AGRICULTURE LONG-TERM TRAINING

Assessment and Design Recommendations

FINAL REPORT

August 2010

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ACKNOWLEDGMENTS

The research, data-gathering, analysis, and writing of this study took place from September 2009 to July 2010. A four-person team consisting of a performance/capacity development consultant, a professor of agriculture, and two USAID employees designed, carried out, and wrote the assessment.

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The team members worked intermittently over the 10-month period from the United States and during the three trips to Africa to visit eight countries. In each country visited, African partners working on the programs assessed in this report graciously and enthusiastically arranged local appointments and ensured that the team met with key agricultural officials in universities, research institutes, governments, and the private sector. We wish to acknowledge their time and deep interest in assisting the team. Two contractors assisted heroically in arranging meetings and handling logistical challenges: Howard Appiah, of MEL Consulting in Accra, Ghana, and Seydou Semega, of ESDCO in Bamako, Mali.

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ABBREVIATIONS AND ACRONYMS

AFGRAD	African Graduate Fellowship Program
A·P·L·U	Association of Public and Land-grant Universities
APS	Annual Program Statement
ARI	Agricultural research institute
ATLAS	Advanced Training for Leadership and Skills Project
AWARD	African Women in Agricultural R & D
AWLAE-Net	African Women Leaders in Agriculture and Environment Network
BIFAD	Board for International Food and Agricultural Development
CAADP	Comprehensive Africa Agricultural Development Programme
CIAT	International Center for Tropical Agriculture
CGIAR	Consultative Group on International Agricultural Research
CRSP	Collaborative Research Support Program
EGAT	USAID Bureau for Economic Growth, Agriculture and Trade
ELT	English Language Training
FOA	Faculty of Agriculture
FTF	USAID Feed the Future Initiative
GRE	Graduate Record Examination
HEPAD	Higher Education Partnerships for Agricultural Development
HEPAD East Africa	Long-term Training for Regional Agricultural Development in East Africa: Kenya, Tanzania, and Uganda
HICD	Human and Institutional Capacity Development
IARC	International Agricultural Research Center
IDO	International development organization
IER	Institut d'Economie Rurale, Mali
IPR/IFRA	Institut Polytechnique Rural de Formation et de Recherche Appliquée, Mali
IQC	Indefinite Quantity Contract
ISFRA	Institut Supérieur de Formation et de Recherche Appliquée, Mali
KARI	Kenyan Agriculture Research Institute
KSA	Knowledge, skills, and attitudes
LEAP	Leadership Enhancement in Agriculture Program
LTT	Long-term training
Mali Project	Linking Biotechnology/Bioengineering with Mali-based Agribusiness: Strengthening Food and Water Quality for Health, Safety, and Exports
MSU	Michigan State University
NARS	National Agricultural Research Station
NEPAD	New Partnership for Agricultural Development
OSU	Ohio State University
RFA	Request for Assistance
RUFORUM	Regional Universities Forum for Capacity Building in Agriculture
SAEC-DE	Strengthening Agricultural and Environmental Capacity through Distance Education
SOW	Scope of Work
TOEFL	Test of English as a Foreign Language
UF, Univ of Fla	University of Florida
UILTCB	USAID Initiative for Long-term Training and Capacity Building
USAID	U.S. Agency for International Development

EXECUTIVE SUMMARY

This Executive Summary has been designed in a brief "Question and Answer" format to assist readers with limited time in grasping the essentials of the report. Additional details concerning each question can be found in the body of the report on the page indicated.

Questions and Answers about this Report

1. For whom is this report written – who will benefit from reading it?

Given the unprecedented increase in funding designated for *African agricultural capacity building*, U.S. Agency for International Development (USAID) Washington and Mission officials will gain insights from this assessment on how to plan, implement, and monitor new activities that will get results. Since long-term U.S. degree training is likely to be one of the *interventions* used by USAID to build capacity locally, this report identifies features that should be included for U.S. training. Other audiences include officials at African and U.S. training institutions, African research institutes, African governments, international donor agencies and multilateral organizations, U.S. participant training organizations, nongovernmental organizations (NGOs), and those interested in Human and Institutional Capacity Development (HICD – see Question 3). However, as the challenges of improving the capacity of agricultural institutions have similarities across all regions and sectors, this report can be utilized by planners at many other USAID Missions. (Ref: p. 1, *Introduction*)

2. Why was this assessment conducted?

USAID and its partners in promoting African agriculture, such as the Board for International Food and Agricultural Development (BIFAD) and the African Union's Comprehensive Africa Agricultural Development Programme (CAADP), want to identify the most effective ways to *improve performance* at African agricultural institutions using, among other interventions, long-term U.S. graduate degree training with its over 40 years of lessons learned. What features of former USAID long-term U.S. degree training programs produced the most results in terms of sustainable capacity building of African institutions? How can these be integrated into new program designs to significantly improve upon the capacity building record of past efforts? (Ref: p. 35, *Major Features Leading to Institutional Capacity Building*)

3. How does the approach to capacity building in this report relate to the USAID policy to apply the principles of HICD?

This report focuses narrowly on one implementation mode of capacity building: graduate agriculture training in the U.S. It *assumes* that a decision to improve the capacity of a partner institution begins with a holistic HICD performance gap analysis, which may identify gaps in knowledge, skills, and attitudes (KSAs) to be addressed by training. It also assumes that other areas of institutional weaknesses may be addressed with appropriate interventions other than training. It does not assume that training is always or necessarily the solution to resolve non-KSA gaps. The team strongly believes that the training recommendations proposed here will be far more effective when implemented as part of an overall HICD approach. (Ref: p. 4, *Moving from Participant Training to Human and Institutional Capacity Development*)

4. How did the assessment identify the design features to include and to avoid?

We assessed six programs, three of which were pilot activities for which USAID funded implementation between 2003 and 2009 to test different features to help determine which ones worked best. In

addition to discussions with USAID/Washington staff and U.S. implementing partners and faculty advisors, the assessment team visited eight countries, conferred with Mission staff, conducted focus groups, and administered two survey questionnaires to learn which features had the most impact on building capacity. The purpose was to identify the features, not evaluate the programs in depth, so the report provides an overview of each program with the emphasis on what worked and what did not. (Ref: p. 9, *Data Collection Methodology*)

5. What are some of the major findings – what features should USAID include in future programs to help African institutions become better performing?

We made many recommendations that, if implemented, would help build capacity and improve performance based on our assessment of past efforts. Some of these are listed below (also see the section on *Major Features Leading to Institutional Capacity Building* – p. 35 – for details and the final section *Principal Recommendations* – p. 44).

- Implement recommendations within a larger HICD approach (see Question 3.)
- Using the HICD approach, focus on the African institution's performance improvement rather than training African individuals out of context (as was often done earlier in the "Best and Brightest" programs.)
- Establish clear links between the U.S. degree program and specific institutional (not just individual) performance gaps that will be addressed by the training.
- Require that graduate research topics be jointly developed by and with African institutions and U.S. advisors, and that research be conducted in Africa.
- Promote partnerships between U.S. and African institutions in tandem with providing support for training of carefully-selected faculty and staff.
- Fund graduate training for employees of African institutions, not outstanding students from the general public.
- Ensure that the selection criteria for candidates for U.S. degrees include leadership potential and the level of the employee's commitment to apply the new knowledge and skills acquired upon return.
- Identify the need for Masters and PhD degrees according to employment realities and institutional need, not according to a student's ability to migrate to a higher degree.
- Require that African participants in U.S. degree programs be placed only at U.S. institutions with strong ongoing programs in Africa to ensure that leverage in sustained, long-term capacity building stretches beyond an individual student's program and USAID's five-year project windows.
- Design "sandwich" training programs that combine U.S. and African study and research experiences to avoid selection of research topics not directly related to home country needs and to minimize long absences from the home institution and family.

6. If the program recommendations above were adopted, wouldn't the cost of U.S. degree training be excessive?

No. Many of the report's recommendations are refinements to previous programs that USAID and contractors can institute with little cost implication. Others are reminders to USAID Missions, which no longer have training officers familiar with participant training, not to repeat the mistakes of the past. The assessment finds that having participants return to their home country to conduct research after their coursework is completed can be a cost-effective feature, in that the allowances spent on a comparable U.S. stay would be allocated to a return trip and research stipend. But the question to be asked here, as the report points out, is not about the *cost of the training*, but the *investment needed to obtain the performance result* USAID and its African partners are seeking. The question might be: what will our

USAID Mission have to invest to get the desired result (e.g., increased measurable impact on smallholder livelihoods from the local agricultural research institution)? What *interventions* will bring about that change? If we fund a combination of U.S. training, technical assistance from U.S. agricultural partners, in-country and third-country training, and possibly some facilities enhancements, all within a broad HICD program, will the total investment be reasonable to achieve the value-added in agriculture we anticipate? (Ref: p. 45, *Implementation Options*)

7. What does "capacity building," which is widely used to justify training of all kinds, mean? If we invest in training that we hope builds capacity, won't better performance result?

The term "capacity" is often used narrowly to mean the total set of KSAs among staff at an institution. This leads to the assumption that merely increasing the skill sets - for instance, the number of staff with improved KSAs - will build capacity. This study indicates that the *capacity*, defined in this manner, of an institution can be increased by training employees but may not result in any performance change. This is perhaps the most significant "lesson learned" from previous capacity-building investments. While trained individuals return to their institution with U.S. degrees, there could be little change as a result. For example, the returnees could use their newly-acquired knowledge of crop production to perform innovative research the results of which have no measurable impact on the agricultural sector or on farmer livelihoods. Institutional capacity building is more than increasing the knowledge, skills and attitudes of employees at institutions to do their jobs. If the institution has no vision, no strategic plan, no effective human resource system, or any of the other organizational factors that enable these highly-trained employees to have a positive impact beyond the institution, staff capacity building may not lead to institutional performance improvement or impact on the sector. Which brings us back to the need to take a broader HICD approach to both staff KSA gaps and overall institutional performance barriers. (Ref: p. 46, *Strategic Implementation Choices: HICD instead of Participant Training*)

8. Is there any long-term degree training program reviewed that included most or all of the features identified as key to capacity development and performance improvement?

Yes. One in particular stands out: the Long-term Training for Regional Agricultural Development in East Africa (HEPAD East Africa) project, using the sandwich model. The project managers at Michigan State University and Ohio State University worked closely with an African implementing partner (RUFORUM) that in turn liaised with the three partnering universities in Uganda, Kenya, and Tanzania. They then identified performance gaps in the respective Faculties of Agriculture and designed their interventions based on this analysis, rather than on the knowledge or skills needs of individuals. In this way the selection criteria adopted moved away from individual capacity development and merit to institutional performance needs agreed to jointly by U.S. and African professors and researchers. The limitation in USAID's design for HEPAD East Africa was the mandate that Masters projects not exceed 12 months for the U.S. training period, which this assessment finds detrimental to the participant completing on time and introducing institutional performance changes once returned. In addition to HEPAD East Africa, the CRSPs also included many features identified as key to performance improvement, although implementation over decades through evolving needs and circumstances, via multiple and disparate mechanisms, precludes viewing CRSPs as a single model to replicate. (Ref: p. 21, *HEPAD East Africa project*)

Selected Highlights on Key Topics

How training programs fail to increase institutional performance

> Lack of *alignment* of the USAID-funded training to the *specific performance needs* of the African institution resulted in haphazard or negligible impact [in past programs]…. Too often that impact was individually-driven – the result of an exceptional personal commitment to promoting change *despite institutional obstacles* rather than inspired by institutions promoting change with a clear vision ahead. **Would not USAID's investment be more effective and the anticipated impact sustainable by carefully addressing known organizational performance needs beyond the lack of skills and knowledge?**
>
> Beyond the lack of a solid institutional performance basis to determine the training to be funded, development decision makers today often fail to differentiate between *capacity building* and *performance improvement*. It is assumed that providing highly-trained cadres to an institution builds its capacity. This may be literally accurate – the *capacity* to perform might be improved by returned participants integrated into an African institution applying their newly-acquired technical knowledge. But without addressing the other work environment factors impeding *individual* performance, the *institution's performance* and *outputs* may not change even with the increased staff capacity. This is the aspect repeatedly overlooked or ignored unless a holistic approach, embodied in the HICD methodology, is employed.
>
> …long-term training does not by itself lead to *impact* on a sector. Myriad factors beyond technical competence or improved professional behavior ultimately affect whether the "newly-minted" African scientist has an impact on life outside the home institution. If an HICD approach is not adopted, the planner of training alone must face the basic question: Individual skills and technical capacity may be built, but is performance enhanced?
>
> (Ref: p. 15)

This dilemma – where an institution's technical capacity can be improved yet its *sector impact and sustainability* decline – is a central question this assessment aims to resolve for future programs that employ long-term U.S. degree training for capacity building. (Ref: p. 16)

Using HICD to strengthen African agricultural institutions

This study states that the goal of capacity development is institutional performance improvement. To build staff capacity without addressing broader institutional performance gaps does not automatically result in an improvement in individual *or* institutional performance. Regarding the best use of U.S. graduate training to strengthen African agricultural institutions, the assumption underlying this study's findings and recommendations is that stakeholders are committed to strengthening target institutions in all areas that constrain staff performance. The HICD methodology provides the best and most appropriate roadmap for such an undertaking. Without such a broader commitment to look beyond staff training as the only intervention, results from investments in training alone will, from all experience, be disappointing. Since the universe of African agricultural institutions is relatively small, it is possible, practical, and

cost-effective to apply the holistic HICD approach to ensure that staff capacity development yields performance improvement. (Ref: p. 16)

How to ensure agricultural technical expertise in the U.S. program design

An innovative program management idea that emerged during the course of this assessment addresses the **lack of subject-matter expertise found in the central *participant placement organizations***. To overcome this lack of agriculture-specific information upon which to base the selection of a degree program, and more importantly, identification of the U.S. advisor, the team recommends that **placement choices be made by a two-person team consisting of a recognized specialist in an agricultural study area working closely with a "program officer" charged with managing the overall placement process**. In this way future programs can better link the institutional capacity needs of the African institution, the student's particular research interests and the U.S. training provider, strengthening the "impact chain" by ensuring that placement is viewed as a highly technical activity more than an administrative responsibility. (Ref: p. 52)

Best practices for selecting non-English speaking participants

Investments by USAID in institutional strengthening using long-term U.S. training need to be based on selecting the best participants in terms of their academic qualifications, leadership qualities, potential for effecting change once returned, and personal commitment to harnessing agriculture to improve people's lives. For 40 years USAID funded intensive English-language training in the United States and Africa for participants from countries not using English as the language of instruction. The costs, methods, and time needed to upgrade a participant to an acceptable level of English are well-known and must be factored into all long-term training programs for non-English speaking Africans. Historically, a candidate holding a degree from a Francophone or Lusophone university can be brought up to an English fluency level required by U.S. universities in four to six months of intensive English, which can be arranged in a cost-effective manner using institutions in Anglophone Africa and the United States. When a candidate already has an advanced level of English competency, this alone is an insufficient indicator of a student's ability to manage the technical and cultural challenges upon arrival on a U.S. university campus.
(Ref: p. 25)

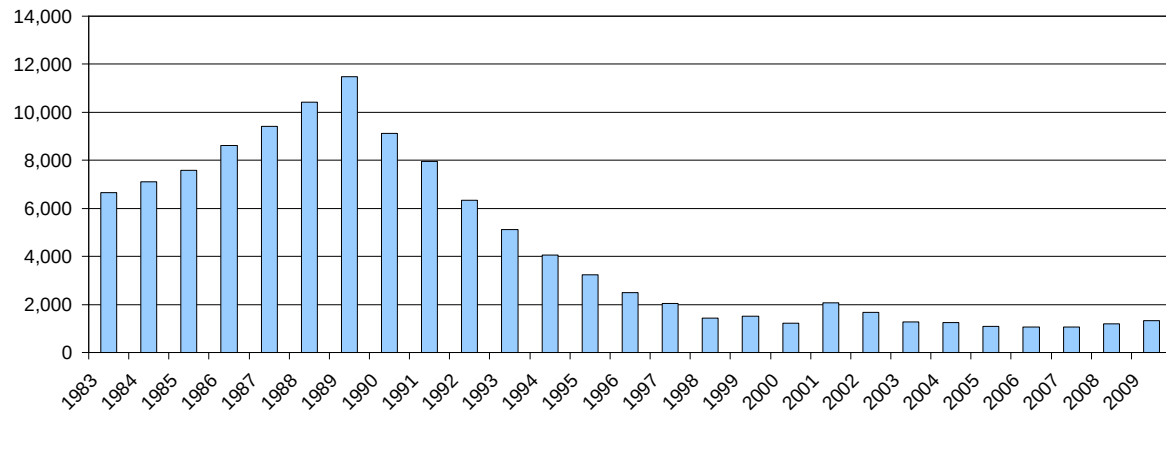
I. INTRODUCTION

This report is divided into three sections: an Introduction that includes a historical look at the use of long-term U.S. degree training (LTT) to build African agricultural institutions and a description of the methodology used and programs reviewed; a Findings section that focuses on identifying the Best Practices or valuable features that can lead to institutional change; and a final section listing the Recommendations for designing and implementing future programs and on implementing them.

A. Setting the Stage: Current Status of Long-term Graduate Training

Since its inception, the U.S. Agency for International Development (USAID) has financed programs in all development sectors for individuals from developing countries to earn graduate degrees through long-term training at U.S. universities. The number of participants in programs of six months or longer increased steadily in the 1970s and 1980s to a peak of 11,468 people in 1989. While the impact of this large number of individuals exposed to American technology and culture has been seen as a positive contribution to development and public diplomacy, questions were raised about ways to reduce the costs and improve the utilization and impact of LTT. For these and other reasons, by 2006, the numbers fell to 1,057 (See Figure A).

Figure A. USAID Academic Training in the U.S., All Sectors and Degree Levels 1983 – 2009



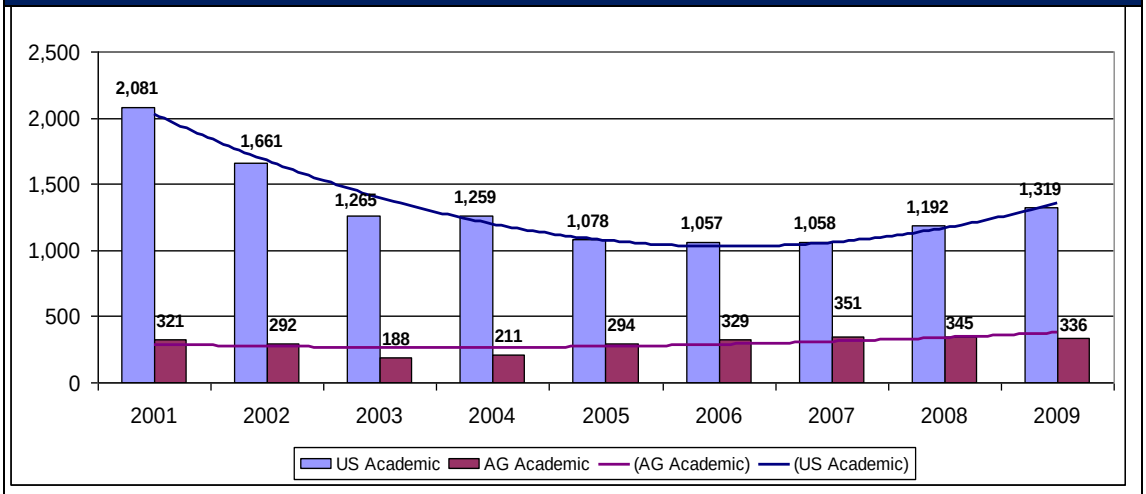
Note: "Academic" = Training for more than six months
Source: USAID TraiNet

USAID support for agricultural and rural-development degree training in the U.S. also declined dramatically to a low point of 188 in 2003. Since then, there has been a small increase which paralleled the overall growth in all sectors beginning after 2006 (See Figure B). Several factors, general and agriculture-related, contributed to this decline:

- The rising cost of residential U.S. training. Missions calculated how many more people could be trained at home or in third countries and usually opted for higher numbers (viewing training as a *cost* rather than an *investment* that produces a yield/result).
- Funding cutbacks that saw a decline in training budgets generally.

- Problems caused by participants away from their jobs for long periods, taking them "out of the loop" of their home institutions and distancing them from the local agricultural community of researchers and their concerns.
- A short term results mentality that emphasized, after the re-engineering reforms of the 1990s, programs whose results could be monitored and assessed over short time frames (2-5 years).
- A relative decline in the priority given by USAID to agriculture.
- A decision to begin programs in countries with mid-level economies following the breakup of the Soviet Union, drawing funds away from Africa.
- Questions regarding the appropriateness, performance impact, and cost-effectiveness of the investments in LTT.
- The loss of experienced training officers in Missions who were both well versed in the substance of program planning and able to navigate visa and other regulations, which became especially onerous after September 11, 2001.

Figure B. Agriculture vs. All U.S. Academic Training 2001 – 2009



Note: "Academic" = Training for more than six months
Source: USAID TraiNet

U.S.-trained graduates brought home not only technical knowledge and effective models and structures but also American traits: a can-do attitude, teamwork, and a willingness to question authority and engrained ways of approaching work. Over the decades and in many countries, these individuals provided significant contributions to their home institutions and to development. These programs also had the benefit of providing a significant number of people with U.S. training, English fluency, professional and business contacts, and cross-cultural living experience who by and large became the natural friends of, and interlocutors with, the U.S. Government. Long-term degree programs in the U.S. have been among USAID's most successful development and diplomatic tools.

As the generations trained in the U.S. have grayed and retired, the hollowing out of local institutions became a serious concern to USAID Missions and host governments. The capacity for leadership, research, adaptation, and innovation in many developing countries is now declining as scientists and policy makers retire. Lacking sufficient numbers of professionals with advanced knowledge in agriculture (and other scientific disciplines), developing countries can only grow more marginalized as economic and

technological "divides" with the industrialized world widen. As professional relationships between researchers and educators in the United States and developing countries decline, U.S. scientific, economic and, ultimately, national security interests are harmed also. The decline in the pool of U.S. graduates who can rise to prominent political and economic positions is a problem for U.S. embassies increasingly concerned with public diplomacy.

Investments in science and technology are increasingly important for economic growth and food security. Building capacity in agriculture is essential for national development. In developing countries especially, well-trained scientists and well-run institutions are needed to develop stronger capacity in science and technology relevant to local and regional contexts. In 2001, USAID recognized the need to reinvest in LTT in agriculture and across all sectors, yet wished to find ways to limit training costs, increase the relevance of training and research to home-country agricultural development priorities, and ensure the return of trainees to their home countries. At the same time, the African Union acknowledged the importance of agriculture for the continent in its ratification of the New Partnership for Agricultural Development (NEPAD) in 2001 and the Comprehensive Africa Agricultural Development Programme (CAADP) in 2002.

In 2003, the Board for International Food and Agricultural Development (BIFAD) proposed renewing USAID's investment in global long-term training and capacity building in agriculture and rural development. In response, USAID funded:

1. Three pilot programs between U.S. and African universities to identify creative, cost-effective ways to help re-engage USAID in LTT in agriculture and agribusiness.

    - Long-term Training for Regional Agricultural Development in East Africa: Kenya, Tanzania, and Uganda (HEPAD East Africa)
    - Linking Biotechnology/Bioengineering with Mali-based Agribusiness: Strengthening Food and Water Quality for Health, Safety, and Exports (Mali Project)
    - USAID Initiative for Long-term Training and Capacity Building: Zambia, Ghana, and Malawi (UILTCB)

These pilots were informed in part by the results of a 2004 evaluation of the African Graduate Fellowship (AFGRAD) Program and the Advanced Training for Leadership and Skills Project (ATLAS), which brought promising Africans to the U.S. for graduate training for 40 years (1963-2003.) This was both the longest program in USAID history and its evaluation the most extensive longitudinal study of training conducted by the Agency.[1]

More recently, two other new small programs have also been established which filled specific needs of graduate training programs:

2. One program that supports dissertation research: The Borlaug Leadership Enhancement in Agriculture Program (LEAP).

3. One program that provides a degree through distance learning: The USAID/University of Florida Distance Education Program: Strengthening Agricultural and Environmental Capacity through Distance Education (SAEC-DE).

[1] *Generations of Quiet Progress: The Development Impact of U.S. Long-Term Training on Africa from 1963 to 2003*, USAID Global Evaluation and Monitoring IQC, Task Order 13, Aguirre International, September 2004.

Completing the picture of major programs examined here is USAID's longest-running agriculture-focused capacity-building activity, described below:

4. Degree components of the Collaborative Research Support Programs (CRSPs).

These programs (with the exception of the CRSPs) are pilot stop-gap measures, not intended themselves to stem the overall institutional decline which was reaching a crisis point. An opportunity for USAID to affirm a commitment to resuscitate U.S. agriculture training has come in the Food Security Initiative. Following President Obama's call to Congress in April 2009 to double U.S. investment in agriculture, the Food Security Initiative will provide funds for institutional capacity building, some of which will go toward U.S graduate programs.

B. Moving from Participant Training to Human and Institutional Capacity Development (HICD)

Long-term degree training in the United States has been a development intervention used by USAID for many decades. The justifications for using U.S. Government funds to invest in human capacity in developing countries have included the following:

- Build institutional capacity through targeted upgrading of key staff at overseas institutions – academic, research, governmental, and private;
- Instill practical knowledge and skills in key technical areas in future leaders by exposing them to U.S. higher education's approach to learning and doing;
- Induce policy changes in countries by training key decision makers in priority areas at U.S. institutions;
- Create a supportive environment overseas with like-minded U.S.-trained technical counterparts so that U.S. research and technology transfer can occur;
- Create a cadre of officials with whom U.S. Government officials in each country can develop close relations based on shared understanding of U.S. culture;
- Build viable trading partners by increasing their technical knowhow;
- Transfer U.S. technology to stimulate future purchase of U.S. products;
- Instill respect and understanding of democratic governance and rule of law;
- Reduce poverty by increasing the ability of leaders to effect change at home;
- Reduce the spread of diseases by assisting countries in having highly-trained public health experts available to interact with U.S. officials;
- Counter Soviet and Chinese influence during the Cold War by introducing international participants to U.S. culture; and
- Expose U.S. institutions and communities to other cultures, languages, and systems to enrich American life.

Depending on the development context in which investments in training are proposed (Cold War, emphasis on private-sector growth, post-conflict rehabilitation, conflict mitigation, disease control or famine), one or more of the above justifications have been employed to secure funding for long-term training. More recently *institutional capacity building* has been the concept on which investments in training are justified, even though a general notion of capacity building has been underpinning our long-term degree training for some time. The decades-long transition from a focus on *individuals* to *institutions* began in the 1970s as a reaction to programs in the 1960s that had been accused of exacerbating Africa's

"brain drain." The challenge has been to design *interventions* (that include long-term U.S. training) that respond to the specific performance gaps in African agricultural institutions. However, citing the overall goal of "capacity building" as the rationale for investing in training, without specific links back to institutional needs, will not magically result in any performance change in the African institution.

The most significant change in USAID's approach to capacity building has therefore been this evolution from improving *capacity* mainly through training individuals to improving *performance* through addressing the full range of institutional needs related to productivity. Those needs, often expressed as barriers to improved institutional performance, may – and usually do – include filling gaps in employee knowledge and skills, but those are not the only issues to be addressed. The history of USAID development projects is replete with individual skills-building achieved through training, but often the impact is not felt in the overall performance of the institution. Moreover, looking beyond the walls of the assisted organization, training alone too often has little effect on output in the sector targeted (agriculture, health, education, micro-enterprise, etc.).

This change in approach is now codified in the USAID Human and Institutional Capacity Development (HICD) policy. This policy was adopted in response to the realization that a) more than training is needed to solve performance problems, and b) the advances in Performance Improvement (or Human Performance Technology), developed largely for the U.S. corporations, have begun to work well in the development field. USAID has compiled a track record of success using the HICD approach.

A principal message this assessment conveys to USAID capacity development planners is that to restart graduate study programs at U.S. universities in the way USAID did in the past, as the primary way to strengthen underperforming African agricultural institutions, will *not* build the institutional capacity required by the Food Security Initiative. Just as other developmental interventions increasingly require reforms of underlying national policies and the enabling environment, capacity-building interventions need to address the organizational context in which employees work. Employing the HICD approach provides the effective answer.

Looking a step higher at the broader national context in which the institution operates, USAID and other donors may wish to reconsider whether to invest in assisting an institution in a sector where there is little chance of improvement. A lagging sector not receiving attention from donors, government, or private sources (foreign or domestic) will not likely reap the benefits of investments in institution-based capacity building. An example might be strengthening hotel management institutions in a country where analysis has shown little possibility for improvements in the tourism sector, due to factors that cannot be changed by donors or other investors. In agriculture, USAID would hesitate strengthening institutions working in export promotion of a non-traditional agricultural product whose benefits were expected to have few positive social and economic impacts on USAID's target populations (e.g., smallholder farmers).

With an institutional approach now clearly possible for USAID to implement, what specific features should be included in program designs so that lasting institutional capacity building in agriculture is achieved and sustained? Answering this question is the purpose of this assessment.

C. Description of Programs Reviewed

The Scope of Work called for the research team to review the following activities (Ref: p. 53, *ANNEX I: Scope of Work*) to identify "elements that have been successful," and compare the different models in terms of how particular elements contributed to the successes:

- Three pilot LTT programs;

- One pilot distance program;
- One dissertation support program; and
- One long-standing "agricultural research program" with capacity-building components.

In response to a request from BIFAD in 2003, USAID funded three pilot programs between U.S. and African universities intended to "to identify creative, cost-effective ways to help re-engage USAID in LTT in agriculture and agribusiness." Each program included a mix of LTT design features that influenced duration of the program, cost, research topic, and likelihood of institutional impact. All three programs were relatively small in terms of cost, number of participants and degrees sought (primarily Masters degrees, although in some cases PhDs ended up being the degree obtained). The assessment reviewed each program in detail, interviewed its participants, and analyzed information to compare the various design elements. An in-depth evaluation was not intended nor conducted.

The pilot distance and dissertation support programs were reviewed with the same lens – to discern those features that could be recommended to USAID for future programs. The distance program was small (four participants) and the dissertation support program was non-degree, making comparison across programs less useful than assessing them individually for interesting design features. The "long-standing" agricultural research program, CRSP, presented decades of implementation experience which the assessment team tapped for useful features that resulted in institutional capacity strengthening.

To establish a basis for understanding the findings and recommendations in this report, a brief overview of each program is included below. In the next section (Ref: p. 13, *Findings*) each program is analyzed in greater detail presenting the advantages and disadvantages of the principal features used.

1. Long-term Training for Regional Agricultural Development in East Africa (HEPAD East Africa)

This project funded under the Higher Education Partnerships for African Development (HEPAD) was designed to strengthen the capacity of East African Faculties of Agriculture (FOAs) to enable them to improve smallholder agricultural productivity. Ohio State University (OSU) and Michigan State University (MSU) partnered with Egerton University in Kenya, Sokoine University of Agriculture in Tanzania, and Makerere University in Uganda, for training and joint-degree programs. Activities in the region were coordinated by the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM). The project was active from January 1, 2005 through March 31, 2008.

Core activities included long-term graduate degree training and short-term faculty development. Twelve participants (4 from each country; 3 Masters and 9 PhD) completed coursework training at OSU or MSU and returned to their home countries to conduct thesis research. Two of the Masters students received their degrees from OSU (the other from Sokoine University). Of the nine PhDs, three received their degrees from Egerton University, two from Sokoine University, one from Makerere University, and two from OSU. One participant received a PhD from another university in Uganda.

2. Linking Biotechnology/Bioengineering with Mali-based Agribusiness: Strengthening Food and Water Quality for Health, Safety, and Exports (Mali Project)

This project was designed to develop collaboration between two U.S. partners, Montana State University and the University of St. Thomas (St. Paul, Minnesota), and Malian educators and scientists at the Institut d'Economie Rurale (IER) and the Institut Polytechnique Rural de Formation et de Recherche Appliquée (IPR/IFRA). The aim was to develop local capacity to merge culturally appropriate methods with more effective agricultural and natural resource management techniques. The project was funded from June 30, 2004 to September 30, 2007.

The objectives of the project, as stated in the final report, were to:

- Test a model for graduate training in the United States and in Mali and the promise of employment in a stimulating work environment;
- Facilitate integration of modern agricultural knowledge/methods, without altering Malian traditional cultural practices; and
- Build a sustainable, and therefore continually adapting, up-to-date, integrated agricultural research, education, and extension program in Mali.

The goal of the training, to take place in the United States and Mali, was to build knowledge and skills to implement changes to reach the above objectives.

Seven participants, who received different levels of training from certificates to one Masters degree, were trained using a 39-month "sandwich" arrangement (in this case, mostly a combination of U.S. coursework and writing, at the beginning and end, and home country research in the middle).

3. USAID Initiative for Long-term Training and Capacity Building (UILTCB)

This program was designed to build capacity of Zambian, Ghanaian, and Malawian public and private institutions to contribute to agricultural and natural resource development by providing Masters degree and short-term training opportunities to their staff. The program is managed by Michigan State University in collaboration with the USAID Bureau for Economic Growth, Agriculture and Trade (EGAT) Office of Agriculture and has been implemented in three phases. The first phase included Masters degree training for 17 participants from Zambia and Ghana at ten U.S. universities (Kansas State University, Louisiana State University, Michigan State University, Ohio State University, Purdue University, Texas A&M University, Texas Tech University, University of Illinois, University of Minnesota, and Virginia Polytechnic Institute and State University). The second phase began in fall 2008 with six participants from Malawi. A third phase began in fall 2009 for six participants from Malawi and another group of six Malawians will start the program in fall 2010. The Malawi phase of the program has been partially funded by the USAID Mission in Malawi.

Of the seventeen original participants from Zambia and Ghana, fourteen have completed their Masters degree. (One participant passed away during the training program.) Two of the Malawians from phase two have finished their degrees, and the other four are set to finish in summer 2010. The six participants who enrolled in phase three are still in their degree program, in addition to six more participants starting in fall 2010. All participants are receiving Masters degrees.

4. Strengthening Agricultural and Environmental Capacity through Distance Education – (SAEC-DE)

This project implemented by the University of Florida taps the knowledge base of the International Center for Tropical Agriculture (CIAT), the Consultative Group on International Agricultural Research (CGIAR) centers, in collaboration with the University of Nairobi (Kenya) and Makerere University (Uganda). The project's goal is to demonstrate an innovative and effective approach to making higher education more accessible and relevant to international participants working in agricultural and natural-resource development.

The project provided distance training for degree-seeking employees at CIAT or other international centers as research assistants and research associates, or working at the local universities. Four participants were enrolled in the project, two from Uganda and two from Ghana. They followed their graduate program entirely online from their home country. Three out of the four participants completed or are completing their degrees and the fourth dropped out.

5. Borlaug Leadership Enhancement in Agriculture Program (LEAP)

The Borlaug LEAP is a USAID-funded fellowship program designed to enhance the quality of thesis research of graduate students from developing countries who show promise as leaders in agriculture and related disciplines. The fellowship supports engaging a mentor at a CGIAR center and at a U.S. university to enhance the student's thesis research. The maximum length of the fellowship is twelve months.

To date Borlaug LEAP has awarded fellowships to 52 graduate students (44 PhD and 8 Masters) from 22 developing countries, of which 90 percent are sub-Sahara African. Participating institutions included 22 U.S. universities and 13 CGIAR centers. Forty-two percent of the awardees are women.

6. Collaborative Research Support Programs (CRSPs), Graduate Training Component

The Collaborative Research Support Programs for more than three decades have linked U.S. land-grant universities, U.S.-based research institutions, and CGIAR centers with agriculture research institutions in developing countries to mobilize scientific expertise to help carry out the international food and agricultural research mandate of the U.S. Government through long-term collaboration. In the process the various CRSPs have granted graduate degrees to selected partner scientists.

Presently there are eight CRSPs concentrating on a range of topics. Research areas and topics are established by USAID and allocated into separate programs, described in Table 1.

Table 1. USAID Collaborative Research Support Programs[2]

CRSP	Management Entity	Date Initiated	End Date
Aquaculture & Fisheries *(formerly Pond Dynamics/Aquaculture)*	Oregon State University	1982	Current
Assets and Market Access (AMA) *(hosted by the BASIS Research Program on Poverty, Inequality and Development)*	University of Wisconsin	1996	Current
Dry Grain Pulses *(formerly Bean/Cowpea)*	Michigan State University	1980	Current
Fisheries Stock Assessment	University of Maryland	1985	1994
Global Livestock (GL)	University of California, Davis	1998	2009
International Sorghum and Millet (INTSORMIL)	University of Nebraska	1979	Current
Integrated Pest Management (IPM)	Virginia Tech	1993	Current
Nutrition	Purdue University	1982	1991
Peanut	University of Georgia	1982	Current
Sustainable Agriculture and Natural Resource Management (SANREM)	Virginia Tech	1992	Current
Small Ruminants	University of California, Davis	1978	1998
Soil Management (SM)	University of Hawaii, Manoa	1981	Current

[2] Current CRSPs are in bold.

All CRSPs share the objective to build human and institutional capacity for research-focused collaboration through graduate degree and short-term training in science and institutional management. The graduate degree training programs support students at U.S. and overseas institutions, with priority given to participants from developing countries. From 1978 to 2007, the latest year for which data was accessible, degrees were earned by 3,145 CRSP participants, of which 2,779 were post-graduate degrees. Nearly 75 percent of the participants were from developing countries, of which between 40 and 50 percent were from Africa.

The graduate training component of CRSP has been a prominent feature of the relationship between the United States and Africa in agricultural development for decades. Its contribution to institutional capacity building is significant and provides useful lessons to consider in designing future capacity-building activities that rely on long-term degree training. This report is not the locus for a comprehensive evaluation of CRSP. Instead, the team limited its analysis to identifying the features of CRSP training that had long-term impact on African institutional capacity.

D. Data Collection Methodology

The assessment team visited eight countries in Africa (Ghana, Nigeria, Mali, Kenya, Uganda, Zambia, Tanzania, and Malawi) and examined the six programs in the context of larger long-term training efforts. The assessment used mixed methods for collecting data, including mini-surveys, focus groups, key informant interviews, and a review of documents (Ref: p. 63, *ANNEX II: Bibliography*). Use of these methodologies allowed not only for comparison and analysis of findings from different sources but also allowed for cross referencing and verification of findings from different methods. A complete *evaluation* per se was not conducted of each program, which would have entailed a far deeper inquiry into the objectives and results obtained from the activity using modern evaluation methodology (key informant interviews, statistically-significant sampling of former participants, comparative analysis of performance changes registered, etc.).

A total of 125 questionnaire responses were analyzed, of which 88 were from participants in the above six programs (see Table 2 for a breakdown by program). The team also administered questionnaires to 37 participants sponsored by other programs whose best practices and lessons learned were of interest.

1. Mini-surveys

The assessment team used a mini-survey approach rather than a comprehensive survey to gather data from the field. A mini-survey is appropriate for a small sample size and focuses on a limited set of questions, generally 15 to 30. Since the size of the participant universe was so small, a sampling was not employed. Instead, questionnaires were sent to every trainee whose contact information was available. Of the 510 entries of USAID-funded participants located in various databases of the six projects assessed, 244 contained contact information. Of this universe of participants who were contacted, 51.2 percent completed and returned the questionnaire. Because of the small size of the universe from which data could be gathered, and due to the limitations typical in surveys that analyze processes, focus groups and key informant interviews were employed to supplement information collected from the questionnaires.

Two mini-survey questionnaires, one for Borlaug LEAP and one for the other programs, were developed. The questionnaires were administered to the identified program participants to complete manually or by e-mail, with the results manually entered into two databases – one for Borlaug LEAP and the other for all other programs. The surveys included both closed- and open-ended questions. Differences among the programs were analyzed and the statistical significance of those differences tested, which tended to be low given the small sample size.

Table 2. Questionnaires Completed by Program

Name of Program	Total Participants (#)	Questionnaires Distributed (#)	Participants Completing an MA/ PhD Degree (#)	Completed Questionnaires (#)	Response Rate (%)
Borlaug LEAP[1]	46 *(from Africa)*	46	N/A[2]	24	52.1
CRSP	350	113	29	30	26.8
HEPAD East Africa	12	12	8	9	75.0
Mali Project[3]	7	0	0	0	0.0
SAEC-DE (Univ of Fla)	4	4	2	2	50.0
UILTCB	29	28	23	23	82.1
Other	N/A	N/A	36	36	N/A

1. *Surveys were sent to 46 participants from the list of 51 fellows received from Borlaug LEAP staff. These 46 participants indicated that their nationality is from an African nation.*
2. *Obtaining a degree was not a requirement of USAID funding for this program (although 100% of the fellows have completed their degrees) and hence this information was not asked of these participants.*
3. *Participant contact information was difficult to obtain for the Mali Project. Nonetheless, two of the seven participants were interviewed, one during a group dinner and the other in a focus group, although no questionnaires were returned.*

The response rate was over 50 percent for four of the six programs assessed, primarily due to the availability of current, reliable contact information and the small number of participants. Of the six programs included in the assessment, only the CRSP was implemented over a long period prior to 2003. CRSP participant contact information was difficult to obtain given the number of implementing organizations involved and the length of this ongoing program, which was authorized in 1975 and began soon afterwards around specific crops and livestock species. Nonetheless, of the 113 former participants who were sent questionnaires, 30 (26.8 percent) responded, which represented 9 percent of the universe of all 350 CRSP participants for whom contact data was available. Of the 113, however, only the 29 receiving U.S. graduate degrees provided data that could be analyzed for this assessment in light of its focus on U.S. degree training.

Although the methodology used was not intended to be representative, the high response rate from most of the recent programs, plus information gathered from interviews and focus groups, provided a solid foundation for gaining insights to the various program features that may have led to institutional strengthening, based on respondent self-perceptions.

2. *Focus Groups*

Focus group interviews are a rapid, cost-effective data collection method that involves the use of direct probing techniques to gather information from several individuals in a group situation. Gathering information through focus groups provides or verifies background information, helps to generate new ideas, and can test hypotheses or innovations for future program designs. Monitoring and evaluation teams frequently rely on focus groups to complement and interpret quantitative data being gathered.

In gathering data through focus groups, the team developed a guide using the principles set forth in the USAID "TIPS" series, *Performance Monitoring and Evaluation*. Each group consisted of six to ten former participants who were asked questions in four areas: pre-program, program, post-program, and "brainstorming for the future." The composition of the groups was often mixed in terms of their sponsoring program. Sessions ranged from one to two hours. Focus group interviews in Ghana, Nigeria, Mali, Zambia, Kenya, and Uganda were moderated by Team Leader Andrew Gilboy and in one case by team member Cornelia Flora. Focus groups in Malawi and Tanzania were moderated by team member Ron

Raphael. After a brief introduction, the moderator explained the purpose of the meeting and stressed the informal format so that participants could express their views candidly.

Fourteen focus groups were conducted with 70 participants attending.

3. Key Informant Interviews

In each country, in-depth interviews were conducted with key informants, including government officials, program managers and USAID Mission personnel (Ref: p. 69, *ANNEX III: List of Persons Interviewed*). This method of data collection provided the team with country context and a setting where new ideas and recommendations for future program design could emerge. Informant interviews were loosely structured, lasted approximately one hour and included open-ended questions.

In the United States, telephone interviews were conducted with U.S. university program managers, including each of the eight separately-implemented CRSPs with a graduate training component. In addition, a virtual meeting was held with the team and representatives of all of the CRSPs to discuss similarities and differences in the current approaches of the different CRSPs. These interviews and the meeting provided the team a critical optic on those features perceived to contribute most effectively to building institutional capacity for African agricultural development. Presentations were also made to key officials at USAID/Washington from the EGAT and Africa Bureaus, as well as to attendees at the BIFAD annual meeting, during which time the team gathered useful reactions from audiences with direct knowledge of the problems of agricultural capacity building.

II. FINDINGS

What types of long-term degree training programs have characterized USAID's efforts over the years that contain design features that were effective in building capacity? By taking a closer look at each model, key Best Practices can be distilled and analyzed for their contribution to lasting institutional change at the African institutions associated with the programs.

A. Best Practices

1. Long-term Degree Training Programs

This section traces the history of USAID's use of long-term training as a tool for institutional capacity building. For many years the U.S. Government, through a number of agencies, has employed long-term U.S. degree training to reach specific objectives. The Department of Defense brings counterparts to American bases and training facilities for technical training. The Department of State manages several degree programs, such as the Fulbright awards, that place international leaders at U.S. universities for degree training, usually at the Masters level. The U.S. Agency for International Development designs and funds the largest long-term U.S. degree programs, which decades ago were called "scholarships programs for international students" at U.S. universities. In order to dissect the features that were instrumental in strengthening African agricultural institutions, it is useful to sketch the various types of programs that emerged over the years, each one appropriate to varying periods, needs, and constraints of their time.

(a) Student-centered Training

The most prevalent type of USAID-funded LTT program for several decades consisted of channeling the international student into the U.S. university system alongside American students. Although in many cases university professors interested in Africa may have sought out the African student, or vice-versa, no system existed to ensure that the student's graduate program responded to the needs of African agricultural institutions.[3] The emphasis was on the student acquiring advanced technical knowledge and on performing at the expected graduate level. In the early programs, the student was assumed to be the conduit to transfer knowledge advances and technological innovation to the African agricultural setting. An assumption also prevailed that such a highly-trained expert would be valued in the home country where the fruits of USAID's investment would feed economic growth. Impact would flow from these investments by individuals applying back home their knowledge, skills, and attitudes (KSAs) acquired from their U.S. experience.

In retrospect, program managers underappreciated the constraints that would confront the returned graduate, such as inadequate support for continued research or organizational jealousies working against innovations being tried. Typically program planners did not address other systemic organizational weaknesses that provided barriers to optimal application of training and limited performance. The result was often a highly-trained and initially motivated U.S. graduate professionally-frustrated in a position unrelated to the knowledge and skills acquired and working in a semi-dysfunctional institutional environment.

Best and brightest programs – nation-wide selection of students

In some countries in Africa, USAID would conduct needs assessments locally to determine which development fields were underrepresented in the national workforce. For example, an analysis might identify

[3] Keilson, J. *Building Human Capacity through Training.* SIT Occasional Papers Series: Issue No. 2, September 2001.

a paucity of qualified soil scientists with arid land expertise in the country, which would form the basis for allocating a certain number of scholarships or slots for graduate work to fill the identified country-wide gap. The "Best and Brightest" candidates would be sought through advertisements placed in local media, through competitive tests or from local valedictorian lists, after which the USAID-funded organizations managing the activity would screen the candidates for admissibility and responsiveness to the needs assessment, conduct interviews (often with U.S. university presence) and select a short-list of potential grantees. By and large the process mirrored university admissions management in the United States.

Best and brightest programs – targeted selection of institutional employees

The emphasis on student selection by merit evolved as the needs assessments became more sensitive to institutional rather than country-wide needs. Instead of analyzing sector-wide human resource constraints in a country, USAID programs increasingly honed in on specific institutions for strengthening. Although this evolution brought the U.S. implementing organization (either a placement agency or in some cases, a U.S. university) closer to the needs of the African academic, research, or governmental organizations, the focus remained on participant selection by merit, albeit within the parameters of a clearer definition of institutional needs.

The program's proximity to an institution greatly enhanced the possibility of impact emanating from the investment in graduate training for several reasons:

- Students were already associated with the African institution, either as recent graduates or as young faculty;
- With their U.S. degrees in hand, they presumably had jobs to return to, unlike the students selected at large without connections to local organizations;
- With a possible job hopefully kept open back home, African graduates of U.S. universities were more likely to return, if political conditions allowed; and
- The link between institutional need and the student's graduate work was established, although its existence did not guarantee development impact once the student returned to take up the position for which he or she was trained.

The "Best and Brightest" program of the early years should be reviewed in the context of the times. Scores of former African colonies were achieving independence with an urgent need to replace expatriate managers with indigenous experts.

As the fledging nations evolved, the needs changed, calling for new ways to help build a trained workforce in critical national institutions. Questions were raised about the notion that sustainable impact would occur by training individuals selected according to merit in key development fields, as explained below.

- *Non-return.* Students selected without ties to home institutions, or whose ties were weak, often did not return to those institutions upon completion of their graduate training; instead, they either remained abroad (for a variety of reasons) or returned to Africa but not to their home country (often working for regional institutions).
- *Inappropriate job placement.* Graduates returned to their country but worked in another institution or in a field unrelated to their training (for example, public administration – where jobs were available and prestigious).
- *Nascent institutions.* In the decade after most African countries gained their independence, African agricultural institutions were just beginning to emerge. Even where agricultural-oriented technical colleges existed, few modern agricultural teaching or research institutions had been

developed. Could such fragile institutions integrate effectively highly-trained graduates from abroad in a proper performance-oriented system?

Lack of *alignment* of the USAID-funded training to the *specific performance needs* of the African institution resulted in haphazard or negligible impact. Many impact assessments of these programs reported impressive "development impact" from the returned participants, which is not to be discounted. But too often that impact was individually-driven – the result of an exceptional personal commitment to promoting change *despite institutional obstacles* rather than inspired by institutions promoting change with a clear vision ahead. **Would not USAID's investment be more effective and the anticipated impact sustainable by carefully addressing known organizational performance needs beyond the lack of skills and knowledge?**

Beyond the lack of a solid institutional performance basis to determine the training to be funded, development decision makers today often fail to differentiate between *capacity building* and *performance improvement*. It is assumed that providing highly-trained cadres to an institution builds its capacity. This may be literally accurate – the *capacity* to perform might be improved by returned participants integrated into an African institution applying their newly-acquired technical knowledge. But without addressing the other work environment factors impeding *individual* performance, the *institution's performance* and *outputs* may not change even with the increased staff capacity. This is the aspect repeatedly overlooked or ignored unless a holistic approach, embodied in the HICD methodology, is employed.

Many internal performance impediments prevent highly-trained personnel from applying their knowledge and skills to improve a service or leverage an output to have a wider impact. In other words, U.S. long-term training does not by itself lead to *impact* on a sector. Myriad factors beyond technical competence or improved professional behavior ultimately affect whether the "newly-minted" African scientist has an impact on life outside the home institution. Capacity may be built, but is performance enhanced?

(b) Institution-centered Training

The previous section described programs that examined the potential of African students to undertake and succeed in the U.S. academic environment, supported them through degree completion and provided assistance for their return home. Students were either young undergraduates or recently graduated Masters, or employed at African institutions. Agriculture was one of a number of sectors that benefitted from early programs offering graduate degrees to top African students in the agricultural sciences.

Programs aiming to build staff capacity

Institution-centered training programs aimed at building the staff capacity of African agricultural institutions first and foremost, doing so by selecting faculty and researchers, and in some instances recent graduates, for advanced U.S. degrees. This approach differs fundamentally from the "Best and Brightest" model by centering the USAID support on institutional staff need. Once identified, candidates employed at the institution were sought who could help fill the knowledge/skills gap. The gap identified could reflect a newly-emerging sub-sector in the agricultural sciences, such as farming systems, for which the institution lacked local expertise, or a continuing need to upgrade existing staff with higher degrees and more advanced technical knowledge.

Unlike the "Best and Brightest" approach, the new institution-centered programs first conducted needs assessments in close collaboration with institutional decision makers. Candidates were then selected whose profiles, existing job responsibilities, academic interests, and qualifications indicated they would obtain and apply in their positions the new knowledge and skills gained at the U.S. university.

As the CRSPs depended on the quality of their host-country collaborating institutions, the training was oriented toward individuals active with the collaborating institutions or selected by them to become future employees.

Programs aiming to increase institutional performance

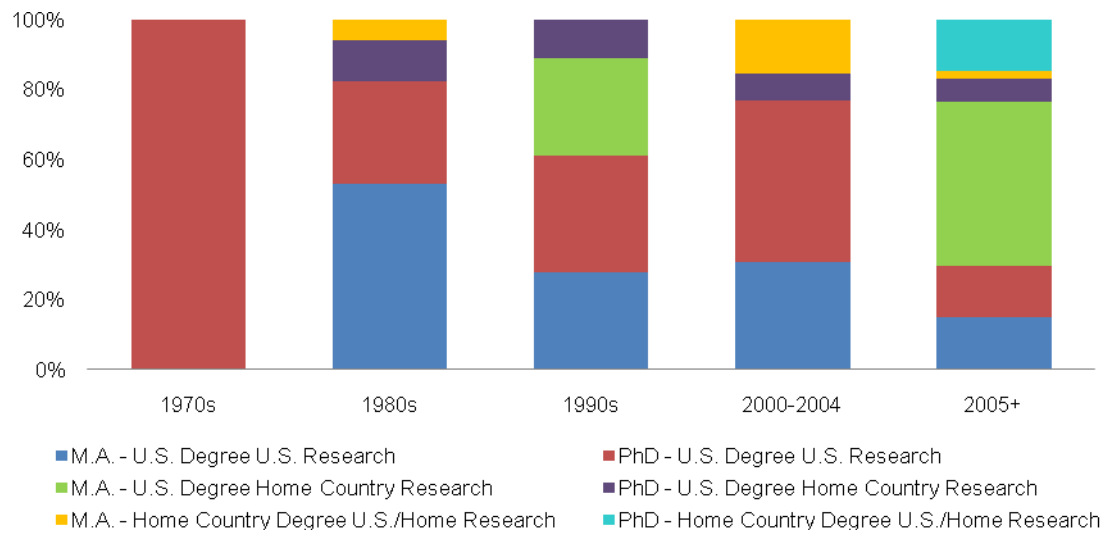
This study states that the goal of capacity development is institutional performance improvement. To build staff capacity without addressing broader institutional performance gaps does not automatically result in an improvement in individual *or* institutional performance. Regarding the best use of U.S. graduate training to strengthen African agricultural institutions, the assumption underlying this study's findings and recommendations is that stakeholders are committed to strengthening target institutions in all areas that constrain staff performance. The HICD methodology provides the best and most appropriate roadmap for such an undertaking. Without such a broader commitment to look beyond staff training as the only intervention, results from investments in training alone will, from all experience, be disappointing. Since the universe of African agricultural institutions is relatively small, it is possible and practical to apply the HICD approach to ensure that capacity development yields performance improvement.

This dilemma – where an institution's technical capacity can be improved yet its *sector impact and sustainability* decline – is a central question this assessment aims to resolve for future programs that employ long-term U.S. degree training for capacity building. The way degree programs have been implemented to upgrade the KSA of Africans from agricultural institutions is described below to discern those features which have led to sustainable *performance improvements*.

(c) Types of Degree Programs

This section categorizes and describes by degree program the myriad ways long-term training has been implemented by USAID over the years. They are first summarized in Figure C, which shows the distribution of degree programs by respondent. Each program type has advantages and disadvantages in relation to improving performance at African agricultural institutions and promoting positive changes beyond the organization's walls.

Figure C. Distribution by Degree Program among Respondents 1970s – 2005+



Note: These percentages reflect the responses of interview participants and may not necessarily reflect actual USAID numbers.

PhD – continuous stay in the United States, research in the United States

The designers of these programs, implemented largely in the first two decades of USAID's involvement in U.S.-based LTT training for Africans, placed participants in their academic programs to remain without interruption until they obtained their doctorate. Participants were selected for PhD degrees from the outset. Sponsored trips home were generally excluded by USAID regulations (too costly, conflicting with summer study, research or work opportunities in the United States, etc.) and participants were discouraged from bringing their families to the United States. The cost for trips home was to be paid by the participants themselves.

PhD – Continuous Stay in the United States

Advantages:

- Extended U.S. stays (2-6 years) enabled the student to absorb many strengths associated with U.S. university and cultural life, such as a rigorous intellectual enquiry, facility to question authority and articulate and adopt solutions, ability to work in teams, and development of critical thinking.
- Access to data sources and information to use for research.
- Exposure to rigorous research methodology.
- Collaboration with peers pursuing similar research topics.
- Building lasting professional networks.

Disadvantages:

- Long absence from home institution (if the student was linked to one) worked against the reintegration of the returned graduate, resulting in frustrations, professional jealousies, and low performance once home.
- Difficulty in recruiting women candidates due to the extended absence from family.
- Returned student unable to continue research, or its field application, due to poor facilities back home *and* the inability to adapt imaginatively to a low-resource environment (having become used to the U.S. level of research support).
- High cost of maintaining the student in the United States for many years.
- Increased "non-return" rate for participants on extended stays in the United States, especially those who had not worked in their home country prior to being selected (common in the old "Best and Brightest" programs where students were selected based on merit only).
- Tendency for research to be less relevant to the needs of the home country or agricultural institution, and more aligned with the student's (or the advisor's) professional interests.
- With little link to an African institution's capacity-building needs, the technical knowhow the student brings back may not result in any improvement in the institution's impact on the agricultural sector (small farm livelihoods, production levels, etc.).

Masters leading to PhD – continuous stay in the United States

This type of program identified qualified participants for their first U.S. graduate degree, after which promising participants were admitted for their doctorates. The degree objective was not the Masters but the PhD, recognizing that a percentage of participants would return to their home institutions with the lower degree.

Masters Leading to PhD – Continuous Stay in the United States

Advantages:

- Same as above

Disadvantages:

- In addition to above, some participants return to Africa after failing to be admitted to a PhD program, only to find they are under-qualified for the position for which a PhD had been identified. This contrasts with programs that identify the Masters degree to fill a specific performance gap identified in the initial analysis (see below).

Masters – continuous stay in United States

Some programs selected participants specifically for the Masters degree, having identified job niches for which the Masters represented a distinct capacity improvement in the local institution. In these cases, participants selected from their African institutions spent 18 to 24 months in the United States taking courses, conducting research, and writing their thesis without a sponsored trip to their country. Problems arose when promising students sought or were under pressure to continue for the PhD. In these cases, USAID generally denied further funding and the students, typically aided by well-meaning advisors, identified other funds. In most of these instances, the student broke agreements made with the African institution, or with the U.S. program implementers, and fell out of line with USAID's original purpose for the student's program as well as with U.S. immigration requirements. The latter mandated J-1 visa holders (under which USAID-funded participants study in the United States) to return to their home country for at least two years prior to returning for a second degree.

Masters – Continuous Stay in the United States

Advantages:

- In addition to those stated above, obtaining the degree for which a participant was originally sent, in this case a Masters, and returning to country, accelerated the likelihood that the anticipated impact from the knowledge transfer would occur.
- The disadvantages noted above associated with an extended U.S. stay were significantly reduced if the participant returned with Masters degree in hand within 24 months.

Disadvantages:

- Same as above

Masters – coursework in the United States, research in Africa, degree from the United States

A major advantage of a U.S. graduate degree comes from the coursework required that exposes participants to other disciplines and sub-areas of their academic field. By promoting research in Africa on African problems, as the CRSPs have done for many years, a major disadvantage of an extended stay in the United States where the Africa focus may become faint, is eliminated. This training type includes funding for the participant to return to the home institution where Africa-based research is conducted as part of the Masters degree requirement. Once field research is completed, the participant returns to the U.S. university to refine data, write up the results, and interact with peers, after which a U.S. degree is granted.

Masters – Coursework in the U.S., Research in Africa, Degree from the U.S.

Advantages:

- Ties with African institution remain strong throughout the academic program.
- Relevance of the research topic is assured by the participant conducting research in Africa.
- Family pressures that can constrain the participant absent for more than 18 months in the United States greatly reduced by one or two sponsored return visits for research.
- Cost to sponsor one or two trips to Africa over vacation periods in many cases can be covered by the reduction in higher-cost U.S. maintenance allowances by paying for airfare and a research stipend.
- Promotes further partnering between African and U.S. universities that could include faculty exchanges, joint research projects, etc.
- Length of time spent in the United States sufficient for the participant to be affected by the positive aspects associated with the U.S. academic environment (work ethic, intellectual curiosity, etc.).

Disadvantages:

- Support from African institution for in-country research may be weak, impeding efficient research in Africa, although this disadvantage is offset if the U.S. advisor visits the student in Africa.
- Spending more time in Africa during the U.S. academic program exposes the participant to family pressures, which must be managed to maintain momentum towards degree completion.
- Pressure from the home institution on the participant to teach courses can conflict with research commitments for the degree.

Masters – coursework in United States, research in Africa, degree from Africa

This model retains the advantages of spending time in the United States to complete mandatory courses, and conducting research in Africa, but has the African university granting the graduate degree. For this to be effective, the African and U.S. universities have to work closely together, for example, to ensure that the selected research topic and courses taken in the United States comply with the African university degree requirements. As African institutions increase capacity and improve performance, the degrees they deliver take on greater value, especially in Africa, which is a market-driven indicator of enhanced academic standing.

Masters – Coursework in the U.S., Research in Africa, Degree from Africa

Advantages:

- Same as above in regards to conducting research in Africa.
- Sends a strong signal in Africa of the value of a degree from an African institution, in collaboration with a U.S. university (i.e., coursework taken and some research conducted at the U.S. university).
- Cost to USAID far less than a full U.S. graduate degree.
- Promotes further partnering between African and U.S. universities that could include faculty exchanges, joint research projects, etc.

Disadvantages:

- Returning to Africa carries with it the same risks detailed above regarding family and work pressures.
- African degrees are not universally respected and significant quality differences exist between institutions.

Masters – coursework in Africa, research in the United States and Africa, degree from Africa

This approach has the participant traveling to the United States as an adjunct to the African academic program, not as a U.S. degree candidate. The participant could be sponsored for a three to six month program at a U.S. university taking courses and improving research techniques selected and approved by

the African institution. Since the minimum requirements for a U.S. degree would not be met, the degree would be delivered by the African institution.

Masters – Coursework in Africa, Research in U.S./Africa, Degree from Africa

Advantages:

- Same as above in regards to conducting research in Africa.
- Cost to USAID far less than a full U.S. graduate degree.
- Exposes the participant to several critical advantages of studying in the United States, such as learning rigorous research and testing protocols, and providing access to data.
- Introduces the participant to U.S. culture and intellectual life.

Disadvantages:

- Little lasting non-technical professional impact associated with an 18-month stay in the United States is ensured by a three to six month program.
- Time for cultural adaption to the United States is inadequate.
- Although the participant's individual academic advancement might be enhanced, would there be a correlation between the U.S. program and the African institution's identified performance gap?

Masters from the United States – no travel to the United States (distance education option)

The availability of high speed Internet access facilitates synchronous and asynchronous distance learning and interactions among African students and U.S.-based professors, and among African students in the United States and elsewhere. A number of models of Masters degree courses of this type have been implemented. The model assessed in this study shows the possibilities and pitfalls in managing a primarily synchronous course in widely separated time zones with limited household Internet accessibility.

Masters – Coursework in the U.S. (online), Research in Africa, Degree from the U.S.

Advantages:

- Ties with African institution remain strong since participant never leaves home.
- Relevance of the research topic is assured.
- Family pressures that can constrain the participant absent for more than 18 months in the U.S. eliminated completely.
- Program especially attractive to women and new mothers who prefer not to travel to the United States for personal, cultural, or family reasons.
- Cost to USAID far less than any other model.
- Duration – degree can be completed in less time than all other options.

Disadvantages:

- Dependent on high-speed reliable Internet access from locations convenient to the participant – a precondition unlikely in most African countries for the next few years.
- Little opportunity for easy exchanges with other students, given time differences, cultural and linguistic barriers and lack of context in which student-to-student exchange could be fruitful.
- No productive real-time experiences with other students in a rich learning environment due to class scheduled at impractical times in Africa (e.g., at 2:00 a.m. in East Africa)
- No combining of synchronous and asynchronous that might have helped overcome problems of time differences.
- No non-academic gain for the participant, such as learning about U.S. culture, improving professional behavior, accessing research data, etc.
- Content varies considerably from different U.S. providers of distance degrees, with some offering only Internet versions of existing courses rather than courses designed specifically for distance learning.

Some of the long-term degree options described in the previous tables were featured in the pilot programs to examine their usefulness in addressing the needs of African agricultural institutions and to develop innovative approaches for today's changed environment for African participants at U.S. universities. A major driver was to capture the benefits of longer U.S. degree programs while reducing costs and time. Section II.A.3 (Ref: p. 35, *Major Features Leading to Institutional Capacity Building*) presents the assessment's findings concerning the most effective features described above that can best address the performance improvement and capacity-building needs of African agricultural institutions.

2. *Comments on the Model Programs*

The six programs described in Section I.C (Ref: p. 5, *Description of Programs Reviewed*) served as the principal resource base from which the team identified key features to recommend to USAID for future long-term training in agriculture. This section provides the research team's assessment of each program in terms of its effectiveness in building capacity in African agricultural institutions.

(a) Long-term Training for Regional Agricultural Development in East Africa (HEPAD East Africa)

The HEPAD East Africa project aimed to build capacity in the FOAs in Uganda, Kenya, and Tanzania over a two-year period to improve smallholder agricultural productivity. MSU was selected as the prime contractor for this activity, with OSU as a sub-contractor. Partnerships were established with three national agricultural faculties: Makerere University in Uganda, Egerton University in Kenya, and Sokoine University of Agriculture in Tanzania. Funding was committed from January 1, 2005 to September 30, 2007 with activities continuing through no-cost extensions until March 31, 2008.

Project description

Two core ideas encompassed activities undertaken by MSU and OSU: a) accelerating agricultural productivity is key to economic growth and food security in the largely agrarian societies of East Africa dominated by smallholder farming; and b) regional FOAs can promote change in smallholder productivity and food security through research, training, and outreach.

These activities and objectives helped to focus project outputs:

- Provide long-term graduate degree training opportunities in areas of critical need;
- Provide short-term opportunities for faculty development in areas of critical need;
- Strengthen linkages between private-sector agribusinesses and FOAs;
- Build cross-regional synergies among FOAs;
- Build and implement an innovative, replicable model of FOA capacity building;
- Sustain and strengthen long-term historical partnerships among U.S. and regional FOAs; and
- Increase research interests among FOAs of the impacts of HIV/AIDS on agriculture.

Core activities included both long-term and short-term training at the three partner institutions. Four participants from each country were selected to obtain Masters and PhD degrees in fields linked to the objectives described above. Since a major aspect to this project was to develop partnerships with African organizations, the contractor selected an African-run local implementing organization, the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM), to manage the activities in Africa. RUFORUM was formed in 2004 as an outgrowth from an earlier activity begun with the Rockefeller Foundation in 1992. Today RUFORUM is a consortium of 25 universities, of which roughly 12 are considered "active" participants that benefit from training support, faculty development grants and other activities designed to accelerate improvements among the member FOAs. The HEPAD East Africa

project collaborated closely with RUFORUM in making available the long-term graduate opportunities for future faculty and selecting the fields of study that would fill gaps at the partner FOAs.
Two types of "sandwich" programs were designed:

1. Degrees granted by African universities. Nine participants were selected to spend one academic year in the United States (2 semesters, or 3 quarters – roughly 9-12 months) for coursework and to learn about research methodology and resources. They then were to return to their home institutions to conduct research and eventually receive their Masters or PhD degrees from those institutions.
2. Degrees granted by U.S. universities. Three participants received financial support and admission to OSU where they were to complete coursework, return home to conduct their research and complete their program to receive an OSU degree.

Both sandwich programs required U.S. coursework with fieldwork and the writing of a thesis or dissertation in Africa. For the latter, they were given a seed grant of $7,500 to help defray costs of research and to make up for not taking on a teaching load once back home after completing the U.S. coursework. Participants had dual mentors overseeing their program – one at the U.S. university and the other at the African university. The U.S. mentors traveled to Africa to visit the participants and to assist in meeting other objectives of the HEPAD project, such as faculty development.

What worked?

- U.S. universities implementing the program worked as partners with counterpart African institutions so that "ownership" of the program was localized as much as possible.
- A regional committee was established at the outset, with representatives from partner FOAs, to select the graduate degree candidates.
- Participants selected for degree training were or became faculty members.
- While the original project specified Masters degrees only, the African FOA deans strongly recommended that adjustments be made to include PhDs to address performance gaps identified by RUFORUM and the FOAs.
- Twelve participants were selected and placed at MSU and OSU within 8 months of start-up, demonstrating the value of working within *existing* African structures rather than creating a new, U.S.-driven project in Africa.
- All 12 participants returned home on time to conduct their research.
- Some participants did manage to identify funding that enabled them to continue to the PhD, mobilization of financial resources being an objective of the HEPAD project.
- Of the twelve participants, 3 completed Masters degrees, 9 PhDs. Of the 12 participants, 2 were female, both of whom were in PhD programs.
- Eleven U.S. faculty members traveled to the partner institutions to meet with students and their mentors, conduct seminars, and build linkages.
- Internships were arranged with agribusinesses in country for participants, which addressed one of the project's objectives above.

What could have been improved?

- More flexibility in the length of the U.S. stay to account better for cultural adjustment, student differences, and to enable participants to acquire solid research skills. (It should be noted, how-

ever, that the project's implementing organizations were bound to comply with the 12-month HEPAD design limitation.)

- The HEPAD project was initially designed, due to its short duration (33 months), to be for Masters degrees only; future program designs should reflect African institutional capacity and performance needs rather than cost or other constraints. Fortunately the program implementers overcame this constraint with creative solutions.
- Pre-departure orientation needs to be better managed; interviews with returned participants gave examples of weaknesses with regard to preparing and paying for qualifying tests (TOEFL, GRE) and undergoing medical examinations.

How findings led to our Best Practices

- The project affirmed the importance for the U.S. university to work in partnership with African institutions in designing, administering, and monitoring LTT.
- The project insisted on Africa-based research collaboratively designed with strong input from African mentors, thereby avoiding the weakness in previous LTT programs where U.S. faculty would on occasion suggest a research topic without regard to the African institutional or national context.
- Most of the degrees were awarded by African institutions, with little if any resistance from students, an indicator of the evolution of capacity and reputation in some African agricultural universities.
- The performance gaps identified in African partner institutions, rather than the knowledge or skills needs of individuals, were addressed by accessing long-term degree training, which altered the selection criteria away from individual capacity development and merit.
- U.S. faculty traveled to the region, spending time at the partner institutions – a key element in effective capacity building and performance improvement.
- The participating U.S. institutions benefitted in many ways from increased interaction with African agricultural institutions and colleagues, and from the presence of highly-motivated African students (whose grade point averages were above 3.5).
- Limiting participants to 12 months in the U.S. achieved cost savings and tested a model that contributes to the assessment's finding that a U.S. stay in a graduate degree program is key to acquiring changed attitudes, learning new research techniques, and improving academic habits not replicable through distance learning or Africa degree programs designed jointly with U.S. universities without a U.S. stay; however, the HEPAD final report and the team's interviews with program participants underscore that 12 months in the United States was insufficient to obtain the minimum of benefits identified elsewhere (attitudinal, cultural, etc.).

(b) Linking Biotechnology/Bioengineering with Mali-based Agribusiness (Mali Project)

Project description

The overall objective of the Mali Project was to design a way to build capacity in a critical emerging technical field over a short period in a cost-effective way relying on a mix of residential (U.S.) and in-country (Mali) training.

From a number of university proposals USAID selected Montana State University in 2004 as the prime implementing organization, with support from the University of St. Thomas in Minnesota as a subcontractor, to manage this pilot effort. In Mali the two agriculture research and teaching institutions,

l'Institut d'Economie Rurale (IER) and l'Institut Polytechnique Rurale et Institut Formation de les Recherches Applique (IPR/IFRA), partnered with the U.S. universities.

The key development challenge identified in the proposal which the project's outputs would address were:

- The disconnect in teaching, research, and extension among the three agricultural institutions, with each one performing one or parts of these three functions;
- Weak collaboration between IER and IPR/IFRA due to physical separation between the institutions;
- "Insufficient" farmer-identified problems being solved by research in appropriate laboratory facilities closely linked to field production; and
- A lack of rapid, widespread dissemination of farmer-generated information.

The following objectives were then developed to address the constraints identified above:

- Provide a model for LTT that addresses the design constraints identified by BIFAD;
- Test a model for graduate-level training in the United States and in Mali that offers the promise of employment in a stimulating work environment;
- Facilitate integration of modern agricultural knowledge/methods, without altering Malian traditional cultural practices; and
- Build a sustainable, and therefore continually adapting, up-to-date, integrated agricultural research, education, and extension project in Mali.

To achieve these objectives within a three-year period, the implementing organizations selected seven Malians for degree training in a "sandwich" project with coursework in the United States and field research in Mali.

What worked?

- Of the seven selected for degree training, two completed their Masters degrees with project funding (according to the 2007 Final Report) and five received certificates, of which four were in English as a Second Language and one in Business Communications.
- Malians trained in the United States in the Masters programs increased their knowledge of new agricultural research, holistic and participatory practices, and "critical path planning."
- In-country workshops updated or introduced a wider group of Malians to new research techniques and biotech subjects.
- The business incubator concept was introduced and begun at IPR.
- Computer Assisted Design was introduced to the partner institutions.
- Specific improvements were made by Malians trained by the project in a number of focus crops identified by the project (potatoes, shea butter marketing).
- Students and professors in the United States were positively affected by their increased interaction with Mali and Malians during the project in their regular visits to the Malian community in which the various interventions were implemented.

What could have been improved?

- Selection of Francophone participants for U.S. training should be based on a number of criteria *other than* their level of English fluency.

- It was not in the purview of this study to assess the project's non-training activities, of which this project had the largest number.

Investments by USAID in institutional strengthening using long-term U.S. training need to be based on selecting the best students in terms of their academic qualifications, leadership qualities, potential for effecting change once returned, and personal commitment to harnessing agriculture to improve people's lives. For 40 years USAID funded intensive English-language training in the United States and Africa for participants from countries not using English as the language of instruction. The costs, methods and time needed to upgrade a participant to an acceptable level of English are well-known and must be factored into all LTT programs for non-English speaking Africans. Historically, a candidate holding an advanced degree from a Francophone or Lusophone university can be brought up to an English fluency level required by U.S. universities in four to six months of intensive English, which can be arranged in a cost-effective manner using institutions in Anglophone Africa and the United States. When a candidate already has an advanced level of English competency, this alone is an insufficient indicator of a student's ability to manage the technical and cultural challenges upon arrival on a U.S. university campus.

- The project design and activities completed should have been more closely linked to achieving the desired results.

The team's review of the stated objectives, the design and the activities completed concluded that the tools used to build institutional capacity did not correlate to the change targeted. Could training seven Malians at U.S. universities, even if all seven had received Masters degrees in agricultural sciences, have a direct effect, for example, in resolving the deep divisions between IER and IPR? Would in-country workshops transferring technical agriculture knowledge ("biotechnology") contribute to the results anticipated, or merely transfer new skills? A comprehensive *organizational change* approach using training, retreats, overseas observational travel for decision makers, and medium-term technical assistance would be the logical intervention package to bring about more coordinated research and teaching in Mali by the two institutions. Transferring technical knowledge does not resolve organizational constraints. Moreover, the project objectives were far too ambitious ("build a sustainable…up-to-date, integrated agricultural research, education, and extension project in Mali") for a small project stretched over three years, attempting also to introduce biotechnology to Mali.

- Strengthening African institutions requires complete sharing of project design, implementation and monitoring with stakeholders, which was not evident.

This observation derived from discussions with Malian counterparts, review of project details, and comments from USAID staff. It was clear that the project failed to empower stakeholders to be involved in all aspects of execution, even if they had not been sufficiently part of the design of the activity. Key people at the two Malian partner institutions felt they had not been adequately consulted or involved in key decisions regarding location of field work, choice of focus activities, or monitoring of participant progress. Without local participation, results are unlikely to be sustained beyond the project's life.

- More innovative approaches to long-term U.S. training, as expected in the BIFAD pilot projects, might have been attempted; instead, the participant training component, although using the sandwich approach, did not produce or test any new element.
- Fields of study for Malian participants could have been better linked to project objectives.

Of the seven Malians listed in the final report, two received Masters degrees in agriculture-related fields, four received English-language certificates and one a Business Communications certificate. The project did not produce the seven Masters degrees anticipated in agricultural sciences over the life of project (three years). The reasons given were the English levels of the most likely candidates for selection were poor, forcing the project to select those with higher English levels who could be quickly elevated

through intensive language training at Montana State University (see first bullet). Cost and time entered as a major factor in these decisions; the cost for bringing a qualified non-English speaking African university graduate to an acceptable TOEFL level is four to six months of intensive language training. The project might have tested an innovative approach of funding intensive English training at low cost in Africa (Accra or Dakar, where such schools exist) with two months of in-depth training in the United States.

- Project interventions could have been more focused to achieve results.

Project interventions ranged from highly-technical agriculture subjects and techniques transferred to Malians (potato seed improvements), promoting solar cookers, increasing the capacity of women to export shea butter to Montana, to testing a type of evaporative cooler. The link between managing these inputs, as impressive as they might appear, and the results anticipated in the RFP or in the implementing partner's stated objectives, is not evident.

- Harnessing additional project funding for additional visits by U.S. participants and professors is noteworthy but not evidence of attainment of objectives or results.

That the project managers were able to leverage additional funds from Montana sources and other U.S. Government agencies is to be noted but is not in any way an indication of a "successful" activity in development terms.

How findings led to our Best Practices

- There must be *real participation by African counterpart institutions* in all aspects of the activity, from design to follow-on, in order for results to take root; formal collaboration between U.S. and African institutions by itself does not lead to sustainable capacity building.
- Selection of participants must be based on the role they can play in fostering change upon their return, their leadership potential, and other criteria *other than* their knowledge of English or familiarity with Western culture.
- Selection of the field of study needs to be closely linked to the *result anticipated.* For example, although English fluency is critical in francophone Africa for agricultural sciences to advance, and always cited as a major benefit from U.S. training, it should not the principal result of training intended to be in the agricultural sciences. The knowledge, skills and attitude changes sought by investing in degree training in the United States should be correlated to the project's objectives: in this case, stimulating major organizational changes among three agricultural institutions in Mali. In cases where English Language Training (ELT) is a legitimate objective, for example for a French-trained Malian whose effectiveness is hampered by lack of English, it can be obtained through intensive language training in-country or in Africa, followed by brief U.S. stays focused on agricultural subjects where increasing English competency is a by-product.
- Arranging for American university students to work or serve in Africa, while an admirable and valuable initiative, should not be a component – whether USAID-funded or not, in a project aiming to build the capacity and improve performance at African agricultural institutions.

(c) USAID Initiative for Long-term Training and Capacity Building (UILTCB) Program

Project description

Michigan State University has implemented the UILTCB program for Zambia, Ghana, and Malawi under the auspices of the USAID/EGAT Office of Agriculture and the USAID Missions in Ghana, Zambia, and

Malawi. The program seeks to build capacity of Zambian, Ghanaian, and Malawian public and private institutions to contribute to agricultural and natural resource development by providing Masters degrees and short-term training opportunities to their staff members. Michigan State University, the central coordinating institution for placement and monitoring of UILTCB participants, arranged placement at a number of U.S. participating universities, including Kansas State University, Louisiana State University, Michigan State University, Ohio State University, Purdue University, Texas A&M University, Texas Tech University, University of Illinois, University of Minnesota, and Virginia Polytechnic Institute and State University.

Objectives of the program are to:

- Identify cost-effective ways to implement long-term training and reduce the time participants spend away from their home institutions;
- Leverage additional funding through public and private organizations;
- Incorporate long-term training as a development tool in country strategic plans;
- Re-integrate participants to productive work in their home countries;
- Build on host-country and regional capacity;
- Fill the gap in trained scientists and faculty at national agriculture research centers and universities due to retirement, HIV/AIDS, and other factors; and
- Strengthen linkages between U.S. agricultural universities and developing country research and training institutions.

What worked?

- Of the seventeen original participants from Zambia and Ghana, fourteen have completed their Masters degree. (One participant passed away during the training program.) Two of the Malawians from phase two (total six participants) have finished their degrees, and the other four are set to finish in summer 2010. The six participants who enrolled in phase three are still in their degree program, in addition to six more participants starting in fall 2010. With two exceptions, one from Ghana and the other from Zambia, U.S. university partners matched appropriately the academic needs of participants with their placement in academic programs.
- The effective implementation of the program in Zambia and Ghana played a role in inducing the USAID Mission in Malawi to participate, which furthered the re-engagement of USAID Missions in long-term training.
- Training resulted in positive impact on participants in non-academic ways, such as in increased self confidence, improved presentation skills, enhanced analytical abilities, improved work ethic, and better professional networking.
- Institutional impacts included establishing new relationships with U.S. universities and strengthening existing relationships; most participants reported that improved teaching and evaluation skills increased student participation in their courses.
- Participants obtained Masters degrees with less disruption at their institutions than had the program sponsored PhD degrees with significantly longer absences from their home countries.
- Participants were targeted for Masters degrees because of their management responsibilities at government ministries or agricultural research institutions. Where capacity improvements in teaching and advanced research were required, African agricultural officials considered the Masters degree inappropriate and insufficient, except as a step toward obtaining a doctorate.

What could have been improved?

- More flexibility in program decisions; for example, participants had to abide by the one-year maximum U.S. stay condition of this program, whereas in some cases an extra semester would have been appropriate for some due to their special circumstances.
- Better preparation for standardized tests (TOEFL and GRE) would have greatly aided the participants prior to taking the tests. Several participants had to take the tests multiple times to meet the U.S. university requirements. Not only were they not offered preparatory courses, they also had insufficient time before the test to prepare adequately.
- More funding for home country research during their U.S. program, in particular for female participants.
- Avoidance of generalized advertising (especially in local newspapers) to recruit participants, which reverts to the "Best and Brightest" programs that selected students according to their capacity and merit rather than targeting institutions for specific capacity improvement.
- More collaboration between U.S. and African institutions prior to selecting a participant. The program focused on selecting the "best" U.S. university, from among the UILTCB partners, but did not build on established networks of institutional linkages in the countries targeted, an approach that failed to leverage existing linkages, a core HICD principle.

How findings led to our Best Practices

- One year of coursework in the U.S. was insufficient to ensure that non-academic skills and attitudes highlighted elsewhere in this study can be ensured, even though most participants successfully completed their degrees and dissertations.
- Accessing non-USAID funding put pressure on the African participants to adjust their research topics to meet the grant conditions or perhaps even to support the advisor's specific research interests (which may not respond to the needs of the African institution).
- Some returned from their degrees without jobs or displaced from the jobs they held when they left, and put into positions where they could not use the skills acquired in the United States.
- Pursuit of a non-thesis option is limiting in terms of the ability of the returnee to have a lasting impact on capacity at his institution.

(d) Strengthening Agricultural and Environmental Capacity through Distance Education – (SAEC-DE)

Project description

The University of Nairobi in Kenya (Nairobi) and Makerere University in Uganda (Makerere) partnered with the University of Florida (UF) and CIAT to start a distance education project offering Masters degrees, which was launched in January 2006. The pilot project provided a post-graduate training opportunity to candidates in the East Africa countries to obtain a Masters degree at UF without leaving their home countries. Two departments in the College of Agriculture and Life Sciences offered an online degree option. The technology used was basic – placing a camera and microphone in a classroom to broadcast the course live over the Internet. It was hoped that similar distance education programs at Nairobi and Makerere would be developed.

After a one semester testing phase using guest students in fall 2005, four candidates were recruited, two each from Nairobi and Makerere, for Environmental Soil Science or Agricultural Entomology starting spring 2006. The main mode of content delivery was electronic. The participants carried out locally

relevant research under joint supervision of the professors at UF and either Nairobi or Makerere. The hope was that collaboration on a distance program would offer a viable alternative by lowering education costs, increasing professional retention and not taking trainees out of their professional roles and away from their homes for extended periods.

The project required the participant to be employed, although not all were employed at the collaborating institution at the time of the research team's visits. The participants estimated that their coursework required about four additional hours a day. The project provided no stipend and the local employer had to assess whether the time spent studying and attending class correlated with their job descriptions. The distance education was offered free of tuition and fees.

The registered participants freely accessed materials online. Other relevant material could be procured locally or sent in digital form (CDs, DVDs) to the participants by courier from UF. Assignments were sent to the participants electronically and the participants submitted their work online. Each of the participants was assigned three academic advisors. The major advisor was from UF, one from the host university, and the third from a CGIAR center in the host country. All the three advisors provided guidance on their thesis projects to ensure that the research met academic requirements and was relevant. During the research phase of the project, each student was expected to work closely with the two local advisors to develop a research proposal on a locally relevant topic in line with the host CGIAR's mandate. Participants, faculty, and scientists were required to report on their distance education experience at the end of each semester.

One student in each country completed the degree by the end of 2009, a third student was dropped from the project due to poor grades, and a fourth was making her way toward completion in fall 2010.

What worked?

- Participants could complete their degrees when all the arrangements in the home country worked (e.g., Internet access via a CGIAR facility at hours that fit the U.S. program, sufficient laboratory oversight from a mentor).
- Prestige to obtain a U.S. degree without the cost of travel and time away from family and/or work motivated participants to overcome significant obstacles.
- Obtaining a degree without long absences from home could enable women professionals who would not be able to undertake a resident U.S. degree program to move ahead in their careers. (This is especially relevant for women with young children.)

What could have been improved?

- Pursuing a laboratory-based, research-intensive Masters degree entirely by distance was difficult and did not yield practical solutions that could lead to improvements.
- Professors at Makerere and Nairobi agreed that much of the UF course content was available in their own programs.

Major challenges reported by the two African universities were:

- Limited band width and unreliable Internet connectivity.
- Power outages.
- Inadequate exposure to practical, less theoretical aspects of a graduate program.
- Time zone differences between East Africa and UF prevented real time interactions for seminar sessions and little willingness to use techniques for asynchronous interaction.

- Familiarity with electronic material and degree requirements by students and faculty at all institutions.

The synchronous nature of many of the offerings, requiring a single student to be in an isolated location at an inconvenient time of night or early morning, made it difficult for all enrolled to perform up to the standard required. Since even in the best of circumstances connectivity was intermittent, participants had little opportunity to engage in class discussion and give presentations and work on group projects, three of the aspects other students trained in the United States found of greatest worth.

In addition to overcoming the technological difficulties in course delivery, other critical issues needed to be addressed. The valuable mentoring relationship between a major professor and a participant, and experiencing the teaching and research environment at a U.S. university, are key ingredients of an effective training program, yet difficult to achieve remotely without well-planned pedagogy and "distance-sensitive" management by the home and U.S. institutions. The Masters degree program solely administered by distance education cannot substitute for other program models reviewed in this report that include a U.S. experience, even if for only a few months. Distance education elements may, however, be incorporated into the student's program to minimize the residency in the United States. There should also be the opportunity to take similar courses at the host or another African institution.

Carefully prepared distance courses, generally delivered on an asynchronous platform, that includes lectures and virtual discussion, can offer a viable alternative. Pedagogy is as important as content. For the SAEC-DE project, participants had to design a practicum themselves and had no opportunity to exchange ideas and be exposed to proposals from other students. No networks with other students were formed, and it appeared that few UF faculty developed mentoring relationships with their African distance students.

Some of the students and professors at the African institutions felt there was a stigma to online learning in that students could not fully participate in the class. Although the two graduates received degrees from UF, they were not convinced the U.S. degree obtained online was superior to a similar degree obtained in person from an African institution.

How findings led to our Best Practices

These principles of the SAEC-DE project contributed to Best Practices:

- Well-designed distance courses, originating in African or U.S. institutions and including a U.S. project however brief, are an important part of a capacity building effort.
- The research requirement for the degree is a priority component for the African institution and the CGIAR center.
- Participants are not away for extended periods from their institutional setting.
- Committees that include professors or researchers from a CGIAR center, African institutions, and U.S. counterpart universities significantly enhance capacity development efforts.

The attempt to make available wide-ranging Masters degrees by streaming video from U.S. graduate classes did not provide students a vibrant learning environment among peers and professors, leaving few opportunities for questions, discussion, and presentations. While the UF course content met internal standards for resident students, the pedagogy was only slightly adapted for the distance learner in Africa. Other universities with online international graduate programs in such topics as Seed Technology and Business, and general agronomy aimed at practitioners, have invested substantial university resources to create new courses to meet the needs of students in developing countries. Programs such as these

prepare students for a management role in agricultural institutions, as well as equip them with practical techniques to reach a variety of farmers.

If there is to be continuing investment in distance programs, attention should be paid to the pedagogy, including the ability and willingness of the instructors to present quality content in an appropriate way, using time-appropriate asynchronous learning and interactions. There is value-added for students to obtain a joint degree from an African and a U.S. university through distance education, particularly where the chosen major includes lab courses. But in these cases, assuring high speed, reliable connectivity is critical, as well as providing a way to include hands-on interaction in lab situations for students.

(e) Borlaug Leadership Enhancement in Agriculture Program (LEAP)

Project description

The Borlaug LEAP is a USAID-funded fellowship program designed to enhance the quality of thesis research of graduate degree students from developing countries who show promise as leaders in agriculture and related disciplines. The program does not sponsor the full course of study for an advanced degree, but rather assists in the dissertation research phase. The fellowship engages mentors from a CGIAR center and a U.S. university to provide academic advice to the participant during research. The maximum length of the fellowship is twelve months.

The objectives of the program are to:

- Train young scientists to address current and emerging technology issues;
- Target topics relevant to development priorities in USAID-assisted countries;
- Help strengthen national agricultural research centers and universities to develop future young scientists;
- Enable students from developing countries to access the vast knowledge and expertise of the U.S. university community and the CGIAR;
- Increase the linkages between U.S. universities and CGIAR centers to better address problems of international development; and
- Support development in developing countries thereby reducing food insecurity that forms a basis for instability and insecurity.

What worked?

- The program provided bridge funding to enable participants to complete research and/or writing. It was an additional financial resource for participants faced with piecing together funding for their degree programs. In some cases the grant was instrumental in ensuring the completion of the participant's degree program.
- The idea of choosing awardees based not only on academic and scientific merit but also on leadership potential was a worthwhile requirement as it helped increase the likelihood for institutional capacity building impact from graduate training.
- Engaging mentors from a CGIAR center and a university provides diverse sources of support for the new researcher and sets the stage for long-term collaborative networks.
- Of the 24 Borlaug recipients surveyed:
    - 13 have completed their fellowships and 11 are still in the program.
    - 80 percent received or were working on degrees from a U.S. university while 20 percent were from an African university.

- In terms of communication with their mentors, 92 percent were "very satisfied" with their U.S. mentors and 70 percent with their CGIAR mentors during the program. After the end of the program, these numbers dropped to 46 percent and 33 percent, respectively.
- In terms of communication with their home country institutions, 46 percent were "very satisfied" during the program, as opposed to only 25 percent after the program.

The survey data presented above measured the perceptions of Borlaug LEAP fellows on several key aspects, such as communication with advisors at partner institutions. There was no survey of non-Borlaug participants in a control group. Since this program is new and ongoing, it was too early to measure any post-program impact, or to determine whether leadership as a criterion for participant selection resulted in any value-added at the participants' institutions.

What could have been improved?

- Stronger relations with CGIAR mentors during the program would enhance the CGIAR component and improve networking after the program.
- Stronger relations with home country institutions during the program would enhance the institution-building dimension by improving the coordination of research and institutional needs.

How findings led to our Best Practices

- The ability of Borlaug LEAP to address a single component of a graduate program – the need to enhance support for research independent of the primary source of funding – is an example of the desirability of designing diverse support mechanisms.
- Supporting participants to make time and resources available to write up research findings – the most important hurdle facing students - at the institution of one of the mentors is a cost-effective investment.
- Additional sources of support can be made available to the most promising students and researchers.
- Involving mentors from different institutions and with multiple perspectives can contribute to better-rounded graduates.
- The selection requirement of demonstrated leadership potential strengthens the graduates' post-program role as change agents working to improve their home institutions' performance and management.
- As with the other programs assessed, participant employment at an African institution is critical to developing institutional capacity and improving performance.

(f) Collaborative Research Support Programs (CRSPs)

Project description

Capacity building is an essential part of the mandate of Title XII of the Foreign Assistance Act, passed in 1961 and revised in 1975 to specifically add the CRSP. Degree and non-degree training are integral parts of CRSP-supported collaborative projects - both in the United States and African universities as well as in the field. "The CRSPs empower host country institutions to address recognized needs and constraints though the creation of new technologies and knowledge while concurrently developing human resource capacity and competencies in strategic areas of agriculture and natural resource sciences, thus leading to institutional self-reliance and sustainability" (Widders and Maredia, 2007). Over time,

the plurality of those trained by the CRSPs have received Masters degrees, followed by PhD and BS degrees, depending on the need of the collaborating African institution and the research project.

CRSP activities involve over 60 U.S. universities and approximately 200 agricultural research institutions throughout the world. Because of the nature of the U.S. institutions and the fact that the research is oriented to small farmers, the training programs integrate research and outreach, with a focus on finding solutions to private and public sector problems. They work with agribusiness, government-supported research facilities, International Agriculture Research Centers (IARCs), and foundations through long-term institutional collaboration. The major professors and departments at U.S. universities have been entrepreneurial in mobilizing other sources of funding to complement USAID resources, particularly given the limit to the proportion of funds that can be spent by U.S. institutions. Theses and dissertations address constraints and applied problems in the trainees' home countries. After formal training, the CRSPs continue to support the inclusion of former CRSP participants in professional meetings and networks.

The research focus of the CRSPs has evolved over time in response to USAID-identified priorities. A trend common to nearly all CRSPs has been increasing involvement with small farmers in the research and going beyond production to analyze value chains. This shift, in turn, is reflected in the type of training that the CRSPs support, more and more of which is offered in the regions where the research takes place.

What worked?

- Long-term participation in CRSP research prior to, during, and after formal degree training greatly strengthened the capacity of the individual and the African host institutions. Continuing networking not only by participants but also by their colleagues, broadened and sustained the capacity building beyond the degree experience.
- Research on problems drawing from African experience and applying the research led to theses and dissertations relevant to African institutions and contexts. While work in U.S. labs helped the trainees gain expertise, learning how to carry out research in the conditions back home increased institutional flexibility and creativity.
- Long-term institutional commitment on the part of U.S. institutions is critical for institutional capacity building in Africa; moreover, when CRSP managers establish strong working relations with a local USAID Mission, institutional capacity can be further enhanced in multiple ways.

What could have been improved?

- Support for joint- or dual-degree programs and better use of sandwich programs.
- More multidisciplinary training programs in order to build capacity for holistic approaches to agriculture and development which the CRSPs are implementing.
- Adding internships with agribusinesses and participation in university outreach programs in the United States would further build participant capacity to institute change once returned.
- U.S. researchers could offer more co-designed short courses in African research institutions and universities with their research partners.
- USAID/Washington could foster improved communication between USAID Missions and CRSP activities in their countries. With the current requirement that all CRSP sub-projects involve at least two countries, attention to Mission linkages is even more complex.

How findings led to our Best Practices

- Training builds institutional capacity most effectively when the participants retain close contact with the home institution.
- Training builds institutional capacity most effectively when sufficient collaboration supports post-doctoral research within the home country and where participants become co-Principle Investigators on grant proposals.
- Long-term institutional relationships between U.S. agricultural research institutions and African institutions are key to building institutional capacity that can lead to sustainable performance improvement.
- Support for participants to attend international meetings can strengthen impact at the institutional level.
- Research for Masters theses and PhD dissertations should be jointly designed by the participant, a host country mentor, and a U.S. mentor, whether the degree is from a U.S. or African institution.

(g) Participant Self-appraisal of Impact on Professional Behavior and Attitude

The survey administered to participants from four of the six programs described above also queried whether their training had any impact on professional behavior, shown in Table 3.

Table 3. Program Impact: Professional Behavior and Attitude

My professional behavior and attitude changed as a result of the program.		Yes	No
HEPAD East Africa	Count	8	1
	%	*88.9*	*11.1*
UILTCB	Count	15	4
	%	*78.9*	*21.1*
SAEC-DE (Univ of Fla)	Count	0	2
	%	*0*	*100.0*
CRSP	Count	20	5
	%	*80.0*	*20.0*
USAID AFGRAD	Count	4	1
	%	*80.0*	*20.0*
Other USAID Program	Count	20	3
	%	*87.0*	*13.0*
Other Non-USAID Program	Count	7	1
	%	*87.5*	*12.5*
Total	Count	74	17
	%	*81.3*	*18.7*
N=91			

The data suggest that the programs had a significant effect on the way participants approached their work, supporting the view that studying for a graduate degree at a U.S. institution resulted in key *non-academic* attitude changes on the part of participants. This finding was buttressed by anecdotal data on professional behavior gathered through interviews and focus groups. Participants repeatedly commented on how their approach to their discipline and research changed fundamentally due to their experience in a U.S. academic environment.

###

The analysis of advantages and disadvantages of various models and features presented above forms the basis for an understanding of the key features that USAID can include in future long-term degree training program designs. It answers the question "What worked and what could be improved" in terms of a variety of factors, from cost to content and impact. The next section summarizes the major features of long-term U.S. degree programs that, based on the data and programs reviewed, can be expected to lead to sustainable institutional capacity strengthening and performance improvements.

3. Major Features Leading to Institutional Capacity Building

This study is designed to consider the features of U.S. long-term training programs that best address the performance improvement and capacity-development needs of African agricultural institutions. It is with that lens that the following observations were drawn from the projects considered. They are presented below sequentially according to the administrative process used to manage U.S. degree programs.

(a) Selection of Target Organization

A key responsibility of USAID Missions is to select the institutions in-country that will receive HICD interventions and, when appropriate, training grants for their staff. In agriculture in Africa, organizations generally are separated by *research, teaching,* and *extension*. The segmented nature of agricultural sciences in Africa is widely lamented by U.S. experts and increasingly recognized by African experts as a major impediment to agricultural advances. However, in all the countries visited, none had completed the reorganizations needed to bridge the gap, especially between research and teaching, although a few were well under way. (An example of that integration is in Kenya, where the major agricultural universities are being integrated into KARI, the Kenyan Agriculture Research Institute, with the researchers offering classes and the professors partnering in research.) The continued institutional stovepiping leaves the Missions often with little choice in terms of target institutions in which to invest to build capacity – either the university's Faculty of Agriculture (occasionally there are several but often only one) or the National Agricultural Research Station (NARS). Extension services, which might be managed by a government Ministry (not always the agriculture Ministry), a university, or a NARS, are more challenging to identify as a focus of USAID capacity building for many reasons.

An organization that has the following features will provide the setting within which institutional capacity that leads to performance change can be built:

- A strategic plan with vision, mission, and objectives;
- Leadership that understands maximizing human resources;
- Some degree of financial stability and transparency;
- An unwavering commitment to use the talents of employees sent to the United States for training upon their return in the area in which they have been trained;
- Activities that contribute to USAID's strategic objectives;
- Outreach to improve the well-being of those outside the walls of the organization with limited resources and opportunities;
- An awareness of the importance of gender in agricultural research and policy; and
- Support of women scientists within the institution.

Careful matching of the degree training proposed to institutional need, and to participant capacity (including the employee's career path development), are critical factors in building capacity and improving performance. Four of the six programs reviewed that funded long-term training are shown in Table 4, which shows the different types of institutions targeted by program, according to survey respondent. The HEPAD East Africa project focused on participants from universi-

ties, the UILTCB program on government employees and other non-academic institutions, and the CRSP on agricultural research institutions (the four UF distance program participants were all from universities).

Table 4. Participating Institutions by Program Type

Which of the following best describes the kind of organization you worked for or owned?

Name of Program		University	ARI	Other Academic Institution	Govt. or Parastatal	NGO Non-profit	NGO For-profit	IDO	Total
HEPAD East Africa	Count	9	0	0	0	0	0	0	9
	%	*40.91*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*14.06*
UILTCB	Count	5	2	0	10	4	1	1	23
	%	*22.73*	*9.52*	*0.00*	*83.33*	*80.00*	*100.00*	*50.00*	*35.94*
SAEC-DE (Univ of Fla)	Count	1	0	0	0	1	0	0	2
	%	*4.55*	*0.00*	*0.00*	*0.00*	*20.00*	*0.00*	*0.00*	*3.13*
CRSP	Count	7	19	1	2	0	0	1	30
	%	*31.82*	*90.48*	*100.00*	*16.67*	*0.00*	*0.00*	*50.00*	*46.88*
Total	Count	22	21	1	12	5	1	2	64
	%	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

N=91, ARI: Agricultural research institute, IDO: International development organization

(b) Selection of Participants

Traditionally, USAID requirements for LTT selection have been standard ones which, while necessary, are insufficient indicators that the participant's training will lead to performance changes at the sending institution. Participants should be …

- academically eligible for placement in a U.S. university;
- willing to sign a commitment to return to their home institution;
- willing to put up a bond to return to their home country, if required;
- in good health;
- nominated by the home institution's leaders who sign a commitment to fulfill certain obligations (e.g., continued salary payments for family support);
- within the age range the country's rules allow for overseas degree training;
- willing to travel to the United States without family; and
- agree to return after obtaining the first degree for which funding is provided, not to seek funding (regardless of the source) for a subsequent degree, and otherwise comply with the J-1 visa requirements.

A key challenge in building institutional capacity is identifying the candidates for long-term training who will return to become instruments through which performance at the target organization improves. Results from interviews, focus groups, and questionnaires revealed the following critical characteristics, over and above those listed above, that USAID's implementing organizations and local partner institutions should seek in order to increase the likelihood of transferring sustainable performance improvements to the sending institution.

Participants should …

- be employed and well-viewed by the African institution;
- have worked in-country for three to five years;

- have obtained an undergraduate (or in some cases an advanced) degree;
- have a clear research area in mind they can propose for further study;
- be able to articulate how their advanced training will result in improved *organizational performance by redressing institutional gaps;*
- agree to conduct research primarily in Africa on topics pertinent to national agricultural advancement;
- demonstrate leadership achievements or potential;
- have endorsement and commitment from superiors on reintegration into the work place; and
- present a plan on how they will share with their colleagues the experience of obtaining an advanced degree.

Interviews with returned participants from the six programs assessed showed that the above characteristics were *key elements* to achieving lasting impact from training. The survey data also demonstrated the link between selection criteria and perceived impact.

(c) Development of Research Topic and Field Work

Table 5 below suggests that **conducting research in the home country – regardless of the locus of the degree delivery – appears to be the principal factor in obtaining a larger impact on research and work from the training investment**.

Table 5. Effect of Program Type on Field Work/Research

Did the way you approach your fieldwork / research change as a result of your Program?

Program Type		Yes	No	TOTAL
Degree Program in U.S.; Research in U.S.	*Count*	32	13	45
	%	*71.1%*	*28.9%*	*100.0%*
Degree Program in U.S.; Research in Home Country	*Count*	27	6	33
	%	*81.8%*	*18.2%*	*100.0%*
Degree Program in Home Country; Research in U.S./Home Country	*Count*	11	1	12
	%	*91.7%*	*8.3%*	*100.0%*
TOTAL	*Count*	70	20	90
	%	*77.8%*	*22.2%*	*100.0%*

N=90

No significant difference by program name and program type appeared with regards to participants returning to their home institution. Approximately 85 percent of those responding returned to the same institution. However, those obtaining degrees from their home country were less likely to return after their degree, perhaps due to their not being employed prior to beginning the program (although the data is inconclusive because of the small number of respondents).

While 87 percent of those responding to the survey reported a change in their professional behavior or attitude after returning to their home institution, all of those with study in the United States *and* in their own country with an African degree reported such a change, attesting to the added benefit of sandwich programs.

While most found that their study was relevant to their country needs, the result was substantially lower for the distance education participants (although the number of respondents was only two).

Table 6 delineates program satisfaction by program type (the lower the number, the higher the satisfaction). Of the programs considered, participants from the CRSPs had substantially higher satisfaction levels than the other pilot programs (the top 4). The data suggest that **a key factor in participant "satisfaction" (with design, content, research, management, and relevance) could be the way in which research, not course content, is implemented**. Eliminating the Florida distance program since there were only two respondents, and the Mali Project, and comparing the remaining three programs surveyed with this questionnaire (HEPAD East Africa, UILTCB, and CRSP), reveals that the largest variations in satisfaction occurred in the column concerning research, after "program management," which deals with internal administrative concerns rather than content.

Table 6. Program Satisfaction

Name of Program		Satisfaction: Program Design*	Satisfaction: Program Content Courses	Satisfaction: Program Content Research	Satisfaction: Program Management	Satisfaction: Program Relevance
HEPAD East Africa	Mean	2.22	1.44	2.00	2.22	1.33
	Std. Deviation	*0.97*	*0.73*	*1.12*	*1.09*	*0.50*
UILTCB	Mean	1.86	1.39	1.52	2.32	1.39
	Std. Deviation	*0.83*	*0.58*	*0.60*	*0.99*	*0.58*
SAEC/Distance Education (U of Fla)	Mean	1.50	1.00	1.50	2.50	1.00
	Std. Deviation	*0.71*	*0.00*	*0.71*	*0.71*	*0.00*
CRSP	Mean	1.30	1.45	1.30	1.79	1.28
	Std. Deviation	*0.47*	*0.63*	*0.47*	*1.01*	*0.53*
Total	Mean	1.65	1.41	1.48	2.06	1.32
	Std. Deviation	*0.78*	*0.61*	*0.67*	*1.02*	*0.53*

* *Statistically significant at p<.01*
N=101

The way research is designed into a LTT program emerges as a key factor in designing programs that participants consider satisfactory. Since a powerful link exists between program satisfaction (Level One of Kirkpatrick's Training Evaluation Hierarchy) and the likelihood of participants producing impact from the training they received (Level Four), future program designs would do well to carefully structure the research component of long-term U.S. training, in particular **ensuring that the research is linked to *both* the African institution's needs as well as the needs of the agricultural sector.**

Table 7 underlines the importance of participant involvement in the selection of the research topics.

Table 7. Program Selection

How did you choose your course of study, major, and degree objective?		I identified them myself	My employer and I worked together	USAID and I selected them together	The U.S. university selected them	Other
Degree Program in U.S.; Research in U.S.	*Count*	15	20	10	3	3
	%	*29.4*	*39.2*	*19.6*	*5.9*	*5.9*
Degree Program in U.S.; Research in Home Country	*Count*	9	14	6	8	1
	%	*23.7*	*36.8*	*15.8*	*21.1*	*2.6*
Degree Program in Home Country; Research in U.S./Home Country	*Count*	2	6	2	1	1
	%	*16.7*	*50.0*	*16.7*	*8.3*	*8.3*
Total	*Count*	26	40	18	12	5
	%	*25.7*	*39.6*	*17.8*	*11.9*	*5.0*

N=101

The desired research topic selection method is column two ("my employer and I worked together…"), where the program with the highest number (50%) was, not surprisingly, the degree program where the home country institution is closely involved in ensuring that research is *Africa-centered*. The differences between the other two program types (rows 1 and 2) and column two are statistically insignificant. Column one ("I identified them myself") is the least desirable research selection method and was most characterized by the degree program with research conducted in the United States (row 1). The data support the team's finding that **most respondents who conducted research in their home country selected their course of study in collaboration with their employer, whereas those who conducted their research in United States were likely to choose their research subjects themselves or with their U.S. advisor**.

(d) Identification of a U.S. Training Provider

Once the candidate is nominated for consideration, training managers can now begin to focus on *how* the training will be organized. This step is critical in ensuring that the candidate selected with a high probability of being a conduit for capacity building back home, does in fact return armed with the knowledge, skills and new attitudes needed to help transform the sending institution. Here the approach is straightforward: identifying the best possible candidate through an institutional gap analysis, careful screening, engaging the employing institution in all aspects of the selection process, and ensuring the most appropriate U.S. training program.

Interviews with U.S. managers of training programs and participants themselves revealed the importance of this step in securing the "impact chain" from the U.S. training to the home institution. Participants interviewed for this assessment, supplemented by reviews of other assessments, confirmed that in too many cases, the **selection of the U.S. university was not made with *capacity building and performance improvement* in mind**. More often placement managers, either at third-party placement contractors or at universities serving as prime contractors, would base their placement choices for a particular student on the following criteria:

- Likelihood of obtaining admission into the program;
- Placement at a university with a recognized program in participant's field;
- Existence of some sort of cost-sharing (tuition waiver, in-state tuition, assistantship, etc.); and
- Relationship between the placement manager and the university in question.

Interviews of the U.S.-based program managers (acting as "placement officers" or "program officers" as they are known in USAID's participant training lexicon) revealed cases where other key criteria that were central to transferring capacity building to Africa were overlooked. The team concluded that the **U.S. universities selected to provide long-term training for African agriculturalists must qualify according to the criteria highlighted in the following box**.

Selection Criteria for U.S. Universities

1. Strong commitment and ongoing programs in Africa in fields related to the student's pre-identified research area
2. Programs that are appropriate for the country in question and the African institution's capacity needs
3. Interested professors willing to play an active role in the student's training program, including agreeing to travel to the participant's country to work with the sending institution
4. Institutional capacity to continue a demonstrated interest in a particular research area of interest to the sending institution's country beyond that shown by a single professor
5. Links to African agricultural institutions, if not in the country in question, at least in other countries or through regional organizations
6. Recognized and respected international student support on campus to minimize cultural and personal obstacles to acquiring knowledge, skills, and new attitudes during the "U.S. experience"
7. Attention to gender and the special needs of women with young children

Interviews and data gathered showed that returned **participants who attended U.S. universities with exciting programs of direct relevance to their research, and to the sending institution, had far greater impact upon return** (Table 8).

Table 8. Program Satisfaction and Impact: Development of New Skills
U.S. Degree Program with U.S. Research

Satisfaction: Program Relevance		Program Impact: Development of New Skills			
		Very large	Large	Somewhat	Total
Very satisfied	Count	25	12	0	37
	%	*67.6*	*32.4*	*0.0*	*100.0*
Satisfied	Count	5	6	0	11
	%	*45.5*	*54.5*	*0.0*	*100.0*
Neutral	Count	1	1	1	3
	%	*33.3*	*33.3*	*33.3*	*100.0*
Total	Count	31	19	1	51
	%	*60.8*	*37.3*	*2.0*	*100.0*
N=51					

In order for new programs to help build capacity, the choice of a U.S. university must be made with that objective in mind. For instance, U.S.-based placement managers might be tempted to contact leading U.S. universities for admission of top-notch African candidates in the manner in which previous placements were often made: emphasizing universities offering tuition waivers rather than identifying the most appropriate program for the participant, or worse, selecting a university based on weather or the proximity to other participants from the same country. **In order for viable partnerships to develop in tandem with placing African participants at U.S. universities, the choice of the U.S. university must be rigorous and based on a realistic measure of that university's ongoing African programs and their commitment to support capacity building**.

(e) Designing the Program

Some of the specific design *features* that lead to sustainable capacity building and performance improvement that Missions can consider, based on the findings of this assessment, are:

- Participants returning home periodically throughout the program (generally, once upon completion of all degree-required coursework for research, with some cases requiring two trips home).
- Research topic linked to the African institution and strongly supported by the U.S. advisor.
- Student returning during summer breaks to conduct research and re-establish links with sending institution (which can be implemented at low cost due to non-payment of participant maintenance allowances during the period in-country).
- Email and telephone communication between U.S.-based student and home professors supported.
- Links between U.S. advisor and African institution part of the program design – supporting partnership between U.S. and African institutions.
- Leadership and management training integrated into U.S. training.

The USAID Mission will decide which of these design features to include in the final Scope of Work (SOW) based on the specific needs of each country. In cases where the Mission prefers to use an existing U.S. university or consortium already active locally, special attention should be paid to incorporating the features above *and* the placement recommendations elsewhere in this report (Ref: p. 44, *Principal Recommendations*). By integrating key design features into new programs, instances where U.S. universi-

ties charged with placement of African participants selected inappropriate U.S. universities, as the survey data indicated, or failed to take into account the sending institution's specific capacity building needs, can be avoided.

(f) Monitoring the Program

Monitoring is included among the requirements for the SOW described above. The features below help build partnerships and create a dynamic environment at the African institution where returned participants can make the desired changes that lead to performance improvement.

- African institutional representatives (a professor or vice-chancellor) visiting the United States would be encouraged to stop at the U.S. universities training their future professors and researchers.
- The U.S. university will be in regular contact with the African institution during the participant's training – through the student's advisor communicating with counterparts in Africa – in order to constantly tailor the student's program to the institution's needs.

The above activities, which can be implemented creatively at reasonable cost, help avoid the situation where the participant is "sent off" to training in the United States and re-emerges several years later, diploma in hand, with the sending institution unable, or unwilling, to integrate this valuable resource back into the home setting. The result is a loss of potential capacity building and less chance that any changes can be introduced that lead to performance improvement.

(g) Reintegration of the Participant and Follow-on

In addition to supporting dynamic communication between U.S. and African institutions, the SOW should pay special attention to the following:

- Go beyond "pre-departure preparation" and "debriefing upon return" by employing creative ways to prepare and re-integrate participants (workshops, establishing structured mentoring arrangements for participants, presentation of research results to a wide audience [agro-business, for instance]).
- "Preparing the way" – how U.S. training providers can play a major role in increasing impact of their new degree-holder by creating a package of resources the returned participant can access from the U.S. training provider (access to data through U.S. university portals, newsletters, membership in professional associations supported, etc.)
- Accessing seed grants for the returning researchers to compete for in order to continue their research program.

B. Selected Lessons Learned from Decades of Donor-funded Programs

Bilateral and multilateral donors as well as private industries have been sponsoring long-term training to build capacity for decades, much of which was provided from U.S. training providers, principally universities. Numerous evaluations have assessed the impact from these investments, producing valuable insights to consider for future programs. Although the assessment team was not charged with conducting a desk study of these programs, some information was collected tangentially that inspired the following list of Lessons Learned.

1. Length of Program and Behavior Change

An African agricultural scientist needs to spend an uninterrupted amount of time in the United States (at least 12 months) to benefit from the following changes. In programs that included such a stay, sponsored participants were shown in multiple evaluations to have changed in the following ways:

- Acquired the taste for hard, intellectually-stimulating work and a focus on obtaining results;
- Learned to ask questions, challenge professors, and discuss alternatives;
- Able to make cogent, logical presentations supported by evidence and express ideas with confidence; and
- Learned how to conceptualize and implement a well-designed research project.

Although the data collected for this assessment clearly supported the above findings, other evaluations, such as the ATLAS/AFGRAD impact assessment, also produced the same findings. The above behavioral changes were associated primarily with degree training in North America, where the academic learning environment differs significantly from that found in Europe or in Africa.

2. Most Effective Programs

- U.S. universities with a track record in Africa that built continuing institutional linkages with African counterpart institutions.
- Participants employed by an African research institution committed to food security where participants return to their positions.
- African agricultural researchers are part of the U.S. PhD committee, or, if the degree is granted from an African university, U.S. agricultural researchers are part of the dissertation committee.
- Maximum participant stay in the U.S. without returning home is 12 months.
    - Participants return to home country and institution to renew contacts and discuss dissertation project development after the first year of classes, accompanied for part of the time by their major professor, who advises other participants and gives seminars to research institutions and policy makers.
    - After the second year of classes, PhD participants return to home country to gather dissertation data.
    - Participants return to the U.S. university to analyze data and write their thesis or dissertation.
    - African and U.S. mentors participate in the dissertation defense.
- Mentors from both institutions continue to contribute to research proposals.
- "Click & Brick" programs, where participants benefit from a mixed delivery model. (Learning occurs through both online interactions – "click" – as well as physical face to face interactions – "brick".) An example could be where the African university provides the "brick" portion supplemented by an asynchronous distance learning opportunity ("click") offered by the U.S. partner university. Another possibility would be a program structured for participants to make two trips to the U.S. university at a point in their program where class work and research write up is needed, with selected courses taken in the home universities or at other African universities by distance.

In programs with long-term residency in the United States returning graduates found themselves detached from the professional and scientific networks that they had formed during graduate training. A modest "Young Researchers Fund" would enable the newly minted PhD to attend a professional/scientific meeting regularly and maintain those links. Given that the links are so important in terms of funding and attracting good research partners, donors would likely be interested in providing support.

3. Gender Considerations in Long-term Degree Training

Gender inclusion is critical and is increasingly recognized in many African countries.

- African agricultural production was historically dominated by female smallholder farmers.
- Targeted fellowships have been effective in training women in the agricultural sciences and retaining and promoting them within agricultural research institutions. Some examples encountered during the assessment were the Winrock International programs, African Women Leaders in Agriculture and Environment Network (AWLAE-Net) and the African Women in Agricultural R & D (AWARD) program.

III. PRINCIPAL RECOMMENDATIONS

The principal recommendations below are distilled from the findings put forward in the previous sections, which can be consulted for clarification. The first section focuses on the major elements to consider for future long-term U.S. degree training programs so that the likelihood of obtaining lasting institutional change is increased. The second section discusses various implementation options for USAID Missions to consider, given the critical role training management plays in capacity building.

A. Design Elements

These are the principal features to include in future agriculture long-term training programs:

- Adopt a holistic HICD approach to strengthening target institutions. Clearly identify the African institutional performance gaps, then design interventions that address those gaps, one of which is likely to be LTT in the United States.
- Select African institutions that demonstrate some degree of institutional strength to be able to leverage the changes introduced by the returned participant.
- Adopt an *investment* rather than *cost* perspective regarding funding HICD and LTT activities. Consider the value-added (on the institution and sector) were the desired performance changes to occur, then cost out the investment needed to induce those changes. If LTT is the best intervention to induce change, and the investment amount appears high, train fewer participants. The goal is to invest in change, not train the highest number of participants.
- Ensure that African participants are involved in all aspects of any capacity building effort – by designing a mechanism (e.g., *ad hoc* committee) *for* that participation to be realized.
- Identify a way to ensure close collaboration between the African and U.S. institutions that can lead to a partnership that outlasts the time frame of donor commitment.
- Ensure that the U.S. institution selected as the participant's training provider is fully committed to building African agricultural capacity – and can marshal its resources, or others', to fund certain aspects of the program, such as faculty exchanges, so that the partnership outlasts USAID funding.
- Select current or future employees in African agricultural institutions for U.S. graduate degree programs, not "promising" young students.
- Ensure Africa-based and Africa-relevant research through effective training management and full participation of African institutions.
- Include other capacity-building activities as deliverables for U.S. advisor visits to the African institution's research site, such as lectures, coaching other researchers, or conducting joint projects with local researchers.
- Make realistic estimates of the time needed to obtain a Masters degree, which is from 18 to 24 months for a thesis program. Compressing this time period to 12 months can reduce significantly the impact expected from USAID's LTT investment because the participant has insufficient time to absorb certain knowledge, skills, and attitudes key to their inducing lasting changes back home. Likewise, plan enough time for PhD students to complete their program and produce relevant research to impact agriculture back home.

- Build in time and financial support for solid, relevant research to be conducted in Africa during the training period, which addresses the most important hurdle facing students. Again, this is not a major cost issue, since time spent on research at home greatly increases the likelihood of institutional change. Furthermore, supporting Africa-based research is less costly than financing maintenance and health insurance costs for the student in the United States.
- If supporting a distance education option, ensure that the major obstacles, such as time zone differences, connectivity, appropriate pedagogy for distance learning, and establishing a critical mass of distance students are mitigated.
- Include diverse program features, as illustrated by the six programs assessed, to cover a range of participant and institutional types and needs.
- Include short internships for participants during or after their coursework.
- Include tailored management and leadership courses (during vacation and holiday periods, for example) for participants to acquire supplementary skills geared toward arming them with tools to introduce change back home.

B. Implementation Options

In terms of the approach to take in leveraging long-term U.S. degree training for institutional capacity building designed to have a measurable impact on a particular sector, Mission planners can choose between these two options:

1) To employ a *laissez-faire,* "management-lite" implementation mode, where key decisions (identification of local institutions to strengthen, participant selection, U.S. degree program choices, etc.) would be made by the participant contractors or universities, following the model used in past participant training programs; or
2) To become more actively involved in implementation by adapting and applying the program design features recommended in this report to each country's specific capacity-building needs, using a mechanism that incorporates the lessons learned from over 40 years of U.S. participant training and recent experiences in HICD.

The second choice is likely to generate sustainable capacity. The first option will restart programs that produced some worthwhile results in terms of the individuals trained, and in some cases the institutions or sectors in which they performed, but would ignore most of the lessons learned from over 40 years of participant training and more recent HICD activities.

USAID Missions have various implementation vehicles that will affect the design of the capacity-building program, such as via a bi-lateral Request for Assistance (RFA), Request for Proposal (RFP) or Annual Program Statement (APS) mechanism, or through a Task Order to an existing Indefinite Quantity Contract (IQC) mechanism that might allow for a local implementing coordinator. The steps to designing the program to ensure a high likelihood that USAID's investment in capacity building leads to measurable performance changes in the target institution, are:

- Create a special "performance change through capacity building" *ad hoc* committee composed of representatives from USAID, the target institution(s), the relevant government ministries and ideally, the private sector (NGOs and/or agribusiness concerns). The objective of the committee is to ensure that the investment in training is closely linked to institutional and sector needs in the country, that it is grounded in an overall HICD approach, and that the process used to design and implement the program is appropriate to obtaining results from the investment.

- The committee can be established after the Mission decides on implementation mechanisms, if necessary to maintain procurement integrity.
- A detailed SOW can be drafted by the Mission, with assistance from USAID/Washington staff or a short-term external consultant accessed through existing mechanisms that address Human and Institutional Capacity Development, so that it reflects the design decisions made by the Mission and the committee.
- Major issues to be resolved in the SOW would include:
  - Whether the U.S. LTT element is stand-alone or part of a larger capacity-building piece the Mission is considering, that might include other types of capacity building (other HICD interventions beginning with an institutional performance assessment, short-term training, long-term training not in the United States, exchanges of professors/researchers with a U.S. university, workshops, local bursaries to promote excellence, short-term third country training/conference attendance, etc.).
  - The placement option to be used to manage the participant training process.
  - Size of the program (in terms of numbers of participants to be trained in the United States) and illustrative fields of study recommended by the committee and the "sending" institutions.
  - Program timeline.
  - How capacity building and performance changes will be monitored, supported through "follow-on activities" and assessed after the participants' training.
  - The provisions to be made for women with young children.
- With the SOW completed, the selected procurement mechanism can be employed and the implementers selected.

An innovative program management idea that emerged during the course of this assessment addresses the **lack of subject-matter expertise found in the central *participant placement organizations***. To overcome this lack of agriculture-specific information upon which to base the selection of a degree program, and more importantly, identification of the U.S. advisor, the team recommends that **placement choices be made by a two-person team consisting of a recognized specialist in an agricultural study area, working closely with a "placement officer" charged with managing the overall placement process**. In this way future programs can better link the institutional capacity needs of the African institution, the participant's particular research interests and the U.S. training provider, strengthening the "impact chain" by ensuring that placement is viewed as a highly technical activity more than an administrative responsibility.

1. Phases of Feed the Future Capacity Building Activities

Feed the Future (FTF) is the U.S. Government's global hunger and food security initiative. The main regional focus of USAID's Feed the Future activities is the Africa Bureau, which has a two-phased plan for Feed the Future capacity building.

- **Phase 1** will target training of host country staff *implementers* of Feed the Future activities and will consist of short-term training.
- **Phase 2** will target agriculture practitioners in programs of various types and locales, including long-term U.S. graduate training, beginning in FY 2011.

Feed the Future will support a variety of approaches to strengthen the capacity of partner host country institutions – agricultural research centers, university faculties of agriculture, Ministries of agriculture, and private sector entities. The full range of training/capacity development program options are availa-

ble, of which long-term U.S. academic is only one – the others being U.S. short-term technical, third country and in country long-term academic, and third country and in country short-term technical programs. The case is made elsewhere in this report for the targeted use of U.S. graduate training to meet specific host country needs as well as serve broader U.S. public diplomacy goals.

2. *Strategic Implementation Choices: HICD instead of Participant Training*

Employing the broader HICD approach to implement institutional strengthening interventions is highly recommended, and it is USAID policy to integrate a HICD approach in strategic planning and design. The policy calls for using training as the change driver only after a rigorous performance analysis is conducted of the targeted institution. **Institutional strengthening as used here means improving performance in measurable ways – it is not synonymous with staff augmentation**.

USAID's HICD policy has four criteria to determine whether a given target institution is appropriate for strengthening:

1. Alignment of the institution's internal goals with the Mission's priority.
2. Prospects for success and sustainability of the institution.
3. Potential synergies with other technical assistance implementers.
4. Commitment of the organization to an HICD activity.

Without a positive finding on all four criteria, USAID should rethink investments in long-term training for the institution.

With regard to the third criterion, if strengthening the target institution is already a part of an existing Mission or other donor activity, if training decisions are supported by rigorous performance gap analysis, and if institutional conditions are conducive for applying the results from long-term training, the Mission may consider that it has met the requirement for integrating HICD and may want to proceed with long-term training.

For guidance on the HICD approach, see the USAID Human and Institutional Capacity Development Handbook (http://inside.usaid.gov/EGAT/offices/edu/programs/hicd.cfm).

3. *Implementation Mechanisms*

Six types of mechanisms are available, each with particular administrative advantages to Missions as well as different abilities to maximize the application of Best Practices and program design features identified in this report.

FORECAST II-PT. This Agency- and sector-wide umbrella training mechanism, to be available in FY 2011, will provide Bureaus and Missions with a comprehensive range of training services, including U.S. long-term graduate studies. FORECAST II-PT, among other mechanisms, will implement training under Phase 1, and is expected to be the major implementing mechanism for LTT under Phase II of the Feed the Future Initiative.

Factors for Mission consideration:

1. As with the other options, Missions need to decide whether to commit to the more holistic HICD approach (the recommended course), or, after meeting the Agency policy requirement (see HICD Policy Paper), opt for a training-alone approach.

2. Missions would approach FORECAST II-PT if a prior institutional performance gap analysis reveals the need for LTT and the Mission opts for a training-alone approach. (For assistance in such an analysis, Missions would approach the HICDpro mechanism.) If a broader approach is needed but is not being implemented, FORECAST II-PT will so advise the Mission. The option of an umbrella training IQC removes the need for Missions to develop a separate bi-lateral mechanism.
3. This IQC will provide administrative simplicity and has the lowest management burden on the Mission once the full needs of the program are written into a SOW.
4. Missions should explicitly write into their SOWs which program features recommended in this report they intend to be followed; otherwise the "special handling" inherent in these recommendations will be lost.

Major Features of FORECAST II-PT:

1. Missions procure FORECAST II-PT services through Task Orders which should specify the application of the features and Best Practices identified here.
2. Given the expected magnitude of U.S. agriculture long-term training and the high priority of agricultural capacity building, FORECAST II-PT staff could be augmented to include agriculture specialists well-qualified to implement these Best Practices.
3. Greater efficiencies would be achieved if, where possible, multi-Mission Task Orders are established which will enable more efficient deployment of specialist staff.
4. Recommended steps in implementing these recommendations include:
   - Assisting Missions to perform training needs assessments, based on HICD analysis identifying knowledge and skills gaps;
   - Surveying U.S. university agricultural programs for the most appropriate curricula;
   - Assessing the long-term commitment of university departments and advisors to conducting and supporting agricultural research in host countries, to establishing linkages and partnership programs with host country institutions, and to supporting student researchers in both institutions;
   - Selecting training participants, based on identified institutional role, training needs, and admissibility;
   - Placing participants in appropriate programs worked out with the universities, and assuring that program Best Practices are written into their programs from the outset;
   - Monitoring adherence to the program on the part of participants and university;
   - Monitoring student progress and intervening proactively where necessary;
   - Assuring that in country research is selected, scheduled, and performed with proper advisory support on the part of both the U.S. advisor and host country interested parties;
   - Seeking out and arranging innovative program components to enhance the student's graduate experience;
   - Assuring that participants get the full benefit of the program and return home upon completion; and
   - Following up with the returnees and their supervisors on a regular basis to assess additional support that would maximize impact, to work with U.S. advisors to assist in applying for

post-graduate research grants, and to advise on other post-graduate professional development opportunities.

Human and Institutional Capacity Development Program (HICDpro). This contract mechanism will be available in FY 2011 to provide all services related to HICD. As emphasized throughout this report, an HICD analysis should be conducted on any institution targeted by a Mission for strengthening before assuming that LTT investments are advisable. All recommendations in this report assume that Missions will consider HICD issues in planning capacity building, an Agency requirement.

With the separation in FY 2011 of the HICD and participant training functions into two mechanisms, HICDpro and FORECAST II-PT (which were previously available together in the first FORECAST), institutional gap analysis and training design and management services have to be procured separately.

See the Toolkit for materials on HICD.

Graduate Degree Components of the CRSPs. As many of the Best Practices cited here are implemented in the degree training components of the CRSPs, another option is to continue to utilize these programs for Feed the Future graduate training.

Factors for Mission consideration:

1. The technical areas of need are likely to continue to be congruent with the technical foci of the CRSPs. Where needs are identified that are not covered by the CRSPs, other mechanisms would be sought.
2. The CRSPs are generally well experienced in integrating institutional capacity development needs, the practicalities of host country research, and the requirements of graduate degree programs.
3. The CRSPs are likely to be operating for the time needed to implement Feed the Future-funded agricultural capacity development programs.
4. USAID/AG should work with CRSP institutions to adapt their processes, where necessary, to meet the needs of the Food Security capacity development and to maximize application of the recommendations made in this assessment.

See the Toolkit for a source on CRSPs.

Training Components of Higher Education for Development (HED) University Partnerships. Some HED university partnerships, administered through a Cooperative Agreement between the USAID/EGAT Office of Education and the American Council on Education, have graduate training components. Partnerships are designed to strengthen host country university faculties to improve their academic performance and to play a more productive role in development.

Factors for Mission consideration:

1. With a higher education earmark in place for FY2010, additional higher education funds may be available to Missions to augment funds from agriculture funding sources, and they would be appropriate for capacity development of tertiary level institutions, including agriculture research centers.

2. The training components of partnerships are usually smaller in scale than the anticipated need under Feed the Future.

3. A Mission wishing to begin LTT to strengthen a university agriculture faculty must either have an appropriate partnership in place or work to set one up.

4. The partnership agreement must contain provision for the Best Practices recommended here.

See the Toolkit for material on HED partnerships.

Training Components of Other Mission Agricultural Development Technical Assistance Activities. Because of the general weakness of Technical Assistance (TA) contracts - that they normally do not explicitly require state-of-the-art capacity development interventions and that contractors are not usually capacity development specialists - this is not the mode of choice for Feed the Future capacity development programs. TA contracts that do not have these Best Practices explicitly written into their SOWs are not likely to implement them as recommended here.

Other U.S. Universities or Consortia Already Active Locally. This might be a possibility in cases where there is some existing development relationship onto which a LTT component can be "piggy-backed." This option may be problematic in that the leverage of the Mission to insist on these Best Practices may be limited.

4. Mission Toolkit to Implement Capacity Building through Long-term U.S. Graduate Training

This section presents a list of resources on the topics and mechanisms discussed in this report. They present the basic principles underpinning the recommendations of this report.

It may be necessary to copy and paste the URLs; some are on the USAID internal website.

USAID Policy:

1. USAID HICD Policy Paper: A Mandatory Reference to ADS 201: http://www.usaid.gov/policy/ads/200/201maf.pdf
2. ADS Chapter 253: Participant Training for Capacity Development: http://www.usaid.gov/policy/ads/200/253.pdf
3. ADS Chapter 252: Visa Compliance for Exchange Visitors: http://www.usaid.gov/policy/ads/200/252.pdf

Human and Institutional Capacity Development (HICD) and Participant Training:

1. USAID Office of Education Training Page: http://inside.usaid.gov/EGAT/offices/edu/programs/participant_training.cfm
2. General HICD: http://inside.usaid.gov/EGAT/offices/edu/programs/hicd.cfm
3. USAID HICD Handbook: http://inside.usaid.gov/EGAT/offices/edu/programs/upload/HICD-Handbook.doc
4. HICD Sample Scope of Work: https://www.fbo.gov/download/01e/01e8b2ef6e11b50d26ab42c967cff7d7/FORECAST_II_-HICD_Scope_of_Work.pdf
5. FORECAST II Practitioner's Handbook: http://inside.usaid.gov/EGAT/offices/edu/mechanisms/upload/Forecast_Practitioners_handbook.pdf

6. International Society for Performance Improvement:
   http://www.ispi.org/

Collaborative Research Support Program (CRSP):
http://crsps.org/

Higher Education for Development (HED):
http://www.hedprogram.org/

For additional general materials, see the Bibliography (Ref: p. 63).

ANNEX I: Scope of Work

Agriculture Long-Term Training (LTT) Evaluation and Design Recommendations
Global Evaluation and Monitoring II (GEM II) Task Order

I. Purpose

The United States Agency for International Development (USAID) wishes to 1) evaluate United States Government-funded agricultural long-term graduate training (LTT) programs and 2) obtain recommendations on a menu of design options to foster more LTT programs leading to more effective institutional strengthening in the agricultural sector. The latter purpose is in support of USAID's new policy mandating consideration of Human and Capacity Development in programming. The purpose of the task is:

1. To evaluate three pilot long-term agricultural training (LTT) programs at the individual and institutional levels, identify elements that have been successful, and determine whether and how elements unique to these pilots were critical to the identified successes,

2. To evaluate one pilot distance learning program and one pilot dissertation research support program, identify elements that have been successful, and determine whether and how elements unique to these pilots were critical to the identified successes,

3. To evaluate the LTT components of a suite of long-standing agricultural research programs, identify elements that have been successful, and determine whether and how elements unique to these programs were critical to the identified successes,

4. To compare and contrast the results of these pilots with each other, with other USAID-funded graduate agriculture training programs, and with other traditional USAID LTT approaches in all sectors, and

5. To make recommendations on a range of models for future agricultural LTT programs that also address institutional performance needs and that can be adapted by USAID Missions to their own program requirements.

Extensive use will be made of previous evaluations of the long-standing programs where available.

II. Background

Since its inception, USAID has financed programs in all sectors for individuals from developing countries to earn graduate degrees through long-term study at U.S. universities. The number of participants in these programs increased steadily in the 1970s and 1980s to a peak of 11,468 people in 1989 supported for six months or longer. While the impact of this large number of individuals exposed to American technology and culture has been seen as a positive contribution to development and public diplomacy, there were also questions about how to reduce the costs and improve the utilization and impact of LTT.

USAID support for U.S. LTT programs declined significantly from 9,128 students in all disciplines in 1990 to around 1,200 in 2000. Support for agricultural and rural-development degree training in the U.S. also declined dramatically, from 310 students supported in 1990 to 82 students supported in 2000. Several factors contributed to this decrease, including 1) the rising costs of residential U.S. training, 2) questions regarding the appropriateness, performance impact, and cost-effectiveness of the investments in LTT, 3) problems caused by participants being away from their jobs for long periods, 4) competing demands on

U.S. foreign assistance budgets, and 5) an increased emphasis on programs whose results could be monitored and assessed over short (2-5 year) time frames.

Because of this decline in LTT, the capacity for leadership, research, adaptation, and innovation in many developing countries is now declining as scientists and policy makers retire. Lacking sufficient numbers of professionals with advanced knowledge in agriculture (and other scientific disciplines), developing countries can only grow more marginalized as economic and technological "divides" with the industrialized world widen. As professional relationships between researchers and educators in the U.S. and developing countries decline, U.S. scientific, economic and, ultimately, national security interests also are harmed.

Investments in science and technology are increasingly important for economic growth, and building capacity in agriculture is essential for national development. In developing countries especially, well-trained scientists and well-run institutions are needed to develop stronger capacity in science and technology. In 2001, USAID recognized the need to reinvest in LTT in agriculture and across all sectors, yet wished to find ways to limit training costs, increase the relevance of training and research to home-country agricultural development priorities, and ensure the return of trainees to their home countries. In 2003, the Board for International Food and Agricultural Development (BIFAD) proposed renewing USAID's investment in global long-term training and capacity building in agriculture and rural development. In response, USAID helped fund three pilot programs between U.S. and African universities to identify creative, cost-effective ways to help re-engage USAID in LTT in agriculture and agribusiness. More recently several other new programs have also been established.

The Agency has also recognized that technical training of individuals does not automatically result in better institutional performance. Programs to overcome the barrier of inadequate knowledge and skills must be accompanied by other interventions to address other performance barriers stemming from organizational weaknesses, such as poor management, lack of clear job expectations, lack of immediate performance feedback, inadequate physical environment and tools, lack of motivational incentives, attitudinal barriers to innovation, and lack of support from the organization. Without attention to these factors unrelated to technical content, training alone is unlikely to improve the performance of institutions.

USAID adopted a new policy in December 2008 that mandates consideration of Human and Institutional Capacity Development (HICD) to improve the impact and sustainability of development assistance programs. The ultimate aim of this Task Order is to support Human and Institutional Capacity Development through the inclusion of agricultural LTT innovations and best practices gained from these evaluations, as well as HICD best practices derived from the literature, in the recommended menu of design models.

III. Programs to be evaluated

The evaluation will evaluate 1) three BIFAD pilot programs, 2) a pilot distance learning program at the University of Florida, 3) the Borlaug Fellows Leadership Enhancement in Agriculture Program (Borlaug LEAP), and 4) the LTT components of a selection of Collaborative Research Support Programs (CRSPs).

The evaluation will also compare and contrast their results, appropriateness, and practicality with traditional USAID LTT programs, such as the AFGRAD/ATLAS program.

The level of evaluation required to answer the questions in Section V will vary among the various target programs because of the availability of earlier evaluations and will be determined by the utilitarian goal of this SOW, to

1. determine successful LTT design components and

2. produce a menu of design options for LTT and institutional performance improvement designs, with analyses that help USAID Missions understand the pros and cons of each.

1) Board for International Food and Agricultural Development (BIFAD) pilots

Each of the BIFAD pilots aimed to develop new approaches to LTT that could include a residential training component in the U.S. while also addressing other concerns, including overall costs, time to degree, the relevance of the training to developing country needs, the subsequent employment of the trained personnel within the developing country, and the significance of the contributions such personnel would make as a result of the training.

a) Long-term Training for Regional Agricultural Development in East Africa: Kenya, Tanzania and Uganda

This project was designed to strengthen the capacity of East African Faculties of Agriculture (FOAs) to improve smallholder agricultural productivity. Ohio State University and Michigan State University partnered with universities in Kenya (Egerton University), Tanzania (Sokoine University of Agriculture), and Uganda (Makerere University) for training and joint degree programs. Activities in the region were coordinated by the Regional Universities Forum for Capacity Building in Agriculture (RUFORUM). The project was funded from January 1, 2005 through September 30, 2007, followed by no-cost extensions through March 31, 2008.

The project was based on two core ideas. First, accelerating agricultural productivity is essential to ensuring economic growth and food security in the largely agrarian societies of East Africa, where the majority of the labor force is concentrated in rural areas and engaged in smallholder agricultural production. Second, regional FOAs can make a vital contribution to improving smallholder productivity and food security through their research, training and outreach activities.

Objectives:

The project had nine objectives:

1. Provide a model for LTT that addresses the design constraints listed in III above;
2. Provide long-term graduate degree training opportunities in areas of critical need;
3. Provide short-term faculty development opportunities in areas of critical need;
4. Provide an innovative, replicable model of FOA capacity building that would help FOAs support improved smallholder productivity and food security through their research;
5. Strengthen linkages between private sector agribusinesses and Faculties of Agriculture;
6. Build cross-regional synergies among Faculties of Agriculture;
7. Build and implement an innovative, replicable model of Faculty of Agriculture capacity building;
8. Sustain and strengthen long-term historical partnerships among U.S. and regional FOAs; and
9. Increase research interests among FOAs on the impacts of HIV/AIDs on agriculture.

Activities:

Core activities included long-term graduate degree training and short-term faculty development. Twelve students (4 from each country; 3 MS and 9 PhD) completed coursework training at Ohio State University or Michigan State University and returned to their home countries to conduct thesis research.

b) Linking Biotechnology/Bioengineering with Mali-based Agribusiness: Strengthening Food and Water Quality for Health, Safety, and Exports
(http://www.montana.edu/mali/documents/reportdue31october2007.doc)

This project was designed to develop collaboration between two US partners (Montana State University and the University of St. Thomas) and Malian educators and scientists (Institut d'Economie Rurale (IER), Agricultural University of Mali, and the Institut Polytechnique Rurale), and farmers to merge culturally appropriate methods with more effective agricultural and natural resource management techniques. The partnership endeavored to prioritize methods and activities that Malians suggested would significantly help Malian food production and marketing systems. This was done to foster the successful incubation of entrepreneurial activity in the agricultural sector. The project was funded from June 30, 2004 to September 30, 2007 and focused on four key development challenges in the Malian agriculture sector:

1. The disconnect in teaching, research, and extension among IER scientists (who do not teach in the classroom), the Agricultural University of Mali, Institut Polytechnique Rurale et Institut Formation de Recherches Appliques (IPR/IFRA) faculty (who do not conduct on-farm research), and small-scale, subsistence farmers (who have relatively few forms of regular communication with IER and IPR/IFRA);
2. Weak collaboration between IER and IPR/IFRA due to physical separation between the institutions;
3. An urgent need for farmer-identified problems to be solved, if appropriate, by research conducted, for example, in a soil microbiology laboratory or a disease-free tissue culture facility closely linked to a field production area of disease-free seed potatoes, in varietal resistance studies, and post harvest quality protection studies.
4. A lack of rapid, widespread dissemination of farmer-generated information.

***Objectives**:*

The project had four objectives:

1. Provide a model for LTT that addresses the design constraints listed in III above;
2. Test a model for graduate-level training in the US and in Mali that offers the promise of employment in a stimulating work environment;
3. Facilitate integration of modern agricultural knowledge/methods, without altering Malian traditional cultural practices; and
4. Build a sustainable, and therefore continually adapting, up-to-date, integrated agricultural research, education, and extension program in Mali.

Activities:

Seven participants were trained using a 39-month "sandwich" arrangement (in this case, mostly a combination of U.S. coursework and writing, at the beginning and end, and home country research in the middle.)

c) USAID Initiative for Long-term Training and Capacity Building (UILTCB) program

This program seeks to build capacity of Zambian, Ghanaian and Malawian public and private institutions to contribute to agricultural and natural resource development by providing M.S. degree and short-term training opportunities to their staff. The program is managed by Michigan State University in collaboration with the EGAT Office of Agriculture and comprises three phases. The first phase began in fall 2006 for 17 students from Zambia and Ghana. The second phase began in fall 2008 for six students from Malawi. A third phase is scheduled to begin in fall 2009 for about five students from Malawi.

Objectives:

The program has eight objectives:

1. Provide a model for LTT that addresses the design constraints listed in III above;
2. Identify cost-effective ways to implement LTT and reduce the time students spend away from their home institutions;
3. Leverage additional funding through public and private organizations;
4. Incorporate LTT as a development tool in country strategic plans;
5. Re-integrate students to productive work in their home countries;
6. Build on host-country and regional capacity;
7. Fill the gap in trained scientists and faculty at national agriculture research centers and universities due to retirement, HIV/AIDS, and other factors; and
8. Strengthen linkages between U.S. agricultural universities and developing country research and training institutions.

Activities:

The first phase includes M.S. degree training of 17 students from Zambia and Ghana at 10 U.S. universities (Kansas State University, Louisiana State University, Michigan State University, Ohio State University, Purdue, Texas A&M, Texas Tech, University of Illinois, University of Minnesota, and Virginia Tech). In December 2008 (when the most-recent Progress Report was published), eight trainees had graduated, and eight were expected to graduate by summer 2009. The second phase includes M.S. degree training of six students from Bunda College and the Ministry of Agriculture in Malawi at the University of Florida.

2) USAID/University of Florida Distance Learning Program: Strengthening Agricultural and Environmental Capacity through Distance Education (SAEC-DE)

(http://international.ifas.ufl.edu/distance_education/SAECDE/pilot-east-africa.shtml)

(http://international.ifas.ufl.edu/distance_education/documents/saecde_brochure.pdf)

This project taps the knowledge base of the International Center for Tropical Agriculture (CIAT) CGIAR Center and the University of Florida in collaboration with the University of Nairobi (Kenya) and Makerere University (Uganda). The project's goal is to demonstrate an innovative and effective approach to making higher education more accessible and relevant to international participants working in agricultural and natural-resource development.

Objectives

The program had three general objectives:

1. Develop long-term collaboration for capacity building,
2. Demonstrate an alternative/complimentary model for LTT giving access to high quality research degrees and experiences appropriate to local context, and
3. Increase the capacity of individual and institutions in relevant programs and distance education.

Activities

The program provides training for degree-seeking students currently employed at CIAT or other international centers as research assistants and research associates or working at partner local universities.

3) Borlaug Fellows Leadership Enhancement in Agriculture Program (LEAP)

(http://leap.ucdavis.edu/program)

The Borlaug LEAP is a USAID-funded fellowship program to enhance the quality of thesis research of graduate students from developing countries who show promise as leaders in agriculture and related disciplines. The fellowship supports engaging a mentor at a Consultative Group on International Agricultural Research (CGIAR) center and a U.S. university to enhance the student's thesis research. The maximum length of the fellowship is 12 months.

Activities

Since the program began in 2006, it has awarded fellowships to 41 graduate students (34 PhD and 7 MS) from 20 developing countries. Participating institutions included 19 U.S. universities and 13 CGIAR centers.

4) Collaborative Research Support Program (CRSP): Graduate Training Component

Collaborative Research Support Programs are communities of U.S. universities that mobilize their scientific and academic expertise to help carry out the international food and agricultural research mandate of the U.S. Government through long-term collaboration with institutions in developing countries. Presently there are eight CRSP programs focused on a range of topics. Research methods and approaches vary among the CRSPs, but one objective they all share is to build human and institutional capacity for research-focused collaboration through graduate-degree and short-term training in science and institutional management. The graduate-degree training programs support students at U.S. and overseas institutions, with priority given to students from developing countries. The training is integrated into the CRSP research projects, so student thesis research addresses developing country problems, students network with an international community of scientists, and professional mentor relationships are fostered with U.S. professors that extend beyond the degree program due to ongoing CRSP support. Instead of the traditional training programs that remove students from their countries for research and training, most of the students' research is done in their home countries, so they maintain and build contacts with their national peers, and become familiar with the context of their national issues. During 1978-2007, 3,145 CRSP trainees earned degrees, of which 2,779 were post-graduate degrees. Nearly 75% of the trainees were from developing countries (40-50% from Africa).

IV. Questions

USAID has developed several initial key questions that will be used to evaluate the LTT components of each program. These questions should be augmented with additional ones after a review of background documentation. All questions have an implied follow-up "how so,", "in what way," or "why or why not" dimension.

A. Evaluations

1) Impact on Participants:

   a) To what extent were the participants satisfied with the quality of their programs overall, i.e. in the way they were designed and managed, in the quality of their courses and research guidance; in how relevant their studies were to their home country responsibilities and needs; in the quality of communications between themselves, their U.S. professors, and home country officials; etc.

   b) To what extent have the programs enhanced the capacity of participants to perform better?

   c) To what extent have participants effectively used their new skills and knowledge?

   d) To what extent have the programs led to higher participant responsibilities?

   e) What program features contributed to this impact?

2) Impact on Home Institutions:

   a) To what extent have the skill sets of institutions been improved by the programs?

   b) To what extent have the programs improved the performance of participants' work units?

   c) To what extent have the programs led to new or improved institutional policies or systems?

   d) To what extent have the programs led to new and sustainable partnerships (individual or institutional)?

   e) To what extent have the programs enhanced the institutions' overall capacity and performance?

   f) What program features contributed to this impact?

3) Cost Effectiveness and Other Practical Aspects

   a) How cost effective have each of the targeted programs been and how do they compare to other USAID-funded LTT programs, such as AFGRAD/ATLAS (African Graduate Fellowship and Advanced Training for Leadership and Advanced Skills) and others? ("Cost effectiveness" here is used in the general and subjective sense of whether the overall impact was worth the investment, rather than in an output per dollar sense.) (http://www.aaionline.org/files/ATLAS_AFGRAD_Generations_of_Quiet_Progress.pdf)

4) Future Design

   a) What were the design assumptions or theory behind the design of each program? Were these assumptions or the theory valid?

b) Have these programs spurred an increase in Mission interest in LTT? What features have been most attractive to Missions?

c) What successful features of the pilots can be scaled up in the design of future LTT programs?

B. Menu of Design Models

a) What are the main practical design models and their salient features, including cost effectiveness, which Missions can choose or combine in developing LTT programs?

b) What are these models' expected impacts?

V. Methods and Procedures

Based on the findings and conclusions, the contractor will prepare its recommendation for a menu of options that could be used by EGAT and the USAID Missions to design and implement effective and efficient training programs. The menu could be described as a "tool kit" to be used by others to initiate and/or enhance country specific human and institutional capacity development programs.

In conducting the evaluation, the team should try to probe the outcomes and results as deeply as feasible. For example, noting that 75 people participated in a training workshop does not indicate the nature of the participation or what transpired as a consequence of that participation. The Agency is interested in learning the results achieved by the pilot programs. USAID is also interested in assessing the degree to which outcomes and results are in fact attributable to the program activities.

The evaluation team will propose a methodology that combines survey and interview techniques.

USAID recognizes that data limitations, particularly with regard to prior LTT approaches, may significantly impact the analysis. Descriptions and evaluations of prior LTT programs are to be consulted, along with USAID and contractor staff with LTT experience. This SOW does not envisage a rigorous study of previous programs but the review should be sufficiently thorough to provide the basis for useful comparisons.

VI. Evaluation Team Composition

The team shall consist of a combination of specialists supplied by the contractor and in-house USAID staff.

The following positions will be supplied by the contractor. The contractor may propose a different combination of labor categories and levels.

1. The Chief of Party (COP) responsible for the overall design, implementation, and writing of the evaluation and recommendations. The COP shall be from Category 002/003: Project Design/Monitoring and Evaluation Specialist: Senior Research Associate II with extensive experience in evaluation and the skills and experience prescribed for that position in the GEM II contract. This person would be on the core traveling team.
2. A training and HICD specialist. This individual may also be from Category 002/003: Senior Research Specialist II, with extensive experience in training and capacity development.and the skills and experience prescribed for that position in the GEM II contract. This person would be on the core traveling team.

3. A Survey Design Specialist. This individual may also be from Category 002/003: Senior Research Specialist II, with extensive experience in survey design and implementation and the skills and experience prescribed for that position in the GEM II contract. This person would be needed for a limited time and would not be on the core traveling team.
4. A Data Management Specialist. This individual may be from the System Analyst category, with the skills and experience prescribed for that position in the GEM II contract. This person would be needed for a limited time and would not be on the traveling core team.
5. A Logistics Support Specialist. This role may be filled by someone in the Project Associate category and would not be on the core traveling team.
6. Two Local Researcher/Advance Persons. These individuals would be responsible for locating participants and arranging group and one-on-one interviews, both before and during the core team's presence in country. This person would be preferably drawn from the contractor's local contacts and would serve on the traveling core team.

USAID shall supply two to three staff members with extensive experience in evaluation, training, capacity development, and higher education.

VII. Project Phases and Reporting Requirements

The period of performance of this Task Order is six months or 26 weeks. Work under this Task Order will fall into three phases, which will include specific actions and deliverables. The team leader shall submit reports, deliverables or outputs as further described below to the CTO. All reports and other deliverables shall be in the English language and must be approved by the CTO.

I. Preparation: Weeks 1-6

1. Work Plan and Methodology: A detailed work plan is due within two weeks of the signing of the task order. It should include the evaluation methodology (i.e., the data collection and analysis plan to be used in the evaluation), and personnel chart which indicates the number of consultants working on each task in the schedule.
2. Collection of background materials and research
3. Planning and scheduling of data collection and site visits and other tasks prior to data collection

II. Data Collection and Site Visits: Weeks 7-20. The timing of site visits is dependent on university calendars in the U.S. and Africa. Therefore a certain amount of flexibility will have to be accepted.

III. Write-up and Presentations: Weeks 21-26

1. **First Draft Evaluation Report**: This is due by the end of week 22 and should cover all the main elements of the report or at the very least, include the major findings, conclusions, lessons learned, and all relevant annexes
2. **Oral Presentation:** Presentation (including handouts). This should be held during week 23 and should cover at least the major findings, conclusions, and lessons learned.
3. **Second Draft Evaluation Report:** This is due by the end of week 24 and should be **a** complete report presented in the agreed upon format and incorporating comments from USAID and other stakeholders.

4. **Final Report:** This is due within one week of receiving final comments from USAID and other stakeholders, or NLT six months or 26 weeks after the signing of the task order.

The evaluation report will become the property of the US Government. Any proprietary information about the evaluation team should not be included in the report. It will be the responsibility of USAID/EGAT to distribute the final report.

VIII. Budget

See attached.

ANNEX II: Bibliography

(2004). *Meetingto discuss design and implementation options for the BIFAD long-term training pilot project and Borlaug fellowship research grants.* Washington DC.

(2004). *Parameters for the BIFAD long-term training pilot project in West and Southern Africa and the Borlaug fellowship research.*

(2007). *Report on the ENAM project for the GL CRSP in Ghana for 2007.*

(2008). *Pro-poor growth and the role of agriculture in Mali: workshop proceedings.* Paris, France: OECD.

African Union. (2004). *Draft site declaration on the challenges of implementing integrated and sustainable development on agriculture and water in Africa.* Retrieved from http://www.uneca.org/awich/IBWT%20Accra/FINAL%20DRAFT%20SIRTE%20DECLARATION.pdf.

AGRA. (2010). *Alliance for a green revolution in Africa.* Retrieved from http://www.agra-alliance.org.

Agriculture Sector Coordination Unit. (n.d.). *ASCU*. Retrieved March 26, 2010, from Agriculture Sector Coordination Unit: http://www.ascu.go.ke.

Aguirre International. (2004). *Generations of Quiet Progress: The Development Impact of U.S. Long-Term Training on Africa from 1963 to 2003*, USAID Global Evaluation and Monitoring IQC, Task Order 13. Retrieved from: http://pdf.usaid.gov/pdf_docs/PNADB130.pdf.

AllAfrica Global Media. (2010). *allAfrica.com: Agriculture 2009*. Retrieved March 26, 2010, from allAfrica.com: http://allafrica.com/specials/Agriculture_2009.

Amisah, S., & Bolivar, R. (n.d.). *The host country principal investigators program (HCPI Phase II)*, Powerpoint lecture.

Association for Strengthening Agricultural Research in Eastern and Central Africa. (2010). *Association for Strengthening Agricultural Research in Eastern and Central Africa*. Retrieved March 26, 2010, from Association for Strengthening Agricultural Research in Eastern and Central Africa: http://asareca.org/index.php?a=1.

Association Liaison Office for University Cooperation in Development. (2004) *2004 Special request for applications: Higher education partnerships for African Development (HEPAD): Agriculture in Mali*. Washington, DC: Association Liaison Office for University Cooperation in Development.

Association Liaison Office for University Cooperation in Development. (2004) *2004 Special request for applications: Higher education partnerships for African Development (HEPAD): Long-term training for regional agricultural development in East Africa: Kenya, Tanzania and Uganda*. Washington, DC: Association Liaison Office for University Cooperation in Development.

Beintema, N.M. & Di Marcantonio, F. (2009). *Women's participation in agricultural research and higher education key trends in sub-Saharan Africa.* Agricultural Science and Technology Indicators (ASTI) and African Women in Agricultural Research and Development (AWARD). Retrieved from http://www.ifpri.org/sites/default/files/publications/asti-award-brief-1.pdf.

Bissell, R. E. (2006). *Implementation of Title XII: Report to the board on international food and agricultural development.* USAID, Board for International Food and Agricultural Development. USAID.

Blackie, M., Mutema, M., & Ward, A. (2009). *A study of agricultural graduates in eastern, central, and southern Africa: Demand, quality, and job performance issues.* A report to ASARECA and RUFORUM.

Blaine, S. (2009, November 16). Africa: Continent urged to take advantage of technology for development. *Business Day*.

Bower, J. (2009). *Draft: Lessons learned from USAID-supported long term-training programs in Kenya and Vietnam.* Washington, DC: USAID Bureau for Economic Growth and Trade Office of Agriculture.

Calestous, J. (2008). Agricultural innovation and economic growth in Africa: Renewing international cooperation. *International Journal of Technology and Globalisation, 4*, (3) 256-275. doi: 10.1504/IJTG.2008.020330.

Central Veterinary Laboratory. *Central Veterinary Laboratory of Bamako (CVL) From a USAID project to a national institution.* Bamako: Central Veterinary Laboratory.

Consultative Group on International Agricultural Research (CGIAR). (2008). *Comparative evaluation of the G&D Rockefeller and Borlaug women in science fellowship programs.* Retrieved from http://www.genderdiversity.cgiar.org/publications/genderdiversity_WP49.pdf.

Cornell University, Montana State University, North Carolina State University, University of Florida, & University of Hawaii. (2007). Soil management collaborative research support program project Year 10 Annual Progress Report 2006-2007.

Dry Grain Pulses CRSP Management Office. (2008). *USAID initiative for long-term training and capacity building, progress report 5 (covering the period July1,2007-December 31,2007).* Michigan State University.

Dry Grain Pulses CRSP Management Office. (2008). *USAID initiative for long-term training and capacity building progress report 6 (covering the period January 1, 2008 – June 30, 2008).* Michigan State University.

Dunkel, F. V. (2007). *Linking biotechnology/bio engineering with Mali-based agribusiness: Strengthening food and water quality for health, safety, and exports.* Final Partnership Report for Higher Education Development.

Eicher, C. K. (2009). Building African scientific capacity in food and agriculture. *Review of Business and Economics. , LIV* (3), 238-257.

Eicher, C. K. (2006). *The Evolution of Agricultural Education and Training: Global Insights of Relevance for Africa.* Staff Paper, Michigan State University, Department of Agricultural Economics, East Lansing.

Erbaugh, J.M., & Crawford, E. (n.d.). *Higher education partnerships for African development (HEPAD) long-term training for regional agricultural development in East Africa: Kenya, Tanzania, and Uganda.*

Erbaugh, J. M., Crawford, E., & Adipala, E. (2009). Strengthening faculties of agriculture in Africa through collaborative post-graduate degree training by U.S. and African universities: the HEPAD experience. *AIAEE 25th Anniversary Annual Conference.* San Juan.

Food and Agriculture Organization. (2009). *The state of food insecurity in the world: Economic crises - impacts and lessons learned.* United Nations Food and Agriculture Organization. Rome: Electronic Publishing Policy and Support Branch Communication Division. Retrieved from http://www.fao.org/docrep/012/i0876e/i0876e00.htm.

Gamble, W. K., Moore, J. D., Mugerwa, J. S., & Ofwono, P. M. (1987). *Project evaluation: Uganda manpower for agricultural development.* USAID. Columbus: Ohio State University Research Foundation.

Gates, M. F. (2010, February 12). Africa: Melinda Gates Lauds health and Economic Advances for Continent's Poorest. (allAfrica.com, Interviewer).

Gender & Diversity. (2008). *Gender & Diversity Program - CGIAR*. Retrieved March 26, 2010, from Gender & Diversity - A Program of the Consultatie Group on International Agricultural Research: http://www.genderdiversity.cgiar.org.

Gewin, V. (2010). Cultivating new talent. *Nature, 464* (4) 128-130.

Gilboy, A., Carr, H., Kane, T., & Torene, R. (2004). *Generations of quiet progress: The development impact of U.S. long-term university training on Africa from 1963 to 2003.* Retrieved from http://www.aaionline.org/files/ATLAS_AFGRAD_Generations_of_Quiet_Progress.pdf.

Herdt, R., Kornegay, J., Lund, D., Ouattara, M., & Stovall, J. (2006). *External evaluation panel: Five year technical review (2002-2007) of the bean/cowpea collaborative research support program (CRSP)*. East Lansing, MI: Michigan State University.

Hoeffler, S. (2007). *The challenges of agriculture in Mali: A case study of Sekora Modibo Coulibaly, advisor.*

Holley, F., Knueppel, D., & Wolking, D. (2007). *Global livestock CRSP annual report 2007.* Davis, CA: University of California.

IAASTD. (2007). *Agriculture at the crossroads: Global report.* Washington , DC: Island Press.

International Livestock Research Institute. (n.d.). *Welcome to ILRI Website*. Retrieved March 26, 2010, from International Livestock Research Institute: http://www.ilri.org.

Jamora, N., Bernsten, R., & Maredia, M. (2008). *Assessing the impact of the bean/cowpea collaborative research support program (B/C CRSP) graduate degree training*. Paper presented at the International Research Conference, Iloilo City, Philippines. Retrieved from http://ageconsearch.umn.edu/bitstream/6918/2/sp08ja01.pdf.

Jomo Kenyatta University of Agriculture and Technology. (2010). *Jomo Kenyatta University of Agriculture and Technology*. Retrieved March 26, 2010, from http://www.jkuat.ac.ke.

Kean, S. (1988). Developing a partnership between farmers and scientists: The example of Zambia's adaptive research planning team. *Experimental Agriculture, 24*, 289- 299.

Keilson, J. (2001). "Building Human Capacity through Training" *SIT Occasional Papers Series*, Issue no. 2, Spring, pp.15-29.

Kenya Agricultural Research Institute. (2010). Retrieved March 26, 2010, from http://www.kari.org.

Kristof, N. D. (2009, November 14). Triumph of a Dreamer. *New York Times*, p. WK11.

Marquis, G.S., & Sakyi-Dawson, O. (2007). *Global livestock CRSP: Enhancing child nutrition through animal source food management (ENAM).*

Matz, M. (2009, December 22). Sub-Saharan Africa's promise is growing. *Des Moines Register*.

Mervis, J. (2009, November 6). When Counting Jobs Isn't Enough. *Sciencemag.org, 326* (5954), p. 783.

Michigan State University. (2008). *FY 2008 technical progress reports April 1, 2008- September 30, 2008: Dry grain pulses collaborative research program (CRSP)*. East Lansing, MI: Michigan State University.

Michigan State University. (2008). *Regional partnerships to enhance bean/cowpea consumption & production in Africa and Latin America: A value chain strategy.* East Lansing, MI: Michigan State University.

Michigan State University. (2008). *Request for expression of interest from US universities to train students from Ghana and Zambia*. East Lansing, MI: Michigan State University.

Michigan State Universiy. (n.d.). *UILTCB BIFAD Long-Term Training Program.* East Lansing, MI: Michigan State University.

Minor, N. (2009). It starts with a seed. *St. Thomas Magazine , XXV* (2).

Mkandawire, R. (2009). *The global partnership for agriculture and food security: A perspective from NEPAD/CAADP and the potential way forward.* Retrieved from http://www.caadp.net/pdf/GPAFS%20brief%20to%20high%20level%20meeting.pdf.

MSU Food Security Group. (2009). *Lessons learned from 25 years of food security research, capacity-building, and outreach.* Retrieved from Michigan State University, Department of Agricultural, Food, and Resource Economics' website http://www.aec.msu.edu/fs2/25-Years.pdf.

Mwanamambo, B. N. (2008). *Financing smallholder agribusiness in Zambia: An economic analysis of the ZATAC model.* Texas A&M University, Office of Graduate Studies. College Station: Texas A&M University.

Mwang'ombe, A. (2006). *Strengthening agricultural and environmental capacity through distance education: Partnership between University of Nairobi and Makerere University in East Africa and University of Florida and CIAT.* Paper presented at the Fourth Pan Commonwealth Forum on Open Learning, Jamaica.

National Agricultural Research Organisation. (2010, February 17). *NARO Home page*. Retrieved March 26, 2010, from National Agricultural Research Organisation: http://www.naro.go.ug/index.html.

NEPAD. (2001). *The new partnership for Africa's development*. Retrieved from http://www.nepad.org/framework/lang/en.

NEPAD. (2002). *Comprehensive agriculture development programme.* FAO. Retrieved from http://www.fao.org/docrep/005/y6831e/y6831e00.HTM.

Office of International Research, Education, and Development. (2008). *The integrated pest management collaborative research support program annual report.* Blacksburg, VA: Virginia Tech.

Oregon State University. (2008). *Aquafish second annual report: 1 October 2007 to 30 September 2008.* Corvallis, OR: Oregon State University.

Plan for Modernisation of Agriculture Secretariat. (2010). *Plan for Modernisation of Agriculture*. Retrieved March 26, 2010, from http://www.pma.go.ug.

Regional Universities Forum for Capacity Building in Agriculture (RUFORUM). (n.d.). *Welcome to RUFORUM | RUFORUM*. Retrieved March 26, 2010, from Regional Universities Forum for Capacity Building in Agriculture (RUFORUM): http://ruforum.org/drupal/node/10.

Rubin, D. (2008). *Title XII: The vision, the instituions, and the activities.* National Association of State Universities and Land Grant Colleges at the request of the Board for International Food and Agricultural Development. Bethesda: Cultural Practice, LLC.

RUFORUM Secretariat. (2009). *Regional capacity building efforts in support of agricultural research and innovation: the RUFORUM approach.*

Skelton, A., & Jackson, D. R. (2005). *USAID long-term agricultural training assessment: Southern Africa.* USAID. Arlington: Development Associates, Inc.

Staatz, J.M., & Dembélé, N.N. (2007). *Agriculture for development in sub-Saharan Africa. Background paper for the World Development Report 2008.* Retrieved from http://siteresources.worldbank.org/INTWDR2008/Resources/2795087-1191427986785/StaatzJ&DembeleN_AgriForDevtInSSA_ve19.pdf.

Swindale, L. D., Izadore, B., John, E., Gray, R. C., Jensen, G. L., Lal, R., et al. (1994). *An Evaluation of the USAID and Universities Collaborative Research Support Programs.* U.S. Agency for International Development, Office of Agriculture, Global Bureau. Gainesville: Tropical Research and Development, Inc.

Taylor, M. R., & Howard, J. A. (2005). *Investing in Africa's Future: U.S. Agricultural Development Assistance for Sub-Saharan Africa.* Washington DC: Partnership to Cut Hunger and Poverty in Africa.

The Association of African Agricultural Professionals in the Diaspora (AAAPD). (2010). Retrieved March 26, 2010, from Collaborative Master of Science in Agricultural and Applied Economics (CMAAE) website: http://www.agriculturaleconomics.net/announcements/description.asp?00=6

University of Florida. (2008). *Strengthening agricultural and environmental capacity through distance education (SAEC-DE) progress report January – December 2008.* Gainsville, FL: University of Florida.

University of Florida. (n.d.). *Strengthening agricultural and environmental capacities through distance education (SAEC-DE) and locally relevant research* [Brochure]. Gainsville, FL: University of Florida.

University of Florida. (2010). *UILTCB program implementation workplan and budget for Malawi.*

University of Nebraska-Lincoln. (2008). *INTSORMIL educational activities.* Lincoln, NE: University of Nebraska.

University of Wisconsin-Madison. (2009). *BASIS assets and market access collaborative research support program: Annual report October 2007 – September 2008.* Madison, WI: University of Wisconsin-Madison.

University of Wisconsin-Madison. (2008). BASIS AMA CRSP a*nnual work plan fiscal year 2008-2009.* Madison, WI: University of Wisconsin-Madison.

USAID. (2007). *President's initiative to end hunger in Africa: Partnering to promote agricultural growth and food security (IEHA)*. Washington, D.C: USAID.

USAID. (2009). *Initiative for long-term training and capacity building (UILTCB) in Malawi progress report, Spring 2009.* Washington, DC: USAID.

USAID. (2009). *Human and institutional capacity development (HICD) policy paper.* Retrieved from http://www.usaid.gov/policy/ads/200/201maf.pdf.

US Department of State. (2009). *Global hunger and food security initiative: Consultation document.* Retrieved from http://www.state.gov/documents/organization/130164.pdf.

Vince, G. (2010). From one farmer, hope – and reason for worry. *Science 327,* 798-799. doi: 10.1126/science.327.5967.798.

Virginia Tech. (2008). *Sustainable agriculture and natural resource management collaborative research support program annual report 2008.* Blacksburg, VA: Virginia Tech.

Waruru, M. (2009, October 12). African food production on the rise. *SciDev.Net.*

Widders, I., & Maredia, M. (2005, June). *The CRSP approach to building human resources and institutional capacity: Improving on a successful model.* East Lansing, Michigan.

World Bank. (2008). *World development report: Agriculture for development.* World Bank, Washington, DC.

World Learning, Inc. (2002). *Draft - A training needs assessment: Ugandan agricultural sector.*

ANNEX III: List of Persons Interviewed

Name	Country	Title (Professional Title)	Organization
J.N.L. Lamptey	Ghana		Crops Research Institute, Kumasi
Samuel Osei-Yeboah	Ghana		Crops Research Institute, Kumasi
Blansen Amoabeng	Ghana		Crops Research Institute, Kumasi
Ken Fenning Okwae	Ghana		Crops Research Institute, Kumasi
Mike Owusu-Akyan	Ghana		Crops Research Institute, Kumasi
Grace Boferey Arku	Ghana		Crops Research Institute, Kumasi
Kwasi Kwafo Adarkwa	Ghana	Vice Chancellor	Kwami Nkruma University of Science and Technology
Worlah Akwetey	Ghana		Kwami Nkruma University of Science and Technology
S.A. Osei	Ghana		Kwami Nkruma University of Science and Technology
Patrick Kojo Ofori	Ghana	Senior Agricultural Economist	Ministry of Food and Agriculture, Accra
Aboubacar Touré	Ghana	Program Officer	Alliance for a Green Revolution in Africa (AGRA)
A.B. Salifu	Ghana	Director General	Council for Scientific and Industrial Research (CSIR)
Shashi Kolavalli	Ghana	Senior Research Fellow	International Food Policy Research Institute (IFPRI)
John Ofosu-Anim	Ghana	Head Crop Science Dept.	University of Ghana, Legon
Eric Yaw Naminse	Ghana		University for Development Studies, Tamale
Enoch Quayson	Ghana		University of Cape Coast
Eric Cornelius	Ghana		
Ferdinand Delali Mawunya	Ghana		Kpong Agricultural Research Centre/Institute of Agricultural Research, Kpong
Bernice Kudjawu	Ghana	Food Nutritionist	
Odoom Domson	Ghana		Portal Limited, Accra
Brian Dusza	Ghana	Chief, Economic Growth	USAID/ Ghana
John Mullenax	Ghana	Agricultural Officer	USAID/ Ghana
Fenton Sands	Ghana	Food Security Consultant	USAID/ Ghana
S.G. Kiama	Kenya	Chairman-Dept. of Vet. Anatomy and Physiology and Associate Dean, Faculty of Veterinary Medicine	University of Nairobi
Njenga Munene J.	Kenya	Dean Faculty of Veterinary Medicine-University of Nairobi	University of Nairobi
Agnes W. Mwang'ombe	Kenya	Principal, College of Agriculture and Veterinary Sciences & Professor of Plant Pathology	University of Nairobi
Levi S.M. Akundabweni	Kenya	Associate Dean, Faculty of Agriculture	University of Nairobi
Geoffrey Kironchi	Kenya	Senior Lecturer Soil & Water Management	University of Nairobi
Florence M. Olubayo	Kenya	Agricultural Entomologist & Chairman, Dept. of Crop Protection	University of Nairobi
Anne Chele	Kenya	Deputy Coordinator Monitoring & Evaluation	Agricultural Sector Coordination Unit
Mussolini Kithome	Kenya	PhD, CIPM, MPM, CPE Coordinator	Agricultural Sector Coordination Unit

Name	Country	Title (Professional Title)	Organization
Ephraim A. Mukisira	Kenya	Director, KARI	Kenya Agricultural Research Institute
Bosibori Bwari Bett	Kenya	Research Scientist	Kenya Agricultural Research Institute
Willis Oluoch-Kosura	Kenya	Programme Director	African Agricultural Economics Education Network
Joseph T. Karugia	Kenya	ReSAKSS Coordinator	International Livestock Research Institute
Diallo Mahmoudou	Mali		Programme Panafricain de contrôle des Epizooties
BA Ibrahima	Mali		Programme Panafricain de contrôle des Epizooties
N`Diaye Mamadou R.	Mali		Programme Panafricain de contrôle des Epizooties
Niang Mamadou	Mali		Laboratoire Central Vétérinaire
Tembely Seydou	Mali		Laboratoire Central Vétérinaire
Diawara Sidy	Mali		Laboratoire Central Vétérinaire
Traore Halimatou	Mali		Laboratoire Central Vétérinaire
Berthe Safiatou	Mali		Laboratoire Central Vétérinaire
Coulibaly Moussa	Mali		Laboratoire Central Vétérinaire
Maiga Alpha Seydou	Mali		Institut d'Economie Rurale
Kergna Alpha Oumar	Mali		Institut d'Economie Rurale
Cisse Youssouf	Mali		Institut d'Economie Rurale
Traore Moctar	Mali		Institut d'Economie Rurale
Doumbia Mamadou	Mali		Institut d'Economie Rurale
Dao Hassan	Mali		Institut d'Economie Rurale
Diourte Mamourou	Mali		Institut d'Economie Rurale
Diarisso Niamoye Yaro	Mali		Institut d'Economie Rurale
Toure Aboubacar	Mali		Institut d'Economie Rurale
Telly Madam	Mali		Agriculture & Environment Consultancy
Haidara Lansry Nana Y	Mali		Commisariat à la Securité Alimentaire
Diarra Amadou	Mali		Institute du Sahel
Baffour Badu-Apraku	Nigeria	Sélectionneur	International Institute of Tropical Agriculture
Abebe Menkir	Nigeria	Sélectionneur-généticien maïs	International Institute of Tropical Agriculture
B.Y. Abubukar	Nigeria	Executive Secretary	Agricultural Research Council of Nigeria
Yarama D Ndirpaya	Nigeria	Chief Scientific Officer PGR	Agricultural Research Council of Nigeria
D.O. Chikwendu	Nigeria	Director, Extension Services	Agricultural Research Council of Nigeria
Gaudensia Kenyangi	Uganda	Agricultural Development Specialist	USAID/ Uganda
John Mark Winfield	Uganda	Deputy Mission Director	USAID/ Uganda
Douglas Balko	Uganda	Director, Office of Economic Growth	USAID/ Uganda
Kyambadde Andrew Paul	Uganda	Deputy Team Leader - HIV/AIDS	USAID/ Uganda
David Eckerson	Uganda	Mission Director	USAID/ Uganda
Bernard L. Fungo	Uganda		Makerere University
Samuel Kyamanywa	Uganda	Professor, Pest Management	Makerere University
Adipala Ekwamu	Uganda	Regional Coordinator	Regional Universities Forum for Capacity Building in Agriculture

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