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# Education and Research in Agriculture (USAID/ERA)

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## 1<sup>st</sup> Quarter Report

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**VirginiaTech**  
*Invent the Future*

### **Management Entity Contacts**

Larry Vaughan, Chief of Party  
BP 24690 Ouakam  
Dakar, Senegal  
Country code (221) 33 869 75 21  
larryjv@vt.edu

Keith M. Moore, Interim Executive Director  
Office of International Research, Education,  
and Development  
526 Prices Fork Road (0378)  
Blacksburg, VA 24061 USA  
Country code (1) 540-231-6338  
keithm@vt.edu

#### **Ministry of Higher Education and Research**

Nouhou Diaby  
nouhou.diaby@ucad.edu.sn

#### **ANAQ-Sup**

Abdou Lahate Cissé  
abdou-lahate.cisse@anaqsup.sn

### **Partner Institution Contacts in Senegal**

CFPH  
Mandoye Ngom  
mandoyengom@yahoo.fr

CNFTEIA  
Fatou Sarr  
fatousarr1809@yahoo.fr

CNFTEFCPN  
Moussa Cissé  
cissemoussasn@yahoo.fr

ENSA (University of Thies)  
Mamadou Thiam Diop  
mtdiop@univ-thies.sn

ISFAR (University of Bambey)  
Birahim Fall  
birahimfall@voila.fr

ISRA  
Elhadji Traoré  
elhadji.traore@isra.sn

ITA  
Abdoulaye Mbaye  
ablombaye@yahoo.com

LTAEB  
Ibou Diedhiou  
ibsoutou@gmail.com

UASZ  
Daouda Ngom  
ngom\_daouda@yahoo.fr

UCAD  
Kandioura Noba  
kandioura.noba@ucad.edu.sn

UGB  
Amadou Bocar Bal  
amadou-bocar.bal@ugb.edu.sn

### **CROP Contacts in Senegal**

ENSA  
Saliou Ndiaye  
drsaliou@gmail.com

ISFAR  
El Hadj Faye  
hadjfaye@yahoo.fr

ISRA/Djibelor  
Siméon Bassene  
basseneisra@gmail.com

ITA  
Nafissation Diop Ndiaye  
ndiop@ita.sn

UGB  
Amadou Bocar Bal  
amadou-bocar.bal@ugb.edu.sn

### **US University Partners**

Purdue University  
Jess Lowenberg-Deboar  
lowenbej@purdue.edu

Tuskegee University  
Ntam Baharanyi  
baharany@mytu.tuskegee.edu

University of Connecticut  
Boris Bravo-Ureta  
boris.bravoureta@uconn.edu

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## List of Abbreviations

<b>AETR</b>	Agricultural Education, Training and Research
<b>AGRA</b>	Alliance for a Green Revolution in Africa
<b>ANAQ-Sup</b>	<i>Autorité Nationale d'Assurance Qualité de l'Enseignement Supérieur</i>
<b>ANCAR</b>	<i>Agence Nationale de Conseil Agricole et Rural</i>
<b>BAME</b>	<i>Bureau d'Analyse Macro-économique</i>
<b>CERAAS</b>	<i>Centre d'Etudes Régional pour l'Amélioration de l'Adaptation à la Sécheresse</i>
<b>CFPH</b>	<i>Centre de Formation Professionnelle en Horticulture</i>
<b>CNFTEIA</b>	<i>Centre National de Formation des Techniciens d'Elevage et des Industries Animales</i>
<b>CNFTEFCPN</b>	<i>Centre National de Formation des Techniciens des Eaux et Forêts, Chasse et des Parcs Nationaux</i>
<b>CROP</b>	Collaborative Research and Outreach Partnership
<b>DRDR</b>	<i>Direction Régional de Développement Rurale</i>
<b>ENSA</b>	<i>Ecole Nationale Supérieure d'Agriculture</i>
<b>ERA</b>	Education and Research in Agriculture
<b>ESEA</b>	<i>Ecole Supérieure d'Economie Appliquée</i>
<b>FEPRODES</b>	<i>Fédération des Groupements et Association des Femmes Productrices de La Région de Saint Louis</i>
<b>FIARA</b>	<i>Foire internationale d'agriculture et de ressources animales</i>
<b>FNRAA</b>	<i>Fonds National de Recherche Agricole et Agro-Alimentaire</i>
<b>FTF</b>	Feed the Future (presidential food security initiative)
<b>FTFMS</b>	Feed the Future Monitoring System
<b>FY</b>	fiscal year
<b>GIE</b>	<i>groupement d'intérêt économique</i>
<b>GRAAS</b>	<i>Groupe de Réflexion sur l'Agriculture et l'Agro-alimentaire au Sénégal</i>
<b>HACCP</b>	Hazard Analysis and Critical Control Points
<b>SFAR</b>	<i>Institut Supérieur de Formation Agricole et Rurale</i>
<b>SNRER</b>	<i>Réseaux National pour l'Enseignement Supérieur et la Recherche du Sénégal</i>
<b>ISRA</b>	<i>Institut Sénégalais pour la Recherche Agricole</i>
<b>IRD</b>	International Relief and Development
<b>ITA</b>	<i>Institut de Technologie Alimentaire</i>
<b>LTAEB</b>	<i>Lycée Technique Agricole Emile Badiane</i>
<b>LS</b>	<i>ligne spécialisée</i>
<b>MESR</b>	<i>Ministère de l'Enseignement Supérieur et de la Recherche</i>
<b>OIRED</b>	Office of International Research, Education, and Development (Virginia Tech)
<b>PMP</b>	Performance Monitoring Plan
<b>PMU</b>	Project Management Unit (Dakar project office)
<b>POPAS</b>	<i>Plateforme des Organisations Professionnelles de l'Agroalimentaire du Sénégal</i>
<b>Q1, Q2..</b>	1st quarter, 2 <sup>nd</sup> quarter, etc.
<b>SAED</b>	<i>Société Nationale d'Aménagement et d'Exploitation des Terres du Delta du Fleuve Sénégal et des Vallées du Fleuve et de la Falémé</i>

<b>TU</b>	Tuskegee University
<b>UCAD</b>	<i>Université Cheikh Anta Diop de Dakar</i>
<b>UGB</b>	<i>Université Gaston Berger</i>
<b>UC</b>	University of Connecticut
<b>UT</b>	<i>Université de Thies</i>
<b>UASZ</b>	<i>Université Assane Seck de Ziguinchor</i>
<b>USAID</b>	United States Agency for International Development
<b>USDA</b>	United States Department of Agriculture
<b>VT</b>	Virginia Tech

## Executive Summary

An important impact of ERA that came to fruition at the end of Q1 was its role in inspiring elements of the new law governing universities that passed Senegal's *Assemblée Nationale* in December. Most important was the inclusion of an outreach mission (*service à la communauté*). ERA also inspired the new governance structure in which half of a university's administrative board comprises members of the private sector. An emphasis on student career services, now part of every universities obligations, is derived from ERA's work. Before the law was passed, ERA was already providing leadership in student career services, holding a three-day workshop for ten institutional partners on designing student career services. In response to a meeting of partner librarians convened by ERA in Y4, the first in a series of trainings in library management were held for fifteen librarians. Four faculty members and researchers were supported for participation in international events related to food security. Five Senegalese graduate students in the US returned to Senegal over the winter break to do research. The certificate training in certified seed production was completed, adding 279 trainees to Y4 total for the program. The seed producer association of Fanaye was authorized by the government to produce certified seed in 2015. ISFAR drafted its strategic plan and made plans for external stakeholder validation. CFPH completed the external validation of its institutional assessment. Millet trials provided a strong appreciation by growers for the variety Sosat. According to farmers in Meoune, their production under low rainfall conditions of 2014 was saved by the short-cycle variety. A subaward to UCAD was prepared for signature so that it can provide training in quality control and HACCP, packaging, and commercialization and marketing to women-owned food processing business through POPAS. ANAQ-Sup, the quality assurance unit of the Ministry for Higher Education and Research harmonized ERA's institutional assessment tools to allow it to begin the accreditation processes for agriculture programs. Joint workshops on the harmonized tools and the accreditation process were held at three universities.

## Component 1 – Strengthening Agricultural Education and Training

Component 1 leads to three project results: 1) faculty members are applying best practices in pedagogy; 2) faculty members and students have the knowledge, skills, and attitudes to meet the needs of Senegal’s agricultural sector; and 3) partner institutions are being managed as centers of excellence.

### Accomplishments

#### *Result 1.1 AETR faculties are applying best pedagogic practices*

**Syllabus development.** Syllabus development has been an important contribution of ERA and is being expanded during Year 5. In Q1 teachers evaluated the syllabus effectiveness from students’ points of view. During the quarter, 72 students from CFPH and ENSA evaluated the effectiveness of course syllabi. In the second quarter, ERA will hold a symposium on innovation in pedagogy and best practices, including syllabi. Experienced faculty members will share their experiences in syllabus development with UGB, UCAD, and CNFTEIA.

**E-learning.** The PMU initiated discussion with MESR on the ministry-hosted symposium on e-learning. This event will put agriculture teachers from partner institutions in contact with the centers of e-learning expertise that already exist in other disciplines within Senegal’s higher education institutions.

A Year 5 innovation The Common Book activity began in Casamance with ceremonies at which 142 copies of the book *L’Agriculture Sénégalaise de 1958 à 2012* were distributed to first-year students at LTAEB, CNFTEFCPN, and LTAEB by the leadership of each institution. Throughout the academic year, the book will be the focus of discussions and seminars that engage students and teachers in an intellectual endeavor that supplements normal classroom interactions. Distribution to other partner institutions will be done in the second quarter.

**Experiential learning.** The directors of ENSA and ISFAR convened their working groups to join the PMU in discussion on how to best introduce the model of experiential learning at their institutions. This activity pairs select faculty members from ISFAR and ENSA with a faculty member from Virginia Tech working in the field with students from Senegal and the United States to supplement classroom learning. The theme of this year’s activity is a mechanization design and evaluation project that is the subject of a capstone design project for senior mechanical engineering students. The tool that is being designed and tested is a hand-powered machine that can chop vegetation for ensilage. Ensiled vegetation provides a rich source of animal feed in the dry season. Villagers in Toubacouta, Santanba and Ndoumboudji have been working with ERA to test ensilage for small ruminants. Because of interest generated by the research, they chose an ensilage chopper as one of their preferences for new tools. This activity is another example of ERA providing examples of innovative teaching.

**Increasing the availability of grafting material in Casamance.** CNFTEFCPN began a collaboration to develop an orchard of high-quality cashew trees varieties in the schools forestry plots in order to help supply local producers with grafting material to maintain consistent nut quality. The collaboration was facilitated by ERA to expand its mastery of forestry skills that are relevant to the local community.

**Improving library management.** In December, the first in a series of consultant-guided trainings in modern library management was held. This capacity-building activity was derived from an action plan proposed by the librarians of partner institutions when ERA convened them in September to address library issues. The objective of the training series is to improve library management among ERA's partner institutions and to associate librarians such that they can work toward common goals. The first training was held in December for fifteen librarians from twelve institutions. Three resource personnel from other libraries were invited to share professional experiences. The training covered "the minimum elements of a 21<sup>st</sup> century library", cataloging, General Principals of Document Indexing (NF Z47-102), and patron services among other topics. The participants were oriented in *Système de Gestion Intégré d'une Bibliothèque* (SGIB) library management software.

**Connecting faculty members to their international peers.** Professor Amadou Ndiaye of UGB was supported to make a presentation at the Agricultural Extension and Food Security in Africa conference held in October at Ohio State University. Seven African universities attended. UGB was the only francophone African university represented. An observation shared by Dr. Ndiaye is the need for agricultural extension to be treated as a science at the university level in francophone universities and noted that the university assembly has approved the creation of such a program, but has not do so for lack of personnel.

Tala Diop (ENSA), Samba Sylla (UCAD), and Mamadou Lo (ISRA) are among the membership of the inter-institutional seed committee that is developing two seed production curricula. ERA sent them to the Corn and Sorghum Seed Research Conference and the Seed Expo at Chicago. The seed exposition is the annual event of the American Seed Trade Association. More than twenty countries are typically represented. The faculty members' opportunity to attend the conference was related to ERA's capacity-building work developing a curriculum in certified seed production. The Senegal group presented USAID's accomplishment in establishing certified seed training (two posters, one on the Master and bachelor's curricula in seed science and the other one on the certificate program for technicians, extension agents, and producers). The Seed Exposition gave Senegal's representatives many opportunities to engage with private sector actors in the U.S. and international seed sector. A better understanding of commercial seed production and trade outside Senegal is now available for incorporation in the seed curriculum and in the classrooms of UCAD and ENSA.

### ***Result 1.2 AETR faculties and students have the knowledge, skills, and attitudes to meet the needs of Senegal's agricultural sector***

**Graduate training.** Five Senegalese ERA Scholars from U.S. universities returned to Senegal during the winter break to advance their thesis research.

**Undergraduate training.** 124 undergraduates supported by ERA scholarships continued their studies.

**Curriculum development.** The seed curriculum is progressing according to schedule. A semi-final curriculum ready for external review will be completed in the second quarter. The certified seed trainings that began at the end of Year 4 were completed in the first quarter of Year 5. In addition to 109

technicians, extension agents and producers trained by the end of Year 4, an additional 279 (226 producers, 43 extension agents from ANCAR and DRDR, and 10 from the private sector) were trained during the final trainings completed in October. A seed producers group in Fanaye was recognized by the Senegalese government as the training program. This success of this training program marked the accomplishment of one track of the dual curriculum development activity.

The university-level seed curriculum design advanced further in October during a design meeting of the twelve members of the inter-institutional seed curriculum committee, represented by ENSA, ISFAR, ITA, TropicaSem, and AGRA. In November an internal validation of the university seed curriculum was held in Saly. Thirteen faculty members from seven AETR institutions reviewed the results from the October design meeting.

The university-level seed curriculum has been designed by members of different institutions and with input from the private sector and government. An important aspect to be recognized is that the curriculum exists independent of a host institution. This situation is unique in Senegal. The curriculum is being designed based on the subject expertise required for a graduate to have the necessary knowledge and skills to immediately undertake work in the seed sector regardless of where this subject expertise institutionally resides. Because this required expertise is scattered across numerous institutions, the university curriculum on certified seed production systems is a perfect test case around which several higher education policy issues can be discussed in the context of a concrete example. These issues are: transfer (i.e. recognition) of course credit across institutions; intellectual property of course content and its management, systems of compensation for institutions and professors contributing to teaching such a curriculum. These issues will be topics of upcoming GRAAS meetings.

**Gender competency in agricultural teaching.** During Year 4, the Ministry of Environment and Sustainable Development (MEDD) requested support from ERA to assess the adequacy of the gender content in courses within its training centers, of which CNFTEFCPN is one of three. In November the ERA PMU began planning the workshop with MEDD's gender cell. The two-day workshop was scheduled for early in the second quarter.

### ***Result 1.3 AETR institutions managed as centers of excellence***

**Institutional self-assessment.** CFPH completed its institutional self-assessment in November and held an external validation of its assessment in December, during which 27 stakeholders in the private and public sector participated, including TropicaSem, SAED, and the Ministry of Agriculture. ISFAR drafted its strategic plan for external and internal validation in the Q2.

**Student services.** A three-day partner workshop in December on developing student career services offices involved nineteen professionals from ten partner institutions. A status report on the existence of student support services was made for each partner institution. Participants also shared their experiences and identified paths for collaboration. With the support of a consultant, the participants will continue working on a practical guide for fostering university/private sector relation in subsequent quarters.

The topic of *bureaux d'insertion* was part of the ERA work plan before the subject became an element in Senegal's new law governing universities.

**Improving IT resources and strengthening their management.** As part of institutional capacity building of its partners, ERA provided computers and software to ISFAR and ENSA in October. Twenty desktop computers and 20 voltage stabilizers went to the computer facility at ISFAR. In November a final delivery of five computers and software was made to the Master of Value Chain program at ENSA. Ten laptops and two servers with software completed the IT request of ISFAR.

To extend the usefulness of ERA's investments, training in IT maintenance is being combined with routine computer maintenance that has been carried out by ERA personnel. Training began in Q1 with CNFTEFCPN.

To better connect partner institutions to the internet, the PMU worked with a team from the Education Business Developer of SONATEL to explore the possibility for several of the more isolated partner's institutions to benefit from a broadband connection. The focus of the meeting was the critical short-term need for an ADSL line at CNFTEFCPN but also included discussion of the constraints on extending a commercial speed line (*ligne spécialisée*) to Djibelor for the benefit of the forestry school and the ISRA research station. The high monthly cost of an LS connection made this option unsustainable. Another option that was worked on is the sharing of the University of Ziguinchor's high-speed connection – part of MESR's *Reseaux pour l'enseignement et la recherche* (SNRER) – with LTAEB and CNFTEFCPN. The first step that was discussed is studying the amount of surplus bandwidth at UASZ to see if there is capacity that can be spared. Radio towers are available to connect wirelessly up to 30 km from UASZ's LS.

## Constraints encountered and unresolved issues

Ideally, experiential learning is a normal part of formal classes. In the case of pilot implementation at ENSA and ISFAR in Year 5, experiential learning will be done through extra-curricular field trips. It will take time for instructors to incorporate experiential learning into existing classes or develop new classes using this model.

The graduate students in the United States are all making appropriate process. However, many of the students required more time than the project management anticipated to meet the language requirements for graduate school. Although some of them will graduate by October 2015, most of them cannot graduate until May or August of 2016. The late rains in 2015 had deleterious consequences on numerous field experiments. All of the graduate research on field crops needs to be repeated in 2015.

Most of the 152 Senegalese students who were awarded two years of academic support have or will have finished their degrees by the end of the current academic year. However, student and faculty strikes in 2014 resulted in delayed starts at several institutions and caused difficulties for some students to enroll. Proof of enrollment is a criterion for receiving the scholarships. At the end of Q1,

there were 18 students whose special cases leave them unable to claim the remainder of their scholarship until they can enroll.

## **Tasks planned for the next quarter**

- Complete the final institutional self-assessment work
- Support institutional strategic planning at ISFAR, CFPH
- Conference on ERA pedagogy innovations
- Launch the Common Book activity at ENSA, ISFAR, UCAD
- Carry out the second training in library management
- Training of trainers in entrepreneurship and business planning training for faculty members
- Support partner participation in the national agricultural fair (FIARA)
- Participate in African Summit for Higher Education
- Complete planning for a ministerial conference on e-learning
- Demonstrate experiential learning with ISFAR and INSAH

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

Component 2 leads to two project results: 1) innovative research is benefiting public and private stakeholders; 2) partner institutions provide outreach and technical support.

### **Accomplishments**

#### ***Result 2.1 Innovative research benefits public and private stakeholders***

In November, the Research Coordinator Demba Farba Mbaye and Tom Thomson from VT reviewed the achievements of the millet program with ENSA, saline soils with ISFAR, sweet corn with ITA, and irrigated rice with UGB. The following text describes the work that was done rather than research results. Results from the 2014 research season will be available after the January 2015 ERA research symposium.

#### **Intensification and Sustainable Management of millet production in areas of Thies, Louga and Niore: Improving, expanding and strengthening the value chain of superior varieties (ENSA)**

ENSA added nine varieties to the germplasm collection. Graduate student Mamadou Ndoeye did microsatellite diversity analysis of these new acquisitions as part of his Master's thesis at ENSA.

ANCAR carried out training on good agricultural practice 300 producers through the end of the millet harvest.

3.4T of foundation millet seed were produced and conditioned.

#### **Production and Processing of Sweet Corn in Senegal**

Graduate student Marième Dramé worked with ISRA during the rainy season to implement summer field tests on the optimal use of fertilizers. Harvest was done during Q1. Graduate student Fatou Diop completed agronomic tests on optimal density, nutrition, in Niore, Sangalkam, and Ndiol. UCAD researcher Mady Cisse carried out biochemical tests on sweet corn varieties that will lead to recommendations for the best varieties for canning. ISRA, ITA and CFPH cooperated on completing field tests that were harvested during the quarter.

CFPH organized a field visit for on the sweet corn collaborative research site at Sangalkam for 60 people. Producers and industry players were invited to give their appreciation on the five sweet corn varieties being tested there.

#### **Sustainable Improvement of Cereal Productivity in Salty Environments (ISFAR)**

The project's annual report documented all eleven activities that were planned had been achieved or undertaken in 2014 among which were:

- tests of organic soil amendments for millet and rice production
- analysis of the physical properties of dough comprising wheat flour comprising 15% millet flour
- training three master's students at ISE, ENSA, and VT)
- training producers on good practice in production (seedling production, mechanical and manual land cultivation
- vegetative protection of earthen micro-dikes.

ISFAR carried out research on techniques to reclaim salinized rice fields for millet and rice production in the villages of Fadial and Ndoff (Departement of Fatick). Millet planting was successful but suffered some animal damage. Late and insufficient rain prevented rice from producing. The team experimented with mini-water retention dikes and planted three different plant varieties at an experimental site in order to fix the soil in place.

Sosat was determined to be the best millet variety for salt tolerance. It was preferred by producers because of its short-cycle, and also the preferred variety during village cooking demonstrations as it has a smaller proportion of bran than other varieties as well as a pleasing color and grain size.

Graduate students Sekouna Diatta and André Diatta monitored subterranean water levels and the effect of soil amendments on soil conditions in experimental millet planted in an abandoned salty field in the village of Ndoff. The millet plants were eaten before reaching maturity, providing only data on soil amendments without yield data.

### **Improving the Productivity of Rainfed Rice in Casamance**

ISRA/Djibelor harvested rice from seed multiplication plots during the quarter. Four tons of different varieties for different environments: *nappe* (4), *bas-fond* (6), upland rainfed (6), and mangrove (3).

ANCAR completed village demonstration of registered varieties not well-known in Casamance. It led to participatory breeding trials (*selection varietale participative* SVP) with several producers each in nine villages (Karhiack, Badiatte, Bassaf Kamobel, Ndorna, Manjak, Kanwali, Bogal and Koussy).

Graduate students Ndeye Helène Diallo and Thioro Fall set up soil amendment tests: commercial lime, lime from shells, and biochar on-station at ISRA/Djibelor. Commercial lime was the best. There was also a beneficial effect of the shells. Soil water levels measuring devices were set up at the Djibelor station for long-term monitoring of water movement patterns that can explain salt intrusion.

Iron toxicity in the soil at the village of Badiatt was too high for plants to grow. The soil in the test parcel there had soluble iron concentration higher than 300mg/L, which is considered the critical limit for the cultivation of lowland rice.

- Iron toxicity is a significant barrier to increasing rice yields in Senegal which can only be solved with proper understanding of complex behaviors among multiple ecosystem components.
- In addition to the use of iron-tolerant rice varieties, improved soil management represents the best chance for improving rice yield.

- This work may lead to recovery of currently unproductive lands that are considered necessary to meet targets for domestic rice production.

### **Promotion of Local Rice in the Valley and Delta of the Senegal River**

- In Q1 ISRA/St. Louis completed village demonstration plots and a survey of grower preferences for these registered varieties (16 new varieties: 4 NERICA varieties, and 12 varieties the Sahel of which three were perfumed). Seed production of nine varieties is ongoing.
- Seed production by CIRIZ Dagana, FEPRODES, DRDR Matam and DRDR Dagana and Podor was ongoing.

The macroeconomics team of ISRA (BAM) carried out consumer preference surveys of valley rice socioeconomic groups in Dakar.

The survey of forty rice milling units in thirteen locations continued through October. The research was designed to find correlations between the quality of rice and the scale of the operation (artisanal, semi-industrial, industrial).

The growers' association, *L'Union des organisations de producteurs de Fanaye (Saint-Louis)*, received its approval as a certified seed producer for 2015. This success has been possible through the support of USAID/ERA within the collaborative research program on irrigated rice.

In December, fourteen seed producers (2 men and 12 women) from Matam (Kobilo) received the last training for their future request to become certified seed producers.

### **Fortified instant cereal-based products for the Senegalese market.**

Bio-accessibility tests remain to be done later in the year. Graduate student Cheikh Ndiaye at Purdue University is taking courses and continuing research on instant flour. Djibril Traoré worked on adapting a small-scale soy extruder at ITA's laboratory in Dakar to make instant flour out of millet, modeling a hypothetical medium-scale commercial facility.

### **Conservation agriculture using legumes in millet systems**

Graduate student Patrick Trail completed his final season of work for his Master's degree. His research looked at different planting schemes for incorporating mung bean into village food production as a short-cycle source of legume protein for the food insecure period of the "*soudure*" – the late rainy season when last year's food stocks may become depleted before the current year's harvest.

## ***Result 2.2 Improved Outreach and Technical Support***

**Village-to-village outreach.** During millet harvest in October, ERA supported exchange visits in to Sandiara, Fissel, Meouane, and Fandène for growers to meet their peers and learn about the results of village-led of inter-cropping demonstrations

**Promoting institutional outreach to rural youth through 4-H.** USAID/Senegal, in collaboration with Peace Corps/Senegal, is supporting ENSA and ISFAR to diversify their community services deliveries using innovative extension approaches. The 4-H model promotes youth development and agricultural education in social and economic life. In December, an exchange meeting was held with academic leaders of ENSA and ISFAR, to advance the program's implementation. A field visit was organized at Toubacouta where the team had work sessions with the primary school of Ndoumboudj, youth center of Toubacouta and the youth association of Santamba). The team also met the parents of to explain the 4-H concept.

**Strengthening private/public partnerships.** The agreement with UCAD was finalized and sent for signature at the end of the quarter. This agreement provides the financial support necessary to fund a series of trainings that will help women-owned food processors complete the dossiers for government certification of export quality foods. Success in this endeavor will provide an important case study.

In November, ERA supported the participation of POPAS at the seven-day *Foire économique de la francophonie*. POPAS highlighted the new partnership between UCAD and POPAS through ERA that will enable women to produce quality products meeting the international standards

ERA led sessions connecting UGB to private sector women's enterprises working under the coordination of CONGAD – Saint-Louis. This effort is leading to a training program in which UGB will assist CONGAD's confederation of women-owned food processing businesses and producers.

ERA began discussions with the INNODEV business incubator associated with UCAD to facilitate the identification of a point of contact for INNODEV at ERA's other university partners.

**Non-degree training of agricultural professionals.** In Year 4 ERA's partners designed a certificate-level training program to address the knowledge gap of technicians, extension agents, and growers in certified seed production. The training of trainers was completed in Y4. In October, a series of two-day producer-level training on seed legislation, technical production, quality control and certification of seed was held.

- Keur Samba Gueye (Dept. Foundiougne) - 30 farmers and certified technicians from ANCAR
- Thiare (Dept. de Kaolack) - 21 farmers and certified technicians from ANCAR
- Ziguinchor - 23 farmers and certified technicians from DRDR and ANCAR
- Ngaye Mekhé (Dept. Tivouane)- 32 farmers and certified technicians from ANCAR
- Kolda - 23 farmers and certified technicians from *Direction de l'Agriculture* and ANCAR

In November ANCAR presented the final training of the ERA's pilot seed multiplication certificate program in Kaolack for 30 participants.

## Constraints encountered and unresolved issues

The rainy season in Senegal in 2015 was unlike any in over forty years. Apart from Casamance, the extremely late rains and sparse rains forced very late planting. In one case a graduate student had to return to the U.S. for fall semester classes before his experiment could be planted, requiring the work be left to people with less vested interest in ensuring good results. The rice plots in the Sine Saloum were heavily affected by insufficient rainfall. The field research programs need another growing season to achieve the expected results. Despite the fact that rain was very late, it arrived at the last possible time to plant millet and was distributed in quantities just sufficient to give a good millet harvest. In some places the yields were exceptionally good, perhaps because the unusual rain pattern disrupted insect life cycles and created an unfavorable environment for the development of mildew and other fungal diseases.

The timing of Peace Corps Volunteer placement is not ideal for associating a volunteer with the 4-H program and achieving the expected results before the end of Y5. However, Peace Corps is likely to associate nearby volunteers in the effort while recruiting

UCAD and POPAS formed a partnership with ambitious training outputs that required very detailed budgeting. Completing the subaward document was a high priority for ERA's finance and grants team. The PMU met the challenge to design a fixed-price subaward for this activity. The UCAD team, on the received substantial informal training in the process of designing and budgeting fixed-obligation subawards. Focus on this subaward delayed action on other partner subawards under development.

## Tasks planned for the next quarter

- Host ERA research symposium
- Complete analysis of genetic diversity of millet germplasm acquisitions
- Continue analysis of physico-chemical properties of sweet corn varieties
- Complete the socio-economic analysis of millet and rice production in saline soils of the Sine Saloum
- Complete analysis of first season of soil conditioning experiments in Casamance for iron toxicity and saline soils
- Begin workshops on scientific writing and publishing
- Complete analysis of consumer preferences of Senegal River Valley rice
- Begin field work to establish 4-H with Peace Corps, ISFAR, and ENSA
- Conduct a village evaluation of the design of a silage cutter
- Begin training by UCAD of women food processors from POPAS
- Complete agreement with UGB to support training of women entrepreneurs through CONGAD

## Component 3: Project Management and Policy Support

### Result 3.1 Management and administration systems of targeted AETR partners strengthened

#### Accomplishments

**New law governing universities.** Just before the end of the quarter, Senegal's *Assemblée Nationale* voted unanimously for a law providing new missions and governance for universities. The Minister of Higher Education and Research, Mary Teuw Niane, credited ERA and its efforts in exposing him and other higher education professionals to the U.S. model of agricultural universities for inspiring several elements of the law. Most important is the addition of outreach as a university mission (*service à la communauté*), thus setting Senegalese universities on a track of substantial engagement with Senegalese society outside the confines of a formal classroom. ERA also inspired the new governance structure in which half of a university's administrative board comprises members of the private sector. Promotion of student career services, an area of ERA capacity building, is now part of every university's responsibility.

**Quality Assurance and institutional strategic planning.** Through an MOU signed in Year 4 between ANAQ-Sup and ERA, joint workshops at university partners were planned for Year 5 in order to present the harmonized accreditation tools that ANAQ-Sup adopted from ERA and to increase understanding of the accreditation process that ANAQ-Sup is now applying to agriculture programs.

In October, harmonization of the self-assessment tools was completed. By the end of the quarter workshops had been given at UCAD, ISFAR and UGB. Having completed its institutional assessment, ISFAR proceeded to draft a strategic plan with ERA's support.

**Project management training.** In Q1 the finance team prepared a syllabus for project management finance training for partner institutions. This training will be rolled out in the second and third quarters.

**Ministerial performance contracts.** CNFTEIA worked with a consultant provided by ERA to initiate discussions with its ministry and outline the elements of a performance contract that would tie funding to specific performance objectives. Ministerial performance contracts are a recent opportunity for universities to undertake special engagements with the Ministry of Higher Education and Research through the World Bank's WAP project. ERA's work with CNFTEIA is facilitating the application of the performance contract model to a national training center that responds to the Ministry of Livestock.

**Sustainability in gender work.** In transitioning from ERA's project-level gender strategy to individual institutional strategies, the chosen mechanism to help institutionalize the consideration of gender issues is to add two representative to the TWG at each institution. These new members will be responsible for identifying and voicing ideas, opportunities, and concerns with respect to gender and to guide each TWG's development of an action plan. In December the PMU discussed this idea with the TWG's of ENSA and ISFAR.

## **Constraints encountered and unresolved issues**

Training in financial management and project administration was delayed due to higher priority demands on PMU staff.

## **Tasks planned for the next quarter**

- Hold TWG meetings at partner institutions
- Begin a training series in financial management, monitoring and evaluation, and administrative aspects of project management.
- Increase visibility of partner institutions by supporting their participation at the FIARA
- Hold a meeting of GRAAS
- Get gender representatives recruited to TWGs.

## **Operations and Administration**

The PMU revised the Monitoring and Evaluation system, incorporating a document tracking feature to collect data for performance indicators and support the data quality assessment performed for submission of performance information to the FTFMS.

The Y4 annual report was submitted.

A review of the research projects was done in November and December. The PMU led planning of an ERA research symposium scheduled for January 2015.

A fixed obligation grant was worked out with UCAD to support its training of woman-owned food processor businesses. The detailed budgeting required for a FOG and the close work with faculty members at UCAD was an opportunity to test some of the material being developed for the partner training in project management.

The PMU considers it a responsibility to collaborate with other U.S. government funded agricultural project. In Q1, ERA facilitated the signing of an MOU by CNFTEFCPN and IRD to collaborate on IRD's USDA-funded project to improve cashew production in Casamance and the Gambia. Planning began with Yaajeende to hold a symposium on nutrition-led agriculture.

## **Gender**

The gender efforts in Q1 focused on planning a workshop with the Ministry of Environment and Sustainable Development to improve gender considerations in the curriculum of its three training centers as well as ENSA and ISFAR, whose graduates supply many of its employees. Preparatory work done during Q1 will produce tangible outputs in Q2 and Q3.

## **Communication**

Weekly updates sent to USAID and within the PMU, and a bi-monthly newsletter was sent electronically to project participants and stakeholders. In addition to these regular communications, a video was prepared of the millet harvest of growers at Meouane working with ENSA on new varieties. Rainfall in 2014 was insufficient (144m) for traditional millet varieties to thrive in Meouane. The variety Sosat, introduced through the research program saved the harvest according to growers interviewed.

## **Monitoring and Evaluation**

The following tables present performance indicator measures for Q1 and FY2015 targets.

## Performance Indicator Tables

### 1<sup>st</sup> Quarter Performance Indicators (October – December 2014)

#### Result 1.1. AETR faculty are applying best pedagogic practices

Indicator	Disaggregation		FY15 Targets	Q1	% FY14 Target
1.1.1. Number of AETR professors trained in syllabus development/curriculum design			50	0	0%
1.1.2. Number of syllabi developed by AETR institutions			100	0	0%
1.1.3 Number of students in classrooms receiving course syllabi		Male	1400	314	22.4%
		Female	600	117	19.5%
		<b>Total</b>	<b>2000</b>	<b>431</b>	<b>21.6%</b>

#### Result 1.2. AETR faculties and students have the knowledge, skills and attitudes to meet the needs of Senegal's agriculture sector

Indicator	Disaggregation		FY15 Targets	Q1	% FY14 Target
1.2.1 Number of individuals who have received USG supported long-term agriculture sector productivity or food security training (FtF output Indicator 4.5.5-6)	Local scholars	Male	46	46	
		Female	59	59	
		<b>Total</b>	<b>105</b>	<b>105</b>	100.0%
	US scholars	Male	11	11	
		Female	9	9	
		<b>Total</b>	<b>20</b>	<b>20</b>	100.0%
	New	Male	0	0	
		Female	0	0	
		<b>Total</b>	<b>0</b>	<b>0</b>	
	Continuing	Male	57	57	

		Female	68	68	
		<b>Total</b>	<b>125</b>	<b>125</b>	100.0%
	<b>Total</b>		<b>125</b>	<b>125</b>	100.0%
1.2.2 Number of faculty members and students trained in:	Faculty members (distance and distributed learning, subject matter competencies, other)	Male	90	58	64.4%
		Female	10	9	90.0%
		<b>Total</b>	<b>100</b>	<b>67</b>	67.0%
	Students (distance and distributed learning, career management, other)	Male	57	1	1.8%
		Female	68	0	0%
		<b>Total</b>	<b>125</b>	<b>1</b>	0.8%
<b>Total</b>		<b>225</b>	<b>68</b>	30.2%	
1.2.3 Number of students participating in private sector internships		Male	40	0	0%
		Female	20	0	0%
		<b>Total</b>	<b>60</b>	<b>0</b>	0%
1.2.4 Number of AETR faculty members and students registered on Innovate's online community of practice		<b>Total</b>	<b>30</b>	<b>0</b>	0%

**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

Indicator	Disaggregation		FY15 Targets	Q1	% FY14 Target
1.3.1 Number of public-private partnerships formed as a result of FtF assistance			1	0	0.0%
1.3.2 Number of higher education partnerships between international institutions and host country higher education institutions that address regional, national, and local development needs			0	1	over
1.3.3 Number of AETR institutions tracking the employment of graduates			2	0	0.0%
1.3.4 Number of AETR institutions conducting self-assessments to improve institutional performance			1	1	100.0%

**Result 2.1.** Innovative research for public and private clients

Indicator	Disaggregation		FY15 Targets	Q1	% FY14 Target
2.1.1 Number of new technologies or management practices under research as a result of USG assistance		Millet	17	18	
		Maize	1	1	
		Rice	5	7	
		Climate change	0	0	
		Other aspects of Food security or economic growth	1	2	
		<b>Total</b>	<b>24</b>	<b>28</b>	116%
2.1.2 Number of new technologies or management under field testing as a result of USG assistance		Millet	1	1	
		Maize	0	0	

		Rice	1	3	
		Climate change	0	0	
		Other aspects of Food security or economic growth	2	0	
		<b>Total</b>	<b>4</b>	<b>4</b>	100.0%
2.1.3. Number of new technologies or management practices made available for transfer as a result of USG assistance		Millet	0	0	
		Maize	0	0	
		Rice	2	0	
		Climate change	0	0	
		Other aspects of food security or economic growth	1	0	
		<b>Total</b>	<b>3</b>	<b>0</b>	0.0%
2.1.4. Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance		Male	500	0	
		Female	250	0	
		<b>Total</b>	<b>750</b>	<b>0</b>	0.0%
2.1.5. Number of private enterprises, producers organizations, water users associations, women's groups, trade and business associations and community-based organizations (CBOs) that applied improved technologies or management practices as a result of USG assistance		Private enterprises	6	0	
		Producer organizations	9	0	
		Water users	0	0	
		Women's groups	11	0	
		Trade & business associations	2	0	
		Community based organizations	0	0	
		<b>Total</b>	<b>28</b>	<b>0</b>	0.0%
		New	13	0	0.0%
	Continuing	15	0	0.0%	

		<b>Total</b>	<b>28</b>	<b>0</b>	<b>0.0%</b>
2.1.6 Number of food security private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations and community-based organizations (CBOs) receiving USG assistance		Private enterprises	10	7	
		Producer organizations	11	42	
		Water users	0	0	
		Women's groups	32	4	
		Trade & business associations	2	1	
		Community-based organizations	0	0	
		<b>Total</b>	<b>55</b>	<b>54</b>	<b>98.2%</b>
		New	0	52	
		Continuing	55	2	
		<b>Total</b>	<b>55</b>	<b>54</b>	<b>95%</b>

## Result 2.2. Improved outreach and technical support

Indicator	Disaggregation		FY15 Targets	Q1	% FY14 Target
2.2.1. Number of individuals who have received USG supported short-term agriculture sector productivity or food security training	Producers	Male	480	191	
		Female	300	35	
	People in government	Male	30	40	
		Female	10	3	
	People in private sector	Male	30	10	
		Female	10	0	
	People in civil society	Male	0	0	
		Female	0	0	
		<b>Total</b>	<b>860</b>	<b>279</b>	<b>32.4%</b>

2.2.2. Number of partnerships developed to deliver training services to local farmers and the private sector			2	0	0%
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**Result 3.1. Management and administrative systems of targeted AETR strengthened**

Indicator	Disaggregation		FY15 Targets	Q1	% FY14 Target
3.1.1 Number of AETR members trained in administration, finance or M&E			30	0	
3.1.2 Number of AETR institutions completing performance contracts with their respective ministries as a result of FtF assistance			1	0	0%

**Result 3.2. AETR institutions are working together to influence policy decisions affecting the agricultural sector**

Indicator	Disaggregation		FY15 Targets	Q1	% FY14 Target
3.2.1. Number of AETR stakeholder action plans for improving higher education policies for quality assurance			0	0	0%