

# Education and Research in Agriculture (ERA)

## FY 2013 ANNUAL REPORT

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## Acronyms

**AETR:** Agricultural Education, Training and Research Institutions  
**ANCAR:** National Agency for Agricultural and Rural Council  
**AKIS:** Agricultural Knowledge and Information Systems  
**BFAR:** Bureau de la Formation Agricole et Rurale  
**CAGE:** Commercial and Government Entity  
**CCR:** Central Contractor Registration  
**CFPH:** Centre de Formation Professionnelle en Horticulture  
**CIRIZ:** Comité Interprofessionnel du Riz  
**CNCR:** Conseil National de Concertation et de Coopération des Ruraux  
**CNFTEIA:** Centre National de Formation des Techniciens d'Elevage et des Industries Animales  
**CNFTEFCPN:** Centre National de Formation des Techniciens des Eaux et Forêts, Chasse et des Parcs Nationaux  
**DDL:** Distance and Distributed Learning  
**DRDR:** Direction Régionale du Développement Rural  
**ENSA:** Ecole Nationale Supérieure d'Agriculture  
**ERA:** Education and Research in Agriculture  
**ESEA:** Ecole Supérieure d'Economie Appliquée  
**FEPRODES:** Fédération des Femmes Productrices de la Vallée du Fleuve Sénégal  
**FNRAA:** Fonds National de Recherches Agricole et Agro-Alimentaires  
**FOG:** Fixed obligation grant  
**FTF:** "Feed the Future" – The Presidential Food Security Initiative  
**GDP:** Gross Domestic Product  
**GIE:** Groupements d'Intérêts Économique - Economic Interest Groups  
**GIS:** Geographic Information Systems  
**GOANA:** Grande Offensive Agricole Pour la Nourriture et l'Abondance  
**GRAAS:** Groupe De Réflexion Sur L'Agriculture Au Sénégal  
**ICT:** Information and communications technology  
**ISFAR:** Institut Supérieur de Formation Agricole et Rurale  
**ISRA:** Institut Sénégalais pour la Recherche Agricole  
**ITA:** Institut de Technologie Alimentaire  
**LTAEB:** Lycée Technique Agricole Emile Badiane  
**MOU:** Memorandum of Understanding  
**OIRED:** Office of International Research, Education, and Development  
**PCE:** Projet Croissance Economique  
**PMP:** Performance Monitoring Plan  
**PMU:** Project Management Unit  
**REVA:** Return to Agriculture Program  
**SEP:** Strategic Engagement Priority  
**SNRASP:** Agro-Sylvo-Pastoral Research of Senegal  
**TOR:** Terms of Reference  
**UASD:** Université Asane Seck de Ziguinchor (formerly Université de Ziguinchor)  
**UCAD:** Université Cheikh Anta Diop de Dakar  
**UConn:** University of Connecticut  
**UGB:** Université Gaston Berger  
**UT:** Université de Thiès  
**VT:** Virginia Tech

## **Executive Summary**

USAID/ERA completed its third year of implementation in September 2013. This annual report presents accomplishments according to its three project components. It also presents performance indicator achievements based upon the USAID/ERA Performance Monitoring Plan (PMP).

The three components of USAID/ERA are:

1. Strengthening education and training,
2. Strengthening applied research and outreach, and
3. Project management and policy support

### **Highlights of Results and Achievements for FY 2013**

The goal of USAID/ERA is to develop human and institutional capacities in agricultural teaching, research, and outreach in order to serve the needs of the Senegalese public and private sector, including producers. USAID/ERA is closely linked to USAID/Senegal's strategic objective of increased inclusive economic growth and the Feed the Future (FTF) goal of sustainably reducing global poverty and hunger in Senegal. USAID/ERA contributes to USAID/Senegal's FTF intermediate result: increased institutional and human resources capacity.

Following two years of implementation within the challenging higher education context of Senegal, USAID/ERA has ended Year 3 demonstrating good progress toward its life-of-project performance targets.

### **The Project's Intervention Approach**

USAID/ERA works with 12 Senegalese Agricultural Education, Training and Research (AETR) institutions to accomplish its FTF goal and objectives. The AETR partner institutions span six ministries in Senegal, including the Ministry of Higher Education and Research, which provides oversight for project activities. USAID/ERA is being implemented by a consortium of five U.S. universities: Virginia Tech (lead institution), University of Connecticut, Michigan State University (MSU), Purdue University and Tuskegee University.

The diagnostics, technical assessments, focus group studies, and related field work completed by the project have revealed key institutional weaknesses in each of the three project components. Project interventions have been tailored to address priority problems, issues, and gaps at each AETR partner institution.

## Self-Assessment (Auto-evaluation)

USAID/ERA has engaged AETR partner institutions in the process of self-assessment or auto-evaluation is undertaken to ensure local ownership and help AETR partners identify for themselves critical factors and issues that may be hampering their institutions in supporting development in the agriculture sector of Senegal. The process generates action plans (at the departmental and institutional levels) to improve learning, research, and outreach performance throughout the agricultural sector.

The auto-evaluation process is not only a diagnostic and prescriptive tool, but is also oriented towards helping the partners focus on quality assurance at the institutional level. The auto-evaluation process supports the meaningful inclusion of external stakeholders in curriculum and research activities of the institution.

Auto-evaluation activities review curriculum, pedagogy, research, outreach to community, management and administration in light of the project-led labor market needs assessment conducted earlier. The goal from these activities is that AETRs will begin to recognize institutional gaps, providing the impetus for continued improvements in institutional performance and effectiveness.

Implementation activities are structured around the three project components: education and training, research and outreach, and management and policy. Highlights of the project's results and achievements by component for fiscal year 2013 are summarized below with details presented in the following sections of the report.

### Component 1 - Education and Training

Key problems and issues for this component are centered on the manifest gaps in courses, programs, and curricula offered by the AETRs. In addition, due in part to poor learning infrastructure, graduates of AETRs are not being adequately prepared for the demands of the agriculture sector, contributing to a high level of youth unemployment in the sector.

The poor learning infrastructure negatively affects student learning, reduces capacity of AETR graduates to meet the demands of the agriculture sector, and contributes to a high level of youth unemployment in the sector.

#### **Education and Training:**

**155 Scholars (52% women)**  
*motivated and talented young Senegalese scholars representing each of the 12 partner AETR institutions of the USAID/ERA project—were awarded scholarships as part the project's Bourses d'Excellence flagship initiative. Scholars are receiving two-year sponsorships to complete their academic programs, ranging from the technical diploma through the doctorate levels, at local Senegalese AETR institutions and in the United States.*

USAID/ERA has instituted programs at three different levels: institutions, professors and researchers, and students, to reduce performance gaps in the education and training component.

**Major activities for the period include:**

- **For institutions:** USAID/ERA is working with its partners to revamp syllabi, courses and curriculum: in partnership with ENSA and ISFAR, USAID/ERA revamped 44 syllabi. The goal is to assist in adapting the course contents of the agriculture academic programs to increase alignment with the needs of the private sector. In addition, a significant quantity of equipment including ICT, vehicles, lab materials, water pumps, agricultural tools, and eLearning systems, has been provided to the AETR partners and is now being deployed. The overall focus of the equipment grants is to improve the instruction and learning infrastructure of AETR partners.
- **For professors and researchers:** USAID/ERA has implemented three short-term technical training programs, workshops and seminars designed to strengthen AETR faculty members' skills in pedagogy, learner-centric instruction methods, modern agriculture techniques, outreach to farmers, gender inclusion in agriculture, entrepreneurship, conservation farming, and advanced technology; 69 professors and researchers participated. In addition, USAID/ERA sponsored the participation of 10 faculty in three outside trainings. The set of training provided by the project is meant to push forward AETR partner institutions in producing high quality and market-ready graduates who have the necessary skills to succeed. More detail about these trainings is provided in Component 1, short-term faculty training.
- **For students:** USAID/ERA launched its young leadership development program, which supported three groups of scholars (US, local, value chain) to create a new group of leadership of the agriculture sector. The "Bourses d'Excellence" program is providing financial support to 155 students from 12 institutions from around the country, 21 of who are pursuing graduate degrees in the United States and 134 of whom are completing their studies in Senegal. With this venture, students who are pursuing degrees in the United States are required to do their field research in Senegal. In addition, the scholars are being linked to local research activities that contribute to FTF and are part of the USAID/ERA research program, as well as to other field research being conducted in targeted regions of Senegal. This set-up ensures that the students remain connected to their home institutions in Senegal and that they are being prepared to assume leadership roles in the sector upon returning to their home country.

**Results**

Human and institutional capacity-building indicators, such as the number of individuals supported in long-term agriculture training, syllabi revisions, and AETR institutions managed as centers of excellence, are on target.

#### *Selected Performance Metrics for Education and Training*

- **44 courses syllabi revised, ensuring the placement of focus on learning outcomes**
- **79 professors and researchers trained in pedagogy, curriculum, and advanced agriculture research techniques**
- **155 scholars (52% women) receiving long-term training support**
- **12 AETR equipped with ICT, vehicles, and labs**

**Impact:** The comprehensive set of intervention programs being implemented by the project respond to private sector and market demands. USAID/ERA is facilitating the development of appropriate human resources for the priority needs of the country's agriculture sector determined by the labor assessment survey carried out by USAID/ERA through UConn in partnership with UCAD in 2011.

## **Component 2 – Research and Outreach**

### **Research**

The research program supports the development of technologies and practices to strengthen the value chains of Senegal's FTF crops: rice, maize and millet. The lack of effective linkages and coordination between applied research and outreach (extension) has severely hampered the uptake of new technologies in the agricultural sector. Importantly, the program has required AETR institutions to forge stronger links among themselves and with the private sector.

After a late start, the comprehensive research program of USAID/ERA has hit its stride in year three. Five collaborative research programs are being funded in partnership with Senegal's Fonds National de Recherches Agricoles et Agro-alimentaires (FNRAA) and the consortium of U.S. universities. Rice, maize, and millet—FTF crops for Senegal—are the focus of the research being funded. By design the awards to local partner consortia require linkages to research and extension (and often education) elements of the value chains.

These programs are:

- Improved Millet Production Program – ENSA
- Casamance Rice Improvement Program – ISRA
- Salt-Tolerant Cereal Varieties Program – ISFAR
- Canned Sweet Corn Production Program – ITA

- Local Rice Varieties Promotion Program – UGB

These research programs are being done in partnership with farmers in their community as well as private sector organizations. This design encourages orientation to resolving problems faced in the sector. Activities and results are described in Component 2, collaborative research program of this report.

## Results

Field-testing is being conducted on improved rice varieties for the adaptation of local production conditions and unique soil-based constraints to crop growth. New millet varieties are being evaluated on farms, and the work is being done by farmer cooperatives. Small-holders are being integrated into research efforts sponsored by USAID/ERA. These individuals have helped to install experimental plots.

USAID/ERA’s emphasis on connecting the outreach and service missions of an academic institution resulted in tangible changes in practices at Senegalese AETR institutions. AETR partners hosted several events during Year 3 to provide services to the public outside of formal classes. These efforts included short-term training and workshops led or hosted by ANCAR with the University of Thies agricultural institutes ENSA and ISFAR, and short-term training and workshops hosted by the University of Assane Seck of Ziguinchor in partnership with ITA. The latter led to the training of producers and female small entrepreneurs in food processing.

### **Research and Outreach:**

*USAID/ERA implemented two outreach activities to coincide with International Women’s Day 2013.*

*These efforts benefited 77 participants, including key constituencies of USAID/ERA - 66 Femmes Transformatrices and 11 men from 25 Economic Interest Groups (GIE) in the Casamance region.*

### ***Selected performance metrics for Research and Outreach***

- **13 New technologies under research, transferred to 192 participant farmers**
- **ERA implemented two targeted outreach programs supporting 169 farmers and food transformers**
- **Outreach training for 3 private sector and trade organizations**

## Impact



Research impacts at the farm level are typically slow. The research supported by USAID/ERA is not yet completed. Nevertheless, large increases in yield were obtained early in the millet research program by varying a few components of the smallholder system. These results will influence the research program next year and open the possibility of earlier than expected technology transfer.

## **Outreach**

USAID/ERA developed and implemented two outreach efforts with the support of Professor Ozzie Abaye in partnership with University of Thiès and ANCAR. In Toubacouta, grassland management techniques and the introduction and use of mung bean as a leguminous for ground cover and for forage making were both introduced.

Another outreach effort took place in Ziguinchor, facilitated by Professor Ntam Baranyi of Tuskegee University in collaboration with UASZ and ITA. Femmes Transformatrice were trained in business marketing and food packaging and communication.

These outreach activities are in addition to the outreach work in FOG research projects described above. Outreach efforts aim to increase market opportunities for the private sector and most specifically for women entrepreneurs. For an example see success story 1, “Young Senegalese Women Participate in Agro-Entrepreneurship.”

## **Component 3 – Management and Policy**

The key problems and issues for this component at the AETRs include fragile management, administrative and technical structures. These have led to sub-optimal decision-making. The AETRs lacked adequate Information and Communications Technology (ICT) systems. As a result the AETRs could not fully monitor important performance metrics such as graduation rates of students, research output by faculty, placement of graduates, and level of outreach services to their key constituents and stakeholders such as private sector firms, entrepreneurs, policy-makers, alumni, local community organizations, and NGOs.

USAID/ERA has undertaken a series of coordinated activities and interventions to enhance each AETR partner institution’s ability to fulfill its core missions to teach, conduct applicable research and offer value-added outreach services to all of their stakeholders and partners.

Major activities for the period include:

**Institutional Self-evaluation Data Analysis.** A major focus of the auto-evaluation is to assist the AETR partner institutions in the practice of measurement and to develop a culture of accountability. Thus, the project is working with and through the Technical Working Groups in all aspects of the auto-evaluation, including data gathering, analysis of operational efficiency, and monitoring of key statistics on institutional

performance, results and outcomes. During FY 2013 the process was completed at two institutions, CNFTEFCPN and LTAEB.

## Leadership Training

**AKIS Study tour.** USAID/ERA implemented an Executive Leadership and Agricultural Knowledge and Information Systems” (Exec-Lead AKIS) program for 21 high-level officials from Senegal’s agricultural sector. These included representatives of AETRs, the private sector, government, producer organizations, NGOs, and small farmer associations of Senegal. The program focused on strengthening the official’s management and policymaking competencies and facilitated relationship building between different areas of the agricultural sector.

The three phases of the Exec-Lead AKIS were as follows:

**Phase I** - A 2-day workshop in Saly, Senegal. The workshop provided a forum for participants to explore as group key AETR-related issues that impact the development of the agriculture sector of Senegal. These issues were then used to develop a program for the study tour phase of the Exec-Lead AKIS program.

**Phase II** - A 12-day AKIS study tour in the United States at consortium universities (Virginia Tech and University of Connecticut) and in Washington DC. The study tour introduced the land-grant agricultural university model of the US, placing emphasis on its tri-partite mission (education-research-outreach).

Participants learned about the inner workings of the two universities from the perspectives of management and leadership. Participants met with senior officials of the Association for Public and Land Grant Universities and The World Bank in Washington, D.C. The visits and interactions provided examples of successful management practices at leading large public universities and organizations in the US.

**Phase III** – A 3-day symposium in DC focused on the theme of: Capacity Building for Agricultural Training and Education in Developing Countries. The symposium brought together educators, administrators, and development experts for discussions on best practices and lessons learned during the course of planning and implementing agriculture-related development projects.

The relationships built and information gathered during the USAID/ERA Exec-Lead AKIS will facilitate the group’s ability to continue working together to advance

### **Management and Policy:**

*USAID/ERA developed an executive leadership program for 21 **senior officials working in all areas of the agriculture sector of Senegal.** Focusing on Agricultural Knowledge and Information Systems (AKIS), the program involved a local workshop and U.S. study tour. Key themes for the program included: leading change, decision-making at the institutional level, linkages with the private sector, and workforce development.*

transversal agricultural development issues in Senegal. USAID/ERA intends to facilitate a restitution in Senegal as well as a formal set-up of an agricultural advisory group.

Performance management and monitoring system: USAID/ERA supported the design of a curriculum mapping database, and job insertion Database Management Systems (DBMS) at two partner sites (LTAEB and UT) during the fiscal year. USAID/ERA first provided ICT equipment (desktop computers, servers, laptops and software systems) to encourage stronger use of analytics in decision-making. Site evaluations were conducted during the fiscal year through which USAID/ERA discovered that few systems (technical, administrative or managerial) were in place to allow deployment of the pilot DBMS. Since the AETR institutions did not meet the requirements for the DBMS deployment, the project focused on assisting partners with the creation of systems and procedures for data collection, storage and retrieval. USAID/ERA will continue to explore alternative means to strengthen use of DBMS and other digitally-based tools to support decision-making at its AETR partner institutions.

## Results

The training of the leadership rank of AETRs—rectors, directors, and deans—together with senior officials in the private sector, government and NGOs as a group, has helped to create a network. This network, embodied in the organization GRAAS, will facilitate the push for systematic changes in policies in the sector.

- **Set-up of an agriculture advisory group called GRAAS (Reflection Group on Agriculture and Agribusiness in Senegal).** Through GRAAS, ERA has facilitated policy dialogue between AETR institutions, promoting public/private partnerships, generating a better understanding of outreach among Senegalese partner institutions, and fostering multi-disciplinary and multi-institutional modalities for collaboration in applied research. This dialogue strengthens their capacity to reflect on these topics. Members decided to continue working together to advance these issues in Senegal. Through the participation of this group to take action related to their understanding in the Senegalese context. ERA will facilitate a restitution to continue this group's activities. Participation in the InnovATE symposium.
- **Performance management and monitoring system-** Curriculum mapping database, and job insertion Database Management Systems (DBMS) – these initiatives are being employed not just as tools, but also as decision-making mechanisms. USAID/ERA has selected two AETR partner institutions, LTAEB and UT for a pilot deployment of the two institution-wide DBMS. USAID/ERA has worked with the AETR partner institutions to encourage stronger use of analytics in decision-making. Site evaluations were conducted during the fiscal year. USAID/ERA has discovered that very few systems (technical, administrative or managerial) were in place to allow deployment of the pilot DBMS. The project is

assisting the partners with the creation of systems and procedures for data collection, storage and retrieval.

## Results

The training of the leadership rank of AETRs—rectors, directors, and deans—together with senior officials in the private sector, government and NGOs as a group, has helped to create a network. This network, embodied in the organization GRAAS, will facilitate the push for systemic changes in policies in the sector.

### *Selected performance metrics for Management and Policy*

The following achievements indicate advancement in the Management and Policy realm:

- **Support training of 21 academic leaders in AKIS and land-grant US university model**
- **Formation of an agriculture advisory group called GRAAS (Reflection Group on Agriculture and Agribusiness in Senegal)**
- **88 graduates working in agro-related fields**
- **Creation of 4 strategic documents related to institutional performance**
- **Creation of 4 official institution partnerships**

**Impact:** USAID/ERA is strengthening the management and leadership levels of the AETRs through the training opportunities and via a push to use data and performance metrics for decision-making. GRAAS is being positioned to support the AETRs in the coordination of approaches and interventions at the policy level that are designed to improve education as well as research and outreach activities in the agriculture sector.

## Conclusion

The USAID/ERA project is engaging current and future agricultural leaders to promote demand-driven education, applied research, and targeted policy to strengthen the overall agriculture system of Senegal. The project is supporting food security improvements in Senegal by helping each AETR fulfill its mission to serve farmers, small-scale food producers, students, professors, and policy-makers with opportunities for learning, collaboration, and research application.

## Introduction

USAID/ERA was conceived by USAID/Senegal as an FTF investment that directly links capacity building for agricultural education and training with economic growth and increased food security. The development hypothesis under which the project was designed by USAID is that by strengthening the linkages between agricultural education institutions and the private sector, agricultural productivity could be doubled.

USAID/ERA is closely linked to USAID/Senegal's strategic objective of increased economic growth and the Feed the Future goal of sustainably reducing global poverty and hunger in Senegal. The project is committed to supporting higher education centers and research institutions engaged in agricultural training. This training aims to develop sustainable improvements that foster innovation in Senegalese agriculture, in both the public and private sectors.

The FTF initiative themes of improving farming systems, agri-businesses, community efforts, value chain productivity, and production system sustainability guide and inspire the work of USAID/ERA.

USAID/ERA is focused on strengthening the capacities of its local Senegalese partner institutions in the following three areas:

- Agricultural education and training
- Applied research and outreach
- Project management and policy support

## The Project's Context and Intervention Approach

USAID/ERA supports 12 Senegalese AETR institutions in order to accomplish its assigned FTF goals and objectives. The AETR partner institutions are spread across six separate ministries of the Government of Senegal (GOS). The Ministry of Higher Education and Research provides oversight for project activities. The connection between partner institutions and their respective ministries is illustrated in the table below:

GOS Ministry	Relationship	AETR / Stakeholder
• <b>Higher Education and Research</b>	Oversight and Guidance	UCAD, UGB, UT (ENSA and ISFAR) and UASZ
• <b>Agriculture and Rural Equipment</b>	Review	ISRA, CFPH, <i>FNRAA and ANCAR (stakeholders)</i>
• <b>Industry and Mines</b>	Review	ITA
• <b>Environment</b>	Review	CNFTEFCPN

GOS Ministry	Relationship	AETR / Stakeholder
• Livestock	Review	CNFTEIA
• Professional Training	Review	LTAEB

The five U.S. universities implementing USAID/ERA, along with the footprint of the project, are denoted in the graphic below.

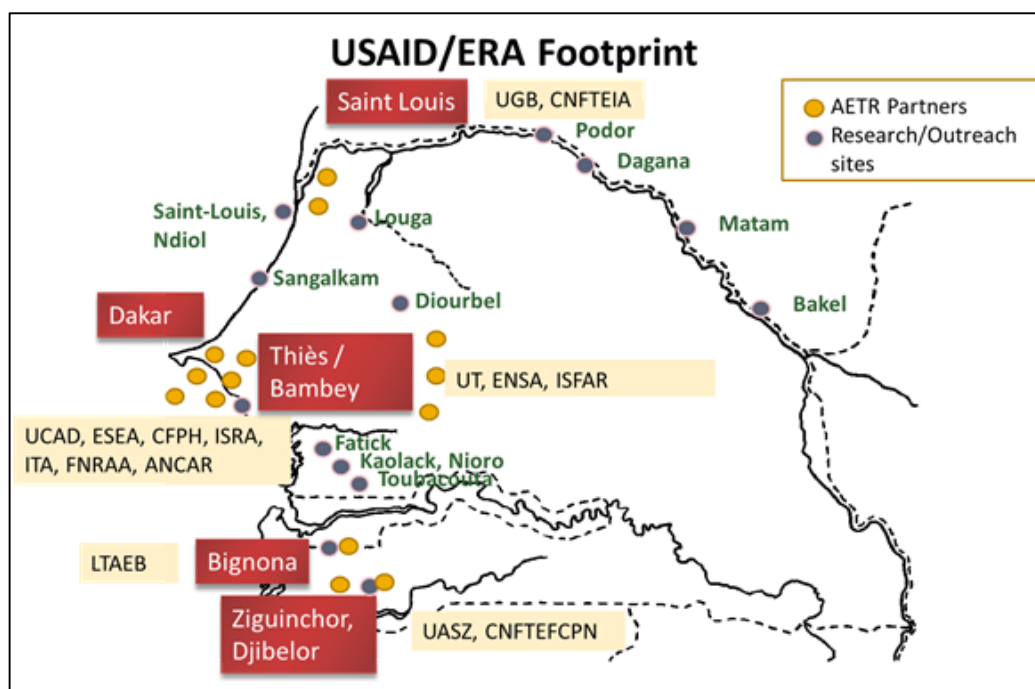


Figure 1 – USAID/ERA Footprint in Senegal

## I. Component 1: Education and Training Strengthened

USAID/ERA has three results under this component. The interventions were selected based upon the criteria presented in the USAID/ERA intervention approach. Four major issues were identified:

- **Use of Vacataires:** Equivalent to adjunct faculty in the United States, these are nomadic teachers who go from institution to institution to teach a range of courses, including core requirements. The percentage of vacataires as a percentage of total instructional staff ranges from 40% to 75% at the AETR partners of USAID/ERA.
- **Lack of Pedagogy:** Courses are not being taught based upon good instructional methods and sound pedagogy. Students are being provided information for rote memorization. Critical thinking skills are not being developed through the “teacher-centric” approach of training students.
- **Gap in Curriculum:** The curriculum is not adapted to the needs and requirements of the private sector, farmers or the applied research industry. Students are graduating from programs without the skills necessary for post-graduation life pursuits (career, graduate school, research, self-employment or entrepreneurship).
- **Weak or Deficient Infrastructure for Teaching and Research:** The AETR partners lack the basic technical, physical and administrative infrastructure and systems to effectively conduct their academic missions. The existing deficient infrastructure has been a major hurdle to increasing teaching quality, learning outcomes, and educational access at partner institutions, despite focused human capacity-building intervention efforts.

### Interventions

#### Result 1.1: AETR institutions producing high-performing and market-oriented graduates

**AETRs Syllabus Project** – Provide a standardized approach for teaching. Ensure that vacataires follow the same approach to teaching as regular instructors. Syllabi serve as a first step for curricula changes.

### Results

- USAID/ERA selected collaborators from five key partner institutions (ENSA, ISFAR, UASZ, LTAEB, CNFTEFCPN) who expressed interest in using standard syllabi for their courses. A workshop was created to assist the faculty in creating standard syllabi which did not exist prior to ERA project intervention.

- Professors from VT and ENSA conducted the syllabus workshops at ENSA and ISFAR. The workshop covered syllabus design using set objectives and instructional design methods. Participants wrote syllabi based on guidelines provided by VT Professor Ozzie Abaye. After the workshop, participants submitted their syllabi to Professor Abaye for review. A total of 44 syllabi were reviewed and validated.

Syllabi were not used before this training. The syllabi serve as a contract of interaction with students. They give students clearer information about course content and enable them to understand course progression.

- During a training seminar at Tuskegee University, UASZ faculty members received hands-on training in syllabus development. Tuskegee University professors supported these faculty members in developing better syllabi for their courses. At the end of FY 2013 syllabi had been received and were being reviewed by Tuskegee University faculty Dr. Ntam Baharanyi and Dr. Henry Findlay.

### Impact

Faculty members have begun to understand and appreciate the use of a syllabus to standardize instruction for greater learning outcomes. Creating and working from a syllabus is now seen as a necessary tool for identifying gaps in the teaching and learning process.

### Next steps

- Hold workshops to orient faculty towards the continuous improvement of instruction
- Work with selected AETR partners to institutionalize the use of syllabi
- Expand the program to other AETR partners of USAID/ERA

### Case Study 1: Standardizing syllabi at the Université de Thiès for consistency in teaching and improvement of learning outcomes



Led by Professor Ozzie Abaye of Virginia Tech, USAID/ERA has been supporting a stronger focus on pedagogy at UT-ENSA and UT-ISFAR via the use of standard syllabi to improve learning outcomes. The pilot intervention by USAID/ERA, which began in the summer of 2012, has enabled the instructors of those two AETR partner institutions, including "vacataires" or adjunct instructors, to update their course content and teaching methods.

While there was reticence at first on the part of the instructors, the focus on standardizing the use of syllabi to provide detailed course contents at UT-ENSA and UT-ISFAR is starting to bear fruit. Preliminary



assessments of the syllabus intervention through a focus group and Likert Scale perception survey demonstrate that both instructors and students appreciate the use of detailed syllabi for their courses.

Instructors reported that the syllabus provides a clear roadmap for their courses. Students who took courses with detailed syllabi inquired about topics listed in the syllabi when they were not covered. One instructor said, "The students reminded me of those topics that I did not cover". She also said that the students asked her about objectives associated with the lecture topics. The instructor added: "The students made me look at my own syllabus".

## **The Process of Implementing Syllabus Use at UT-ENSA and UT-ISFAR**

### The teaching context at ENSA and ISFAR

The USAID/ERA syllabus intervention began with a detailed assessment of the existing agriculture programs, applied curricula and curriculum-linked research efforts at UT-ENSA and UT-ISFAR. The assessment revealed several gaps in curricula. Most specifically, it was that the construction and design of courses were unstructured and were taught using a wide variety of instruction methods, which were often inappropriate for the content being taught. For example, instructors used extensive lectures in lab courses where the focus needs to be hands-on training. Another issue revealed by the assessment was that many foundational courses for first-year students are taught by vacataires, or adjunct faculty. Vacataires account for 65% of the instructors. It was found that the vacataires would primarily conduct lectures, which range from 4-7 hours/period and in most cases did not use a course syllabus.

### Getting buy-in from the instructors to implement use of standard syllabus

After an internal review, the USAID/ERA team met with several instructors from ISFAR and ENSA separately to share with them the results of the curriculum assessment. While there was widespread agreement among the instructors that many gaps existed in the curricula of the two institutions, they were not supportive of the idea of using standard syllabi to ameliorate course development and teaching tools. Several instructors disliked the idea of providing a syllabus. A few instructors said that the use of standard syllabi would undermine their authority in classroom. Other statements that were made during a series of discussions with the USAID/ERA project team included:



- “[Using a syllabus would mean] giving too much control to students”
- “Our school does not have adequate resources and will not be able to distribute syllabi to all students”.
- “[With the syllabus], I am not in control of the entire course”.

After several false starts, the instructors of both institutions collectively agreed to work on the standard syllabi project with the support of

USAID/ERA in a pilot effort. The group also decided to work on syllabus development as part of a formal revision of the overall curriculum of the school.

Following the acquiescence of the group regarding the use of a standard syllabus, USAID/ERA in collaboration with the academic directors of UT-ENSA and UT-ISFAR

conducted a series of local workshops focused on the development of learner-centered syllabi.

Key orientations for the workshops were:

- Why use a syllabus?
- Components of a syllabus
- Why is a syllabus important?
  - For students
  - For instructor

The local workshops were led by Prof. Abaye and key faculty members of both institutions. These allowed the faculty members to ask questions about the mechanics of syllabus development and the process of structured course design. At the end of the workshops, faculty members were asked to revise their courses by creating new syllabi. These were then sent to Virginia Tech faculty for review.

#### Moving toward behavior change on syllabi use



Through continued interactions with USAID/ERA field personnel and faculty members from Virginia Tech via email correspondence and field visits, the majority of the ISFAR and ENSA faculty members showed great enthusiasm in bringing the desired change to their own syllabi. By mid-March 2013, the faculty members had revised 65 syllabi (ISFAR - 45 and ENSA - 20). These were sent to Professor Abaye who involved other faculty members from Virginia Tech in reviewing and providing feedback on the syllabi. As

of August 2013, faculty members from Virginia Tech had officially validated a total of 44 syllabi from those sent. They provided their concurrence that the validated syllabi from ISFAR and ENSA met required academic standards for use at a tertiary-level institution of learning.

Follow-up meetings and discussions with the faculty members at UT-ISFAR and UT-ENSA revealed that behavior changes were beginning to take place regarding the broader use of syllabi. USAID/ERA thus conducted a series of focus group discussions and Likert Scale perception surveys on the syllabus intervention.

Findings:

- The use and the importance of a syllabus. A faculty member noted: *“Before I used a syllabus, the students often do not follow the lecture materials – as topics were discussed in a random fashion (no association with objectives). After syllabus, the students ask, “I do not remember covering lectures associated with this objective”. Also, students who do not grasp key principles now ask for more examples and clarification.*

- Syllabus as a tool to improve learning. *“I (now) do more frequent assessments in the form of exams and exercises than before... This gives me an idea about the levels of understanding of the subject matter as well as where the students are in terms of their understanding of the subject matter.”*
- Syllabus as a communications tool between faculty and student. The use of syllabi has enhanced the level of communications between the students and instructors. Expectations are now defined and communicated to students through the syllabus. One instructor said: *“Before I started using a syllabus, the first day of classes, I used to stand in front of the students, tell them my name and start lecturing. Now, I project the syllabus on the screen - and go over the syllabus line by line.”* He continued, *“The students seem to react differently – oh – you do care – you talk to us – we count...”* The faculty member said, *“The relationship between us is now very good.”*
- Other findings from the use of the syllabus. An ENSA faculty member who serves as a vacataire at UGB and UCAD says that he uses the syllabi at those other schools. Khady Mbaye, from the Department of Economy and Rural Sociology and Director of Value Chain, said this was the first time she ever used a syllabus. She was pleased to be able to have a clear structure for her class.

### Next Steps

The next steps of the syllabus intervention involve a campus-wide adoption of the tool at UT-ENSA and UT-ISFAR. USAID/ERA’s recent interactions with faculty members at both institutions indicated that the institutions are ready to use syllabi for all of their courses. USAID/ERA will work with both institutions on the implementation of standard syllabi at their campuses. USAID/ERA has also begun to work with its AETR partners in the Casamance region of Senegal on the use of standard syllabi. Other potential AETR partners are being evaluated for inclusion in the syllabus project.

The table below lists the courses and UT-ENSA and UT-ISFAR faculty members involved in the USAID/ERA Standard Syllabus Project.

No	Subject	Course Number	Instructor Name	Collaborators
<b>UT-ISFAR</b>				
1	Economie Generale	SCE 201	Sadibou Sow	M. Mbodj + M. Tine
2	Phytopathologie	PHY250	Dr. Abdoulaye Drame	Saliou Bob + Mouhamed Camara
3	Biologie Vegetale	BIOII 201	Dr. Mouhamed Camara	N/A
4	Ecolgie Forestiere	EVPHY 301	Dr. Mouhamed Camara	Dr. Elhadj Faye
5	Botanique	BIOII 202	Fily Dembele	N/A
6	Systeme Agraires	GRN 250	Fily Dembele	N/A
7	Genetique	UEB 203	Fily Dembele	N/A
8	Travail du Sol	Amen 201	Fily Dembele	N/A
9	Amendements Calcaires et Magnesiens	Agro 200	Fily Dembele	N/A
10	Assolements/Rotations	Agro 201	Fily Dembele	N/A
11	Methodes de Lutte	PVE 251	Fily Dembele	N/A
12	Agroforesterie	GRN 253	Birahim Fall	Bobo Camara

No	Subject	Course Number	Instructor Name	Collaborators
13	Anatomie des Animaux Domestiques	CONA 201	Dr. Abdoulaye Faye	Ousmane Kane + Malick Faye
14	Fertilisation Minerale	Agro 203	Ibrahima Mbodj	N/A
15	Botanique Foresterie	PEF 200	Birahim Fall	Bobo Camara
16	Caracteristiques et Dynamique des Peuplements Forestiers	PEF 201	Birahim Fall	Bobo Camara
17	Gestion Conservatoire des Eaux et des Sols	GRN 253	Birahim Fall	Amsatou Thiam + Bobo Camara
18	Sylviculture Appliquee	ARF 301	Birahim Fall	Bobo Camara
19	Technologie du Bois	ARF 301	Birahim Fall	N/A
20	Amenagement	ARF 302	Amsatou Thiam	Birahim Fall
21	Dendrometrie	EVPHY 300	Amsatou Thiam	Bobo Camara
22	Inventaires Ecologiques et Forestier	EVPHY 302	Amsatou Thiam	Birahim Fall
23	Pepiniere Foresterie	SYL 200	Amsatou Thiam	Bobo Camara
24	Pedologie	MIL 202	Amsatou Thiam	Alassane Thiam
25	Alimentation Generale et Rationnement	Alim 202	Kalidou Bocar Ba	Saliou Diouf + Saliou Diangar
26	Biochimie	Bio1 201	Mor Seck	Ibrahima Mboj
27	Transformation De Lait	TLAI 300	Mor Seck	N/A
28	Processus de Degradations	AGROAL 250	Mor Seck	Babacar Faye
29	Les Traitements	Agroal 251	Mor Seck	Michel Diatta + Babacar faye
30	Reboisement	SYL 201	Dr. Elhadji Faye	Birahim Fall + Amsatou Thiam + Bobo Camara
31	Inventaires Ecologique et Forestier	EVPHY 302	Dr. Elhadji Faye	Birahim Fall + Dr Camara
32	Experimentation	EXPE 250	Dr. Elhadji Faye	Birahim Fall
33	Production Forestiere	ARF 303	Dr. Elhadji Faye	Birahim Fall
34	Phytotechnie Speciale	PHY 201	Michel Bernard Diatta	Saliou Diouf + Saliou Diangar
35	Phytoparmacie	PVE 250	Saliou Diouf	Saliou Bob + Papa Cisse + Latyr Sene
36	Experimentation Multilocale	PROSEM 302	Dr Saliou Diangar	N/A
37	Phytotechnie Generale	PHY 200	Dr Saliou Diangar	N/A
38	Cours de Prduction de Semences	PROSEM 304	Dr Saliou Diangar	N/A
<b>UT-ENSA</b>				
1	Zoology: The Invertebrates	NA	Dr. Mamadou Thiam Diop	NA
2	Biologie Cellulaire	NA	Dr. Khadidatou Ndoye Ndir	NA
3	Foresterie 1	NA	Dr. Massamba Thiam	NA
4	Ecologie Generale	NA	Dr. Saliou Ndiaye	Alpha Omar Diallo
5	Chimie et Fertilité du Sol	NA	Dr. Alioune Diagne	NA
6	Cours d'Analyse financière	NA	Amadou Makhourédia Diop	NA

No	Subject	Course Number	Instructor Name	Collaborators
7	Comptabilité de gestion (analytique)	NA	Amadou Makhourédia Diop	NA
8	Comptabilité générale	NA	Amadou Makhourédia Diop	NA
9	Economie générale	NA	Amadou Makhourédia Diop	NA
10	Animal Physiology	NA	Thierry Nesseim	NA
11	Economie Rurale	NA	Moustapha Thioune	NA
12	Echanges agricoles et agroalimentaires, négociations commerciales en Afrique de l'ouest	NA	Moustapha Thioune	NA
13	Analyse théorique des systèmes de production agricole	NA	Moustapha Thioune	NA
14	Amélioration des plantes	NA	Tala Gueye	NA
15	Génétique	NA	Irina Vekcha Thiélo	NA
16	Système de Productions Animales en zone soudanienne et sahélienne	NA	Mamadou Tandiang Diaw	NA
17	Techniques de traitement phytosanitaire	NA	Alpha Oumar Diallo	NA
18	Crédit agricole	NA	Khady Mbaye	NA

**Short-term faculty training:** To improve teaching and help instructors place focus on learning outcomes rather than the mere transmission of information to students

## Results

Workshops conducted with a focus on formal teaching and outreach in March of 2013, involved 248 individuals from ERA partners. These included the following workshops, designed for capacity building of AETR faculty and researchers:

- Syllabi and course development: 19 professors from ISFAR
- Public and Private Sector partnerships workshop: 29 AETR faculty members
- Specialized training for research development: six researchers participated in “Tuta absoluta” workshop
- eLearning Africa workshop (forum for launch of eLearning at UT): two professors from UT
- The production of bio-control agent in India: two teaching and research faculty participated
- Advanced comprehensive training in the U.S. at Tuskegee University in: pedagogy, curriculum and syllabus development, entrepreneurship, agricultural extension and



outreach; and technical research topics food transformation (potato, legumes): 21 participants

- Selected faculty members were then sent to the United States for advanced training in pedagogy, learner-centered teaching, extension, and outreach to the private sector and farmers.

### **Impact**

Faculty members have begun to incorporate instructional design concepts into their teaching and development of course syllabi. Faculty members are incorporating experiential learning approaches into their instruction, which is in turn allowing students to gain more practical, hands-on training.

### **Next steps**

- Incentivize faculty to redesign their courses
- Expand the program to other AETR partners of USAID/ERA

## **Result 1.2: AETR institutions capable of meeting various agricultural training needs**

**Equipment grants: To ensure the availability of a minimum level of infrastructure at each AETR**

### **Results**

- ICT equipment, labs, and buses provided to AETR institutions

### **Impact**

The lab grants allow instructors to teach the necessary hands-on skills of course content. The lab gift has made it possible for students and researchers to conduct their work. They can now complement theories with the practical experiments that reinforce and bolster theoretical knowledge. This equipment now allows students to perform experiments demanded by changing conditions and to deepen their understanding of new agricultural methods. Students are now more comfortable and confident—they can be assured that in a classroom of 20 students where there are five microscopes, for example, instead of just one or none, that they will get their turn on the equipment. This has successfully addressed the problem of access to equipment, and has made a huge change in morale.

For example, at ENSA and UGB, more students are able to use microscopes for their studies.

With ICT grants, students and professors can work easily and efficiently and consult online resources to access updated information. The vehicles are making it much more practical and efficient to get students and professors from the classroom to the field.

The transportation grant is helping provide applied and hands-on agricultural training skills. Prior to the transportation grants the students and faculty didn't have the means to get to the field. The busses allow the team of researchers and students to make more frequent visits to the field for agricultural research and extension.

In Ziguinchor, the problem with lack of transportation was so dire that students were protesting and refusing to go to class until they could be assured of some reliable form of transportation to the field. When the first bus was presented, the director of the Centre des Eaux et Forets was so grateful that he prayed for the project!

### Next steps

- Assist the AETR partners in strengthening the utilization of equipment grants
- Provide targeted workshop training on the advanced use and maintenance of the equipment
- Provide mentoring to ensure that systems are in place to allow proper maintenance of the equipment

### Case study 2: ICT equipment enhances performance and efficiency at AETRs



At the beginning of the USAID/ERA project, the PMU conducted a rapid assessment of the needs of AETR institutions. The need for information and communications technology (ICT) equipment was a clear priority. All of the AETR partner institutions indicated serious challenges due to the lack of computers for both the students and professors.

USAID/ERA began a “digitization” program to purchase computers for all AETR partners based on their identified needs. Each AETR justified that ICT equipment could contribute to research and the quality of education and training.

Photo caption: CNFTEFCPN students write their papers in their new computer lab.

### Impact of ICT equipment at UCAD

Calculating grades was a labor-intensive process for instructional staff of the Faculty of Sciences at the University Cheikh Anta Diop (UCAD) of Dakar. Instructors were obliged to develop handwritten spreadsheets and manually calculate student grades. Due to high student enrollment and low numbers of instructional staff, this was a lengthy process.

UCAD also identified a need for videoconference equipment. Instructional staff recognized that videoconference equipment would enable them to hold interactive sessions with other universities and facilitate distance education.

Professor Kandioura Noba, Assessor at the Faculty of Science and UCAD's focal point of the USAID/ERA project, said, "With the 70 computers donated by the USAID/ERA project, we were able to develop three multimedia rooms. One is in the Faculty of Science and Technology, the other at the School of Applied Economics and the third in the Department of Plant Biology. This is the room where we meet to grade student exams, which is a relief because computers make our job much easier."

Most of the UCAD computers are set up in the videoconference room. This allows students to attend classes at a distance and learn from instructors at other universities.

### **Impact of ICT equipment at UASZ**

The University Assane Seck Ziguinchor (UASZ) is in a unique geographic and cultural region of Senegal. The Casamance region has great potential for agricultural expansion, but is also characterized by isolation and remoteness.

During the rapid assessment, an immediate need was identified for computers for students to write their internship reports, papers and theses. According to Daouda Ngom, professor at the Department of Agroforestry UASZ, students lost a lot of time searching for computer facilities.

"Students were forced to go into town in search of Internet cafes to write reports. This is no longer the case, as a fully equipped computer room is available to them for their work," said Professor Ngom.

The students' strong appreciation of computer availability is reflected in a higher morale and improved work quality.

### **Case study 3: Bus transport enables agricultural training and outreach**

Field trips offer first-hand experiences and are essential to the success of agricultural curricula. These hands-on learning opportunities support classroom lectures and represent a critical opportunity to enhance the quality of academic programs. However, offering field trips requires the ability to offer transportation. Because institutions did not own nor were they able to purchase buses, their ability to offer field trip opportunities was limited.

Through purchases and the donation of buses to fulfill the transportation needs of AETR institutions, USAID/ERA is leading the charge for engaging, market-oriented training at its partner institutes in Senegal.

### **Impact of the bus at LTAEB**

Located 30 kilometers from Ziguinchor, the Emile Badiane Technical High School for Agriculture (LTAEB) in Bignona is the only public institution at the high school level for agriculture in Senegal. It prepares young graduates to embrace careers in agriculture and farm management, and tailors its program to the Casamance region.

The LTAEB program requires students to participate in agricultural outreach and field trips. These on-site visits expand the curriculum and promote contact with farmers and agricultural experts. The school has faced a long-term lack of transportation which





Photo caption: LTAEB students prepare for an agricultural extension trip with their new bus.

would enable this essential component of study. Students would visit nearby farms, but out-of-town trips were not possible.

USAID/ERA identified the need in cooperation with LTAEB administration, and provided the school with a 33-seat bus. The bus has expanded and enhanced the school's methodology and curriculum.

One example is attendance at the International Fair of Dakar. Hundreds of vendors from around Africa sell processed food products at the fair. In previous years, students and professors watched and discussed television coverage of the fair, but were unable to attend.

Marième Sonko, a second year student in Agricultural Operations Management at LTAEB explained. "The bus provided by the USAID/ERA project allowed 30 LTAEB students to attend the International Fair of Dakar to see the exhibitions of processed agricultural products. The goal was to help students understand the diversity of opportunities in the agricultural sector."

Students were excited and motivated by the trip. They saw first-hand that agriculture is a career industry. They spoke with producers and salespeople about agricultural products that they had previously only heard about in class. They realized the greater possibilities available for processing, packaging and sales of agricultural products.

### **Impact of the bus at UGB**

At Gaston Berger University in Saint- Louis, the availability of transportation has brought together the instructor-researchers, producers, and processors in the Senegal River Valley.

UGB is located in an area of strong agricultural production with considerable rice specialization. Interactions between UGB students and producers had been irregular because of a lack of transportation. Now with a bus and a pick-up truck provided by USAID/ERA, students have expanded opportunities to travel to meet farmers and producers and to learn first-hand about practical applications.

UFR Instructor Mariama Diallo Dalanda said, "Every Wednesday, a group of students from the Faculty of Agricultural Sciences visit a farm and work directly with farmers. The students assist with various phases and challenges in the operations. Through this exchange, the producers are involved in the training of students. They are directly involved in the curriculum by sharing their experiences with students."

Dalanda continued, "This is a great exchange that promotes the dissemination and application of certain theoretical aspects of the training of students. This work is facilitated by means of transport available to UFR by the USAID/ERA project."

**Master's degree in Value Chain at ENSA** – Originally conceived of by the USAID/PCE project, this effort sought to develop a cadre of highly trained young Senegalese professionals who could assume leading roles in agribusiness. This project was turned over to USAID/ERA given its focus on building capacity at the University of Thiès, which includes ENSA.

### **Results**

- ERA staff held a series of meetings with the director. These covered a review of the curricula for the masters in value chain program, and guidance on the development of program tracks. The meetings also facilitated the development of a strategic vision on the program's future in cooperation with UGB and how it fits with the vision of UT.
- Provided equipment grants and scholarships

### **Impact**

- Students graduate with skills for entrepreneurship and are ready for business-oriented endeavors with a strong focus on value chain and expanding employment opportunities.

### **Next steps**

- Cultivate the use of ERA consortium partner UT-ENSA to review strategic documents.
- Issue a faculty grant for the development of courses linked to market demand.
- Hold an open house and workshop to link private sector participants with the value chain program being offered at the University of Thiès. Support the involvement of private sector and other stakeholders to strengthen the “master in value chain” program curriculum. Invite members of the private sector, USAID, and partners involved in the value chain, and explain what the school is doing.
- Introduce a new course in value chain, and strengthen the course and curricula at UT (ENSA and ISFAR) in the area of value chain and entrepreneurship in support of their vision to develop into a center of excellence in agriculture in partnership with UGB.
- Review the UT–ENSA strategic plan for the “master in value chain” program.

### **Result 1.3: AETR institutions managed as centers of excellence with a clear vision and strategy of their program development and contribution to national food security**

**Curriculum Map: To ensure that the courses and curriculum of AETRs meet market demand (private sector, farmers, government and NGOs.) Ensure that knowledge, skills and abilities are mapped to course and curriculum content.**

### **Results**

Institutional self-assessments are being conducted at AETRs to provide detailed information on courses and curricula. These were validated both internally and externally. They have also been validated at ISFAR as well as at CNFTEFCPN and LTAEB. Other AETRs are in the process of validating them or have yet to commence the process. (See the AETR partner auto-evaluation table in Component 3). Workshops were conducted by USAID/ERA to ensure that faculty understand that linkages need to be made to the demand sector. Curriculum maps provide a means for institutions to track knowledge that is demanded by the private sector. The maps also allow one to see where a given content is introduced in a curriculum.

### **Impact**

The curriculum maps are helping faculty more closely link course content with market demand. Once completed, the curriculum maps will allow students to choose a training program that corresponds to market demand. Employers will also be able to use the curriculum maps to gauge whether the graduates coming out of a given educational program are well suited to their needs.

### **Next steps**

- Create competence-based checklists for each program offered at the institution showing job opportunities for graduates.
- Expand the program to other AETR partners of USAID/ERA.

### 1.4 Component 1 Indicators achievement

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation		FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments			
1. Agricultural education and training system strengthened	1.1 AETR institutions producing high performing and market-oriented graduates		1. Number of graduates at the License, Masters, and Doctorate levels.	License	M	292	0	-292	0%	Target numbers were based on enrollment figures.  Many AETR partners were unable to complete their academic calendars at the end of the fiscal year due to disturbances (strikes) in higher education.			
					F	152	0	-152	0%				
				Masters	M	66	0	-66	0%				
					F	41	0	-41	0%				
				Doctorate	M	28	0	-28	0%				
					F	18	0	-18	0%				
				Total		<b>597</b>	<b>0</b>	<b>-597</b>	<b>0%</b>				
					2. Number of graduates at the Diploma and technical certificate levels.	Diploma	M	337	33		-304	9.79%	The academic calendar has been modified; exams were rescheduled for October and November sessions. For this reason, we could not collect data related to this indicator.  USAID/ERA will follow up with partners to gain complete graduation figures in Q1 of FY 2014.
							F	187	10		-177	5.34%	
						Technical Certificate	M	187	58		-129	31%	
		F	187				26	-161	13.9%				
		Total				898	127	-771	28%				
		Total				2	6	+4	300%				
				3. Number of AETR supported to develop syllabus/ curriculum	Total		2	6	+4	300%	It was previously planned to work with ENSA & ISFAR, but other institutions (CNFTEFCPN, LTAEB, UASZ) were added after, CFPH		

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
			4. Number of curricula revisions completed with detailed course outlines	Total	2	0	-2	0%	Curriculum development is a long process. The institutions started working on syllabi enhancement :ENSA (20 syllabi from 13 instructors); ISFAR (24 syllabi from 8 instructors);
			5. Number of graduates from AETRs obtaining employment in their field. (5)	Total	450	88	-362	19.5%	88 students (79 men & 9 women) These values are for 4 institutions (ISFAR, CNFTEFCPN, LTAEB, and CFPH). The data collection tool was sent to the other AETR. ERA will follow in order to update
	1.2 AETR Institutions capable of meeting various agricultural training needs		1. Number of AETR members trained	Administration, Finance or M&E	25	5	-20	20%	A large group training was planned for all grant recipient institutions but due to the delay in finalizing the contract we opted to have our finance and grants manager visited the offices of grant-recipient institutions to train their program coordinators.

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
				International program exchange research, consulting, networking	35	27	-8	77%	Change in leadership at key institutions precluded full participation.  Short-Term Technical Training at Tuskegee: 9 institutions Executive leadership study tour: 5 AETR and 13 government and private sector institutions
				Strategic documents implementation	6	9	+3	150%	6 institutions were previously planned to be supported by ERA to elaborate strategic documents. More institutions were supported: 1 Strategic Planning and 1 "Essential Skills for Assessing the Impacts of Agricultural Projects" workshops for the Agro Training Institute of UCAD. Self-institutional assessment at ENSA, ISFAR, LTAEB, UASZ, CNFTEFCPN, 2 Syllabus validation workshops: ISFAR, ENSA
		1. Number of individuals who		Male	76	75	-1	99%	124 local scholars (69 women and 55 men)

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
		have received USG supported long-term agriculture sector productivity or food security training (FTF output Indicator 4.5.5-6) (7)		Female	81	80	-1	99%	21 U.S. scholars (9 women and 12 men) 10 Value chain scholars (2 women and 8 men) 124 Local scholars (55 men and 69 women)
				Total	157	155	-2	99%	
		2. Number of individuals who have received USG supported short-term agriculture sector productivity or food security training (FTF Output Indicator 4.5.2-7)(8)		Male	52	133	+81	256%	More AETR members than previously planned were trained. There was a lack of qualified women to participate in these trainings. Short term training at Tuskegee: 1 woman and 20 men Tuta absoluta training: 6 men ELA 2013: 2 men International workshop on "The production of Bio control agents (Pseudomonas and Trichoderma)" in Coimbatore, India: 2 men International Women's Day in Ziguinchor training: 47 women and 3 men AgriCom training program: 19 women and 8 men AETR workshop on Public/private partnership at Ziguinchor:
				Female	150	106	-44	71%	
				Total	200	248	+48	129%	

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
									7 women and 19 men Producers' organization workshop: 32 women and 73 men 19 professors of ISFAR institutions trained in syllabi development
			4. Number of AETRs provided with	Improved ICT infrastructure and equipment (USAID/ERA Output Indicator)	12	11	-1	92%	
				Improved non-ICT infrastructure and equipment (USAID/ERA Output Indicator)	4	4	0	100%	CFPH (1 vehicle) UCAD (2 vehicles) UASZ (1 vehicles) LTAEB (1 vehicle)
				Laboratory equipment	4	3	-1	75%	USAID/ERA only received equipment for 3 institutions (UGB, UCAD, ISFAR (received a fire-safe cabinet). The next delivery will be done on FY14 Q1



Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
				Special tools and equipment for advanced research	5	3	-2	60%	ERA received only special tools and equipment for 3 institutions (ITA, ENSA and ISRA-CERAAS (Bio-molecular equipment). ERA will follow the next deliveries
			5. Number of AETRs conducting distance and distributed learning programs through ICT infrastructure	Total	5	7	+2	140%	USAID/ERA previously planned to implement e-learning activities with 5 institutions (ENSA, ISFAR, UASZ, LTAEB, and CNFTEFCPN). But other institutions were added: ISRA, ITA
	1.3 AETR institutions managed as centers of excellence with a clear vision and strategy of their program development and contribution to national food security		1. Number of higher education partnerships between international institutions and host country higher education institutions that address regional, national, and local development needs (USAID/State Standard output Indicator)		2	4	+2	200%	More partnerships than previously planned were completed (TU/UASZ, TU/ITA, Purdue /ITA, TU/UCAD)

## II. Component 2: Applied Research and Outreach Strengthened

The USAID/ERA research and outreach intervention program was designed to support USAID/ Senegal's FTF strategy to reduce global poverty and hunger. Program investments have been made with the goal of strengthening agricultural productivity to improve food security and economic resilience of vulnerable rural communities in Senegal. Research investment decisions made in Year 2 were carried forward in Year 3. Each research project was selected to address an FTF priority commodity – from expanding markets to improving nutritional content.

### **Result 2.1 AETR institutions promoting innovative research solutions to public and private clients**

**USAID/ERA's Collaborative Research Program is addressing agricultural productivity constraints in the context of global climate change and strengthening linkages between researchers and the private sector, smallholders, and women producers.**

USAID/ERA's FTF research is oriented to strengthen the capacity of local institutions to conduct applied agricultural research independently and in partnership with other public and private institutions to address the most pressing problems in the value chains. USAID/ERA's collaborative research program is being implemented in partnership with Senegal's national agricultural research funding agency, the *Fonds National de Recherches Agricoles et Agro-alimentaires* (FNRAA). By working within Senegal's existing research funding structure, USAID/ERA has been able to introduce two approaches that were previously non-existent in FNRAA's agricultural research projects. USAID/ERA required that research problems be undertaken through multi-disciplinary, multi-institutional collaboration. The financial management model for approved research projects were set up as fixed obligation grants (FOGs).

ERA worked with FNRAA to determine the gaps in research in Senegal based on the needs of the private sector. One of the requirements in the call for research proposals was to that research activities be based on stakeholder priorities. Members of the private sector are involved in each of the FOGs. In addition, the field trials are being conducted with farmers groups. Outreach component is included as part of the FOG. The five collaborative research projects are listed in Table X.

Table X. Research projects, institutional leadership location, and funding

<b>Research focus</b>	<b>Lead Institution</b>	<b>Partner institutions</b>	<b>Region of focus</b>	<b>Funding status</b>
<b>Intensification and Sustainable Management of Millet Production in the Areas of Thies, Louga and Niore: Improvement, Dissemination, and Strengthening of Elite Varieties Value Chain.</b>	UT-ENSA	CERAAS/ISRA de Thiès; ANCAR NIAYES (Thiès)	Thiès, Louga and Niore	\$75,733
<b>Improving Rain-fed Rice Productivity in Casamance</b>	ISRA/Djibélor	ANCAR; UASZ; LTAB; CRGR; ITA	Ziguinchor, Sédhiou, Kolda	\$30,507
<b>Sustainable Improvement of Cereal Productivity in Salty Environment</b>	UT-ISFAR	ANCAR, ISRA, ITA, Green Senegal	Thiès, Fatick, Kaolack	\$37,837
<b>Production and processing of sweet corn in Senegal: sterilized canned corn manufacturing</b>	ITA	CFPH, UCAD; CDH/ISRA	Saint Louis, Niaye	\$60,283
<b>Promotion of local rice in the Delta and River Valley</b>	UGB	ANCAR, FEPRODES, ISRA, DRDR/Matam, DRDR/Saint Louis, CIRIZ	Saint Louis, Matam	\$65,700

## Results:

### 13 Technologies were under research

- **Millet: 6 new technologies:** ENSA – Millet in Thiès, Nioro and Louga  
Integrated crop management in millet (FOG)  
Millet seed production system (FOG)
  1. Improved primary processing technologies of millet - ITA – Purdue Award
  2. Development of fortified instant cereal – based products for beverage and for porridge (small grant)  
*Enhanced millet production and quality through sound practices based on resource conserving technologies (ENSA, ISFAR and Toubacouta):*
  3. Improvement in per hectare yield of millet through the introduction of new regenerative elements into farm systems (legumes, integrated pest management, new and locally-appropriate millet varieties);
  4. GIS- remote sensing application in agriculture – specific use to determine percentage ground cover
  5. Grassland Management and
  6. Forage preserving techniques in Toubacouta -project of VT professor Dr. Ozzie Abaye for the use of the preserved feed resources
- **Maize: 1 new technology**
  1. ITA – Production and processing of sweet corn in Senegal
- **Rice: 3 new technologies-** ISRA – Improving rainfed rice productivity in Casamance
  1. Methods for managing the constraints to rice production (Growing adapted varieties and managing Pests trials established)
  2. Seed production system of rice in rainfed conditions in Casamance (Plots are established in different environments) (FOG)
  3. Increasing rice productivity: established best management practices in showcase plots (Plots are established in the farmer's fields).
- **Other Aspects of food security and economic growth: 3 new technologies**
  1. Study of the Millet Value Chain
  2. Promoting marketing and consumption of quality local rice
  3. Cost and Feasibility study of sweet corn in Senegal
- **Research results were being applied in 192 farmers' fields through a variety of methods:**
  - Increasing rice productivity in Casamance: established best management practices in showcase plots (100 farmers in five groups of at least 20 members each – farm trials).
  - Forage preserving techniques (participants in the training organized by Dr. Ozzie in Toubacouta on the creation and use of mung bean: 92 farmers)

- **50 Women's groups, 20 community based organizations, 10 producers association organizations, and two private sector food-export companies** applied/used new technologies through research collaborations and partnerships.
- **Funding of the three remaining research Fixed Obligations Grants (FOGs):** Virginia Tech and institutions affiliated with the five FOGs have now all signed grant agreements to begin the research projects (two of the FOGs were signed in FY 2012).
- USAID/ERA worked with the directors of the five institutions leading FOGs research projects to **finalize reporting guidelines and communication protocols** to ensure the smooth rollout of research activities.
- **Renewal of USAID/ERA – FNRAA partnership:** USAID/ERA entered into a revised agreement with FNRAA for December 2013 to September 2014 that will involve joint monitoring and evaluation of the FOG research program. Focus was placed on strengthening capacities within FNRAA to award and manage FOGs.

Research results for individual research projects follow.

**1. Intensification and Sustainable Management of Millet Production in the Areas of Thiès, Louga and Niore: Improvement, Dissemination, and Strengthening of Elite Varieties Value Chain.** Participating institutions: ENSA de Thiès; CERAAS/ISRA de Thiès; ANCAR NIAYES (Thiès). Lead Researcher: Professor Saliou Ndiaye, ENSA.

- Observation of yields greater than two tons per hectare, two to three times the yield of their standard varieties.
- Characterization of the drought resistance of 250 millet genotypes found in Senegal. A two-fold difference in drought tolerance was found among these varieties.
- Seed production and processing for improved varieties: Plots were established in 10 different communities in the regions of Thiès, Louga, Fatick and Kaolack, involving more than 250 farm families.

**2. Improving Rainfed Rice Productivity in Casamance:** Institut Sénégalais de Recherches Agricoles (ISRA); Agence Nationale du Conseil Agricole et Rural (ANCAR); Université de Ziguinchor (UASZ); Lycée Technique Agricole de Bignona (LTAB); Cadre Régional de Concertation des Ruraux (CRCR); Institut de Technologie Alimentaire (ITA). Lead researcher Siméon Bassene, ISRA/Djibelor.

- Seed production (plots in two research stations at Djibelor and SEFA (Sedhiou region) and farmer's fields have been set up for each variety).
- Identification of constraints to rice production through field trials at research plots.
- Demonstration trials have begun in farmers' fields at the Djibélor and Séfa sites.

**3. Production and Processing of Sweet Corn in Senegal:** ITA; Centre de Formation Professionnelle Horticole de Camberene (CFPH); UCAD; Centre pour le Développement de l'Horticulture (CDH) / ISRA. Lead researcher Mme Nafissatou Diop Ndiaye, ITA

- There were no activities during the rainy season because of the delay in negotiation to involve the ISRA/CDH agronomy team. Activities will start in the first quarter of Y4 using ISRA's irrigation systems at its Sangalkam and Ndiol stations.

**4. Sustainable Improvement of Cereal Productivity in Salty Environments:** Université de Thiès (UT)/ISFAR; Agence National de Conseil Agricole et Rural (ANCAR); Institut Sénégalais de Recherches Agricoles (ISRA); Institut de Technologie Alimentaire (ITA); Green Senegal. Lead researcher: Dr. Elhadji FAYE, UT/ISFAR

- Installation and biological fixation of an experimental levee network at Fadiol and Ndoff (in Thiès and Fatick regions).
- Evaluation of three salt-tolerant millet varieties at the Ndoff research site in Fatick

**5. Promotion of local rice in the Delta and River Valley, UGB, Saint Louis:**

FOG financing was ready for UGB in the month of July but at that time the university administration was closed for summer holidays and the PI was therefore unable to receive the funding. In the month of October he accepted the funds. Activities will start in Q1 of year 4.

During the period from April to July USAID/ERA staff work with the partners locally to assist in strengthening the research design. From these direct visits the PMU made recommendation to begin funding some of the projects. Others needed to adjust their design before receiving funding.

### **Impacts**

- Seed producers now have working knowledge of improved varieties and have learned methods to produce high quality seed for millet and rice. With the support of technicians and researchers, this work is helping to establish sustainable seed production and storage systems;
- Farmers are beginning to cultivate the improved varieties of millet and rice and have learned ways to increase their yields;
- Technicians from ANCAR–Niayes (30) and 60 farmers from different villages in Casamance at the farmer's schools are now well trained on modern theories of millet and rice production. With this knowledge, they are better equipped to respond to the needs of local producers.

### **Next Steps**

In Year 4, the following activities will be undertaken:

- Allocation of the second round of funding for the FOG research grants.
- Development of molecular tools at CERAAS to allow millet breeders to more quickly incorporate drought tolerance into varieties adapted to Senegal.
- M&E follow-ups on progress of research projects.
- ERA Research Symposium: This event will bring together PI's research projects, private sector members, local and U.S. scholars and their advisors to discuss the research programs, the needs of private sector, potential internships and conditions for insertion of the scholars in the research programs, etc.
- Organization of Seed Value Chain Symposium: The project will contribute to the organization of an extended Seed Value Chain Symposium that will take place in the second quarter (March 2014). The two-day event will bring together producers, seed operators, researchers, and consulting and training organizations around seed value chain issues (farmers' seeds and those obtained from research). The symposium will include forums to discuss seed management issues. This activity will be organized under the auspices of GRAAS collaboration.

All of the FOG research projects will end at the termination of the USAID/ERA project.

## Special Research Programs

### ITA – Purdue Research Collaboration: Development and assessment of micronutrient fortified instant cereal products for the Senegalese market

#### Results

This project is serving to develop new and commercially viable products for the local Senegalese market and to transfer knowledge in cereal processing and macro/micro-nutrient fortification strategies and assessment to future ITA scientists. Researchers from both ITA and Purdue University are working together to develop and assess an instant cereal product suitable for the Senegalese market. A student from Purdue University trained in fortified porridge flour production came to Senegal for three months to apply research results and train ITA technicians. ITA succeeded in producing fortified porridge flour.

#### Impacts of the ITA/Purdue Collaboration

No impact yet.

#### Next steps

In Year 4, the following activities will be undertaken:

- Determination of glycemic indices of the instant extruded flours (to be carried out at ITA)

- Short and long terms technical training of food science researchers
- Development and market assessments of new fortified instant cereal products (millet, fonio and sorghum) at ITA. Products would be formulated and processed by ITA as an instant mix with micronutrient fortification dry blended into the final product. This work will be done in collaboration with local women’s groups based in Touba
- Confirmation of the bioavailability of micronutrients from commercially viable products using in vitro screening methods at Purdue University
- Assessments of product stability
- One Senegalese Bourse d’Excellence student to begin Ph.D research in Purdue’s Interdisciplinary Food Science Program
- Collaborate with USAID/Yaajende project on nutrition activities (fortified foods).

## Young Leader’s Development Program - Participation in Research

### Results of the Senegal Component of the YLDP

Through its “*Bourses d’Excellence*” program, USAID/ERA offers Senegalese students the opportunity to study practical problems affecting food security in Senegal. The program addresses issues raised by the local population, including farmers and other private sector stakeholders in Senegal’s agricultural sector. The goal is to bolster local agricultural value chains and improve the country’s food security status. Awardees are associated with ERA’s research program In Year 3; the composition of the program is as follows:

- **US Scholars:** 14 Senegalese awardees began language instruction and preparation for graduate programs in the USAID/ERA university consortium.
- **Local Scholars:** 124 Students enrolled in relevant degree programs (Technical and B.S.) within Senegal, receiving scholarship support from ERA.

### Impact

No impact yet.

### Next steps

- Finalize enrollment of US based scholars in Masters programs at US universities
- Finalize enrollment of remaining local USAID/ERA scholarship recipients in relevant degree programs at partner schools within Senegal.

<b>Case Study 4: Bourse d’Excellence</b>
<p>Senegal’s agricultural sector does not lack quality workers, but rather people with the right training. This is especially true for women and other disenfranchised groups. With this challenge in mind, USAID/ERA has provided “Scholarships of Excellence” to 155 highly motivated learners, 52% of whom are women. Scholars are pursuing agricultural</p>



programs in seven different project domains, at levels ranging from undergraduate to doctorate.

The awards were provided to exceptional students and faculty from a cross-section of USAID/ERA's Senegalese AETR partners. AETR institutions were fully involved in the highly competitive selection process. AETRs nominated their highest-performing students to be candidates and helped them finalize their applications. A panel was convened to select candidates for the higher-level scholarships; it included both members of the private sector and USAID/ERA staff.

By grooming the very best Senegal has to offer in top-tier research programs, USAID/ERA is building the next generation of agricultural professionals.

### **U.S. Scholarships**

To strengthen agricultural knowledge in Senegal, USAID/ERA has awarded 21 scholarships for graduate-level agricultural study in the United States. Of the 21 students selected for scholarships in the United States, 14 students are currently enrolled in Virginia Tech's intensive English program at the university's Language and Culture Institute. Through this language training, the Senegalese scholars are preparing to take standardized examinations for admission to graduate studies. Those who do well are expected to enroll in graduate research programs across the consortium of agricultural universities in the United States that support the ERA project.

This program plays a key role in strengthening the capacity of students, teachers and researchers from AETR institutions by giving them an opportunity to deepen their knowledge and skills in specific areas of agriculture.

Mr. Sékou Diatta, a research professor at UCAD said, "This scholarship has allowed me to enhance my expertise in the biometrics of soil management. By mastering this field, I can bring my modest contribution to the development of agriculture once I return to Senegal."

Prior to their departure for the United States, in collaboration with the department of languages at Virginia Tech, the project initiated a two-month training session for seven scholarship recipients who were in need of English training. This session focused on language skills to start their specialization and cultural awareness training for life in the United States.



Photo caption:  
Senegalese students  
on an extension field  
trip at Virginia Tech.

Bourse d'Excellence recipient Ms. Diouma Faye, an agricultural economist and agribusiness engineer said, "Through this session, I was confident that I could start my master's degree studies without any language barrier. My integration into the United States took place without any difficulty. I felt like a resident of Connecticut when I arrived. Finally, I could begin my literature search with manuals written in English and draft my research project without any difficulty."

Mr. Muhammad El Bachir Tall, who was a member of the same class, said, "I am pleased with the relevance of the USAID/ERA project which organized this training session in Senegal before our departure. Thanks to this training, we were able to travel without stress. We felt comfortable being in America and Connecticut even before our arrival. We saved a lot of time with this training. The time we spent to understand the language and cultural differences is directly focused on our actual studies. The TOEFL and GRE are just a mere formality or exercise for us. Thanks again to the USAID/ERA project."

### **Scholarships in Senegal**

The local scholarship program has enabled young scholars access to agricultural knowledge and skill-building opportunities; 116 students were selected for these scholarships in Senegal.

Engineering student Tofféne Dione at UT-ENSA said, "Thanks to this scholarship, I have already become independent: I acquired entrepreneurial skills and set up a small poultry farm to bring my theoretical knowledge into practice. In addition, I have also set up a small vegetable garden where I experiment with chili and pepper. After my training, I will be able to independently earn my living."

Other scholarship recipients have improved their research skills and techniques and conducted community outreach. Mr. Moustapha Gueye of ISRA said, "This scholarship has allowed me to do my Ph.D at UCAD on the theme: Improving knowledge and techniques for fonio production in Senegal. The support helped me conduct research in the laboratory and in the field to propose methods of planting, cultivation techniques, and fertilization, and acquire new knowledge to improve the production and productivity of fonio in Senegal. I have also trained several women on good farming techniques. The impact will support Senegal to achieve food self-sufficiency."

This program also allowed other professionals to strengthen their capacity through training within their chosen field. Mr. Modou Thiaw, ISRA student at CESAG said, "Thanks to this

scholarship, I have acquired knowledge and skills in technical editing. I am now working on the theme: Formulation of a draft implementation of a farm producing spiny lobsters and tilapia. The results of this study will undoubtedly contribute to the achievement of food security to Senegal. "

Some scholars have used the scholarship to work on environmental issues. According to Mr. El Hadji Malick Leye, a design engineer at ISRA, "I just started a study on the management of agricultural biodiversity and biotechnology in Senegal. The purpose of this study is to improve the adaptability of cultivated plants to environmental stresses. After the results come out, we will work in collaboration with the National Research



Photo caption : CNFTEFCPN Bourse d'Excellence recipients used their scholarship funds to purchase laptops to complete their assignments.

Laboratory for Plant Production to disseminate the results."

Students greatly appreciate the financial support that that the Bourse D'Excellence offers. LTAEB student in farm management Ms. Ndeye Marième Sonko said, "Before the scholarship program, we encountered enormous difficulties to make ends meet. Thanks to the grant from USAID/ERA, I have been able to equip myself with a computer to facilitate my research and homework. I am connected to the Internet on a daily basis. This scholarship has also facilitated some students to specialize in internships in the field."

Ms. Sonko continued, "I now understand the theoretical and practical knowledge, some of which is accomplished through distance learning. This is why the three-month internship I did with the company EXOPRIM SARL (Sangalkam) made me more ambitious, because I could test everything that I have drawn from my training for my professional future. This experience in business has reinforced my decision to continue my studies in the agricultural sector, especially with my ambition to launch myself into entrepreneurship once I earn my degree."

AETR staff report that the Bourse d'Excellence competition fosters positive relationships between scholarship and non-scholarship students, and because of this, the quality of students' work has improved. CNFTEIA Professor Dr. Ka Fatou Sow professor said, "Since the inception of this award, we have seen an improvement in school performance among scholarship recipients and other students. These also want to enroll in the 'Bourses d'Excellence and dream of being a beneficiary of the USAID/ERA scholarship."

## Enhance millet production and quality through practices based on conservation agriculture technologies at ENSA and ISFAR

The objective of the proposed experiment is to introduce and test the potential benefits of Conservation Agriculture practices for smallholders in the millet production system in the Sine Saloum region.

This research is focusing on enhancing local food security by improving the current pearl millet-cowpea co-planting systems of central Senegal. In Year 3, legume production was tested in association and in rotation with millet. A small number of different leguminous bean crops (local-niébé and introduced-mung bean) were being evaluated based on their ability to provide ground cover, nitrogen fixation, and an early season food production.

Two trials were conducted at experimental sites at ENSA (Thiès) and ISFAR (Bambey). Fieldwork was completed. The technical report will be completed in the first half of Year 4.

### Impacts

The research project is not yet completed. There are no impacts yet.

### Next steps

- Finalize the preliminary technical report
- Repeat field trials during the next rainy season.

## Result 2.2: AETR institutions providing outreach services and technical support to clients in farming communities and the private sector

During the period, USAID/ERA supported the following interventions in the area of Outreach:

### Nutrition and Community Resilience and Support for farmers in the valley of Ndinderling of Kaolack: Use of mung bean as a cover, food, and feed crop

USAID/ERA works with farmers in the Toubacouta region to test the cultivation of mung bean with the goals of improving the nutritional quality diets for food insecure populations and helping to build more resilient farming systems that can better cope with the effects of global climate change. Mung bean was selected for the test in the Toubacouta region, where forage is in short supply, because it is rich in protein, minerals, vitamins and fiber.

## Case Study 5: Fostering Ties and Linkages with Local Farmers in Toubacouta Through Extension

USAID/ERA works with its partner AETR institutions to foster a greater emphasis on demand-centered research and outreach. The labor (demand) study conducted by the project revealed gaps between the research being conducted and the problems faced by farmers. In addition, it was noted that the research being conducted by AETR institutions is not in sync with the needs of private firms operating in the sector.

To help close some of the gaps found through the labor study in the area of outreach and extension support services to farmers, USAID/ERA initiated a pilot outreach intervention in Toubacouta, Senegal. Toubacouta was chosen because of prior work conducted in the region in the area of conservation agriculture by the project USAID/Wula Naafa.

The USAID/ERA Toubacouta outreach intervention focused on strengthening linkages between research and extension to the farmers in the region, researchers at UT-ENSA, UT-ISFAR, and extension agents from ANCAR- Kaolack. Led by Professor Ozzie Abaye of Virginia Tech, the pilot initiative placed a focus on forage conservation and the introduction of mung bean as a cover crop to improve production yields.

The USAID/ERA team has expressed satisfaction with the results obtained with the pilot outreach intervention in Toubacouta. The AETR partners have now taken leading roles in working with the farmers in Toubacouta. In addition, the mung bean has adapted well to the region after one planting and harvest season of 2013. The farmers and women villagers have started to include mung bean in their diets as a meat substitute.

**The USAID/ERA conservation agriculture outreach intervention - in partnership with ENSA, ISFAR, Virginia Tech and Toubacouta farmer organizations**

In 2012, USAID/ERA held discussions with the project USAID/Wula Naafa with regard to opportunities for synergy in the implementation of field activities. As a result of those discussions, USAID/ERA made a field visit to Toubacouta to better understand the work that had been done in the region by USAID/Wula Naafa in the area of conservation agriculture.

During that visit, the USAID/ERA team discovered that the villagers' practice was to move livestock out of the village during the growing season so that they don't

disturb the row crops. The team also learned that while there was a surplus of forage during the rainy season, there was also a marked deficit of feed for animals during the dry season.

### Launch of the Toubacouta outreach intervention

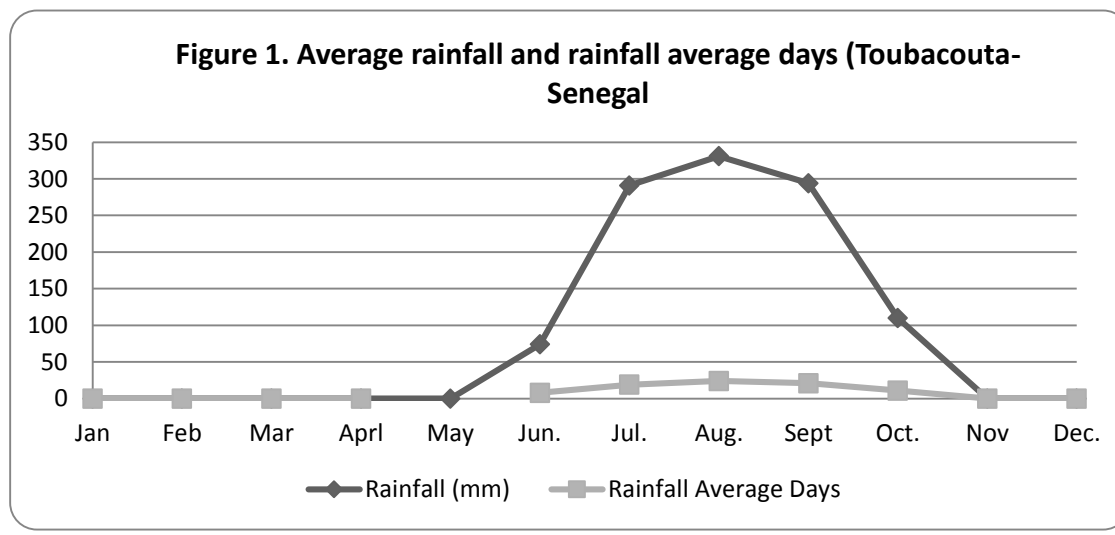
USAID/ERA thus launched the Toubacouta intervention to help resolve the forage problem faced by the Toubacouta farmers and villagers. In collaboration with UT-ENSA, UT-ISFAR, and ANCAR- Kaolack, USAID/ERA established the pilot initiative with a focus on strengthening the use of techniques of conservation agriculture such as use of cover crops, crop rotation, and minimal tillage to improve soil health and increase crop production.

The intervention also had the objective of strengthening linkages between the AETRs and farming communities in the Kaolack region of Senegal, which includes Toubacouta.

### Strengthening Capacity in Forage Conservation and Silage Making

The major factors limiting productivity from animals (milk, meat, wool, etc.) are the quantity and quality of feed, especially during the dry season. At the same time, livestock is very important to the villagers because cows, goats, sheep, and donkeys contribute milk, meat, and labor to the local economy.

Toubacouta has a unimodal rainy season. As noted in the figure below, rainfall occurs primarily during the months of July through September. Thus, grassland productivity is limited to three months of the year.





Maintaining a good feed supply for livestock would increase meat, milk, hides, and fiber production. As a result of the problems around livestock productivity in Toubacouta, the researchers decided to focus on developing solutions to maximizing forage production during the rainy season. This is to ensure that livestock would have food in the dry season November to June.



In August 2012, it rained for 24 straight days in Toubacouta, making it impossible to make and dry hay. Silage on the other hand is a better method of conserving excessive forage because it can be chopped and conserved while wet and results in better quality forage than hay. Additionally, silage making is less dependent on weather conditions than haymaking. USAID/ERA thus included silage making as part of the forage conservation project.

The team also introduced the practice of using reusable plastic bags to compress and store chopped foliage, which proved to be the most popular. The farmers appreciated learning about preserving forage for use during the dry period. The technique protects the fodder from the elements, which can rob it of nutrients. The method is also easy and inexpensive to adopt. Yet villagers, who often have no more than an elementary school education may not be aware of the most effective techniques of growing feed for their animals.

#### Introducing Mung Bean For food/feed/cover crop

Picking up from the work of the USAID/Wula Naafa project, the USAID/ERA project team held multiple workshops with farmers to emphasize the importance of pasture/grassland management for the purpose of sustainable livestock production as well as increased crop yield.

The team decided to introduce the use of the mung bean to serve as a ground cover. Mung bean was selected for the pilot intervention because it is well adapted to sandy soils. Mung bean's other appealing qualities include its ability to tolerate drought and to grow on marginal soils.

#### **The Mungbean Plant**



Mungbean Seed

Mungbean plants look more like garden beans than soybeans, and grow 61 to 76 cm tall. Plants are generally branched and grow in an upright bush habit, but some cultivars have a vining growth habit. The plants produce an abundance of yellow or white (depending on variety) flowers in clusters of up to 15 flowers at the end of each stem. Once they begin to flower, they continue to produce flowers throughout the early and mid-summer months, i.e., they are indeterminate. The seed pods are 8 to 10 cm long, each having approximately 10 to 12 seeds. Depending on cultivar and growing conditions, a plant can produce 30 to 40 pods. Due to the indeterminate flowering pattern, the pod production is staggered, with some pods maturing early for harvest and others developing later. Harvest usually takes place when at least one-half of the pods have reached maturity. The pods turn darker as they mature.

Only a few cultivars of mung bean are available in the United States. Berken, a new cultivar (and one we are using for a cover crop in Toubacouta), is the main cultivar grown in the United States. Berken produces small, olive-green beans in 8-cm pods. Each pod holds approximately 12 beans, which mature about 80 days after planting. Berken seeds typically sprout in three to five days. (In Toubacouta, we had good sprouts in three days.) This cultivar has been widely used as a “sprout” bean.

### **Planting**

In Senegal, mung bean can be cultivated under rainy as well as under irrigated conditions. Generally, mung bean should be planted soon after the rainy season begins in Senegal (end of June to early July). Mung bean is a short-season, warm-season food legume that requires 80 to 110 days from seeding to harvest. Therefore, for optimum grain yield, mung bean should be planted as soon as the rainy season begins.

Mung bean planted in Toubacouta in the first week of July began flowering the third week of August (50+ days after planting). However, crops planted in August may not have adequate rain to produce seed and might need to be irrigated. Researchers planted mung bean in March during the hot and dry season in Senegal (Saint Louis). Under irrigation, the seeds emerged five days after planting. The researchers placed seeds at 3cm to 5 cm depth with equidistant spacing (50



x 50 cm), giving 40,000 plants/ha. The vining type mung bean can be seeded at a lower rate with wider spacing.

### **Use and Nutritional Value**



Mungbean has high nutritive value with high protein content about three to four times that of cereals. It is used as a food, feed (forage), or cover crop. As a food, dried beans may be eaten whole or split, cooked, fermented, or milled into flour to make pastas, soups, porridges, confections, and alcoholic beverages. Mung beans are known for their sweet flavor, and mung bean paste is used in some Asian countries to make frozen ice desserts. In western cultures, the beans

are popular for sprouting, with major use as a fresh salad vegetable. (Sprouts are young seedlings just after seed germination.) The most common sprout marketed is mung bean. On a dry-weight basis, mung beans contain 25 to 28% protein, 1 to 1.5% fat, 3.5 to 4.5% fiber, 4.5 to 5.5 % ash and 60 to 65% carbohydrate. The multiple uses of mung bean as both feed and food can help the farmer distribute economic risk and diversify his/her farm income.

### **Fostering Stronger Links between Research and Farmer Needs through extension Services**

In order to establish a well-linked research-extension system, all parties must collaborate. The USAID/ERA Toubacouta outreach intervention involved several strategies to foster greater collaboration and linkages between AETR actors and farmers. One of the strategies sought to build a working group composed of partner institutions and stakeholders.

Before bringing the stakeholders and partner institutions together, the USAID/ERA team met separately with directors from partner institutions. Meetings were scheduled with Pr. Abdoulaye Dieng (Director of ENSA) who acknowledged that there was a lack of multidisciplinary collaboration within and across institutions in Senegal with regards to outreach and extension. It was noted that people are reluctant to collaborate for a variety of reasons including availability and career advancement issues which place greater emphasis on research than outreach. We talked about outreach and engagement programs.

The team explained how the USAID/ERA can help work with partner institutions and stakeholders to help review critical issues involving sustainable food production – focusing on the role of animal production (meat/milk) in food security in the Toubacouta region. At the end of our discussions, Pr. Dieng s agreed to provide faculty members to take part in the Toubacouta initiative. We had similar meetings at ISFAR and ANCAR. At ISFAR, several questions and comments were raised.

### Impact of and Lessons Learned from the Pilot Project

The overall focus of this USAID/ERA outreach project is to increase forage resources through better pasture management and forage conservation practices. Specific objectives of the silage making are to conserve the forage species (grasses, legumes and any herbaceous palatable species) present in excess of animal need during the rainy season for use during the extended dry season.

In July 2013, the USAID/ERA team went back to the village of Santamba to discuss the previous years' activities, including the silage project. They told us that they fed their animals all the silage they conserved during the 2012 rainy season. Preliminary results show that the community had adapted well to the introduction of the new technology (silage making). The farmers were very happy that they had extra feed for their animals during the extended dry period.

It was reported that the animals started eating the silage immediately, while others said their animals took some time to adapt to it (mostly due to the odor associated with the fermented feed – silage). During our conversations with 20+ producers, we realized that it is necessary to have trained extension staff in order to involve producers from an early stage in any pilot project – in this case silage making. USAID/ERA will be working closely with ANCAR and other partner institutions to ensure sustainability.

Preliminary results show that the mung bean has adapted well in Toubacouta as a cover crop. The project team has learned that villagers have started to include the mung bean in their diet and that some villagers have begun transformation efforts.

### **Next Steps: Scaling Up the Outreach Activities**

USAID/ERA will continue the Toubacouta outreach intervention, placing emphasis on collaboration between local professionals at the AETR institutions in the region (ANCAR, ENSA, and ISFAR) and local producers. The project is also exploring the possibility of expanding the Toubacouta conservation agriculture and silage-making intervention to other regions of Senegal such as Thiès and Saint Louis.

The scaling up of the initiative will follow the same model as the Toubacouta initiative in which USAID/ERA provides guidance and support to the local actors involved in outreach activities in the region involved in the scaling efforts. Professor Abdoulaye Dieng (director of ENSA) added that ENSA will do its part to make its facilities available for these efforts. He also offered laboratory services for forage analysis and other tools if needed. With that, the group planned field visits with local producers.

### **Improving the Skills of women (*Femmes Transformatrices*) in Ziguinchor in Food Transformation Techniques and Business Administration**

USAID/ERA facilitated workshops for over 100 *femmes transformatrices* on food production and processing techniques of local fruits and vegetables. The workshops, which were implemented through collaborative partnership between the UASZ and ITA, focused on providing practical know-how to the women who are involved in food transformation.

Topics included:

- Processing of fruits, vegetables, and local cereals
- Organizational management to help the women in attendance formalize their structures to facilitate access to grants and credit
- Marketing
- Fruit and vegetables seminar, which provided background on the science behind cereals; emphasis was on grain structure and biochemical composition

On October 10th, 2012 over 100 *femmes transformatrices* of Ziguinchor were recognized in a graduation ceremony for successfully completing a USAID/ERA sponsored training program. The ceremony marked the ending point of the Ziguinchor University workshops.

#### **Case study 6: Femmes Transformatrices**

Women who process local cereals play a leading role in the fight against food insecurity, especially the women of Ziguinchor. Organized into Economic Interest Groups, these

“Femmes Transformatrices” are adept at enhancing the value of local produce including millet, maize, sorghum, and sweet potatoes, as well as fruits and vegetables.

Despite their good intentions, these women face technical limitations to producing high quality products. Many women recognized that they were losing product, and therefore revenue, due to spoilage. They were not following standardized production, nor were they aware of proper sanitation.

USAID/ERA assisted the Femmes Transformatrices by demonstrating the possible gains through collaboration, and bringing them together with researchers, educators, scientists, economists and other public and private sector actors. These potential partners can enhance their efforts to develop their small businesses by solving technical challenges in the manufacturing process.



Photo caption : Femmes Transformatrices display their products.

USAID/ERA organized training workshops for the Femmes Transformatrices on food processing and conservation techniques of local cereals, fruits and vegetables, as well as management strategies, and instruction in product marketing and packaging. The impact of these sessions, conducted by project partners at the University of Ziguinchor and the Institute of Food Technology (ITA), are more than satisfactory according to the testimonies of beneficiaries.

These women are now implementing the results of food research carried out in universities and research centers. Ms. Siranding Sane, President of GIE Djihito Dimalaguene Ziguinchor said, "With the techniques we learned through the support of USAID/ERA, we can keep our products for months. Before this, our drinks spoiled after five days. This achievement now enables us to meet large orders and prepare enough products to participate in major trade fairs."

Regarding lessons learned, Siranding said: "For the juices, customers sometimes complained that the products were too sweet or too bitter. Through USAID/ERA initiative, the Institute of Food Technology and University of Ziguinchor trained us on techniques to regulate sugar content and to avoid microbial contamination. Not only did we learn about how to control the sugar, we also learned to control the acidity and the quality of the

packaging. This capacity building allows us to have competitive products. The training also enabled us to identify our weaknesses and constraints and improve our organizational capabilities. We have improved our knowledge on processing techniques for fruits, vegetables and local cereals.

“Previously, the traditional method of preparing the cereals (millet, corn, etc.) was very labor intensive. They (the trainers from UDZ and ITA) taught us a method of processing the grains more efficiently. Also, we have been teaching the lessons that we learned from the workshops to other women in our groups, so that they can succeed as well,” she added.

Siranding concluded, “We dare say with pride that valuable lessons have been learned! Today, we are well trained, and we can now manufacture quality products without loss of revenue. Our customer base is growing because the customer trusts that our products are of a superior quality to those of our competitors. Our next step to continued success is to organize at a higher level as recommended by USAID/ERA and the University of Ziguinchor. By uniting all of our women’s groups into a federation, we will have more leverage and better means of obtaining credit. We have high hopes to conquer the world! First, we aim to distribute our products in the domestic market of Senegal – then all of Africa. Why not, the U.S. market?”

The Femmes Transformatrices of Ziguinchor are currently producing a variety of products, including syrup, juices, jellies, dried fruit and packaged grains and cereals. These are made from fruits, corn, millet, rice, manioc and potatoes. The products now have a shelf life of a few months. Following the training and implementation of new methods, their products now sell out quickly, enhancing the success of the GIE’s business.

### **Mobile Technology in Agriculture (AgriCom)**

USAID/ERA piloted the Mobile Technology in Agriculture (AgriCom) program during the *femmes transformatrices* outreach training with the University of Ziguinchor. This intervention helps to facilitate the economic activity of local food processing women’s groups through the use of mobile phone technology.

Leveraging existing connections between UASZ faculty and the key groups in the region, 21 members of the economic interest group Jiribalut and leaders of three other women’s agricultural entrepreneur organizations (Djihito Dimalaguene, Dantie BKB, and Bokk Diom) were trained in the use of the Frontline SMS software. This application allows users to send bulk SMS messages using a standard computer with no internet connection.

The pilot event training session took place at the UASZ. Information/communication technology experts and UASZ students facilitated the sessions. In addition to the technical training, the beneficiaries received information systems equipment through funding from the private Advanced Finance and Investment Group (AFIG).

Local partners UASZ and *Lycée Agricole de Bignona* are involved in monitoring and continued training. Three UASZ students serve as interns and regularly visit the Jiribalut women's group to provide continued guidance in the use of computer applications. USAID/ERA followed up with the Jiribalut women's group for a preliminary evaluation of the AgriCom intervention.

The challenges of the Agricom program include limited ICT infrastructure and the low education level of the women. These were addressed through the use of images and alternative forms of information and communication.

## **Results**

- 24 People trained to use computer based messaging
- Partnerships and linkage between UASZ and GIE Jiribalut:
- Faculty worked with and trained the women; students from UASZ are continuing the computer training
- 3 Students are serving as interns to assist the women in the use of the mobile technology. Through the experience the students also gain practical experience in food transformation
- A video was produced about the AgriCom initiative:  
<https://www.youtube.com/watch?v=y7pbFQj0PZc>

## **Impact**

Access to mobile technology and ICT equipment has had a significant impact on the lives of the Jiribalut women, many of whom had never before used a computer. The AgriCom program and additional training in the use of computer applications has empowered the women to:

- Develop computer literacy and enhance reading and writing skills
- Communicate with their clients and business partners
- More efficiently manage local business networks
- Learn and use computer applications including Word and Excel
- Track their sales and accounting information
- Manage inventory and place timely product orders

The women use the system to communicate pricing and supply information to their business partners and customers in real time. This improved communication allows the

women to be reactive and unified in their response to fluctuating market conditions, and facilitates the continued profitability and sustainability of the program.

### **Next Steps**

- USAID/ERA is reviewing the results of the AgriCom program evaluation to determine scale-up possibilities for FY 2014.
- USAID/ERA plans to hold periodic meetings with AgriCom stakeholders in Ziguinchor and continue to monitor the program.
- In connection with ITA, USAID/ERA will develop through AgriCom, tools for the dissemination of ITA's research and foster broad collaboration with nutrition and food security networks in Senegal.

### **Technical training on Integrated Pest Management focused on reducing post-harvest loss of tomato**

USAID/ERA sponsored six scholars from partner AETR institutions to attend a workshop on the detection and management of *Tuta absoluta* hosted by the Integrated Pest Management Innovation Lab (formerly IPM-CRSP). The workshop was held May 7<sup>th</sup> – 9<sup>th</sup> in Dakar and brought together entomologists and plant protection specialists from 20 countries. *T. absoluta* is a serious invasive species recently arrived in Senegal which has regional implications for the food security of vegetable growers in Africa. Now that it has arrived in Senegal, its spread across West Africa is imminent. The workshop was a gathering to raise awareness and encourage regional cooperation in managing the pest.

### 2.3 Component 2 Indicators achievement

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
2. Strengthen applied research and outreach	2.1 AETR institutions promoting innovative research solutions to public and private clients	1. Number of new technologies or management practices under research (FTF Output Indicator 4.5.2-10) (18)		Millet	12	6	-6	50%	1) Techniques on "Improving the fertility of developed millet fields": activity postponed to next campaign; 2) The activity "Assessment of the glycemic index and micronutrient bio accessibility" will be completed in FY 2014
				Maize	6	1	-5	16%	Experimental sites for tests are defined, but field tests not yet initiated: 1) Adaptation, yield and quality of sweet corn 2) Manufacturing process
				Rice	4	3	-1	75%	1) ISRA - Improving rainfed rice productivity in Casamance: two technologies under research 2) The project "Promoting local rice in the Valley and Delta of Senegal River" will be implemented in FY 2014 because of the delay noted in the implementation process
				Aquaculture	2	0	-2	0%	USAID/ERA focuses on terrestrial agriculture. Aquaculture activities have been transferred to COMFISH.



Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
				Climate Change	4	5	+1	125%	1) Two technologies on production of new adapted varieties of millet and rice; 2) Two technologies on biological fixation of levee network; 3) One technology on cover crop
				Other aspects of food security and economic growth	3	3	0	100%	1) Study of the millet value chain 2) Promoting marketing and consumption of quality local rice 3) Cost and feasibility study of sweet corn in Senegal
				Total	31	22	-9	71%	
		2.Number of new technologies or management under field testing (FTF Output Indicator 4.5.2-9) (19		Millet	9	9	0	100%	1) ENSA – millet in Thies, Niore and Louga: 2 2) ISFAR – sustainable improvement of cereal productivity in salty environments: 3 3) USAID/ERA research/outreach project: 2 4) Grassland Management: 2
				Maize	3	0	-3	0%	Field trials on sweet corn were not started. Will be implemented under irrigation.
				Rice	3	3	0	100%	1) Methods for managing the constraints on rice production 2) Seed production system of rice in rainfed conditions-Casamance

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
									3) Increasing rice productivity: established best management practices in showcase plots
				Aquaculture	1	0	-1	0%	ERA only works on agriculture. Aquaculture activities have been transferred to COMFISH.
				Other aspects of food security and economic growth	2	2	0	100%	1) Forage production techniques 2) Mung bean promotion as a food source for animals and people
				Climate Change	4	5	+1	125%	1) Two technologies on production of new adapted varieties of millet and rice; 2) Two technologies on biological fixation of levee network; 3) One technology on cover crop
				Total	22	19	-3	86%	
		3. Number of new technologies or management practices made available for transfer as a result of USG assistance (FTF Output Indicator 4.5.2-8)(20)		Millet	3	3	0	100%	1) Improved seed production system of new varieties; 2) Improved techniques for millet production 3) Improved methods for producing quality processed products
				Maize	3	3	0	100%	1) Improved seed production system of new varieties; 2) Improved technics for Maize production; 3) Improved methods for producing quality processed products

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
				Rice	3	3	0	100%	1) Improved seed production system; 2) Improved production technics; 3) Improved processing methods
				Aquaculture	1	0	-1	0%	ERA only works on agriculture. Aquaculture activities have been transferred to COMFISH.
				Climate Change	2	2	0	100%	1) Improved method for producing cereals (millet) in salty environments; 2) Practices based on resource - conserving technologies for producing millet and corn
				Other aspects of food security and economic growth	2	2	0	100%	1) Forage production techniques; 2) Mung bean promotion as food for humans and livestock
				Total	14	13	-1	93%	
		4. Number of farmers who have applied new technologies or management practices as a result of USG assistance (16)		Total	500	192	+100	38%	Dut to a late start for UGB and ISRA FOGs farmers were not able to use technologies as planned for 2013 1) Increasing rice productivity in Casamance: 100 farmers 2) Toubacouta Silage: 92
		5. Number of private		Private enterprises	5	2	-3	40%	1) Touba /ITA-Purdue project; 2) Daby Sy/ Eliot;

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
		enterprises, producer organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) that applied new technologies or management practices as a result of USG assistance (FTF Outcome Indicator 4.5.2--28) (17)							Advised by USAID not to start new activities in this area due to ongoing budget review.
			Producer organizations	10	2	-8	20%	<i>UGB FOG did not start as planned in 2013.</i> Rice producers in the Senegal River and Delta Valley and organizations in Casamance; Millet producers' organizations; Maize producers' organizations in the Senegal River and Casamance	
			Water users associations	2	1	-1	50%	<i>UGB FOG did not start in 2013 as was planned.</i> Senegal River and Casamance working on rice. (Senegal River project will be implemented in FY2014.)	
			Women's groups	50	50	0	100%	Casamance, Senegal River and Toubacouta	
			Trade and business associations	1	1	0	100%	Ziguinchor Women Transformatrices Association	
			Community based organizations	20	20	0	100%	ANCAR works with rural community organizations (CLCOP) on millet, rice corn improvement and salty environments projects	
			Total	88	75	-13	85%		
		6. Number of private		Private enterprise	5	5	0	100%	

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
		enterprises, producer organizations, water users associations, women's group trade and business associations, and community-based organizations (CBOs) receiving USG assistance (FTF Output Indicator 4.5.2-11) (21)		Producer organizations	10	10	0	100%	
				Water users associations	1	1	0	100%	
				Women's groups	50	50	0	100%	
				Trade and business associations	4	3	-1	75%	Work with NGO "Interface" will be initiated in FY2014.
				Community-based Organizations	30	30	0	100%	
				Total	100	88	-12	88%	
			7. Number of AETRs trained in other areas for food security or economic growth	Total	4	12	0	300%	All AETR partners ended up participating in training in Ziguinchor implemented by the project.
			8. Number of special tools and equipment for advanced research	Total	5	5	0	100%	1) Lab and Bimolecular equipment (ISRA-CERAAS, UGB, CFPH, CNFTEIA), 2) Water pump and field equipment (CNFTEIA)
	2.2 AETR institutions providing outreach		1. Number of partnerships developed to deliver training	Total	10	4	-6	40%	Supporting AETR Partnership development is a long process. In FY13, USAID/ERA

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
	services and technical support to clients in farming communities and the private sector		services to local farmers and the private sector (22)						supported four institutions to develop partnerships: TU - ITA; TU - CNFTEFCPN; TU - LTAEB; TU - UASZ;
			2. Number of short courses delivered in response to stakeholder demand (23)	Total	20	39	+19	195%	More short courses than previously planned were delivered in FY13: - Forage conservation, Toubacouta: 3 - New techniques for cereal, fruit and vegetable production: 1 - AgriCom: 1 - International Women's Day training: 3 - Producers workshop: 1 - ANCAR (Agence Nationale de Conseil Agricole et Rural), seed production and diffusion of varieties: 30

## Component 3: Management and Policy Support Strengthened

### Result 3.1: Management and administrative systems of targeted AETRs strengthened

**AETR Self-Evaluation – This intervention is serving to provide a basis for the administration and faculty of each Senegalese agricultural education institution to systematically review all aspects of their programs.**

#### Introduction

The USAID/ERA supports the strengthening of institutional and technical capacities of its AETR partner institutions. A key aspect of that support is the implementation of the comprehensive AETR auto-evaluation intervention.

The comprehensive labor study and rapid assessments conducted by USAID/ERA in Y1 revealed gaps between the supply and demand training and research in the agriculture sector of Senegal. Three supply/demand (S/D) workshops were then conducted by USAID/ERA in Y2 in Saint Louis, Ziguinchor and Saly (covering participants from Thies and Dakar) to validate gaps identified between what is offered by the institutions and what is the private sector needs. The S/D workshops were attended by over 100 participants including faculty members, researchers, entrepreneurs, ministry representatives (higher education, agriculture, and industry and mines), and other stakeholders of the USAID/ERA project.

As a follow-on step to the S/D workshops, USAID/ERA has been facilitating the completion of auto-evaluations of its AETR partner institutions.

#### AETR Auto-Evaluation

As the name implies, the auto-evaluation is done by the AETR institution itself to conduct a self-assessment. The auto-evaluation provides a means for the administration and faculty of each AET to review their programs in a systematic way. Its main purpose is to allow the institution to do a self-assessment of its strengths and weaknesses. This structured self-reflection informs on key comprehensive actions needed to improve programs and monitor progress over time.

The auto-evaluation is designed to indicate whether the institution is on track to achieve its mission by a thorough examination of capabilities, limitations and measures of performance.

The approach selected by USAID/ERA for the auto-evaluation intervention is designed to offer a roadmap to improve the overall quality of agricultural training while encouraging transparency and a detailed process for implementing any recommended changes.

#### The USAID/ERA Auto-Evaluation Approach

The auto-evaluation approach selected by USAID/ERA is based on an adaptation of professional accreditation LMD system procedures, which provides an international standard for measuring and reporting excellence in vocational training in agriculture and natural resource management. This critical review of educational programs is designed to:

- Create a vision for the institution
- Establish a basis for program growth
- Establish policy support programs
- Facilitate the development of local, national and international associations
- Provide a sketch focus and aim to find funding

#### **The USAID/ERA Auto-Evaluation Methodology**

The auto-evaluation conducted by USAID/ERA is structured around six standards for the assessment of training. This process involves careful documentation of current conditions according to these standards (norms), the description of the results and preparation of a report. The six norms used to document the auto-evaluation findings are:

- (1) The mission, goals and objectives of the program
- (2) Curriculum
- (3) The organization and administration of the program
- (4) Faculty
- (5) Students
- (6) Support of the institution concerned

After validation of the results is made with the faculty and students, future options for the program are discussed. The best advice for advancement will depend on the analysis of the best available information. If some information is not available, this is noted.

The report of the evaluation belongs to the institution. It provides a basis for continuous self-reflection, describing the specific areas that should be targeted for improvement and providing a baseline for monitoring progress. Auto-evaluation also provides an



institutional framework and accessible tool for building or strengthening agricultural training programs.

### **Auto-Evaluation Steps**

The auto-evaluation is done in a sequence of four (4) phases over a period of time that is suitable for the partner institution. USAID/ERA serves as facilitator and provides the support and advice needed to complete the auto-evaluation.

*Phase 1: Preparation:* Phase 1 begins with an introduction to the process at the institution.

The senior leader of the AETR (rector or director) appoints two members of the institution's Technical Working Group (TWG) to facilitate the process. The senior facilitators work with two consultants (Dr. Keith Moore from Virginia Tech and a local consultant) who facilitate program documentation on agricultural training and assist in drafting the report of the results at the AETR in relation to the norms of the auto-evaluation.

*Phase 2: Data Collection:* In Phase 2, the local consultant collects data provided to document the current institutional conditions of the AETR and prepares a report explaining the results. The draft report is shared with the TWG for review and forms the basis for a validation workshop at the institution.

*Phase 3: Validation:* Phase 3 starts with the organization of an internal validation workshop to share the results of the study with all members of the AETR faculty for inputs and feedback. After validation of the quantitative results of the auto-evaluation, the consultants gather qualitative information on items such as morale, motivation, leadership, cooperation and learning environment. An external validation is then conducted with participation of the staff and all representatives of key stakeholders of the AETR (government, private sectors, NGOs, farmer groups, and community organizations). The objective of the external validation workshop is to analyze the strengths and weaknesses of programs and identify opportunities to improve the quality of their performance. The external validation allows the AET to present aspects of its effectiveness and adequacy (or inadequacy) of resources to support the programs.

*Phase 4: Final Report:* In phase 4, the consultant consolidates the results into a final report for each institution.

### **Results**

The following results were achieved:

- UT-ISFAR of Bambey reached the final stage of the self-assessment process.
- CNFTEFCPN and LTAEB held an internal workshop to validate the self-assessment report on June 2013.
- At UASZ, the project introduced the self-assessment tools to decision-makers. Principals gathered information for the first self-assessment report.
- ERA has determined the next set of AETRs to engage with the self-assessment process.

**AETR partner Auto Evaluation Status (As of end of FY 2013)**

Institution	Location	Status	Next Steps
UT-ISFAR	Bambey	Complete	Publication
CNFTEFCPN	Djibelor	Internally validated	External validation and then publication in Q1 of FY 2014
LTAEB	Bignona	Internally validated	External validation and then publication in Q1 of FY 2014
UCAD – Agro Institute	Dakar	Internally validated	External validation pending further guidance from USAID/Senegal
UASZ (UASZ)	Ziguinchor	Launched/in process	Engagement of leadership to wrap-up in Q2 of FY 2014 Creation of report in Q1
UT-ENSA	Thiès	Launched/in process	Engagement of leadership to wrap-up in Q2 of FY 2014 Creation of report in Q1
CFPH	Dakar	Launched/in process	Creation of report in Q1 2014 and validation in Q2 of FY 2014
UGB	Saint Louis	Not Started	Engagement of leadership to wrap-up in Q2 of FY 2014
CNFTEIA	Saint Louis	Not Started	Engagement of leadership to wrap-up in Q2 of FY 2014

The resulting output of the auto-evaluation informs partner institutions of potential gaps between what is offered by AETR institutions and what is needed in the private sector, to meet the goals of improved production, improved nutrition and greater food security in Senegal. Another major focus of the analysis is determining the level of maturity of each institution. This is defined in terms of the capability of each institution to respond to its stated vision and its relative standing among peer institutions within the West Africa sub-region.

## **Next Steps**

USAID/ERA will continue to guide and support AETR institutions in the auto-evaluation process. As described in the AETR partner auto-Evaluation Status table, each institution is at different phase in the process. A consultant has been hired by USAID/ERA to track the process and guide work activities in partnership with AETRs.

## **Performance Management System - Curriculum Mapping Database**

The Curriculum Mapping Database is a continuation of the syllabus exercise and the curriculum mapping process. This project aims to make the impact of these efforts sustainable by providing modern management tools to handle information and data gathered through these two activities.

The Curriculum Mapping Database is a web-ready tool that will be deployed locally for AETRs, and will enable each AETR to have an inventory of their curricula. Each AETR will have a comprehensive method to itemize all syllabi linked to fields, professors and training programs.

## **Results**

- A consultant has been selected to work with all AETRs and coordinate the design and development of the Curriculum Mapping Database.
- Technical and functional specifications are ready.
- The design of the database and its functionalities has been started and is continuing.

## **Impact**

- AETR faculty members have exhibited growing interest in the Curriculum Mapping Database and are taking increasing ownership of the project.
- Awareness about the need to benefit from new facilities brought by ICT in terms of Information System Management and decision making.

## **Next steps**

- Finalize the development and tests of applications.
- Launch the pilot with beta versions of database and applications for the management of curriculum and syllabi at two AETR sites.
- Full rollout of the system at the remaining AETR sites.
- Decision-making tools are available for curriculum improvement and follow-up of the systematization of syllabi.
- Financial and Administrative Capacity Building: to strengthen internal capability in financial management and accounting systems

ERA has engaged in an effort to strengthen financial and administrative capabilities of its partner AETRs. This is being done at two levels. The first level is to help partners

in establishing and following proper accounting standards in fund management. The second level is focused on grant management, and more specifically, on Fixed Obligation Grants (FOGs).

### **Results**

USAID/ERA has awarded its five research projects using the FOG mechanism. The project trained the administrative and financial management staff of key stakeholders in the development of budget, narrative, milestones and payment schedules in order to be funded through the FOGs process. All five budget packages were submitted and approved by Virginia Tech. Funds for the commencement of research activities have been provided to the AETR partners. USAID/ERA has awarded small grants to partners, which involved co-management of purchases. Training and one-on-one support was provided to FNRAA to help prepare that institution to take over the five collaborative research FOGs of the project.

### **Impact**

AETRs are developing greater facility in the development of budget and accounting procedures that follow USG rules and guidelines. Upon completion of training and support provided by USAID/ERA, AETR partners will be in a position to manage direct funding from USAID.

### **Next steps**

- Advanced training in FOG and relevant items of ADS CHAPTER 303
- Deployment and use of finance and administration tools at each AETR partner
- Small grant award to each AETR using FOG
- Turnover of FOG research to FNRAA

## **Result 3.2: Database on agricultural sector human resources put in place**

### **Performance Management and Monitoring System - Job Insertion Database**

The original plan for the job insertion database was to design an internet-based platform where agriculture-related job announcements would be posted and linked with graduates' profiles. However, this concept assumes that private sector opportunities in agriculture are available and that the necessary IT infrastructure and human resources are available to support the platform.

Given the reality on the ground, this plan is not yet feasible. The private sector is not yet strongly involved in agriculture. The number of private sector agricultural opportunities for graduates is insufficient to support the concept. AETRs do not have strong enough linkages with the private sector to elicit such opportunities.

Instead, USAID/ERA is exploring ways to build AETR capacity and links to the private sector from an outreach standpoint. These efforts are anchored in the institutional analysis and diagnosis process.

When USAID/ERA presented the jobs insertion database concept, LTAEB expressed a need and keen interest in such a database. The LTAEB career services office is particularly interested in receiving the database.

### **Results**

- The technical specifications of the job insertion database are web-ready and can also be deployed off-line.
- The terms of reference are ready.
- The design process of the database and applications is in the final stages.

### **Impact**

- The awareness of AETR leadership of their graduates' employability has been enhanced.
- The program has supported the creation of employment opportunities for AETR graduates, including self-employment.
- The program has fostered connections between AETRs and small businesses. In Ziguinchor, USAID/ERA is connecting groups of Femmes Transformatrices with AETR institutions that can help their businesses grow.

### **Next steps**

**Launch database development at AETRs.** After development is finalized, a simpler off-line placement database will be developed to facilitate AETRs' tracking of graduates and their activities. A pilot will be carried out at partner institutions LTAEB and UT-ENSA. This tool will help AETRs to identify student availability for employment possibilities as they arise. The database may also be used to track partners and projects. USAID/ERA will be training AETR staff in database maintenance, performance tracking, and reporting. Full rollout will be continued at other AETRs sites. Support and training will be provided in order to ensure durability after ERA's mission.

**Business incubation.** As part of pushing for greater participation of youth in agriculture, USAID/ERA is encouraging small business development and is supporting business incubators in AETR institutions. Some AETRs already have business incubators, including LTAEB.

USAID/ERA will collaborate with H&C Business Technologies, IBM's local partner for the promotion of the SME Toolkit, which was developed by the IFC and IBM. The SME

Toolkit will be presented to AETR institutions as a possible business development tool for their students.

**Business plan competition.** USAID/ERA will host a business plan competition for students at AETR institutions. Through business plan training, students will gain insight into entrepreneurship and be encouraged to think about self-employment options. This effort will promote career management and build additional linkages for students and institutions to the private sector.

### **Result 3.3: Agricultural Knowledge and Information System Linkages among Components**

#### **Strengthening the Executive Leadership Capacity of partners**

Part of USAID/ERA's goal to strengthen human and institutional capacity in Senegal's agricultural sector is to build capacity in policy and administration. To this end, USAID/ERA supports the leadership of partner institutions, policy-makers, and private sector officials in the implementation of their missions.

In this context, USAID/ERA implemented an "Executive Leadership and Agricultural Knowledge and Information Systems" (Exec-Lead AKIS) program for 21 high-level officials working in all aspects of the agriculture sector of Senegal in September 2013.

Table of Participants in the Exec-Lead AKIS

<b>Participants</b>	<b>Position</b>	<b>Institution</b>	<b>Type</b>	<b>Location</b>
Courfia Kéba Diawara	Rector	UASZ	AETR	Ziguinchor
Baydalaye Kane	Rector	UT	AETR	Thiès
Saliou Ndiaye	Director of Doctoral Program	UCAD	AETR	Dakar
Macoumba Diouf	Director	ISRA-Horticulture	AETR	Dakar
Amadou Tidiane Guiro	Director	Univ Sine Saloum	AETR	Dakar
Ababacar Ndoye	Director	ITA	AETR	Dakar
Waly Diouf	Technical Advisor	Min. Agriculture	GOS	Dakar
Ibrahima Basse	Technical Advisor	Min. Commerce	GOS	Dakar
Cheikh Saadbou Seye	Technical Advisor	Min. Livestock	GOS	Dakar
Oumar Sock	Director of Higher Education	Min. Higher Ed.	GOS	Dakar
Nouhou Diaby	Technical Advisor	Min. Higher Ed.	GOS	Dakar
Aminata Sall	Technical Advisor	Min. Higher Ed.	GOS	Dakar
Ramatoulaye Diagne	Technical Advisor	Min. Higher Ed.	GOS	Dakar
Papa Ndiengou Sall	Rector	FNRAA	GOS	Dakar
Papa Waly Gueye	Technical Advisor	Min. Environment	GOS	Dakar
Issa Amamdou Ndiaye	Director	ANCAR	GOS	Dakar
Babacar Diop	President	FONGS	NGO	Thiès
Fatoumata Atchikiti	President	Giribalut	Private	Ziguinchor
Peinda Guéye	President	FEPRODES	Private	St Louis
Daby Sy	President	E3litos	Private	Mbour
Nafy Diagne	President	FOUNTY	Private	Dakar

The Exec-Lead AKIS program involved three phases and was entirely focused on strengthening the management and policymaking competencies of top officials at the AETR partner institutions of USAID/ERA. In addition, the program facilitated the development of relations and interactions between senior representatives of AETRs, the private sector, government, producer organizations, NGOs, and small farmer associations of Senegal.

### **Phase I: AKIS Workshop in Senegal**

Phase I of the Exec-Lead AKIS program involved a 2-day workshop in Saly Senegal, which was facilitated by Drs. Keith Moore (Virginia Tech) and Boris Bravo-Ureta

(UConn). The AKIS workshop provided an opportunity for the officials to discuss and explore potential intervention approaches to address key AETR-related issues with a major impact for the development of the agriculture sector of Senegal. These then lead to the development of a detailed program for the study tour phase of the Exec-Lead AKIS program.

The major issues addressed at the workshop centered on the ways to improve or strengthen efforts focusing on:

- Faculty development, teaching load and modernization of curricula
- Career opportunities support for graduates including self-employment and entrepreneurship
- Private sector involvement in training and research
- Development of new revenue streams (fund-raising, grants and alumni support)
- Linkages to farmers and other major actors that are operating in the agriculture sector
- Role of the university in economic development at local, regional and national levels
- Effective management of AETR institutions for the benefit of multiple stakeholder groups (government, faculty, students, alumni, private sector, farmers, community organizations and the larger Senegalese public)

### **Phase II: AKIS Study Tour in the US**

Phase II of the ERA Exec-Lead ERA AKIS program involved a 12-day AKIS study tour in the United States. With stops at consortium universities (Virginia Tech and University of Connecticut) and Washington DC the study tour provided the participants with a better understanding of the of the land-grant agriculture school model of the US, placing emphasis on its tri-partite mission (education-research-outreach). Participants visited the two university campuses and met top university officials to learn more about the inner workings. Participants also visited university-affiliated agricultural research and extension centers, incubators and other key departments of the universities. While in DC, participants met with senior officials of the Association for Public and Land Grant Universities and The World Bank. The visits and interactions allowed the participants to gauge successful management practices at leading large public universities and organizations in the US.

### **Phase III: Participation in Agriculture Symposium in DC**

Participants in the Exec-Lead AKIS program attended a 3-day symposium in DC focused on the theme of: Capacity Building for Agricultural Training and Education in Developing Countries. The symposium brought together educators, administrators, and development experts for discussions on good practices and lessons learned during the course of planning and implementing projects dedicated to efficient, effective and financially sustainable agricultural education and training institutions and systems. Professor Oumar Sock, Director General, Senegal Minister of Higher



Education and formerly Rector of the University Assane Seck of Ziguinchor, a keynote speaker, made a presentation at the symposium entitled: Capacity Building in Agricultural Higher Education in Developing Countries – A West African Perspective.

The Exec-Lead AKIS thus facilitated policy dialogue between AETR institutions, promoting public/private partnerships, generating a better understanding of outreach among Senegalese partner institutions, and fostering multi-disciplinary and multi-institutional modalities for collaboration in applied research. At the conclusion of the program the 21 participants in the USAID/ERA Exec-Lead program decided to organize themselves into advisory group called GRAAS (Reflection Group on Agriculture and Agribusiness in Senegal). The USAID/ERA Exec-Lead thus enabled the Senegalese participants to take action that will make it easier for the group to continue working together to advance transversal issues related to agriculture development upon their return in Senegal. USAID/ERA intends to facilitate a restitution in Senegal as well as a formal set-up of GRAAS.

### **Result**

The workshop was held in Senegal to identify key issues of organizational and institutional change that AETR institutions are committed to implementing over the next two years. Responses were used as inputs in program development for the study tour.

During the study group, the USAID/ERA project provided participants with firsthand experience at two American land-grant universities and included work sessions with the USDA, the World Bank, the Association of Public and Land-Grant Universities (APLU) and the International Food Policy Research Institute (IFPRI) in Washington, D.C. Participants also took part in seminars on eLearning tools.

### **Impact**

As participants are all already leaders within their fields, they are in a unique position to affect changes within their organizations. The study tour has strengthened the links between the different actors of the project, representing the public sector, the private sector and institutions. By targeting key decision-makers in all structures of the local agricultural sector, the project created connections that have the capacity to shape policy for years to come.

- The AKIS study tours have created a system-wide view of agriculture and a groundswell of support for the land grant model at the teaching, research and broader policy level.

### **Next Steps**

- Two months after the study tour, a follow-up workshop will be organized with participants to identify key actions that can take place within their respective AETR

institutions in order to achieve timely, concrete results.

- See discussion of GRAAS below.

### **Strengthen Advisory and Support System - GRAAS**

The first USAID/ERA-organized AKIS study tour to the United States took place in September, 2011. The tour highlighted the land grant system and synergies between education, research and outreach in agriculture. Following the tour, participants met several times and decided to work together to apply the knowledge and lessons learned in Senegal. Thus, the “*Groupe De Réflexion Sur L’Agriculture Au Senegal (GRAAS)*” was created. The second AKIS study tour to the United States included leadership from AETR institutions, the private sector, and from five different government ministries in Senegal. Upon return to Senegal, they stepped up to take leadership roles in GRAAS.

As noted in the previous section, the executive leaders of the AETR have decided to play a leading role in the formalization and set-up of GRAAS. USAID/ERA is thus working with its AETR partners to consolidate the creation of GRAAS as an agriculture advisory group in Senegal.

### **Results and Impact**

GRAAS intends to provide a framework for exchange and reflection on key agriculture issues in Senegal. GRAAS will begin by creating a network in which participants can meet, exchange ideas and reinforce partnerships. The group seeks to foster greater inter/intra-institution collaboration and synergies to strengthen agricultural productivity in Senegal. They are poised to act as an advisory body and provide input for policy decisions. GRAAS will work with:

- All public institutions of education and training with a focus on agricultural science (universities, schools, institutes and training centers, etc.)
- Research institutes (ISRA and ITA) and outreach/advisory institutions, including ANCAR
- Development structures (state services, projects, NGOs)
- Producers and producer organizations

### **Next Steps**

Key issues to be addressed in GRAAS include:

- Reinforcing the linkages between USAID/ERA partners by using the example of the tripartite mission of a land-grant university (teaching, research, and outreach)
- Discussing future policies regarding interactions between the university and external actors, principally those of the private sector (farmers' groups, private companies, labor unions)

- Designing new approaches to improving Senegalese higher education in agriculture. This includes strengthening institutions in terms of curriculum. It also includes the potential new role of the university as the starting point of development for new mentored businesses projects for graduate students.

### 3.4 Component 3 Indicators achievement

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
3. Project Management and policy support	3.1 Management and administrative systems of targeted AETR strengthened		1. Number of cross-component study tours	Total	2	2	0	100%	Executive leadership AKIS and TU study tours
			2. Number of AETR institutions using accounting software to manage program finances and to generate reports (30)	Total	4	0	-4	0%	Partially completed: ICT systems have been delivered and installed. Training in use of appropriate software planned for Q1 and Q2 of FY 2014
		3. Number of students participating in private sector internships (32)	Male	20	14	-6	70%	ENSA: 8 ISFAR: 3 LTAEB: 4 CNFTEFCPN: 5 CNFTEIA: 3 UGB: 11 UASZ: 1 Refer to note for performance indicator: Number of graduates at the License, Masters, and Doctorate levels.	
			Female	20	21	+1	105%		
			<b>Total</b>	<b>40</b>	35	-5	87.5%		
		4. Number of private sector participants in international GDA study tours (33)	Male	4	2	-2	50%	There were more eligible females than males. AKIS Study tour: Jiribalut, Founy Service, FONGS,	
			Female	3	3	0	100%		
			Total	7	5	-2	71%		

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
									FEPRODES, E3Lothis Bio+
			5. Number of private sector/University Research collaboration	Total	10	10	0	100%	1) FOG program: 5 projects 2) Signed MoUs: 3 (E3Litos-CFPH, CONGAD-UGB, LTAEB-ONGJustice) 3) Other partnerships: 2 (ISRA-Djibelor with 2 farmer organizations)
			6. Number of private sector/AETR joint training programs (35)	Total	20	6	-14	30%	1) AKIS Study Tour: 2 2) International Women's Day joint workshop development: 3 3) Saly Training (to prepare study tour): 1 In advanced discussion with other private sector partners for future joint program development
			7. Number Private sectors partners identified for partnership development with AETR institutions	Total	10	10	0	100%	CONCAD, IBM, FEPRODES, FOUNTY SERVICE, E3LITHOS, FONGS, ONG JUSTICE, VITAL, CSC, AGRIFUND

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
			8. Number of Private Sector partners note of interest for having partnership with AETR institutions	Total	8	5	-3	62.5%	FONGS, AGRIFUND, E3LITHOS, CSC, Jiribalut; In advanced discussion with other private sector partners for more linkages
			9. Number of GDA partners identified	Total	4	7	+3	175%	More GDA partners than previously planned were identified. FONGS & GIE Momina, IBM, Google, Fondation Sonatel, Microsoft, Vital
			10. Number of GDA partners note of interest	Total	1	2	+1	200%	2 proposals sent to USAID: FONGS and GIE Momina
			11. Number of full GDA agreements	Total	-	-	-	-	GDA is a long process and is not planned for this year
	3.2 Database on agricultural sector human resources put in place		1. Number of institutions with improved Management Information Systems, as a result of USG Assistance. (25) (USAID/State Standard Indicator)	Total	11	0	-11	0%	Pilot tests are being conducted. Many partners do not have basic structures in place for management information system support.

Objective	Results	Feed the Future Indicators	USAID/ERA Indicators	Disaggregation	FY2013 Targets	FY 2013 Actuals	Gap level	% against 2013 Target	Comments
			2. Number of AETR institutions using database (26) (USAID/State Standard Indicator)	Total	5	0	-5	0%	Planned for Q1 of FY 2014
			6. Number of digitized documents (E-Docs)	Total	500	0	-500	0%	
	3.3 AKIS (Agricultural Knowledge and Information System) linkage among components		Number of institutions equipped with tools and equipment to support AKIS	Total	7	8	+1	114%	1) ICT and Videoconference: 7 (ENSA, ISFAR, UASZ, LTAEB, CNFTEFCPN, ISRA, ITA) 2) UT elearning program
			Number of external entities linked with AKIS of AETR e.g. AgriCom	Total	4	4	0	100%	AgriCom: Jiribalut, Djihito Dimalaguene, Dantie BKB, and Bokk Diom
			Number of institutions using approach AKIS in training, research and outreach	Total	5	9	+4	180%	Self-institutional: ENSA, ISFAR, CNFTEFCPN, LTAEB.  AKIS exec study tour: UZIG, UT, UCAD, ISRA, ITA

## IV. Success stories

### Success story 1:

#### Young Senegalese Women Participate in Agro-Entrepreneurship

A dozen workers file into a large warehouse filled with boxes, baskets, buckets, and huge tanks loaded with mangos. With scarves tied on their head caps, they quickly remove their rings and bracelets as the Production Manager calls for work to begin. On either side of a long table, the women move into position for assembly line work.

Two young women are distinguished by their skill. Ndeye Marième Sonko and Charlotte Odile Diédhiou are students at the Agricultural Technical High School of Bignona, in Casamance in southern Senegal. They are studying Agricultural Operations Management in the technical certificate program.

This year Sonko and Diédhiou had an opportunity to apply their knowledge in a three-month internship with a fruit and vegetable export company in Sangalkam, a village 30 kilometers from Dakar, the capital of Senegal. Their placement was made possible through the USAID/ Education and Research in Agriculture (ERA) project under a public-private partnership with the business E3 Lothis Biosoleil.

Both students have mastered the work. While Sonko demonstrates, Diédhiou explains, "First there's an organic rinse for washing and cleaning, then sorting to select the best mangoes. This is followed by measurement and separation by size, then the mangoes are weighed and stored in a cold room. The last step is loading into containers for export."

### **Enterprising students**

"This business internship is a valuable experience that allowed us to learn ways to enhance [the quality of] mango production. We operate in a highly professional environment with strict hygiene, quality and safety standards. This strengthens our abilities in relation to the theory we learn in school," said Diédhiou.

Her classmate seems to have found her vocation. "Now I look at the mango differently. I discovered its quality, its food value and its commercial value. I consider the mango as a product with many possibilities, especially in Casamance, where it grows in abundance. It is a niche market that can contribute significantly to food security and economic security."



Sonko shared her dreams for the future. "As a technician I want to invest myself in the promotion of local products. I want to have a product I can be proud of. I want to have contact with farmers in rural areas and share my experience."

This business experience has changed Sonoko's outlook. "I understand important aspects related to quality and standards. Above all I am more aware of the material I learned in my training to apply to my future career."

According to the Director of E3 Lothis Biosoleil, Daby Sy, the program had the desired effect. Through his willingness to work with agricultural training institutions, Sy sees the experience creating vocations among young graduates.

"USAID/ERA project provided the opportunity for me to work with agricultural training institutions on study trips to the USA, Kenya and Uganda. We found that when students participate in on-the-ground work they become more ambitious and enterprising. They understand that they can earn a living by applying the knowledge gained through their training. This is very important," said Sy. His company is now recruiting student interns in all its agricultural and vegetable farms.

Sy is pleased with Sonko and Diédhiou's abilities. "They contribute a lot in the quality, hygiene and safety standards of our products, from harvesting to packaging. They also provide a great service in the traceability and logistics management system for our products."

"We work with over 60 women from the surrounding villages, but the intake of students from training schools is much more profitable. It's better to work with them because they're more dedicated. They easily understand the safety and health requirements, and quickly absorb our credo: accessibility, adaptability and quality," said Sy.

### **The contribution of "Awards of Excellence"**

In much of Senegal's agricultural sector, finding employment candidates with the right training is a challenge. This is especially true when working with women and other disenfranchised groups. Offering opportunities to young women like Sonko and Diédhiou can change that.

On International Women Day 2012, the Deputy Director of the USAID|Senegal, Ms. Alfreda Brewer, presided over the launch of the agricultural scholarship program "Bourses d'Excellence". The scholarships have allowed over 160 motivated learners to pursue educational programs in seven project domains at levels ranging from a Bac+2 all the way up to doctorate. The Bourses d'Excellence fully integrates gender equity; women make up over 54% of the Bourse d'Excellence recipients.

"The Bourse d'Excellence scholarship is instrumental for our careers. It supports our studies, and the exchange enables us to leave our home region of Casamance to be at this business near Dakar. This scholarship is not limited, we can go anywhere in the country for quality education and discover the full potential of our industry. We write our reports ourselves; we can really have ambitious plans," said Sonko.

### **Success story 2:**

## **With Support from University Partners, Technology Unlocks Commercial Potential of Agriculture in Senegal**

In Senegal, Feed the Future is connecting national agricultural research institutions with U.S. universities in order to better meet demand for the applied research that will enable businesses to transform raw agricultural products into market-ready commodities.

That process of transformation, known as agro-processing, is a key business activity and a major driver for economic development in Senegal. That's why a Feed the Future program managed by USAID is facilitating collaboration between Senegal's Food Technology Institute (or ITA, a government research center for applied food science), and Tuskegee University in Alabama to disseminate technologies on using sweet potatoes in commercial food products. Tuskegee is part of a coalition of five U.S. universities led by Virginia Tech that is working to strengthen Senegal's agricultural education sector.

At a recent technology transfer training and workshop at Tuskegee University, ITA researchers learned advanced techniques for using sweet potatoes, which are widely available in Senegal, as a sweetener for beverages made with native Senegalese fruits. ITA researchers also learned that they can cut baking costs in half by using up to 50 percent local sweet potato flour in place of wheat flour in bread production.

"This is an extraordinary discovery because ITA previously has not been able to incorporate sweet potato flour beyond a rate of 15 percent," says Fallou Sarr, head of the Cereals and Legumes Laboratory at ITA. "This method will not only spur increased sweet potato production, but also significantly lower costs incurred by importing wheat." Senegal currently imports 90 percent of its wheat flour supply from abroad.

The workshop at Tuskegee University is just one example of how new agricultural and food science technologies can equip researchers in developing countries to help boost local and national economies. Agro-processing companies of all sizes can benefit from the results of applied research activities with sound economic potential, and many small business organizations in Senegal, including a variety of women’s cooperatives, are seeking more opportunities to be trained in food processing, packaging, and quality assurance.

In order to extend the benefits of new research to rural communities in Senegal, this Feed the Future program is also working with the University of Ziguinchor in Senegal’s restive Casamance region to train women’s groups on processing technology for fruits, vegetables and grains, as well as business organization and financial management. Casamance is an isolated but highly fertile part of the country where using local crops like sweet potatoes to create value-added food products represents a key opportunity for small enterprises to emerge from decades of civil unrest and economic hardship. Feed the Future aims to help these businesses export “transformed” products to external markets in order to buoy Casamance’s stagnant economy

Under Feed the Future, USAID also supports ITA’s outreach to agribusiness, farmers and small entrepreneurs across the country by providing equipment grants to upgrade ITA’s research laboratories, computing, and other technical capabilities. The program has also helped train technical staff in Senegal as well as other parts of Africa and the United States, leading to increased competence on techniques for conservation, processing, and optimizing nutrition in local cereals.

**Success story 3:**

**University of Thies Commences eLearning Program**

The University of Thies (UT) is recognized in Senegal for its agricultural programs. As a public university, UT faces growing demand for educational services and is proactively seeking to increase its capacity. Challenges include increasing numbers of students and lack of adequate infrastructure.

In partnership with the USAID/ERA project, UT aims to leverage eLearning as part of the solution to broaden educational access. Distance learning is still in its infancy in Senegal, but has great potential to enhance agricultural education and research opportunities for students, practitioners, agro-entrepreneurs and farmers. Given the challenge of providing quality educational opportunities to underserved populations,

UT is reaching for a solution that involves both traditional classroom and computer-mediated/online training.

Dr. Talla Gueye is an open-minded young instructional faculty member and head researcher at UT. Gueye is an early adopter of distance education and is very interested in its potential.

He participated in an advanced training in eLearning pedagogy in the US, during a study group for agricultural professionals who are partners of the USAID/ERA project. Study group participants recognized the potential benefits of eLearning for their agricultural institutions.

Upon return to Senegal, Gueye took the lead in eLearning training at UT. He proposed the establishment of a UT distance-learning platform and was one of the first to put his courses online. Gueye's online course is now offered at the National Advanced School for Agriculture (ENSA). ENSA and the Institute for Advanced Rural and Agricultural Training (ISFAR) are the two institutions that serve as the "agronomy hub" of UT.

Gueye said:

"The students have been very receptive and quickly embraced this technological innovation. They are excited to be able to take the course even when they are away from the university. All 34 students in the fourth year at ENSA are enrolled in my online course 'Crop Variety Improvement.' I regularly receive messages from them with very positive feedback."

As agronomists, we are regularly called to the field. The eLearning system will significantly improve the quality of education by facilitating access to resources and services, as well as exchanges and remote cooperation.

The major constraint to the implementation of the eLearning platform is often lack of equipment. USAID/ERA delivered most of the equipment necessary for online courses; almost all students now have computer access. Guillaume Héreau, a fourth-year student at ENSA is excited to take online courses and commented:

"Dr. Gueye's courses, both practical and theoretical, have been very popular with UT students for several years. To explain, illustrate and supplement the content of his remarks, Dr. Gueye set up this distance-learning course. Documents are published and shared via the distance-learning platform. Despite some limitations, Dr. Gueye continued the experience. He remains attentive to each student and does his best to make the platform accessible to everyone.

It's important for us to know how to access on-line tools and access current information in our fields. Since I began training in 2009, there have been major technological changes: digital file sharing is more common student-to-student and teacher-to-student. The adoption of a single common platform allows equality and access."

The eLearning platform is well structured and includes a module for new users, which helped to make the first distance learning experience at ENSA a success. Gueye and his UT colleague Dr. Mouhamadoune Seck received further training from USAID/ERA in on-line course posting. They took the initiative to present their UT platform at the eLearning Africa Forum in Namibia in 2013. Afterward, Gueye reflected:

"eLearning Africa is a forum for exchange and innovation, best practices and proven methods in the field of distance education. Our platform received a favorable reception, which increased our determination and confidence to move forward."

As the eLearning program grows it will facilitate institutions like UT to expand their programs. This expansion will in turn increase the number of trained agricultural professionals in Senegal and enhance the country's capacity to improve food security.

## V. LESSONS LEARNED

USAID/ERA supports a total of 12 Senegalese AETR institutions to accomplish its FTF goal and objectives. The AETR partner institutions are spread across six separate ministries of Senegal, including the Ministry of Higher Education and Research, which provides oversight for the project activities. The Ministries of Agriculture, Commerce, Livestock, Environment and Professional Education form the other five key ministries that are directly connected with the project.

Through its third component, Policy and Governance, USAID/ERA supports sustainable linkages between key actors that are involved in the agricultural sector. During the fiscal year USAID/ERA organized an Executive Leadership Agriculture Knowledge and Information System (Exec-Lead AKIS) study tour.

A key goal of Exec-Lead AKIS study tour centered on bringing together Senior Leaders of all AETR partner institutions, and representatives of the ministries with direct involvement in the project. Other participants included leaders from the private sector and women entrepreneurs.

The Exec-Lead AKIS study tour first and foremost provided the participants a firsthand experience with the tri-partite mission of the American Land-Grant system (education, research and outreach.) As important the study allowed the development of a network of leaders from all facets of the agriculture sector of Senegal.

From the collective experience of the study tour, participants have decided to organize themselves into an agriculture advisory group called GRAAS (Reflection Group on Agriculture and Agribusiness in Senegal). Through GRAAS USAID/ERA has facilitated policy dialogue between AETR institutions, promoting public/private partnerships, generating a better understanding of outreach among Senegalese partner institutions, and fostering a focus on multi-disciplinary and multi-organization collaborations.

The GRAAS network is currently being used for discussions, information exchanges and communications.

A key lesson learned for the period is the necessity of having a viable network of leaders from the AETR partner institutions and representatives of related ministries to stimulate greater collaboration and partnerships in the agricultural of Senegal. USAID/ERA is currently leveraging the GRAAS to explore the ways in which to adapt the tri-partite approach of the US land grant system in Senegal.

**Need for varied and multi-level interactions to ensure sustained engagement of the Private Sector in the agriculture sector of Senegal**

One of the most significant weak links of the agriculture sector of Senegal is the lack of involvement of the private sector in training, research and outreach. This gap has led to mismatch between demand and supply in the sector. USAID/ERA seeks to reinforce and facilitate linkages through win-win collaborative partnerships or other engagements between AETRs and the private sector in Senegal.

USAID/ERA has worked with its AETR partners to ensure that the needs and concerns of the private sector are included in their academic and research endeavors. In addition members of the private sector have participated in outreach initiatives, workshops, seminars and study tours sponsored by the project. Members of the private sector were included in the selection committees for the award of the project's flagship Bourse d'Excellence scholarship programs.

Through the support of the USAID/ERA project, the AETRs are building linkages and adapting their academic practices to better respond to the needs of the market. Moreover, members of the private sector have expressed interest in exploring ways to support the AETRs beyond offering employment opportunities to new graduates, and the purchase of consultative services such as employment training for their existing staffs.

Fruitful collaborations and partnerships are now being developed between the AETRs and many external partners. This focus will ensure sustained engagement of the private sector and other stakeholders of the AETRs in the agriculture sector of Senegal.

## **VI. CONSTRAINTS**

USAID/ERA implements its activities and programs at the local level in close collaboration with the AETR partner institutions and other local stakeholders of the project. This implementation approach by the project is oriented toward high-level buy-in from its partners to ensure long-term sustainability of the interventions and activities being implemented by the project.

During the fiscal year 2013, the project experienced a high level turnover (over 55%) of the leadership and program liaison personnel of its partner institutions. This includes **6 out of 12** of the leaders (Rectors and General Directors) and **7 out of 12** of the focal points of the TWG) established at partner institutions to interface with the project.

The changes and readjustments at the top level of the partner institutions have caused delays in approval and in the implementation of planned activities. The auto-evaluation

activity as well as key aspects of the USAID/ERA research program have been affected as a result of the personnel turnover.

Towards the close of the fiscal year, there has been more stability in the leadership and program liaison ranks of the AETR partner institutions of USAID/ERA. We thus are very optimistic that USAID/ERA is well positioned to build upon the momentum established during fiscal year 2013 to be fully on track to achieve the overall results, accomplishments and impact.

## **ANNEXES**

### **Status of Auto-Evaluation Process**

#### **Institution: ISFAR de Bambey (University of Thiès)**

##### **Current Status:**

- 1) Status/Outputs report complete
- 2) Internal workshop (validation) conducted
- 3) External workshop (next steps) conducted

**Overall Note:** Report ready for publication

##### **Lessons/Findings:**

Mission: ISFAR's mission is defined by statute and its orientation recognized by the faculty. However, operationalization in terms of skills, knowledge and behaviors is poorly developed. Formal responsibility for translating the statute into action is left to the Improvement Council that has never met. Consequently, leadership is constrained in developing action plans that serve more than the immediate desires of faculty. Lack of resources then becomes the driving factor, rather than thinking through what needs to be done with those resources.

Program of Study: Since 2009, much of the effort with respect to the programs of study (agronomy, animal science and forestry) has been to adapt them to the LMD system.



These changes have been absolutely necessary to facilitate the standardization of programs throughout Senegal and internationally (although much still needs to be done). This work has taken considerable effort on the part of the faculty, but appears to be largely a matter of repackaging existing curricula, rather than a restructuring of the overall programs.

The majority of the courses are led by permanent faculty members, but the core program is completely covered by adjunct faculty. Permanent faculty have revised many of their course syllabi. This activity has been supported by USAID/ERA. However, for the core courses taught by adjunct faculty, there is no system for the review and revision of syllabi. The overall program of studies appears well developed, but modern pedagogic techniques are not apparent.

Program Administration: The leadership (Director and Director of Studies) is renewed by election every three years. Faculty are recruited nationally on the basis of merit. But, current management procedures are highly dependent on director of studies. Much of the work involves the logistics of coordinating the large non-resident adjunct faculty on which the core program depends. Time consumed in this activity does not allow for good follow-up of program content with students and teachers. A highly centralized administration linked to the ministerial level without operation of the Improvement Council does not allow for the timely introduction of the desired improvements. Also, the program lacks sufficient technical personnel for the laboratory and maintenance of the teaching equipment.

Faculty: The teaching staff is dominated by adjunct faculty. The majority of the permanent teaching staff do not have post graduate degrees. There are no women on the permanent teaching staff. Half of the adjunct faculty have a doctorate. Although permanent faculty do not hold advanced degrees they are often quite competent in their professions and motivated to pursue research opportunities and advanced degrees.

Instructors are managed at the department level, however they have considerable autonomy in the conduct of their courses. Faculty evaluation is limited and student feedback, not to speak of evaluation of professors, is not practiced.

Students: Students graduating from ISFAR are much in demand and highly appreciated on the job market in Senegal. However, it appears that the concept of student counseling and mentorship is not developed. A student-centered pedagogy has not been developed.

Institutional Support: The essence of institutional support from the ministry (via the University of Thies) is the provision of salaries and wages for the permanent and

adjunct faculties. In addition, every two years each permanent faculty member is allotted financing for a study trip (usually two or three weeks). ISFAR has also been developing its own financial resources that currently represent less than 5 percent of its total budget. A few donors have awarded individual researchers with funds for research projects.

**Institution:** CNFTEFCPN

**Location:** Djibelor

**Current Status:**

- 1) Report complete
- 2) Internal workshop (validation) conducted
- 3) External workshop to be conducted in in Q1 FY 2014

**Overall Note:** Report will be ready for publication in December 2013

*Preliminary findings:*

Mission: CNFTEFCPN's mission is defined by statute and provides a point of reference for the evolution of its program. Upon occasion, the Improvement Council (headed by the lead Ministry) meets in order to make programmatic changes, but these meetings are rare and often appear top down. Nevertheless, the Center has kept its mission in focus. As the institutional environment changes, so too has the operationalization of the center's mission and objectives. A degree of self-consciousness has led to curriculum improvements through the years.

Program of Study: There is a single program for the training of all natural resource management technicians composed of 19 modules, practical training and internships divided across three years. The curriculum itself appears to be well balanced with an array of learning modes and exercises. However, the faculty is understaffed to cover the entire range of courses in all modules and therefore recruits (at the expense of center generated funds) adjunct faculty. Practical training revolves around the annual production cycle of the Center's forest and agro-sylvo-pastoral resources; each season provides a range of opportunities for student learning.

Program Administration: There are two ministries responsible for different dimensions of the Center. The Ministry of Environment and Natural Protection (MEPN) is concerned with the content of the training, may hire some of the graduates and provides technically competent (if not from appropriate specialties) instructors. The Ministry of Technical and Professional Training is responsible for initial student recruitment and awarding of diplomas. This poses certain problems, most particularly an apparent lack of understanding of the pedagogical needs of the Center with respect

to technical specialties to implement the curriculum on one hand and the lack of support for instructional techniques and skills, on the other.

Faculty: At present the biggest problem faced by the Center is understaffing. This is covered in the first instance by increased teaching responsibilities for the Director, Director of Studies, and the Supervisor Monitor; and secondly by hiring adjunct faculty with center-generated funds. The difficulty of MEPN recruitment is that the most common misfit is that the identified 'instructor' has no interest or aptitude for teaching. At this point, the center believes it needs up to 14 new recruits: BS level (6); technical school level (6); and monitors (2).

There is little discussion of classroom pedagogy, per se. Faculty appear to have good interaction and communication with students, but cannot really determine contact time outside of regular course credit hours. Communication with internship hosts provides valuable feedback to the faculty.

Students: Student recruitment is nationally controlled through an examination system (common to all three national technical training centers (forestry, agriculture, and livestock). A second part of the competition system involves testing the physical skills, aptitudes, and motivation of the recruits. Student contact hours are not measured at the center, but availability of most instructors seems good. Student placement in employment after graduation is about 60 percent. Feedback from employers appears to be positive.

Institutional Support: On face value it would appear that financial support to the center from MENP is good, but this conclusion does not take into account the extra class hours covered by the certain instructors (including the director) and the center-generated funds that in part cover the adjunct faculty. Nevertheless, the MEPN is a nation-wide operation with employment and internship opportunities for CFNTEFCPN students across the country. This is a valued resource, as is the training and production facilities of the adjacent forest and agro-sylvo-pastoral zone. Consequently, the relationship is very strong. The MENP covers the costs of both permanent employees (faculty and staff), as well as some contractual instructors and staff (there is a pay gap between permanent and contractual).

**Institution:** LTAEB

**Location:** Bignona

**Current Status:**

- 1) Report complete
- 2) Internal workshop (validation) conducted

3) External workshop to be conducted in in Q1 FY 2014

**Overall Note:** Report will be ready for publication in December 2013

*Preliminary findings:*

Mission: The mission of the LTAEB is complicated by a set of educational and development goals. Each of the educational programs (secondary and technical school degrees) derives from the same set of decrees. These decrees specify objectives for each program and are presumed to address a gap in the development labor force servicing the primary sector. The objective for the technical degree program uses the same language as that for ISFAR.

Program of Study: The curriculum for the secondary and technical degree programs is defined in considerable detail by the Ministry of Training and Apprenticeship for Technical and Artisanal Professions (MFPAA) [*is this the same as above?*]. Three secondary school programs (agricultural and environmental sciences and technologies; food science and technology; and quantitative techniques for management and economy) and one technical school program (conduct and management of an agricultural enterprise) are taught at LTAEB.

The leadership seems to have considerable maneuverability with respect to learning modes and pedagogical techniques. Students at every turn are encouraged to 'learn by doing'. The content of the curriculum is kept contemporary by addressing policy issues and recognizing the importance of themes concerning gender, the environment, and ethics, and skills in communication. Beyond the routine curriculum students have the opportunity to engage in organizations having national/international activities and in research projects with faculty and other local collaborators. The technical degree program emphasizes the importance of entrepreneurial skills and experiences.

Program Administration: National statutes dictate much of what LTAEB is supposed to teach, but the Ministry does not seem prepared to provide adequate back-up for the needs of the institution. New faculty are sent from Dakar without regard for the type of specialist requested (some showing up in mid-year). Furthermore, support for evaluation seems lacking despite the existence of evaluation services at the Ministry in Dakar. More disturbing given the promotion of more modern pedagogic techniques is that methods of self-evaluation do not seem to be considered as a viable (if temporary) alternative. It seems that the programs lack a number of critical technical specialists and are making do with those whose expertise lies elsewhere. As for the quality of pedagogic practices there seems no point of reference. There has never been an evaluation of any of the programs of study. Student success has been quite irregular in the secondary school programs, although 100 percent in the first year of the technical school program.

Faculty: The faculty is an amalgam of permanent (9), contractual (12), and adjunct (7) instructors. Keeping good faculty has been a challenge. One senses that Bignona, Ziguinchor is not a hot spot for teacher recruitment. However, there is a core of devoted faculty and they have developed not only extra-curricular activities, but also an advising and placement service – the Office of Placement and Graduate Monitoring (BAINS). These faculty have quality interaction with students and have successfully placed 85 percent of the first graduating class of the technical school program.

Students: Students in the secondary school programs do not appear to have done well with only about 50 percent passing their end of program examination. Is it the students coming from such poor backgrounds? Is it the faculty that are not appropriately prepared? Is it the execution of this particular model of education? Comparison with the technical school program 100 percent (85 percent have jobs) success in the first year makes these questions more complex. The BAINS program has been successful and depends on good faculty-student relations as well as good relations with the private sector.

Girls are rarely found in the technical programs, but there numbers have been growing in the quantitative techniques for management and economy secondary school degree program.

Institutional Support: The support of the Ministry has been varied. There has been a good budget for training materials and supplies (including photocopying). However, payment of faculty has at times been irregular and given the location, this makes faculty retention much harder. Combined with the lack of coordination in the supply of appropriate instructors and the lack of support for evaluation of the existing program, there is a certain amount of frustration with the Ministry.

On the other hand, donor support has been critical with respect to opportunities (study tours, scholarships, etc.) and computers. The school has also been able to earn some money from its agricultural and poultry operations, training of farmers (not all funds come back to the school, trainers themselves take a cut), and tractor rental. However, without a wall to encircle the farming area, losses have been high.

**Institution:** University of Assane Seck-Ziguinchor - Department of Agroforestry

**Location:** Ziguinchor

**Current Status:** Incomplete

**Overall Note:** After initial engagement to adapt the self-assessment to the Agroforestry Department program, the TWG at UASZ has made several attempts at conducting the self-assessment. None of these attempts have resulted in the successful completion of any of the exercises.

### **Lessons/Findings**

- N/A

#### *Preliminary findings:*

The biggest challenge that the Department of Agroforestry faces is that it simply does not have the number of faculty necessary to make a viable department. Since USAID/ERA began engaging with the department permanent faculty has varied between 2 and 3 members (with turnover). The department's program is driven by a set of some 27 non-permanent adjunct faculty, the majority flying in briefly from Dakar to teach a brief module (one or two weeks). Although we've seen this pattern in other institutions (e.g., ISFAR), this level of dependence on adjunct faculty far exceeds all other cases and constitutes a significant finding in itself.

### **Institution: ENSA (University of Thiès)**

**Current Status:** An incomplete draft was prepared in December 2012 (subsequent efforts to complete this draft failed)

**Overall Note:** The new Director of ENSA and his new Director of Studies (supported by the new Rector of the University of Thiès) are starting the process over with the expectation of an internal workshop for validation in February or March.

### **Lessons/Findings**

- N/A

Note: The first attempt at completing the self-assessment was largely co-opted by the existing Director of Studies, a highly competent faculty member, who appeared to control the entire curriculum. This structural feature repeats the finding of structural overload from ISFAR with more serious consequences for completing a participatory self-assessment. There appears to be more effort necessary to mobilize university faculty than to mobilize faculty of technical schools.