E data, and other project-related documents and reports. The team may utilize additional documents related to agricultural education and extension as supporting materials, as well as other relevant reference documents related to AIP project activities.

The team will conduct an average of four interviews per day over an estimated 12 days of field work, for an approximate total of 50 key informant and focus group interviews, each lasting one

hour. This number per day could increase if the team is able to split up for more separate interviews. This will depend in part on locations and distances. The HQ-based RA and possibly one team member will conduct a limited number of key informant interviews with the US university representatives over the phone or in-person prior to the start of the field work in India. For the field work, SI staff and the team, in consultation with USAID, will identify specific partner representatives' in-country to participate in the field interviews. In order to avoid bias, the team will request multiple names of potential interviewees from each partner organization and then, either randomly or subjectively, decides who to interview at each location. The end result, however, will be a broad based representative sample of interviewees.

The team will conduct key informant interviews (KII) with the following types of individuals:

- Indian faculty who were linked with US-Land Grant partners and received training as well as the development of new curricula
- Members of the new Office of Technology Transfer and Commercialization (OTTC)
- Teachers who received training in Teaching Excellence
- Students who utilized teaching excellence tools
- Library staff of targeted libraries receiving support with e-learning, e-resource development, and the TEEAL system
- Indian faculty who participated in Cornell's International Agricultural and Rural Development (IARD) course.
- Private industry representatives
- AIP key functionaries at headquarters and in the field
- Ministry of Agriculture extension staff at the regional levels involved with AIP
- State departments of agriculture, commerce and others that may have partnered with or observed activities of AIP

The team will conduct focus group discussions comprised of 5-7 individuals with the following groups:

- Farmers who have received training on the Android-based tablet application for crop management
- Farmers who participated in the Technology Dissemination and Income Improvement Activity (TDIIA) in alliance with Krishi Vigyan Kendras (Farm Science Centers)
- Farmers who received training on improved farming methods, efficient use of natural resources, marketing, and income generation
- SMEs that received assistance to adopt technology innovations

DELIVERABLES

For the final performance evaluation of the AIP project, SI will submit the following deliverables:

- **Work Plan:** SI will submit a detailed Work Plan outlining the methodological design, the tasks to be undertaken and the timeline associated with these tasks. SI will provide a draft of this Work Plan to USAID/India prior to the team's arrival in India and will finalize the Work Plan after the in-country TPM meeting with USAID/India. A draft timeline is included in Annex II.
- **Mid-Point Briefing:** SI will convene a mid-point briefing for the team to discuss with USAID/India the preliminary findings and clarify any outstanding questions that may have emerged during the initial field work. This briefing may take place at USAID/India, but given the time and travel constraints, it will more likely occur via conference call from the field.
- **Oral Presentation:** Prior to departure, the team will present to USAID/India the findings and recommendations completed thus far. This briefing will be an opportunity for USAID and the team to identify outstanding issues and discuss finalization of the evaluation report.
- **Draft Evaluation Report:** SI will present a completed draft report of findings, conclusions, and recommendations within two weeks after return to the United States.
- **Final Evaluation Report:** The final report, with executive summary and in electronic form, must be received by the Program Support Office, within two weeks days after receiving the final comments on the draft evaluation report from the USAID/India team. The final report should include an executive summary of no more than three pages, a main report with conclusions and recommendations not to exceed 20 to 30 pages, a copy of this scope of work, evaluation questionnaires used to collect information on each of the program components, and lists of persons and organizations contacted.

LIMITATIONS

11. The evaluation time frame is somewhat limited, with a possible 50 interviews expected for the collection of qualitative data and information from participating institutions and beneficiaries. This limits the sample size for interviews and interaction with beneficiaries.
12. The geographical spread of the project activities and the numerous participating institutions and beneficiaries also limits the sample size within the timeframe for the evaluation.
13. There could be limitations on the availability of faculty and students as the school year will be coming to a close as the evaluation is ongoing.

14. The employment of a qualitative data and information gathering methodology, and a semi structured approach, limits most of the findings to a subjective analysis. In addition, the nature of this summative evaluation limits observations and interviews to one point-in-time, as any follow-up will probably not be possible.
15. The limits associated with measuring impact from training and capacity building programs due to unfunded follow-up, shortage of staff and time, and the fact that much of the impact happens over a longer time period than the life of the project.
16. The time limits inhibiting the evaluation process may also preclude any determination of what might have happened without the project. The team will attempt to visit non-participants and non-beneficiaries to determine their progress over the same time period as the project, but this exercise could be impeded by time constraints.
17. The team will need to carefully rank the various participants in the project to prioritize them for interviews to ensure that the evaluation focus remains on the major evaluation questions to be answered.
18. The qualitative data may not be wholly representative of the project, but rather a purposive sample, from which the team will observe themes that arise from the qualitative data, but will not be able to generalize the data collected.

DATA COLLECTION INSTRUMENTS

Questionnaires will be developed for each type of participating institution and group of beneficiaries so as to address their specific role in the project (Attachment 2: Sample Questionnaire Format and an Interview Guide Matrix). The institutional and beneficiary partners involved in the project, which will form the basis for the sample to be interviewed, include faculty, administration and students at several universities; private sector agri-businesses that serve as the link between the universities, extension services and farmers; the Ministry of Agriculture Extension Service and extension agents that are charged with ensuring that the new technologies are benefiting the agri-business sector and the farmer end-users. Farmers and farmer groups will be interviewed at the farm level and at local cooperative or farmer association locations.

Questionnaires will be prepared in advance for each group and responses will mostly be subjective due to the qualitative nature of the evaluation. The interviewer will need to take copious notes and review/write them at the end of each day to ensure accuracy. To assist the interviewer in drawing out complete responses from the interviewees, each question will have margin 'prompt' notes for the interviewer to use in coaxing the interviewee to open up about the question.

Interviews with focus groups will be based on a prepared questionnaire with responses noted down on the questionnaire sheet. The team will explore the use of recording machines in an effort to capture all of the various individual's comments. To the extent necessary, a local interpreter will be engaged by the team to facilitate these interviews. This will be particularly true with farmer groups.

SITE SELECTION AND SAMPLING

Site visits will be initiated following the completed TPM with USAID/India in New Delhi. The team will then visit 5-6 site locations, including meetings in New Delhi (Attachment 3: Itinerary and Timeline). These site locations include Hyderabad, Varnasi, Jorhat, Guwahati, Meerut, and New Delhi.

The institutions and partners to be visited at each site include universities, agri-businesses, Ministry of Agriculture, extension offices, and farmers (Attachment 4 and 5: Lists of Partner Institutions and Project Beneficiaries – Faculty and Students, which are preliminary and need to be updated and completed). A sample of locations and partner institutions to visit and persons to be interviewed will be taken from these lists.

At each location, the number of individuals to be interviewed will vary, depending on time available, availability of individuals (the timeframe is nearing the end of the school year), and whether the interviews are with individuals or groups. Groups might include students, extension agents, and farmers.

PROJECT STAKEHOLDERS

The team will engage with a wide variety of project stakeholders. The limiting factor will be the timeframe of the project process and the geographical spread of the project activities. Priorities may have to be set when choosing the sample of stakeholders for interviews. A priority list of activities has been developed to facilitate these selections (Attachment 6: AIP Activity Priority List). An initial selection would include faculty, students, agri-business persons, and extension staff. Others will include state and national government officials, and students that have matriculated and are currently working. These stakeholder lists will be discussed with USAID during the TPM (see the lists presented in the Data Collection section above).

EVALUATION STAFFING

Senior Technical Advisor – Dr. Sarah Edith Jones. As Senior Evaluation Technical Advisor supporting both SI's Performance Evaluation (PE) and Impact Evaluation (IE) Pillars, Dr. Jones will ensure that all deliverables employ SI's rigorous QA standards and that the SI Team remains collaborative and responsive to USAID/India's needs. Dr. Jones has 15 years of experience in M&E with in-depth expertise in design, implementation, and management of IEs and PEs. She

served as qualitative research lead, implementing a mixed methods approach to baseline studies of USAID FFP Title II programming in Uganda, Guatemala, and Niger, which targeted nutrition and health outcomes for mothers and children. She is also is the Principle Investigator for the Impact Evaluation of Discovery Learning Alliances education initiatives in Kenya, Ghana and Nigeria. Dr. Jones has a PhD in Sociology and Post-Doc in Education from the University of California.

Team Leader – Robert W. Resseguie is an Agriculture Specialist with more than thirty years of experience in agricultural and rural development, agricultural education and extension, food security, infrastructure rehabilitation, financial management and monitoring and evaluation. He recently served as Director of the Monitoring and Evaluation Office of USAID Food and Enterprise Development Project for DAI in Liberia. Having served as Team Leader on numerous short-term evaluations of agriculture programs in Afghanistan and Pakistan, Mr. Resseguie is well-versed in qualitative evaluation methodologies applicable to agriculture and rural development. Robert served as a USAID Direct Hire supporting a wide-range of agriculture projects in more than 4 countries. Mr. Resseguie holds a Master’s degree in Agricultural Economics and speaks Thai, French, and Vietnamese.

Agriculture Education and Extension Specialist - Mark A. Balschweid is an agricultural education and evaluation expert who serves as an evaluation specialist for agricultural education programming nationally and internationally. He was involved in the evaluation of the College of Agriculture, Science, and Technology’s (CASE-Jamaica) Agricultural Education Program in 2005-06, authored the CASE B. Sc. Degree in Agricultural Education in 2007, and conducted an analysis of Jamaica’s Agricultural Education programming in 2010. Dr. Balschweid served as a member of the University of Baghdad external review team for the Department of Agricultural and Extension Education graduate degree program. He currently serves as the outside evaluator for Purdue University’s project *Enhancing Science Capacity in Introductory Animal, Plant, and Food Sciences Courses*. He currently conducts research in the area of integrating science into the agriculture curriculum at the secondary school level, and examining the barriers that prevent collaboration between secondary agricultural science and science teachers. Dr. Balschweid holds a Ph.D. in Agricultural Education from Oregon State University.

Agriculture Specialist – Mr. Rajagopal Arunachalam is an agricultural specialist, with over 35 years of experience in agricultural education and extension systems, policy and implementation. As a native, he is knowledgeable about the current challenges and issues within the Indian agricultural education sector. He is skilled in development research, project preparatory technical assistance (PPTA), project implementation, and monitoring and evaluation on agricultural programs. Mr. Arunachalam hold applicable experiences in various aspects of agriculture and rural development programs including: Irrigation and Watersheds Management, Participatory Technology development (PTD) for sustainable agriculture such as System of Rice Intensification(SRI), Organic farming, Promotion of on -farm and off- farm rural enterprises for

improving livelihoods, promotion of agri-business , use of Information, Communication Technology (ICT) for developing peoples' knowledge about new agriculture technology, market for agriculture produce , and suitable cropping pattern/practices based on weather information for climate change adaptation. Mr. Arunachalam frequently shares his expertise, good practices and lessons learned with State Agriculture Universities, agriculture research institutions/colleges, and education and agriculture development programs through workshops, seminars, and multi-stakeholders dialogues. He has worked extensively with national and international organizations such as USAID, World Bank and the European Commission (EC) Delegation on agriculture and rural development projects. He holds a PhD in Agriculture Economics with a specialization in Water Management from Jawaharlal Nehru University. Mr. Arunachalam's native language is Tami, fluent in English and speaks conversational Hindi.

EVALUATION MANAGEMENT PLAN

Managing the Activities: SI proposes a streamlined approach to managing this contract based on lessons learned from our experience conducting nine IEs for USAID's Center for Excellence in Democracy and Governance in addition to evaluations for the Office of Transition Initiatives (OTI), all of which demand intricate and highly nuanced management approaches in light of the complex operating environments.

We will operate under the supervision of our Contracting Officer's Representative (COR). As the prime small business contractor, SI will have ultimate technical, financial, and administrative responsibility for contractual performance.

The TL will be accountable for day-to-day management of the evaluation, while the Program Manager (PM), **Ms. Paige Mason**, will be accountable for overall contract activities and management. Ms. Mason will conduct a team planning meeting virtually prior to departure and complete quality assurance for the final Work Plan and data collection instruments. She will be supported by a Program Assistant (PA), **Ms. Erin Crossett**.

Dr. Ash Pachauri, SI's in-country representative, will be available to the SI team during field work to ensure that the Missions technical and managerial requirements are being met.

The HQ team will also include a Research Assistant to connect with the team daily and assist with data entry, transcription, coding, and analysis. This additional research support will expedite the analysis for presentation to USAID/India at the out brief and in the evaluation report.

SI's Management Standard Operating Procedures

- SI utilizes a wide array of SOPs to ensure that teams are supported properly;
- Detailed electronic guidelines for fielding short-term technical assistance teams;
- A rigorous quality assurance protocol for reports and assessments;
- Security SOPs for our teams in high threat environments;
- Financial management manuals to ensure proper use of our online accounting system and cost control,
- Procurement and compliance manuals; and

Working Relationship with USAID: The TL will be USAID’s primary point of contact for day-to-day and urgent technical matters while in-country. Our HQ-based PM will serve as the primary point of contact with USAID for non-technical matters including scheduling and will be responsible for timely submission of quality deliverables. In collaboration with the STA, the PM will review all plans, reports, and presentations. Through a collaborative approach, the management team will identify any potential problems via bi-weekly team meetings and will be prepared to develop and share with USAID flexible, workable solutions for any challenges that may arise.

ANNEX III: ADDITIONAL EVALUATION METHODS INFORMATION

Sites Visited

Hyderabad –Sathguru (PMU) briefing

Varanasi – BHU campus

Mirzapur – BHU south campus

Assam Agriculture University – Jorhat campus

Assam Agriculture University – Guwahati campus

Food Processing Business in Jorhat

Food Processing Business in Guwahati

Dairy cooperative in Guwahati

KVK Mobile solutions intervention in Kulhati village, Kamrup District

SVPUAT campus in Meerut

KVK extension center in Meerut

ICAR Offices in Delhi

Evaluation Itinerary**16 June 2014 (Monday); New Delhi**

Team planning meeting and briefing with USAID

17 June 2014 (Tuesday); Hyderabad

<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	<i>Designation</i>
10:00	10:15	15 min	AIP film		
10:15	10:35	20 min	Overview of AIP	K Vijayaraghavan KV Raman	Regional Project Coordinator International Program Coordinator
10:35	10:50	20 min	Presentation and discussions on Gender, Baseline survey & Impact assessment	Ramasamy C	National Project Coordinator
11:00	11:10	10 min	Presentation on Curriculum development	Suresh D	Program Manager
11:10	11:20	10 min	Presentation on E learning	Ananth Murthy	Information Specialist
11:20	11:30	10 min	Presentation on Teaching excellence	Deepinti Walke	Program Assistant
11:30	11:40	10 min	Break		
11:40	11:50	10 min	Presentation and discussions on Mobile solutions	Ananth Murthy	Information Specialist
11:50	12:00	10 min	Presentation on NRM study / Experiential learning	Joochi Khushbu	Program Assistant
12:00	12:10	10 min	Presentation on Product development	Sumit Darphale	Program Assistant
12:10	12:50	40 min	Interaction on Gender, baseline		
12:50	13:30	40 min	Lunch		
13:30	14:10	40 min	Interaction on Curriculum development		
14:10	14:50	40 min	Interaction on E learning		
14:50	15:30	40 min	Interaction on Teaching excellence		
15:30	16:10	40 min	Interaction on Mobile solutions		
16:10	16:20	10 min	Break		
16:20	17:00	40 min	Interaction on NRM / experiential learning		

17:00	17:40	40 min	Interaction on product development		
17:40	17:50	10 min	Briefing on next day's itinerary	Suresh D	Program Manager

18 June 2014 (Wednesday)

4:00	12:00	8 hrs	<i>Travel to Varanasi by air</i>		
13:00	14:00	1 hr	Lunch		
14:00	15:00	1 hr	Visit NRM demonstration site Interact with few farmers trained for NRM	SK Singh	Professor, Soil Science
15:00	16:00	1 hr	Visit Food Science Laboratory	S P Singh	Professor, Horticulture

19 June 2014 (Thursday); BHU, Varanasi

<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	
9:30	10:30	1 hr	Courtesy meet	Lalji Singh	Vice-chancellor
10:30	11:30	1 hr	Presentation and discussions on Curriculum development	R P Singh	Director- IAS BHU
11:30	11:45	15 min	Break		
11:45	12:00	15 min	Presentation and discussions on Cyber library	A K Srivastava	Chief Librarian
12:00	12:15	15 min	Presentation and discussions on e-Learning	Rakesh Singh	Professor, Agri Economics
12:15	12:30	15 min	Presentation and discussions on TDIIA programs	A K Singh	Professor, Agri Extension
12:30	12:45	15 min	Presentation and discussions on NRM studies	SK Singh	Professor, Soil Science
12:45	13:00	15 min	Presentation and discussions on Teaching excellence	A P Singh	Professor, Soil Science
13:00	14:00	1 hr	Lunch		
14:00	15:30	1 hr 30 min	Visit to Cyber library Interact with faculty and students using cyber library	A K Srivastava	Chief Librarian
15:30	16:30	1 hr	Visit e-Learning facility to have a look at implementation of OLAT Interact with faculty and students using this facility	Rakesh Singh	Professor, Agri Economics

20 June 2014 (Friday); BHU, Mirzapur					
<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	
8:30	10:00	1 hr 30 min	Travel to KVK Mirzapur by road		
10:00	10:45	45 min	Attend a TDIIA program Interact with farmers (participants)	A K Singh	Professor, Agri Extension
10:45	11:30	45 min	Visit to Veterinary school	R P Singh	Director- IAS BHU
11:30	13:00	1 hr 30 min	Travel back to BHU main campus by road		
13:00	14:00	1 hr	Lunch		
21 June 2014 (Saturday)					
<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	
15:00	20:00	5 hrs	Travel to Kolkata by air and stay overnight		
22 June 2014 (Sunday)					
8:00	11:30	3 hrs 30 min	Travel to Dibrugarh by air		
11:30	13:30	2 hrs	Travel to Jorhat by road		
23 June 2014 (Monday); AAU, Jorhat					
<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	
10:00	11:00	1 hr	Courtesy meeting with Vice Chancellor	K M Bujarbaruah	Vice-chancellor
11:00	11:15	15 min	Presentation on e-Learning	Jyoti Gogoi	Professor-In-Charge, ARIS Cell
11:15	11:30	15 min	Presentation on Teaching Excellence	Utpal Barman	Associate Professor, Department of Extension Education
11:30	11:45	15 min	Presentation on Product Development - food	Mamoni Das	Assoc. Professor, Food & Nutrition, Home Science
11:45	12:00	15 min	Presentation on Product Development - green composite	Binita Kalita	Professor, Department of Clothing & Textile

12:00	12:15	15 min	Presentation on Mobile Solutions	H C Bhattacharya	Director of Extension Education
12:15	12:30	15 min	Presentation on Impact Assessment	Nivedita Deka	Associate Professor, Department of Agricultural Economics
12:30	13:30	1 hr	Lunch		
13:30	14:15	45 min	Visit e-Learning facility to have a look at implementation of OLAT Interact with faculty and students using this facility	Jyoti Gogoi	Professor-In-Charge, ARIS Cell
14:15	15:00	45 min	Interaction with faculty head and participants of workshops on Teaching Excellence	Utpal Barman	Associate Professor, Department of Extension Education
15:15	15:45	30 min	Interaction with faculty and researchers on Green Composite development	Binita Kalita	Professor, Department of Clothing & Textile

24 June 2014 (Tuesday); AAU, Jorhat

<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	
10:00	13:00	3 hrs	Attend a TDIIA program and interact with farmers (participants)	H C Bhattacharya	Director of Extension Education
13:00	14:00	1 hr	Lunch		
14:00	14:45	45 min	Interaction with faculty and entrepreneurs on food product development	Mamoni das	Assoc. Professor, Food & Nutrition, Home Science
14:45	15:30	45 min	Visit to Meghalee foods and interaction with entrepreneur	Mamoni das	Assoc. Professor, Food & Nutrition, Home Science

25 June 2014 (Wednesday)

<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	
9:00	13:00	7 hrs	Travel to Guwahati campus by road		

26 June 2014 (Thursday); AAU, Guwahati					
<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	
10:00	11:30	1 hr 30 min	Attend Certificate course and interact with participants	Manoranjan Neog	Associate Director(T) & Nodal Officer, Certificate Course
11:30	13:00	1 hr 30 min	Demonstration of AIP mobile solutions activity and interaction with extension professionals	H C Bhattacharya	Director of Extension Education
13:00	14:00	1 hr	Lunch		

27 June 2014 (Friday); AAU, Guwahati					
<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	
10:00	13:00	3 hr	Attend Dairy processing training and interact with faculty and participants	Trishna Borpuzari	Professor, Department of Livestock Products Technology
12:00	13:00	1 hr	Lunch		
13:00	15:00	2 hr	Discussion on product development and commercialization of chicken pickle Interaction with entrepreneur	Mineswar Hazarika	Professor, Department of Livestock Products Technology
15:00	16:00	1 hr	Discussion on product development and commercialization of fish pickle Interaction with entrepreneur	P J Sherma	Faculty

28 June 2014 (Saturday)					
<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	
8:30	15:00	6 hrs30 min	Travel from Guwahati to New Delhi by air		

29 June 2014 (Sunday)					
Rest					

30 June 2014 (Monday); SVPUAT, Meerut					
<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	
8:00	10:00	2 hr	Travel to SVPUAT, Meerut by road		
10:00	10:30	30 min	Courtesy meeting with Vice Chancellor	H.S. Gaur	Vice-chancellor
10:30	10:45	15 min	Presentations on Curriculum development	Anil Sirohi	Dean, College of Biotechnology
10:45	11:00	15 min	Presentations on Product development activities	Samsher Singh	Professor, Food Science and Technology
11:00	11:15	15 min	Presentations on e- learning	Deepak Sisodia	Assistant Professor
11:15	11:45	30 min	Presentations on NRM	Ashok kumar	Professor, Soil Science
11:45	12:15	30 min	Presentation on teaching Excellence	S K Bhatnagar	
12:30	13:30	1 hr	Lunch		
13:30	14:00	30 min	Discussions on Curriculum Development	Anil Sirohi	Dean, College of Biotechnology
14:00	14:45	45 min	Discussions on E- learning	Deepak Sisodia	Assistant Professor
15:00	15:45	45 min	Discussions on Product development Visit to food product development laboratory	Samsher Singh	Professor, Food Science and Technology
16:00	18:00	2 hrs	Travel to New Delhi by road		

1 July 2014 (Tuesday); New Delhi

Meeting with ICAR officials

2 July 2014 (Wednesday); New Delhi

Meet Gol Officials

3 July 2014 (Thursday)					
<i>From</i>	<i>To</i>	<i>Duration</i>	<i>Activity</i>	<i>Presenter(s)</i>	
9:00	10:00	1 hr	Travel to Noida by road		
10:00	12:00	2 hrs	Attend TDIIA program and meet with TCL representative	B B Singh (TCL)	General Manager (Business Development)
12:00	13:00	1 hr	Travel back to Delhi		
13:00	14:00	1 hr	Lunch		

4 July 2014 (Friday) to 10 July 2014 (Thursday)

Meet Gol Officials and Data Analysis, Draft report analysis and Debrief with USAID and Implementing Partner

10 July 2014 (Thursday)

Depart

ANNEX IV: DATA COLLECTION INSTRUMENTS

Curriculum Development (CD)

1. What is the basis for introducing new courses?

Is it demand based?

2. What is the job market for these courses?

Private

Government

3. Are the new courses self-financed or available through a grant?

4. What are results of the ST training and consultants?

5. Are the new courses sustainable in the universities?

6. Has there been a follow-up to graduates as to how useful they found the curriculum?

What were the results?

7. Were students involved in the CD?

8. For the new courses introduced, what were the innovative features of new courses –degree, diploma and certificate?

9. What is the value added from Land Grant universities in CD?

10. What were the impediments faced in getting approval for the courses from the concerned authorities?

11. What challenges did you face in creating and conducting the new courses?

12. What recommendations would you make about the CD process?

Teaching Excellence

1. What are the results of the ST training and consultants?
2. How is Teaching Excellence sustainable in the universities?
3. How did the feedback mechanism for teaching excellence get put in place and actually work?
4. What is the Learning Centric Approach and how is it working (Work Plan FY 13-14)?
5. How is the Teaching Excellence Center at AAU funded?

What is it doing?

How has it been made sustainable?

6. To what extent are teachers adapting new technologies, curriculum, and learning platforms since their involvement in the teaching excellence program?
7. What challenges did you face in creating and conducting the teaching excellence program?
8. What recommendations would you make about the teaching excellence program?

Information and communication technologies (TDIIA & Mobile solution)

1. How are the tablet devices working in the field?
 - Are the tablets useful to farmers?
 - What is the connectivity throughout the various areas?
 - Is the private sector involved in using the devices?
2. How understandable is the technology to the farmers?
3. What is the educational background of the farmers who use the tablet technology?
4. How many farmers have used the tablet technology?
5. What are the main purposes that farmers are using the tablet technology?
6. How has the tablet technology helped to increase productivity and income from agriculture?
7. What has been the role of KVK agents in the process of developing/using tablet technology?
8. What has been the role of private extension agents in the process of developing/using tablet technology?
9. What has been the role of government agencies in the process of developing/using tablet technology?
10. Was there cooperation or conflict between private and government agencies? Explain.
11. Has the extension system changed as a result of the tablet technology?
12. What has been the outreach/training to private sector and farmers in the tablet technology?
 - Is the outreach/training working?
 - How sustainable is the use of the tablet technology?
 - What funding was made available and who provided it for the tablet technology?
13. What are the innovation models for extension going forward as a result of the tablet technology?
14. What are the best practices you can share regarding outreach/training for the tablet technology?
15. What plans are there for expansion of the tablet technology?
16. What plans are documented for sharing the tablet technology with other agricultural universities?
17. What is the relationship between IT and publications and the dissemination of technologies to extension, private sector and farmers?
18. The quarterly report mentions “IT awareness” – what does this mean?
19. What challenges did you face in creating and implementing the tablet technology?
20. What recommendations would you make about the tablet technology process?

New Product Development & Technology Commercialization

1. What is the process for this activity and its expansion?
2. What type of small and medium size enterprises were involved in technology commercialization in the different sites?
3. What is the linkage between small and medium size enterprises and farmers?
4. How can farmers themselves become more entrepreneurial?
5. What linkages have been undertaken between local farm producers and technology commercialization?
6. How has this project helped farmers to get market linkage and improve their income?
7. What has been the role of the office of technology transfer and commercialization (OTTC) in the university in technology commercialization?
8. Please identify areas and products where TC has been successful.
9. What challenges did you face in new product development and technology commercialization?
10. What recommendations would you make about the new product development and technology commercialization process?

E-Learning (EL)

1. How has the EL been useful to students?
2. How are the required materials available online?
3. What problems exist in students accessing EL online?
4. How many classes do students take through e-Learning?
5. Are the courses designed for an interactive process?
6. What feedback from faculty was useful in developing e-Learning?
7. How would you rate Faculty interest in e-Learning?
8. Roughly, what percentage of faculty have participated and/or showed interest in e-Learning?
9. What best practices can you share about this process?
10. Explain the sustainability for e-Learning.
11. The quarterly report mentions benefit to 'community users' – what does this mean?
12. What type of follow-up has there been with faculty and student participants?
13. What challenges did you face in creating and conducting the e-Learning process?
14. What recommendations would you make about the e-Learning process?

Gender

From discussions with female faculty and students at the 3 universities

1. How are gender and SES issues being addressed?
2. How are gender and SE issues linked to project component activities?
3. What are the indicators/metrics that are being used to track these activities?
4. How has AIP advanced the role of female agricultural workers?
5. What AIP activities are aimed at female workers and students?
6. What private sector partnerships have materialized as a result of AIP?
7. What has ICT done for businesses, farmers, and institutions?
8. What challenges have you faced in addressing women's roles and socioeconomic issues in AIP?
9. What recommendations would you make about women's roles and socioeconomic issues in AIP?

ANNEX V: DOCUMENTS REVIEWED

Agricultural Innovation Partnership (2011). Quarterly Report: January – March 2011. India: Hyderabad

Agricultural Innovation Partnership (2011). Quarterly Report: April – June 2011. India: Hyderabad

Agricultural Innovation Partnership (2011). Annual Report: 2011. India: Hyderabad

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Hyderabad

Agricultural Innovation Partnership (2011). *Agriculture Innovation Partnership (Agricultural Innovation Partnership) Program: Program Description*; Cooperative Agreement No.: AID-386-A-11-00002. New York: Ithaca

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- USAID| Malawi (2013). *Trilateral Partnership to Reform Agricultural Curriculum at Lilongwe University of Agriculture and Natural Resources, Bunda Campus; A proposal submitted by Cornell University*. New York: Ithaca

ANNEX VI: INDIVIDUALS INTERVIEWED

6/16/2014

USAID India –Team Meeting

1. Dr. Sang E. Lee, Food Security Office, U S Agency for International Development
2. Chandan K Samal, Project Development Specialist, U S Agency for International Development
3. Charushila Lal, Programme Development Specialist, Monitoring and Evaluation, U S Agency for International Development

6/17/2014

SATHGURU Management Consultants(PMU) - Hyderabad

4. K Vijayaraghavan, Regional Project Coordinator
5. Dr. K.V. Raman, Regional Project Coordinator, International Program Coordinator
6. Ramasamy C, National Project Coordinator
7. Suresh D, Program Manager
8. Ananth Murthy, Information Specialist
9. Deepinti Walke, Program Assistant
10. Joohi Khushbu, Program Assistant
11. Sumit Darphale, Program Assistant
12. Suresh D, Program Manager

6/18/2014 (Afternoon)

BHU –Varanasi - Faculties

NRM –Individual Interview

13. SK Singh, Professor, Soil Science
14. Manish Kumar Ph.D. student, Soil Science
15. Omkarkumar JRF /Student, Soil Science

6/19/2014

Vice-chancellor – Multi Subjects - Individual

16. Lalji Singh, Vice-Chancellor

Director, IAS – Multi Subjects - Individual

17. R P Singh, Director, IAS

Curriculum Development – Group Interview

18. H B Singh, Professor, Mycology and Plant Pathology
19. J.P. Srivastava, Professor, Genetic and Plant breeding

Library Science – Group Interview

20. A K Srivastava, Chief Librarian
21. Vaishampayan, Deputy Librarian

E-learning, Group Interview

22. Rakesh Singh, Professor, Agri Economics
23. Ramesh Kumar Singh, Professor, Agronomy
24. Vijay P, Assistant Professor, Plant Physiology

Teaching Excellence, Individual

25. A P Singh, Professor, Soil Science

Product Development, Group Interview

26. S P Singh, Professor, Food Science Laboratory
27. Anil Kumar Chauhan, Professor, Food Science

BHU – STUDENTS-Group Interview

Ph.D. students of Agriculture Extension-BHU

28. Jayaprakash
29. Neha
30. Mohamed
31. Ashok Kumar
32. Abisek

6/20/2014

TDIIA Training Programme for Farmers– Focus Group Discussion BHU, Mirzapur

Women Farmers

33. Mamta
34. Bhudana Devi
35. Munni
36. Savita
37. Kesari Devi
38. Lakshmina
39. Baijanti
40. Anita
41. Shamti
42. Tara Devi
43. Poonam
44. Namkhi Devi
45. Jheura Devi

Men Farmers – TDIIA training BHU-South Campus

46. Sukhram Singh
47. Dharmendar Singh
48. Vipin Sharma
49. Keshav Kumar Dwivedi
50. Moti Lal Singh
51. Harimaurya Singh
52. Jokhram Saroj
53. Vikhal Pal
54. Susheel Kumar Vinod
55. Gangasagar Dev
56. Ram Narayan Singh, Village Khomar Maina

KVK –BHU –Mirzapaur - Group Discussion

57. Sriram Singh, Program Coordinator, Barkacha Campus
58. JP Roy, Assistant Professor, Plant Protection
59. S. K Goel, Assistant Professor, Agriculture Engineering

6/23/2014

Assam Agriculture University (AAU)

E -Learning Faculties – Group Discussion

60. Jyoti Gogoi, Professor in Charge, ARIS Cell, Jorhat
61. Dr. Anata Saikis, Professor, Department of Horticulture
62. Dr. Khagen Kurmi, Professor, Department of Agronomy
63. Dr. Nabaneeta Gogoi, Professor, Department of Textiles and Apparel
64. Mrs. Kabyaru Das, Guest Lecturer, Department of Agricultural Statistics

Teaching Excellence – Group Discussion

65. Dr. S.K. Dutta
66. Dr. Umeshchandra Kahta
67. Dr. Mamoni Sar
68. Dr. Pranab Dutta, Department of Plant Pathology
69. Dr. Pranati Das, Department of Food Science Technology
70. Ms. Pallabi Bera, Department of Extension Education (FP)
71. Dr. Nandhini Bhattacharya, Department of FRM (F.H.Sc)
72. Dr. Benitalita, Department of TAD (F H Sc)
73. Utpal Barman, Associate Professor, Department of Extension Education, Jorhat

Students on e-learning – Group Discussion

74. Adluri Prashanth Kumar, B.Sc (Agri), 3rd Year
75. Karabi Bania, B.Sc (Agri), 3rd Year
76. Krishna Devi, B.Sc (Agri), 3rd Year
77. Sourav Manjumder, B.Sc (Agri), 2nd Year
78. Sombuddha Das, B.Sc (Agri), 2nd Year
79. Supriya Borooloi, B.Sc (Agri), 2nd Year

80. Manisha Sharma, B.Sc (H.Sci), 2nd Year
81. Manishadutta, B.Sc (H.Sci.), 2nd Year
82. Priyadharshini Saikia, B.Sc (H.Sci.), 2nd Year
83. K. Chawthoi Shiv, B.Sc (H.Sci.), 2nd Year
84. Md. Awinullslaw, B.Sc (H.Sci.), 1st Year
85. Dhubajyoti Mudri, B.Sc (H.Sci.), 1st Year
86. Chandan Kaleta, B.Sc (H.Sci.), 1st Year
87. Ms.Himadi Kaushila, M.Sc (Agri.), 1st Year
88. Priyakshi Buragohain, M.Sc (Agri.), 1st Year
89. Priyakaur Sehni, B.Sc (H.Sci.), 1st Year
90. Pristi Angkita Saikia, B.Sc (H.Sci.), 1st Year
91. Prianka B, B.Sc (H.Sci.), 1st Year
92. Chiharanjan Deka, B.Sc (H.Sci.), 1st Year
93. Chittaranjan Deka, Ph.D, Dept of Extension
94. Rituraj Boruah, Ph.D Scholar, Department of Extension

Food Product Development (Candies) – Focus Group Discussion

95. Dr. Pranati Das, Food Science and Nutrition
96. Miss Sehnaz Hasmi Ahmed, Food Science and Nutrition
97. Mamoni Das, Assoc. Professor, Food and Nutrition, Home Science

Textile Product Development (Green composite) – Group Discussion

98. Dr. Dipul Kalita, CSIR, Jorhat

6/24/2014

AAU, Jorhat

Vice-chancellor – Multi Subjects – Individual

99. K M Bujarbaruah, Vice Chancellor

TDIIA – Farmers Training Programme

100. Babul Scailia, Galaghat
101. Monro Scailia, Galaghat
102. Debobir Subbu, Galaghat
103. Toneswer Suiki, Galaghat
104. Ms. Susmita Honalar, Sivasaragar
105. Mrs. Shanti Hardique, Sivasaragar
106. Miss Nilakhi Boruan, Sivasaragar
107. Ashadullah Husain, Sivasaragar
108. Md. Abdul Samual, Sivasaragar
109. Sri Jankaswarkachari
110. Sri Sunzib Hezarika
111. Rupjyoti Mahanta (REPLICA, NGO)
112. Jyoti Kalita
113. Ashu Borah Morang (Titrbor)
114. Mrs. Minu Bordoloi

- 115. Shri Probhat Kachari
- 116. Shri Bhas Larkachori, (Titrbor)
- 117. Sri Manab Jyoti Saikia
- 118. Mrs. Dipamoni Kachari
- 119. Vill. Bhulukochuk, Titabor
- 120. Miss Anjumoni Gohain Sonowal
- 121. Chandra Konta Gogoi, Vill. Charing, Dist. Sivasagar
- 122. Jayanta Duttri, Vill. Dikhow Mukhujani Bharacalua, Dist. Sivasagar
- 123. Manurama Bhurali, Vill. Dichial, Dist. Sivasagar
- 124. Anu Bhuruli, Vill. Dichial, Dist. Sivasagar
- 125. Ranjit Boruli, Vill. Purananatia, Dist. Jorhat
- 126. Bejit Kalita, Vill. Purananatia, Dist. Jorhat
- 127. Bhola Boruch, Vill. Purananatia, Dist. Jorhat
- 128. Sri Gogon Baruah, Khanamukhchaninyia Gaon, P O Khanamukh, Jorhat (Rice Production)
- 129. Mrs. Niralakabita Hazarika, Vill. Kabajoni, Jorhat
- 130. Sri Gokul Baruah, Jorhat
- 131. Dr. Rupam Borgohari, PC, KVK, Jorhat

KVK – Satff

- 132. Dr. Phuleswar Naih, Program Coordinator, Sivasagar
- 133. Saileon Jahukfar, Program Coordinator, Golaghat

Food Products – Individual

- 134. Mrs. Meghalee Bora, Megha Food Products, Jorhat, Assam

Intellectual Property discussion

- 135. Dr. Purna K. Barua, Prof. and Head, Dept. of Plant Breeding & Genetics, currently Head of Intellectual Activity & Technical Dissemination Office

6/25/2014

Product Development – Group Interview

- 136. Jhorna Medhi (Prop), J M Food Products, Samaguri Nagoan
- 137. Pranjyoti Sharma, College of Fisheries
- 138. Jiten Sarma, College of Fisheries
- 139. Dr. Sarifuddin Ahmed, College of Fisheries

Dairy Cooperative – Group Interview

- 140. Ranjib Sharma, Chairman, Dairy Coop (SDUSA Ltd)
- 141. Bishnu Upadhaya, Economic Adviser, Dairy Coop

6/26/2014

AAU, Guwahati

Dean– Veterinary Science – Individual Interview

- 142. Dr. Goswamy, Dean, Veterinary Science

AAU, Goat Research Station Faculty**Certificate course on Goatery**

- 143. Dr. M Hazarika, Prof & Head, LPT, Khara, Para
- 144. Shri Kuldip Borah, Deputy Manager, Wrali Dairy
- 145. Dr. Robin Bhuyan, Professor, Department of Animal Nutrition, College of Veterinary Science
- 146. Dr. Masuk Raquib, Assistant Professor, Department of Livestock Products Technology, College of Veterinary Science
- 147. Dr. Archanatalukdar, Assistant Professor, Department of Veterinary Public Health, College of Veterinary Science
- 148. Sanjay Kumar Yadav, Dy Manager, MDDB, C/O WAMUL (Purabi Daily), Panjabari, Juripar, Ghy
- 149. Dr. Dilip Deka, Principal Scientist (Pharmacology)
- 150. Dr. Tapan Gogor, Senior Scientist (Animal Reproduction)
- 151. Dr. Farzin Akhtar, Junior Scientist, Animal Genetics and Breeding, Goat Research Station
- 152. Dr. A Saleque, Principal Scientist and Station in Charge, Goat Research Station
- 153. Dr. Pranjal Borah, Jr Scientist (Animal Reproduction), Goat Research Station
- 154. Dr. Ranjit Kr. Bora, Senior Extension Specialist (Livestock Production and Management), Directorate of Extension Education, Assam Agricultural University
- 155. Ranjib Sharma, Chairman, Dairy Coop (SDUSA Ltd)
- 156. Bishnu Upadhaya, Economic Adviser, Dairy Coop

Ex-Students – Certificate Programme on Goat and Poultry - Guwahati Vet College

- 157. Tara Chekway
- 158. Jayanti Das
- 159. Sakila Kailik
- 160. Bimal Mahanta, Secretary, Pratyny Agro Product and Research Institute, Bwatari, Kukwamara
- 161. Himadai Sekhaa Baisaya, H.N. 13 Ward No. 9, Galaki Mikir Gaon, Kaziranga, Dist. Golanghag, Assam
- 162. Dimpal Bharali, Ketry Bangabore, Kamkup, Assam
- 163. Satya Barmen, Nalbari, Assam
- 164. Sarben Chowhan, Tangha, Udalgin, Assam

Students – Certificate Programme on Goatery - Guwahati Vet College

- 165. Sri Swmjya Gowala, Sivasagar
- 166. Sri Diparkon Rajeshwar, Dbrugah
- 167. Sri Ajit Chetia, Timsukia
- 168. Sri Ramjit Devmath, Timsukia
- 169. Md. Mamtas Ali, Sivasagar
- 170. Kirangupta, Timsukia
- 171. Sri Suraj Gogoirajsul, Dibguli
- 172. Ramnath Sanle, Timsukia

Demonstration of Mobile Solution – Group Discussion

- 173. H C Bhattacharya, Director of Extension Education

- 174. Dr. D. N. Kalita, Program Coordinator
- 175. Dr. M. Dutta, SMS (Soil Science)
- 176. Mr. B. Deka, SMS, Horticulture
- 177. Mr. R. Bharadwaz, PA (Computer)

6/27/2014

Dairy Processing Training

- 178. Trishna Borpuzari, Professor, Department of Livestock Products Technology

Product Development Chicken Pickle - Individual

- 179. Mineswar Hazarika, Professor, Department of Livestock Products Technology

Product Development Fish Pickle - Individual

- 180. P J Sherma, Faculty

Discussion with dairy farmers – Guwahati

- 181. Dasu Ram Sanma
- 182. Ganesh Pr. Kale
- 183. Durga Puri
- 184. Sujeet Kumar
- 185. ShriKuldip Borah, Deputy Manager, Wrali Dairy

6/30/2014

SVPUAT, Meerut

Vice-Chancellor – Multi Subjects – Individual Interview

- 186. H.S. Gaur, Vice Chancellor

Curriculum Development, Teaching Excellence and Gender Issue–Group Interview

- 187. Archana Arya, Team Member, Curriculum Development and Component Director, Gender Issues, College of Biotechnology, SUPU
- 188. Anil Sirohi, Nodal Officer AIP and Component Director, Curriculum Development, Dean, College of Biotechnology, SUPU
- 189. S K Bhatnagar

Product Development–Group Interview

- 190. Samsher Singh, Professor, Food Science and Technology
- 191. Dr. Suresh Chanoka, Asst. Prof, Dept of AgriEngr& Food Technology

E Learning – Group Interview

- 192. Deepak Sisodia, Assistant Professor
- 193. Dr. Vineeta Verma (f), Asst. Prof, Computer Science and e-Learning Activities
- 194. Dr. U. P. Shahi, Asst. Prof, Soil Science and Associated with e-Learning Activity

Interview with e-Learning Students at SVPUAT

- 195. Vipra Sharma (F), BioTech
- 196. Satyam Shukla, Agriculture
- 197. A.B. Priyanshu, Agriculture
- 198. Akash Gupta, Agriculture

TDIIA and Agricultural Extension - Individual

- 199. Ashok Kumar, Professor, Soil Science, SVPUAT, Meerut

Focus Group Discussion - Farmers, Meerut

- 200. Surendra Sing Malik, Hiswda
- 201. Shyam Sing, Bashi
- 202. Sudhir Kumar, Muhundpur
- 203. Mr. Virandra, Mukundpur

KVK Staff, Group Discussion – Saharanpur, Meerut

- 204. Dr. P. K. Singh, Prof and Coordinator
- 205. Dr. Satya Prakash, Programme Coordinator
- 206. Gagda Pal, Prof and Coordinator
- 207. Dr. Vitas Balya, SRF, NICRA
- 208. Dr. R. C. Verma, Asst. Professor (PP)
- 209. Dr. Shripal, SMS/Assistant Professor, Plant Breeding
- 210. Dr. Pramod Kumar, SMS/ Assistant Professor (Animal Sc.)

7/2/2014

Indian Council of Agricultural Research(ICAR) –Delhi

Individual Interview

- 211. Dr. Alokjha, ADG International Cooperation

Group Interview

- 212. Dr. S. Ayyappan, Secretary, DARE & DG, ICAR
- 213. Mr.Arvind Kaushal, Additional Secretary, DARE & Secretary, ICAR
- 214. Dr. Arvind Kumar, DDG Education, ICAR
- 215. Dr. Alokjha, ADG International Cooperation , ICAR
- 216. Mr. Rajesh Ranjan, Under Secretary, ICAR
- 217. Mr. V.K. Singh, Under Secretary, ICAR

7/3/2014

KVK – TDIIA - Tata Chemical (TCL) Discussion –Moridapad

- 218. Dr. Baburam, Director-Extension, SVPUAT
- 219. Dr. Satendra Kumar, Associate Director Ext. SVPUAT,
- 220. Ashok Kumar, Professor, Soil Science ,SVPUAT, Meerut
- 221. S.P Singh, Deputy Manager-Farmer Services, Tata Chemicals, KVK-Moridabad, UP Jagpalsin

Phone Interviews

- 222. H C Bhattacharya, Director of Extension Education, AAU Jorhat
- 223. Sriram Singh, Programme Coordinator, KVK BHU-Bakacha Campus
- 224. Rakesh Singh, Professor, Agri-Economics, BHU Varanasi
- 225. AK Singh, Professor, Agri-Extension
- 226. Dr. PK Singh, Professor and Coordinator

ANNEX VII: TDIIA AWARENESS TRAINING PROGRAMS SUPPORTED BY AIP

BHU, Varanasi

1. AIP Training Programme at **Jaunpur** on August 24, 2012 -Maize
2. AIP Training Programme at **Ghazipur** on August 25, 2012 -Potato
3. AIP Training Programme at **Varanasi** on August 26, 2012-Pea
4. AIP Training Programme at **Jaunpur** on October 7, 2012-Developing advanced technologies to improve field management to increase productivity
5. AIP Training Programme at **Ghazipur** on October 12, 2012-Advanced farming techniques to enhance crop production in the region
6. AIP Training Programme at **Mirzapur** on October 20, 2012-Potato –ICT training
7. AIP Training Programme at **Varanasi** on October 21, 2012-Rice
8. KisanMela at **BHU, Varanasi** on April 3-4, 2013-Kisan Mela
9. AIP Training Programme at **Jaunpur** on May 5, 2013
10. AIP Training Programme at **Mirzapur** on June 15-16, 2013-Crop production technologies for marginal farmers
11. AIP Training Programme at **Mirzapur** on September 21 -22, 2013-Flower and vegetable production
12. KisanMela at **BHU, Varanasi** on March 7-8, 2014-Kisan mela
13. AIP Training Programme at **Jaunpur** on June 1-2, 2014-Scientific methods of crop production

Assam Agricultural University, Jorhat

14. Tea production & Management KVK, Dibrugarh June 14, 2013
15. Commercialization of rice production, KVK Jorhat I June 17, 2013
16. Profitable rice based cropping system, KVK, Sonitpur June 21, 2013
17. Pre & Post flood rice cultivation, KVK Nalbari, July 5, 2013
18. Commercialization of Jute cultivation, KVK Dhubri, July 7, 2013
19. Production and Post –harvest management of Winter vegetables, KVK Barpeta, November 5, 2013
20. TDIIA awareness programme on Dairy, Dept. of Dairy Science, December 22, 2013
21. Commercial Pulse Production, Nagaon, October 21, 2013

22. Commercial Floriculture, Kamrup, November 6, 2013

23. Goat farming, GRS Burnihat, November 7, 2013

SVPAUT (Training on Sugarcane Crop)

24. Nastinapur, KVK, May 3, 2012

25. Meerut , KVK, March 12, 2013

26. Nagina, Bijnor, KVK, May 4, 2012

27. Baghra, Muzaffarnagar, KVK, May 7, 2012

28. Bagpat , KVK, May 17, 2012

29. Rampur , KVK, May 23, 2013

ANNEX VIII: AIP CURRICULUM DEVELOPMENT RESULTS

Table 1: Courses Developed by AIP

	Developed Courses	Type	New/ Revised	Status	Launch	University
1	B. Sc. in Agriculture	Degree	Revised	Approved	2013	BHU/SVPUAT
2	B. Tech. in Biotechnology	Degree	Revised	Approved	2013	SVPUAT
3	B. V. Sc. and Animal Husbandry	Degree	New	Approved	2013	SVPUAT/BHU
4	B. Tech. (Dairy Technology)	Degree	New	Approved	2014	BHU
5	B. Tech. (Food Science & Tech)	Degree	New	Approved	2014	BHU
6	Advances in Vegetable Production	Diploma	New	Approved	2013	BHU
7	Seed Technology and Marketing	Diploma	New	Approved	2013	BHU
8	Food Processing	Diploma	New	Approved	2013	SVPUAT
9	Fruit and Vegetable Processing	Vocational	New	Approved	2013	BHU/SVPUAT
10	Safe/Hygienic Practices for Sweet Makers & Street Food Vendors	Vocational	New	Approved	2013	BHU/SVPUAT
11	Bio-Pesticides and Plant Health	Vocational	New	Approved	2013	BHU
12	Bakery Technology	Vocational	New	Approved	2012	SVPUAT
13	Milk Production and Quality Control	Vocational	New	Approved	2012	BHU
14	Floral Design	Certificate	New	Approved	2013	AAU
15	Goat Production	Certificate	New	Approved	2013	AAU
16	Fish Production and Management	Certificate	New	Approved	2013	AAU
17	Poultry Farming	Certificate	New	Approved	2013	AAU
18	Food and Agribusiness Management	Post-graduate Diploma	New	Approved	2013	BHU/SVPUAT
19	Organic Farming	Certificate	New	Approved/ Launch Plan	2013	BHU/SVPUAT
20	Tissue Culture and Diagnostic Techniques	Certificate	New	Approved/ Launch Plan	2013	BHU/SVPUAT
21	Dairy Production	Certificate	New	Approved/ Launch Plan	2013	BHU/SVPUAT
22	Floriculture	Diploma	New	Approval Pending	TBD	BHU/SVPUAT
23	Biotechnology Laboratory Technician	Diploma	New	Approval Pending	TBD	BHU/SVPUAT

	Developed Courses	Type	New/ Revised	Status	Launch	University
24	Para-vets	Diploma	New	Approval Pending	TBD	BHU/SVPUAT
25	Animal Husbandry	Diploma	New	Approval Pending	TBD	BHU/SVPUAT
26	Meat Technology	Diploma	New	Approval Pending	TBD	BHU/SVPUAT
27	Dairy Technology	Diploma	New	Approval Pending	TBD	BHU/SVPUAT

Table 2:

Recommended Interventions	Done by AIP	Not done by AIP
1. More industry focused curriculum needs to be designed	Food product processing done by AIP	
2. More emphasis needs to be present on the commercial aspects of agriculture	Only through the food product processing activity	
3. Faculty members should collaborate with the industry to understand the industry requirements and accordingly design the curriculum		Not much done in this regard
4. There is need to identify the gaps between the farmers' need and the content of agriculture teaching and design the curriculum to fulfill these gaps.	Done through the TDIIA and KVK programs	
5. Senior people and/or middle level executives should be invited from the companies to give guest lectures in these Universities	May have been a few of these, at least some from Tata Chemical	
6. Total restructuring of the curriculum is needed by ICAR in a Public Private Partnership PPP Model.	AIP has/had plans to conduct a workshop, assisted by Sathguru, in Jan .2015 to present the lessons and experience under AIP to policy makers, ICAR and other SAUs. This will probably not happen now	
7. Seed production experts need to be involved in the Rural Agricultural Work Experience (RAWE) program – make it an “earn while you learn” program by having paid internships.	No involvement of AIP seed production experts	Some scientists from National Seed Corporation were involved in delivering lectures for the diploma programs
8. There is need of diploma holders for the amount of the field level workers needed for the industry.	Diploma courses were started by AIP, though not specifically geared to regional industry needs	
9. There is severe lack of communication skills in the agriculture graduates - need to have a bridge course for this.	Some communication modules were provided in some courses; not a major objective	
10. There is need for the students to have more experience with the crops and their production during the RAWE program.	There was experience with crops; some experiential learning in the field by a few students with the RAWE program	
11. Curriculum development, training, internship, experiential learning and infrastructure and exposure to the industry – are of the concerned areas for the vet graduates.	Some of this was covered by courses developed by AIP	
12. Vet nurses program can be helpful in filling up	There was some para-vet	AIP did not develop a

the gaps for trained manpower for treating animals.	training and courses	program specifically for vet nurses
13. Business management skills and financial skills for vets are not there – how to set up a private practice.	Food and Agri-business Management courses developed but not specifically for vets	
14. There is also need of acclimatizing the PhDs employed on the commercial/business side of technologies and research		Not covered by AIP programs
15. Practical exposure about the problems faced by the farmers and updated technologies to combat them	AIP courses and trainings covered farmer problems	
16. More emphasis needs to be there on the basics of agriculture to make sure the graduates churned out are technically sound	Some courses and trainings focused on basics of agriculture for students	
17. Courses need to be reoriented on the practical lines – a lot of exposure to actually how the organizations/industry works is needed.		Not much done by AIP on how industry works
18. Applied knowledge and skills in agricultural production need to be part of the course curriculum.	Courses were developed by AIP in ag production	
19. Need to inculcate the ability to think critically and the hard skills/ technical skills should be emphasized on	AIP teaching excellence addressed this issue in part	
20. Modern management skills; financial skills; HR Mgt skills; food safety skills are needed		Not addressed by AIP courses, though information is that these components have now been added to courses
21. There is need of more interaction between the industry and the students/faculty of the universities	There was some interaction in the food processing program	
22. Other aspects of agriculture product like output management and financial support to agriculture need also be paid due attention		Not addressed by AIP courses
23. Need of internships for the students to expose them to the industry/market		Not part of the AIP program

Table 3: Courses Suggested from BHU/SVPUAT Baseline Survey to Make Graduates More Job-Ready

COURSE OFFERED BY AIP THAT ADDRESS THESE SUGGESTIONS	COURSE NOT OFFERED BY AIP
FINANCE AND DEVELOPMENT	
Current Agricultural Technologies	Basic Accounting Skills X
Rural development and extension programs	Introduction to Microfinance
	Financial Statement Analysis
	More emphasis on Agricultural Economics and Agri Finance
VALUE ADDED	
Hands-on knowledge of food safety, sanitation,	More emphasis on applied research and industry exposure
Emphasis also on small animal medicine and nutrition in BVSc/MVSc courses	equipment design; project management skills and financial skills or basic accounting
Courses needed – on applied knowledge, health and nutrition, sensory science, food safety and HACCP implementation, dietary supplements.	More Industry exposure
An end to end understanding of the agriculture supply chain; GAP – its importance; safety of agricultural commodities	
Commodity Specialization such as diploma/certificate courses in sugar production and tea and coffee production	
AGRI INPUTS	
Agricultural chemicals and their use	Basic Accounting skills, communication skills
Commercial Agriculture	Personality development courses
At the farmer level – applications needed are – soil conservation, soil amendment and soil nutrition – all about the soil dynamics	
Short term skill development courses, diploma courses Y	Marketing Courses, Agri. Policy and Industrial Tours

IPR, Protection of plant varieties	
Crop production	
Seed Technology, Crop production	
Information Technology,	
Management/Business Perspective	

Table 4: Agriculture Technical Skill Needs Identified in Secondary Sources

Agricultural Technical Skill Area	Secondary Source	AIP Course
<u>Water management:</u> Irrigation systems/water scarcity	http://www.nbr.org/research/activity.aspx?id=402	No AIP courses address this area
<u>Soil Management:</u> Land deterioration/nutrient depletion	http://www.nbr.org/research/activity.aspx?id=403	Bio-Pesticides and Plant Health (Vocational?); Organic Farming (Certificate)?
<u>Food demand and supply imbalances:</u> With the increase in population the demand for food and Agri produce is increasing, but the supply is constant due to low agricultural productivity. This is predominantly due to improper Farm Management practices and loss in post-harvest handling.	http://nscsindia.org/ExploreSectorSkillCouncilDetail.aspx?SSC=MTE =	Food and Agribusiness Management (Postgraduate Diploma); Uncertain if any apply to post-harvest handling.
<u>Technical skills training:</u> In the agriculture sector, skilled training could be about best practices in crop production including use of inputs, vocational training in post harvest, warehousing and cold storage methods. Capacity building in dairying, poultry and fisheries will be a key focus area.	http://www.thehindu.com/todays-paper/tp-national/indiaaustralia-pact-to-create-skilled-farm-workforce/article4752436.ece	B. Tech.(Dairy Technology) (Degree); Milk Production and Quality Control (Vocational); Dairy Production (Certificate); Dairy Technology (Diploma); B.V.Sc and Animal Husbandry (Degree); Poultry Farming (Certificate); Animal Husbandry (Diploma); Meat Technology (Diploma); Fish Production and Management (Certificate);
<u>Food processing</u>	http://omicsonline.org/food-processing-industry-in-india-s-and-t-capability-skills-and-employment-opportunities-2157-	Food Processing (Diploma); Fruit and Vegetable Processing (Vocational)

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