



# FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

## Education and Research in Agriculture (ERA)

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# Semester Report

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## List of Abbreviations

<b>AETR</b>	Agricultural Education, Training and Research Institution
<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>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>CONGAD</b>	<i>Conseil des ONG d'Appui au Développement</i>
<b>CROP</b>	Collaborative Research and Outreach Partnership
<b>ENSA</b>	<i>Ecole Nationale Supérieure d'Agriculture</i>
<b>ERA</b>	Education and Research in Agriculture
<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>IPM</b>	Integrated pest management
<b>ISFAR</b>	<i>Institut Supérieur de Formation Agricole et Rurale</i>
<b>ISRA</b>	<i>Institut Sénégalais pour la Recherche Agricole</i>
<b>ITA</b>	<i>Institut de Technologie Alimentaire</i>
<b>LTAEB</b>	<i>Lycée Technique Agricole Emile Badiane</i>
<b>MEDD</b>	<i>Ministère de l'Environnement et du Développement Durable</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>PPP</b>	Public-Private Partnership
<b>POPAS</b>	<i>Plateforme des Organisations Professionnelles de l'Agroalimentaire du Sénégal</i>
<b>TU</b>	Tuskegee University
<b>UASZ</b>	<i>Université Assane Seck de Ziguinchor</i>
<b>UCAD</b>	<i>Université Cheikh Anta Diop de Dakar</i>
<b>UGB</b>	<i>Université Gaston Berger</i>
<b>USAID</b>	United States Agency for International Development
<b>USSEIN</b>	<i>Université du Sine Saloum El-Hadji Ibrahima Niassé (formerly USSK)</i>
<b>UT</b>	<i>Université de Thies</i>
<b>UVS</b>	<i>Université Virtuelle Sénégalaise</i>
<b>VT</b>	Virginia Tech

## Executive Summary

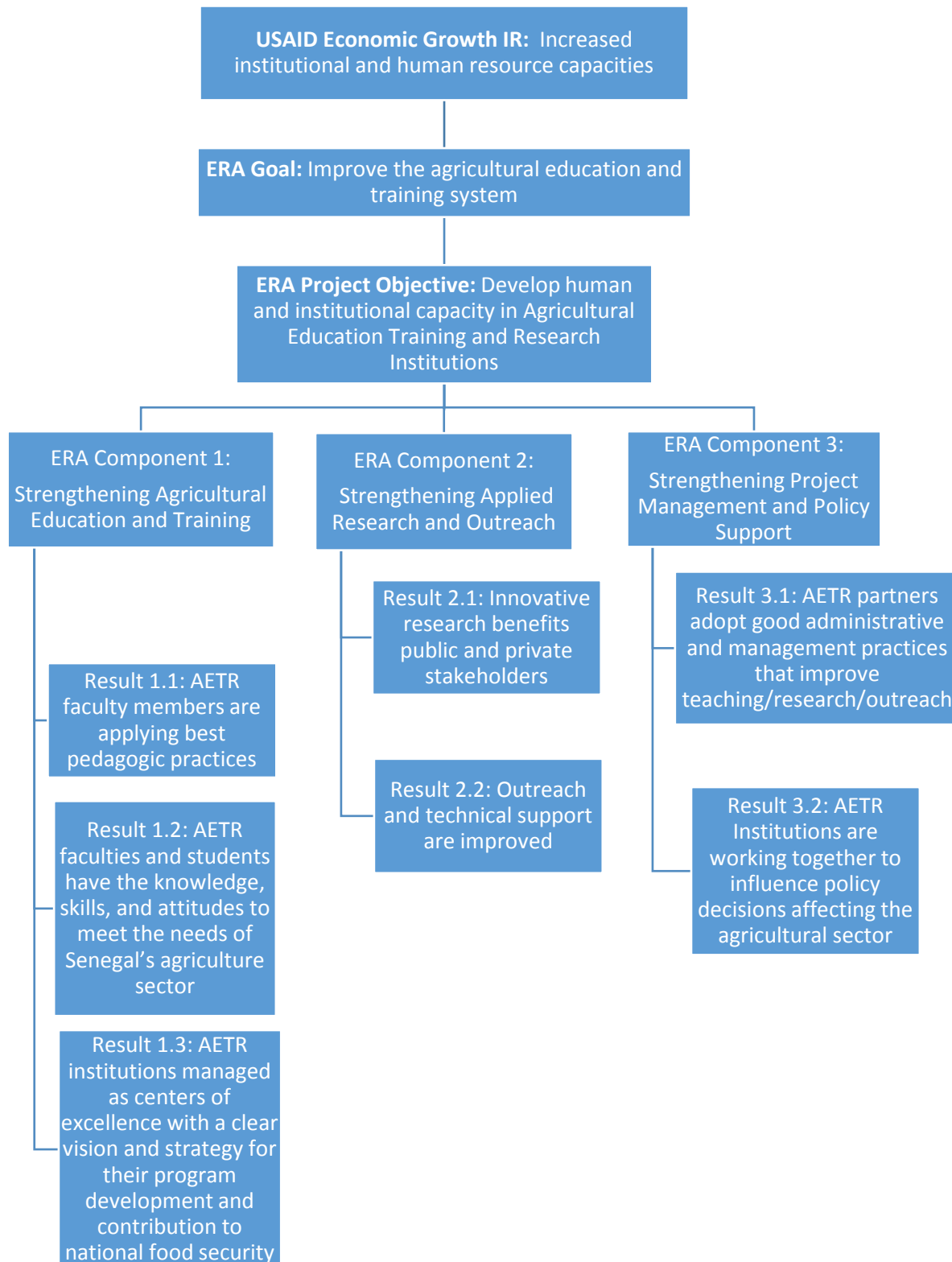
The purpose of USAID/ERA is to strengthen human and institutional capacity in the agricultural education, training, research, and outreach system of Senegal in order to promote economic growth and food security. In FY17, ERA entered the first year of a two-year extension, which is Year 7 of the project. This report presents activities, results, and reflections on next steps relative to the first semester of Year 7. Overall, our focus in FY17 is on sustainability. Our overarching approach to fostering sustainability is focused on putting in place and strengthening processes, practices, partnerships, and policies which will contribute to the continuation of ERA's work after ERA is gone. Relatedly, we are focused on leveraging results and translating them into impacts. In addition, almost all of what ERA is focused on in FY17 can be summarized as an effort to operationalize the university reform law, which envisions agricultural education, training, and research institutions (AETRs) as key drivers of community development and economic growth in Senegal.

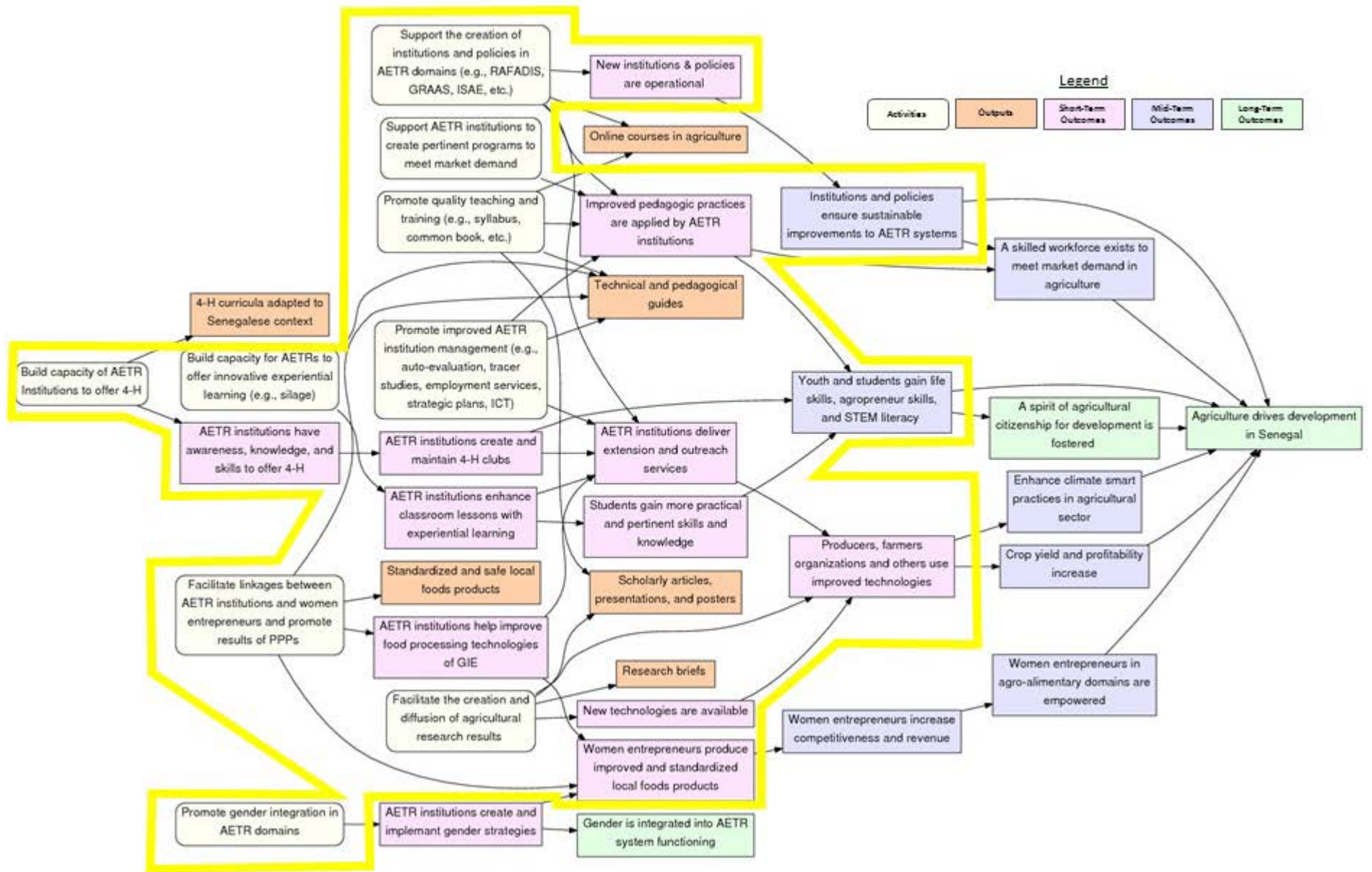
**Component 1: Strengthening Agricultural Education and Training.** To advance pedagogical innovations, ERA has collaborated with Senegalese partners to support trainings, workshops, and other activities focused on syllabus creation and use, participatory development of curriculum to better align agricultural education offerings with the agricultural labor market, assessment of student learning, e-learning, experiential learning, teaching for entrepreneurship and business planning, and other pedagogical innovations. In addition, ERA has continued to catalyze developments student employment services and entrepreneurship support, which will culminate in a national meeting in the second half of FY17.

**Component 2: Strengthening Applied Research and Outreach.** To strengthen capacity in applied research and outreach, ERA continues to work closely with the collaborative research and outreach platforms (CROPS). These multi-institutional, interdisciplinary innovation platforms are focusing this year on knowledge translation and dissemination, to ensure that the results of their research have broader impacts for Senegalese agriculture development. In addition, ERA continues to bring diverse partners together to further develop, scale up, and institutionalize the 4-H Positive Youth Development program. The program is active in Toubacouta, Saint Louis, Ziguinchor, Bignona, Thies, and Bambey, with 33 clubs in which 569 young people are enrolled. Also, ERA continues to strengthen the public private partnerships between women's value-added food processing platforms and university scientists. This semester witnessed the university partners conduct further food safety and food quality diagnoses on targeted products and processing centers, in an effort to achieve greater market access and subsequently increased revenues.

**Component 3: Strengthening Project Management and Policy Support.** ERA continues to support Senegalese AETR partners in their ongoing efforts to manage their institutions as centers of excellence. In this vein, ERA supported trainings and workshops on scientific writing and research proposal development, gender mainstreaming in agricultural education, and related strategic topics. There is evidence that the AETR system is undergoing a paradigm shift towards more engaged pedagogy and scholarship. Notably, individual institutions are doing so in synergy, often citing ERA as a key catalyst in fostering partnerships and a systems approach to AETR improvement nation-wide. The success of the *Réseau des acteurs de la formation à distance du Sénégal* (RAFADIS) and the movement towards institutionalizing the *Groupe de Réflexion sur l'Agriculture et l'Agro-alimentaire au Sénégal* (GRAAS).

# USAID/ERA Results Framework & Pathway Model





Area of theory of change pathway model addressed by activities and M&E represented in this report.



## Component I: Strengthening Agricultural Education and Training

ERA targets three results under this component: (1) Improved teaching practices; (2) Increased knowledge, skills, and attitudes of students and faculty; and (3) Improved management of AETR institutions as centers of excellence.

### Result 1.1: AETR faculty members are applying best pedagogic practices

#### Achievements

#### Syllabus Creation and Use (Activity 1.1.1)

To scale up and standardize syllabus use, we held faculty/facilitator workshops for syllabus development at two new institutions (USSEIN and UADB) and provided monitoring and targeted support for syllabus standardization at institution UCAD. We will expand this support to CNFTEIA and ITA in Semester 2. This semester, 77 faculty learned how to create high-quality syllabi, and 157 new syllabi were created. At USSEIN, Senegal's new agricultural university, all syllabi were for courses that will constitute their *licences professionnalisantes* degree programs focused explicitly on preparing students for in-demand agricultural careers. To increase the likelihood of sustainability of this activity, we use local pedagogical experts, either from within the university or from elsewhere in the Senegalese higher education system. We also help partners establish action plans to scale up and continuously monitor syllabus creation and use at their own institutions into the near future.

#### Assessment of Student Learning (Activity 1.1.1)

To help make improved assessment of learning and teaching the norm in partner institutions, we trained 53 UCAD faculty. Relatedly, we trained 44 UGB faculty on higher education pedagogy, which includes aspects on assessment of student learning. These trainings were implemented by local university pedagogy experts to make the capacity building more sustainable.

#### e-Learning (Activity 1.1.2)

To foster long-term national capacity to support e-learning innovations, we continued to support the functioning of the national distance learning network that we catalyzed, RAFADIS (*Réseau des Acteurs de la Formation A Distance du Sénégal*). Specifically, we supported the first meeting of the network's Executive Committee, consisting of institutional representatives from a number of AETRs such as UGB, UADB, ENA, UVS, UT, CNFTEIA, BFP, and UCAD. The meeting allowed the group to review and validate the proposals of priority actions developed at the first General Assembly and to refine the network's plan for upcoming activities.

In addition, we organized a meeting of integrated pest management (IPM) and e-learning experts representing diverse AETR partners to begin the process of creating an online course in IPM that will be shared across institutions. This will be the first IPM course in Senegal, and will also test a new model of distributing the development and implementation of an online course across multiple institutions, which poses unique challenges for governance, evaluation, and accreditation.

#### Experiential Learning (Activity 1.1.4)

To strengthen faculty and institutional capacity to develop and implement experiential learning tools and opportunities, we organized a training on experiential learning using a pedagogical expert from UGB. Involving 5 AETR partners (ISFAR, ENSA, UASZ, UCAD/ISAE, and USSEIN), 18 faculty learned improved experiential learning techniques, with 3 institutions developing action



plans to ensure sustainability and follow-up. In addition—to pilot-test enhanced experiential learning using silage as a case example—a team of ISFAR faculty continued to test new tools and integrate new exercises and updates into their courses, highlighting how to bridge classroom knowledge to field settings. Relatedly, 21 faculty and 11 students at ISFAR worked on incorporating experiences based on pasture management into their courses, identifying 5 relevant courses in which to integrate related concepts.

### **Teaching for Critical Thinking**

To improve pedagogy and training by building capacity in teaching for critical thinking, we organized a follow-up workshop (building on a workshop offered last year) with a critical thinking expert from VT to train 14 faculty from 4 partner institutions (UCAD, ITA, CFPH, and USSEIN). To foster sustainability of this work, the Direction for University Pedagogy of UCAD participated, with plans to subsequently embed the lessons learned about teaching for critical thinking into their support for teaching and learning at UCAD and other Senegalese universities.

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

### **Achievements**

#### **Curriculum Development (Activity 1.2.1)**

To support the collaborative development and refinement of professionalizing and market-responsive curricula, we brought together scientists, private sector professionals, decision-makers, practitioners and pedagogical experts at UCAD to revise five curricula:

- Professional License in Agro-resources and Entrepreneurship
- Masters in Agroforestry, Ecology and Adaptation
- Masters in Plant and Microbial Biotechnologies
- Masters in Phytomedicine and Plant Protection
- Masters in Taxonomy, Biodiversity, Knowledge and Conservation of Natural Resources

#### **Teaching for Entrepreneurship and Business Planning (1.2.2)**

To expand and deepen faculty competencies related to value chains, entrepreneurship, and business planning, ERA organized a training for faculty and students at ENDA and LTAEB to strengthen their skills not just in creating business plans, but also in teaching business plan creation. We drew on local expertise (ENSA and LTAEB scholars who were previously trained by ERA) and an expert from the US (from ERA consortium partner Tuskegee University). The training had train-the-trainer elements built in, such that the group of trained ENSA faculty are now equipped to train their peers at ENSA and at UT. They have developed an action plan to facilitate scale-up trainings, since the demand from their peers for this training is acute. The training resulted in 23 faculty and students from ENSA and 41 faculty and students from LTAEB gaining knowledge and skill in business plan creation. Since the workshop, trained faculty have followed up with the trained students to help revise their draft business plans, which are now ready for any opportunity that may arise.

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

### **Achievements**

#### **Student Employment Services & Entrepreneurship Support (Activity 1.3.1)**

To further support partner institutions in their efforts to conduct longitudinal monitoring and evaluation of the employment and training outcomes of their graduates, which is necessary to ensure a good match between the supply and the demand of agricultural degree programs, a meeting was held to follow-up and to share results of the ongoing tracer studies. 5 AETR institutions were represented and presented their results (ENSA, ISFAR, UGB, UASZ, and LTAEB). There is evidence that the institutions' capacities have been strengthened to initiate and implement tracer studies; this activity is now integrated as part of their student support services.

### **Material Support (Activity 1.3.3)**

To increase the material capacity of smaller AETR institutions to provide access to up-to-date scholarly work on agriculture and related community development topics, ERA provided books to the smaller institutions that did not previously receive TEEAL units. In addition, ERA completed an ongoing effort to equip UASZ with materials to support their implementation of engaged pedagogy and outreach with women food processing entrepreneurs (e.g., gas-powered food driers, small lab tools for rapid food quality analysis, etc.).

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

ERA targets two results under this component: (1) Public and private stakeholders benefit from innovative research conducted by AETR institutions; and (2) Outreach and technical support are improved. One primary way in which ERA supports applied research is via Collaborative Research and Outreach Partnerships (CROPs) that were funded as three-year sub-awards to a lead Senegalese institution through a call for proposals requiring inter-institutional collaboration. Another way is to promote innovative ways to share knowledge and to encourage universities and other AETRs to do community-engaged work.

### **Result 2.1: Innovative research is benefiting public and private stakeholders**

#### **Achievements**

#### **Collaborative Research and Outreach Projects (CROPs) (Activities 2.1.1 – 2.1.6)**

*Intensification and sustainable management of millet production in the areas of Thiès, Louga, and Nioro: Improvement, dissemination, and strengthening of the elite varieties' value chain*

- **Implementation and monitoring of millet seed production activities:** This task started on July 2016 and ended in November. During the rainy season, two producer organizations belonging to the JAMBAR GIE of Méouane multiplied seeds of the SOSAT variety. This multiplication of seed concerned 52 producers including 4 women and 48 men. The produced seeds were sold to millet producers in Senegal.
- **Academic training of students:** 3 students (1 PhD; 2 Agronomic Engineers) are finishing their work on phyto-genetic resources management under Mme Ndir's (ENSA) supervision.
- **Identification of tolerant varieties to drought:** 4 millet landraces were identified to be tolerant to drought by CERAAS researchers and will be tested during the upcoming rainy season in the farmer's conditions.
- **Dissemination of results:** The finalization of 1 scientific article, 2 posters and 1 guide on good practices on millet production are on track and will be accomplished in the second semester.

*Production and processing of sweet corn in Senegal: Sterilized canned corn manufacturing*

- **Optimization of the canning process:** The results for the canning process of sweet corn were confirmed and the process was optimized.
- **Market studies:** A contract has been signed between ITA and FRUITALE Company to conduct market research. Canned sweet corn has been placed in various supermarkets in Dakar. The sale of all stock in record time shows that the product has been greatly appreciated by customers.
- **Demonstration plots:** Showcase plots for the field days and the farmer's school have been established at CFPH.
- **Dissemination of results:**
  - A documentary film on sweet corn production and processing is produced.
  - Two types of technical sheets have been produced: (1) "Comment fabriquer des conserves de maïs doux à l'échelle artisanale;" and (2) "Comment fabriquer des conserves de maïs doux à l'échelle semi industrielle." 500 copies of each were printed.
  - A scientific article has been drafted and submitted to the editors of a peer-reviewed journal.

#### *Sustainable improvement of cereal productivity in salty soils*

- **Test varieties of millet and technical amendments for salty soils:** The variety SOSAT was used in the trials, compared with the local variety. The technologies applied for the soil amendment are manure, peanut shell and livestock parking. The farmers in the two localities (24 farmers, including 2 men and 22 women in Ndoff and 44 farmers, including 2 men and 42 women in Fadiol) were trained on the use of the technologies.
- **Monitoring and evaluation:** The M&E mission carried out by a team composed of ISFAR, ERA and GREEN Senegal, at the end of the crop season shows the following:
- **At Ndoff:**
  - 58.33% of trained producers applied the technologies.
  - The utilization organic matter (71.43%) is higher than the cattle parking (21.43%) and the groundnut shell (7.14%).
  - The improved variety (SOSAT) showed better yield than the local variety.
- **At Fadiol**
  - 45.4% of trained producers applied the technologies.
  - Manure utilization (80%) showed higher results than peanut shell (5%) and cattle (3%). The use of organic material is very widespread in the locality thanks to the ERA project.
  - Farmers used mostly the local variety, but the best yield was obtained with the improved variety (SOSAT).
- **Academic training of students:** 1 PhD and 3 Master 1 students are supervised for their thesis on salt soils researches.
- **Dissemination of results:**
  - A documentary film on the management of the salted soils is available, but has to be updated with the new elements from these recent trials.
  - A draft of a guide on managing salted soils has been written by GREEN Senegal and is under review by the other members of the team.
  - The proceedings of an international seminar on salted soils is in the editing process, with support from ERA.

- At the request of the President of the Republic, in connection with the National Academy of Sciences and Technologies of Senegal (ANSTS) and other partners, ERA is supporting the finalization of a document on the issue of salinization of soil in Senegal.
- Under the supervision of the research team, with the participation of ANSTS and other interested laboratories, ERA supported the organization of a workshop to draft a document on the creation of a joint laboratory on salted soils in Senegal (*Laboratoire Inter-institutionnel d'Etudes et de Recherches sur les Sols salés - LIERS*).

#### *Improving rain-fed rice productivity in Casamance*

- **Demonstration trials of improved varieties:** The tested package (Variety: NERICA; SRI technologies, IPM approach, etc.) was applied by 13 farmers including 5 females and 8 males who were trained and applied the package in their fields. Due to the early cessation of rains, the tests did not produce valuable data, as all yields were uncharacteristically low.

#### *Promoting local rice in the Senegal River Valley and Delta*

No new activity.

#### *Development and assessment of fortified instant cereal-based products for the Senegalese market*

No new activity.

#### *Nutrition-Led & Conservation Agriculture (Mung Bean)*

- **Field days:** A series of field days for training and data collection on the mung bean program were organized in collaboration with ISRA/Bambey, UCAD's Common Laboratory of Microbiology (LCM) and USAID/Yaajeende.
- **Social and nutritional research:** Data collection by a VT Master's student for her thesis on the social and nutritional aspects of mung bean acceptance by families in various regions of Senegal. After successfully collecting data, the student (Taylor Vashro) has written and defended her Master's thesis, and will be providing ERA with a summary of her results: *The Effect of Mung Bean on Improving Dietary Diversity of Women and Children in Senegal*.

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

### **Achievements**

#### **4-H Positive Youth Development (Activities 2.2.1 – 2.2.4)**

To consolidate the achievements of the pilot phase of 4-H, and to promote the likelihood of the program's sustainability, ERA has actively engaged in scaling up and institutionalizing 4-H across Senegal. A brief overview of activities and results for this Semester are presented below.

An environmental scan of institutions with similar interests (i.e., Youth in Agriculture and Entrepreneurship), was conducted to identify key potential partners, resulting in the identification of over 85 institutions were identified (local and regional). The environmental scan has led to the establishment of 3 new partnerships, between ERA and SABS, ANPEJ, and Ashoka.

ERA and one partner (ISFAR) staff participated in and presentation on the 4-H Positive Youth Development program at the African Higher Education week of RUFORUM (The Regional Universities Forum for Capacity Building in Agriculture). We were invited and sponsored by VT's USAID InnovATE project. This exchanges increased visibility and exposure for 4-H Senegal on a local and regional level.

ERA organized a field trip for 4-H Positive Youth Development participants from Toubacouta and Dakar to visit ENSA and participate in the Agricultural and Cultural days of the Association of ENSA students. The field trip allowed for experiential learning and career exploration. We visited the following locations: Baay Fall Ornamental Garden, Tawa Fall Master Farm, Chamber of Commerce, a Transformation Center, and the Peace Corps Training Center. This exchange visit also involved two panel presentations and a roundtable exchange between 4-H Clubs and ENSA student clubs. As a result of this activity: Omar Gueye, 18, the treasurer of the 4-H Santamba, now wants to become an Agricultural Engineer; the Santamba club was inspired to begin experimenting with micro-gardening techniques and grow certain plants they had collected and brought back from the fieldtrip; the Ndoumboudj club was inspired to organize a 4-H school fair; and Fatima Kane (student at SABS) reported that this fieldtrip changed her way of viewing the field of Agriculture, helping her to now envision endless opportunities for the development of Senegal in this field.

ERA hosted a visit of the USAID/Senegal Mission Director to the 4-H program in Toubacouta, at which club member Aida Dieng, 19, who used to be shy and withdrawn, demonstrated her ability to express herself freely in front of an audience. She credits her experience as a 4-H member for her increase in self-confidence and public speaking skills.

ERA scaled up 4-H to Thies (ENSA) and Bambey (ISFAR). We facilitated meetings with academic leaders, focal points, and student leaders leading to an eventual official launching of a chapter of the 4-H Youth development program at both institutions, with a total of 6 new clubs. In addition, to support existing chapters, we conducted monitoring visits and offered supplemental leader training, which yielded 56 new local leaders trained in 4-H and positive youth development. The number of clubs and number of enrolled youth by site are presented in Table 1.

Sites and Institutions	Number of Clubs	Number of Youth
<b>Thies (ENSA)</b>	2	30
<b>Bambey (ISFAR)</b>	4	60
<b>Saint Loius (UGB)</b>	8	121
<b>Ziguinchor (UASZ)</b>	8	136
<b>Bignona (LTAEB)</b>	8	136
<b>Toubacouta (ENSA/ISFAR)</b>	1	21
<b>Santamba (ENSA/ISFAR)</b>	1	48
<b>Ndoumbodji (ENSA/ISFAR)</b>	1	17
<b>Total</b>	<b>33</b>	<b>569</b>

Finally, we have been working on drafting an Administrative and Pedagogical Guide, and taking additional steps to set up the institutional anchorage of 4-H in Senegal, to ensure the sustainability of the program.

### **Food Processing Partnerships (Activities 2.2.5 – 2.2.7)**

To advance the implementation of the partnership between universities and women entrepreneur platforms, ERA supported HACCP system diagnostics of food transformation centers, plus training and technical assistance to improve the quality and safety of value-added food products in numerous sites across Senegal. Products that were improved include: hibiscus juice and syrup, ginger candies, maad jam, dried cashew apple, bean flour, parboiled rice and others. This process of HACCP diagnostics and quality improvement and assurance helped the women's groups obtain 17 FRA (official authorizations for sale of products), with many more currently being processed by the government.

At the end of the reporting period, the FIARA began. This year, to foster sustainable participation in the FIARA by the producer and transformation groups, we will implement an in-kind contribution program, whereby a percentage of the sale of products will be reinvested into the functioning costs of the platforms and the national platform, which will provide some funds towards participation in future FIARAs.

In preparing for the FIARA, the platforms and the new national framework that joins them together made progress in establishing shared marketing and publicity materials. Specially, the first two short videos in a series were produced to demonstrate how to use local products in recipes. The videos, produced by local Senegalese start-up Soretul, are made in the style of food preparation video often seen on Facebook and other social media. In addition, ERA completed and printed a series of 11 technical data sheets demonstrating the improved processing procedures for 11 different products that UCAD focused on in their analysis and quality assurance work. These technical sheets can be sold along with the products described in them, thus providing another source of sustainable revenue stream for the women entrepreneurs, capitalizing on the niche in the knowledge economy that they have come to occupy through their collaboration with university food scientists.

Also during this period, the leaders of the three food transformation platforms were trained on facilitation techniques and adult education program planning, since they have an important role in providing peer-to-peer learning opportunities to the thousands of other members of the national framework constituted by the platforms, to scale up the food processing practices that have been improved through the partnership with university experts.

### **Non-degree training of agricultural professionals**

To support partner institutions' ability to use their expertise to offer non-degree trainings to agricultural professionals, ERA convened meeting between institution administration and community group leaders to plan participatory needs assessments of the community training needs. This was achieved in part by fostering a connection with the Office of Professional Training of the Ministry of Agriculture and Rural Equipment, who have an ongoing project to send graduate student interns into communities to conduct participatory needs assessments.

## Component 3: Management and Policy Support Strengthened

Component 3 supports development of a sustainable administrative and policy environment for human and institutional capital investments of AETR partners. Two key results are targeted in support of this effort: (1) Partner management and administrative systems are strengthened; and (2) Collaboration increases among AETR institutions in the development of policies that improve their contributions to the agricultural sector.

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

#### Achievements

##### Scientific Writing & Research Proposal Development (Activity 3.1.1)

To contribute to Senegalese AETR sustainable capacity to secure competitive research funding and to manage research projects well, ERA continued its sought-after training program in the area of research proposal development and scientific writing. In this Semester, we organized a training for UCAD faculty and administrators, drawing on local expertise using Senegalese consultants and UCAD personnel who were previously trained. To further increase the likelihood of sustainability, this training led to the creation of a new office for research proposal development at the University Direction for Research and Innovation, which will be tasked with scaling up this type of professional development and support for research proposal writing across the university.

##### Gender Mainstreaming in Agricultural Education (Activity 3.2.2)

To contribute to the mainstreaming of gender-aware pedagogy and research, ERA organized preparatory meetings to elaborate a national framework that will be later be adopted by the Ministry of Higher Education and Research.

##### Self-Assessment and Accreditation (Activity 3.1.1)

To implement the results of the self-assessment and accreditation process, we worked with CFPH to help them advance towards conducting a strategic plan, which was identified as a need during the self-assessment process. Winrock's Farmer-2-Farmer program also occasionally provides expert volunteers to work with CFPH on institutional capacity building, so there is a potential synergy there to address the strategic planning need. To date, despite our meetings on this topic, the process has not yet taken hold. In part this was due to a change in leadership, which slowed down many administrative processes. The incoming director was one of ERA's US Master's Degree scholars, so we assume that he will be more amenable to the strategic planning effort.

##### Other Strengthening Through Partnerships and Events

ERA and one partner (ISFAR) participated in and presented on the 4-H Positive Youth Development program at the African Higher Education week of RUFORUM (The Regional Universities Forum for Capacity Building in Agriculture). ERA and ISFAR were invited and sponsored by VT's FTF InnovATE project.

ERA hosted a group of AETR and USAID IP (Winrock) colleagues from Guinea for an exchange of good practices in human and institutional capacity building in agriculture, and facilitated of South-South partnerships between them and ERA partner institutions (especially ENSA).



ERA organized a high-level meeting on community-engaged pedagogy and research between leaders in the Senegalese higher education and AETR world and a BIFAD representative, Montana State President Dr. Waded Cruzado. As part of the same event, ERA presented on human an institutional capacity building to the global USAID Innovation Lab representatives' meeting.

ERA facilitated a visit for a delegation of Legislative Directors of the American Congress at ITA, which helped ITA increase their visibility and allowed EA to advocate for continued HICD investment in AETRs.

## **Result 3.2: AETR Institutions are working together to influence policy decisions affecting the agricultural sector**

### **Achievements**

#### **RAFADIS**

As stated under Activity 1.1.2, to foster long-term national capacity to support e-learning innovations, we continued to support the functioning of the national distance learning network that we catalyzed, RAFADIS (*Réseau des Acteurs de la Formation A Distance du Sénégal*). Specifically, we supported the first meeting of the network's Executive Committee, consisting of institutional representatives from a number of AETRs such as UGB, UADB, ENA, UVS, UT, CNFTEIA, BFPA, and UCAD. The meeting allowed the group to review and validate the proposals of priority actions developed at the first General Assembly and to refine the network's plan for upcoming activities.

#### **GRAAS (Activity 3.2.1)**

ERA engaged in planning and brainstorming with key high-level partners to establish a way forward with GRAAS, which will be implemented in the second semester of FY17.

## **Operations and Administration**

Some salient activities and other factors that pertain to the operation and administration of the ERA PMU are presented below.

### **Communication, M&E, & Knowledge Translation**

ERA hired an international communications specialist who will begin work in the second semester of FY17. Key deliverables of this renewed communications plan will be available in the coming months and include the knowledge products presented below.

- A quarterly newsletter that highlights the key results for the quarter
- A project overview report, providing an evidence-based and narrative-rich summary of the project's activities and outcomes
- Fact sheets and related technical publications
- Success stories
- Video testimonies
- Contributions to various USAID publications such as the Feed the Future newsletter.

We also successfully moved forward with planning a complexity-aware impact evaluation using the outcome harvesting methodology. USAID's PPL bureau will assist logistically and technically

in the study, which will begin in the second semester of FY17. As presented in our AMELP, the guiding questions for the outcome harvest are:

1. To what extent has ERA contributed to increased partner capacity to create, connect, and use relevant agricultural knowledge to contribute to economic growth?
2. To what extent have ERA's efforts to improve the efficiencies and linkages between educational institutions and the private sector contributed to increased agriculture productivity?
3. To what extent has ERA contributed to preparing a skilled workforce ready to meet market demand in agriculture?
4. What institutions, policies, partnerships, products, and practices has ERA helped put in place to contribute to sustainable improvements to agricultural education, training, and research systems?
5. What do ERA's outcomes imply for how human and institutional capacity building projects in agricultural education, training, and research systems should be designed?

In addition, we have refined a list of ERA-specific indicators that our internal M&E system will provide valid data on by the end of FY17, and again (updated) at the end of project, in September 2018. These indicators are presented below in Table 2.

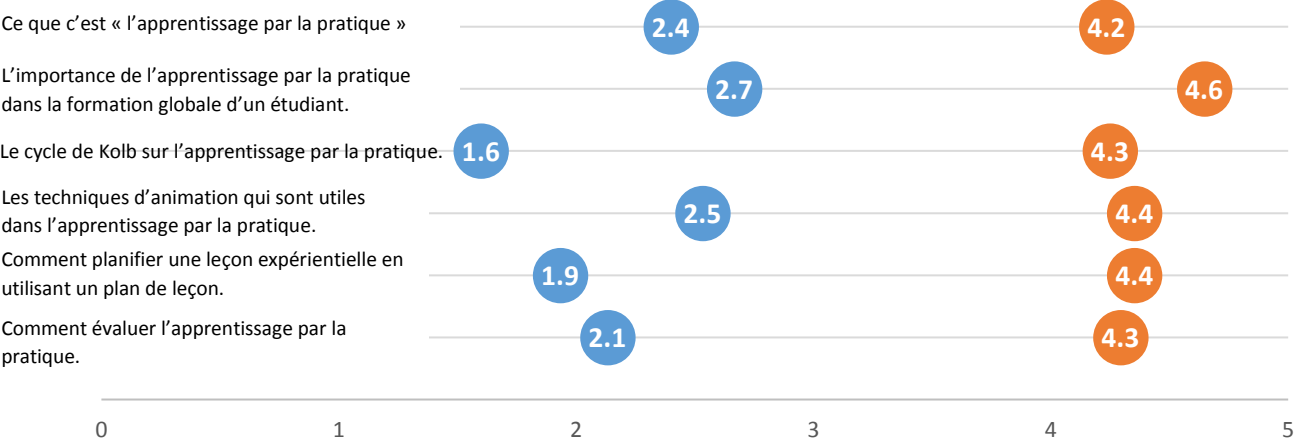
<b>Institutional Management &amp; Policy Innovations</b>
<b>GRAAS</b> <ul style="list-style-type: none"> <li>• Evidence that GRAAS is sustainable</li> <li>• Stories of what GRAAS has achieved</li> </ul>
<b>RAFADIS</b> <ul style="list-style-type: none"> <li>• Evidence that RAFADIS is sustainable</li> <li>• Stories of what RAFADIS has achieved</li> </ul>
<b>University Reform Law</b> <ul style="list-style-type: none"> <li>• Evidence that ERA contributed to inspiring the law</li> <li>• Stories of what ERA has done to operationalize the law</li> </ul>
<b>Student Employment Services &amp; Entrepreneurship Support</b> <ul style="list-style-type: none"> <li>• # of new/improved student service offices</li> <li>• # of faculty trained on entrepreneurship support (business plan, etc.)</li> <li>• # of graduates helped (trained, placed in internships, employed)</li> <li>• [Tracer study data]</li> <li>• Stories of successful student entrepreneurs</li> </ul>
<b>Creation of New Institute (ISAE)</b> <ul style="list-style-type: none"> <li>• Evidence that ERA contributed to inspiring the creation of the institute</li> <li>• Stories of what ERA has done to operationalize the law</li> <li>• Stories of new/improved partnerships between AETRs and communities</li> </ul>
<b>Self-Assessment and Accreditation</b> <ul style="list-style-type: none"> <li>• # of self-assessments completed</li> <li>• # of programs submitted for accreditation</li> <li>• # of programs accredited</li> <li>• Stories of the benefits of self-assessment and accreditation</li> </ul>
<b>Gender Mainstreaming in Agricultural Education</b> <ul style="list-style-type: none"> <li>• # of gender plans created</li> </ul>

<ul style="list-style-type: none"> <li>• # of gender plans implemented</li> <li>• # of faculty trained on gender in agricultural education/training</li> <li>• Stories of the benefits of gender in agricultural education/training</li> </ul>
<p>Local &amp; US Scholarships</p> <ul style="list-style-type: none"> <li>• # and type of degrees obtained, by gender</li> <li>• # of research articles and other knowledge products produced</li> <li>• current careers status</li> </ul>
<p>Study Tours [&amp; Material Support]</p> <ul style="list-style-type: none"> <li>• Testimonials of how the tours helped Senegal reform</li> </ul>
<p>Scientific Writing &amp; Research Proposal Development</p> <ul style="list-style-type: none"> <li>• # of scientists trained</li> <li>• # of manuscripts submitted and accepted by participants after training</li> <li>• # of proposals submitted and accepted by participants after training</li> </ul>
<p><b>Outreach Innovations</b></p>
<p>4-H Positive Youth Development</p> <ul style="list-style-type: none"> <li>• # of program sites</li> <li>• # of clubs [of certified quality]</li> <li>• # of trained leaders</li> <li>• # of enrolled youth, by gender</li> <li>• Stories of new/improved partnerships between AETRs and communities</li> </ul>
<p>Food Processing Partnerships</p> <ul style="list-style-type: none"> <li>• # of MOUs signed (operationalized PPPs)</li> <li>• # of GIEs involved</li> <li>• # of women involved</li> <li>• # of women trained</li> <li>• # of product/processes improved</li> <li>• # of FRA obtained</li> <li>• % increase in revenue (by woman or by GIE)</li> <li>• \$ increase in revenue (by woman or by GIE)</li> <li>• Stories of new/improved partnerships between AETRs and communities</li> </ul>
<p><b>Pedagogical Innovations</b></p>
<p>e-learning</p> <ul style="list-style-type: none"> <li>• # of online courses developed</li> <li>• # of faculty trained in e-learning</li> </ul>
<p>Curriculum Development</p> <ul style="list-style-type: none"> <li>• # of curricula developed/improved</li> <li>• # of stakeholders involved (by type: faculty, researchers, private sector)</li> <li>• # of students enrolled in new/improved curricula</li> <li>• Stories of the benefits of the processes and outcomes of curriculum work</li> <li>• Stories of new/improved partnerships between AETRs and communities</li> </ul>
<p>Syllabus Creation</p> <ul style="list-style-type: none"> <li>• # of syllabi created</li> <li>• # of syllabi in use</li> <li>• # of students in courses with new/improved syllabi</li> <li>• # of faculty trained in syllabus creation</li> </ul>
<p>Common Book</p>

<ul style="list-style-type: none"> <li>• # of books distributed</li> <li>• # of reflection/sharing meetings</li> <li>• # of participants in reflection meetings</li> </ul>
<b>Experiential Learning</b> <ul style="list-style-type: none"> <li>• # of faculty trained on experiential learning</li> <li>• # of students trained on experiential learning</li> <li>• # of experiential learning activities led by local faculty</li> <li>• # of students engaged in local experiential learning activities</li> <li>• # of community stakeholders engaged in experiential learning activities</li> <li>• Stories of new/improved partnerships between AETRs and communities</li> </ul>
<b>Other Pedagogical Innovations</b> <ul style="list-style-type: none"> <li>• # of faculty trained, by innovation (e.g., student assessment)</li> </ul>
<b>Applied Research Platforms</b> <ul style="list-style-type: none"> <li>• # of technologies developed</li> <li>• # of technologies tested</li> <li>• # of producers trained on new technologies</li> <li>• # of producers who adopted new technologies</li> <li>• # of research articles and other knowledge products produced</li> <li>• % increase in revenue for producers using new technologies</li> <li>• \$ increase in revenue for producers using new technologies</li> <li>• Evidence of sustainability of platform/partnership</li> <li>• Stories of new/improved partnerships between AETRs and communities</li> </ul>

**Table 2.** ERA-specific indicators.

Also to enhance our M&E, we have continued using a standard workshop evaluation form, which provides rapid feedback about partner participation changes in awareness and knowledge on key topics. An example graph representing participant self-reported knowledge change from one recent workshop is presented below (where the blue circles represent the average participant level of knowledge, on a scale of 1 to 5 with 1 being “very little knowledge” and 5 being “very much knowledge,” prior to the training, and the orange circles represent the average level after the training).



## Appendix I. Cross-Cutting USAID Thematic Areas

ERA is closely linked to USAID/Senegal's strategic objective of increased inclusive economic growth and the FTF goal of sustainably reducing global poverty and hunger in Senegal. 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 ERA. In addition, as described in further detail below, ERA partners with other FTF projects to ensure that Senegalese agricultural education and research institutions are linked synergistically with USAID/Senegal's food security innovations. Part of this linkage is achieved by ensuring that ERA also contributes to broad cross-cutting themes such as the ones presented briefly below.

### Science Technology and Innovation (STI)

Much of what ERA does is in support of STI. This fact was exemplified by the visit in FY16 of Dr. Turekian, then Science and Technology Advisor to the U.S. Secretary of State, with ERA and ERA partners. For instance, our applied research and outreach platforms use a competitive sub-award mechanism to foster inter-intuitional and multidisciplinary STI responses to the most pressing agronomic challenges facing Senegalese agriculture. Our PPP work to connect food processing GIE platforms with university researchers is a direct way of linking STI from university and research center campuses to local communities where that innovation can drive economic growth. Additionally, our 20 US and 114 local scholars are now more able to contribute to leading STI efforts in the future. In FY17, ERA has been working with the Senegalese National Academy of Science and Technology to lead national efforts to use STI to address soil salinization, food processing technologies, nutrition-led agriculture, and more.

### Gender

Thus far in FY17, ERA has made significant movement towards catalyzing a national framework document to mainstream gender in all AETR pedagogy and research programs. Once the framework document is finalized in the second semester of FY17, the gender working group comprised of representative from numerous AETRs and ministries will present it to the MESR for validation. Once this high-level buy-in is assured, the role-out at the institutional level will be facilitated, leading to lasting impacts in the area of gender-sensitive agricultural education.

### Climate Change

ERA contributes to climate change adaptation and sustainable environmental management primarily by supporting applied research and extension on climate-smart crops and production techniques which are able to produce well in drought conditions and in salty soils. These technologies can contribute to efforts to more efficiently use crop land, and even to rehabilitate crop land lost to salinization. Salinization is understood to be an effect of climate changes, so reclaiming salty soils through management practices and adapted varieties is an important national climate adaptation priority in Senegal. ERA also collaborates with the CINCERE project on this topic.

### Feed the Future

ERA plays an important connector and knowledge translator role for USAID/Senegal's Feed the Future (FTF) activities. ERA increasingly contributes technological and systematic innovations and collaborative platforms that serve to complement other FTF activities such as the Senegal FTF Value Chain Activity (Naatal Mbay), the Senegal FTF Nutrition-led Agriculture Activity

(Yaajeende), and the Senegal FTF Fisheries Activity (COMFISH). These activities are contributing to shaping the dynamic face of agriculture in Senegal and ERA is ensuring that the requisite social and technological aspects of the knowledge systems and the human and institutional capacity in agriculture are in place to multiply and scale up the results of those other FTF activities. Over the past 6 years, ERA has helped develop the human and institutional capacity in agricultural education, training, and research (AETR) institutions which are now better equipped to serve the needs of the Senegalese public and private sectors, including farmers at all levels. ERA has contributed to transformational and systemic change through increased AETR institutions' collaboration and outreach to the private sector, improved curriculum development, and positive youth development and entrepreneurship. We posit that ERA is a valuable activity in USAID/Senegal's Economic Growth portfolio, playing a pivotal role in helping the Economic Growth Office achieve its Development Objective of inclusive economic growth.

### **Microenterprise Development**

ERA's largest contribution to microenterprise development occurs through our support for the PPP between POPAS and UCAD, and now in our support for similar arrangements in the areas of St. Louis and the Casamance. Through the creation of the national framework, we have at least tangentially now reached roughly 10,000 small entrepreneurs (nearly 100% women) who, by virtue of the increased quality of their value-added local food products, should be in a position of competitive advantage over other local food processors. There is a need for ERA (along with other USAID partners such as Africa Lead) to follow-up this technical support with entrepreneurship skill building, revolving funds for purchasing of packaging, and other benefits of their economies of scale, such as bargaining power when purchasing primary materials and when seeking access to markets.

### **Youth**

ERA's flagship efforts in youth are the 4-H Senegal Positive Youth Development (PYD) program, which aims to connect AETRs, grassroots leaders, Peace Corps volunteers, and other partners, to foster holistic development for young people (aged roughly between 8 and 25). Rooted in over 100 years of evidence-based experience in rural youth development in the U.S., augmented by 20 years of research-based knowledge on PYD, and with an emphasis on agriculture and entrepreneurship, this activity has the potential to offer both technical solutions and social solutions to the issues of youth un- and under-employment, a major national issue in Senegal. Three unique aspects to 4-H that set it apart from the myriad other youth-focused NGOs, projects, and government initiatives working in this space are: (1) its global connection to the strong network of 4-H based in Washington, D.C (from which we are planning to seek official recognition); (2) its connection to Senegalese universities and other AETRs (thus providing otherwise untapped expertise to youth while simultaneously helping universities operationalize the call to provide service to the community); and (3) its focus on PYD, which is passed on premises such as: Youth are resources to be developed not problems to be solved; Youth voice, leadership, and participation are important; Problem-free is not fully prepared, etc. 4-H Senegal will capitalize on the rich research base in this area to offer a high quality youth development program that will be institutionalized in order to yield lasting impacts on Senegal's economic growth and development. Scaling up and institutionalizing the 4-H project is a key focus of ERA in FY17.

## Appendix II. FY17 Semester Performance Indicator Table

Indicator	Disaggregation		FY17 Targets	FY17 S1 Actual	% of Target	Comments
1.1.1. Number of AETR professors trained in syllabus development/ curriculum design			130	41	31.5%	
1.1.2. Number of syllabi developed by AETR institutions			108	157	145.4%	
1.1.3 Number of students in classrooms receiving course syllabi		Male	1550	834	53.8%	
		Female	650	223	34.3%	
		<b>Total</b>	<b>2200</b>	<b>1057</b>	<b>48.0%</b>	
1.2.1 Number of individuals who have received USG supported long-term agriculture sector productivity or food security training [FTF 4.5.2(6)]	Local scholars	Male	0	0	--	All local and US scholars have completed their degree programs. In FY17 and 18 we will conduct our own short-term follow-up evaluation of the scholars' outcomes following their scholarships.
		Female	0	0	--	
		<b>Total</b>	<b>0</b>	<b>0</b>	<b>--</b>	
	US scholars	Male	0	0	--	
		Female	0	0	--	
		<b>Total</b>	<b>0</b>	<b>0</b>	<b>--</b>	
	New	Male	0	0	--	
		Female	0	0	--	
		<b>Total</b>	<b>0</b>	<b>0</b>	<b>--</b>	
	Continuing	Male	0	0	--	
		Female	0	0	--	
		<b>Total</b>	<b>0</b>	<b>0</b>	<b>--</b>	
<b>Total</b>		<b>0</b>	<b>0</b>	<b>--</b>		
1.2.2 Number of faculty members and students trained in:	Faculty members (distance and distributed learning, subject matter competencies, other)	Male	120	115	95.8%	
		Female	30	46	153.3%	
		<b>Total</b>	<b>150</b>	<b>161</b>	<b>107.3%</b>	
	Students (distance and distributed learning, career management, other)	Male	140	46	32.9%	
		Female	70	27	38.6%	
		<b>Total</b>	<b>210</b>	<b>73</b>	<b>34.8%</b>	
	<b>Total</b>		<b>360</b>	<b>234</b>	<b>65.0%</b>	
1.2.3 Number of students participating in private sector internships		Male	30	0	0%	
		Female	20	0	0%	
		<b>Total</b>	<b>50</b>	<b>0</b>	<b>0%</b>	
		UCAD	3	0	--	



Indicator	Disaggregation		FY17 Targets	FY17 S1 Actual	% of Target	Comments
1.2.4 Number of AETR faculty members and students registered on InnovATE's online community of practice		UGB	0	0	--	InnovATE changed platforms for their online community of practice, which disrupted ERA's attempts to get a critical mass of partners to use the system, and which is why this indicator was targeted at 0 for FY17.
		UASZ	0	0	--	
		UT	0	0	--	
		ENSA	0	0	--	
		ISFAR	0	0	--	
		ITA	0	0	--	
		ISRA	0	0	--	
		CFPH	0	0	--	
		CNFTEFCPN	0	0	--	
		CNFTEIA	0	0	--	
		LTAEB	0	0	--	
		Others	0	0	--	
	<b>Total</b>	<b>0</b>	<b>0</b>	<b>--</b>		
1.3.1 Number of public-private partnerships formed as a result of FTF assistance [FTF 4.5.2(12)]			5	0	0%	Some PPPs to be established with local governments around Dakar are ready to be signed but were postponed due to local official schedules.
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	0	--	
1.3.3 Number of AETR institutions tracking the employment of graduates			9	5	55.6%	The systems are still being refined, but all 5 pilot AETRs are currently tracking employment of graduates.
1.3.4 Number of AETR institutions conducting self-assessments to improve institutional performance			2	0	0%	
2.1.1 Number of new technologies or management practices under		Millet	17	18	105.9%	
		Maize	1	1	100.0%	
		Rice	5	7	140.0%	
		Climate change	0	0	--	

Indicator	Disaggregation		FY17 Targets	FY17 S1 Actual	% of Target	Comments
research as a result of USG assistance [FTF 4.5.2(39)-I]		Other aspects of Food security or economic growth	1	2	200%	
		<b>Total</b>	<b>24</b>	<b>28</b>	<b>116.7%</b>	
2.1.2 Number of new technologies or management under field testing as a result of USG assistance [FTF 4.5.2(39)-II]		Millet	2	1	50.0%	
		Maize	0	0	--	
		Rice	0	3	100.0%	
		Climate change	0	0	--	
		Other aspects of Food security or economic growth	10	0	0.0%	
		<b>Total</b>	<b>12</b>	<b>4</b>	<b>33.3%</b>	
2.1.3. Number of new technologies or management practices made available for transfer as a result of USG assistance [FTF 4.5.2(39)-III]		Millet	1	0	100.0%	
		Maize	0	0	--	
		Rice	0	0	--	
		Climate change	3	0	0.0%	
		Other aspects of food security or economic growth	10	0	0.0%	
		<b>Total</b>	<b>14</b>	<b>0</b>	<b>14.3%</b>	
2.1.4. Number of farmers and others who have applied improved technologies or management practices as a result of USG assistance [FTF 4.5.2(5)]		Male	200	160	80.0%	
		Female	100	84	84.0%	
		<b>Total</b>	<b>300</b>	<b>244</b>	<b>81.3%</b>	
2.1.5 Number of private enterprises, producers organizations, water users assoc, women's groups, trade and business assoc and community-based organizations (CBOs) that applied improved technologies or		Private enterprises	5	0	0.0%	
		Producer organizations	11	6	54.5%	
		Water users	0	0	--	
		Women's groups	40	18	45.0%	
		Trade & business associations	4	0	0.0%	
		Community based organizations	20	0	0.0%	

Indicator	Disaggregation		FY17 Targets	FY17 S1 Actual	% of Target	Comments
management practices as a result of USG assistance [FTF 4.5.2(42)]		<b>Total</b>	<b>80</b>	<b>24</b>	<b>30.0%</b>	
		New	20	2	10.0%	
		Continuing	60	22	36.7%	
		<b>Total</b>	<b>80</b>	<b>24</b>	<b>30.0%</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 [FTF 4.5.2(11)]		Private enterprises	6	9	150.0%	
		Producer organizations	10	21	210.0%	
		Water users	0	0	--	
		Women's groups	140	47	33.6%	
		Trade & business associations	4	6	150.0%	
		Community-based organizations	0	0	--	
		<b>Total</b>	<b>160</b>	<b>83</b>	<b>51.9%</b>	
		New	10	17	170.0%	
		Continuing	150	66	44.0%	
		<b>Total</b>	<b>160</b>	<b>83</b>	<b>51.9%</b>	
2.2.1. Number of individuals who have received USG supported short-term agriculture sector productivity or food security training [FTF 4.5.2(7)]	Producers	Male	250	52	20.8%	
		Female	640	200	31.3%	
	People in government	Male	10	7	70.0%	
		Female	5	7	140.0%	
	People in private sector	Male	5	11	220.0%	
		Female	5	2	40.0%	
	People in civil society	Male	150	48	32.0%	
		Female	150	17	11.3%	
	<b>Total</b>	<b>1215</b>	<b>344</b>	<b>28.3%</b>		
2.2.2. Number of partnerships developed to deliver training services to local farmers and the private sector			5	0	0.0%	
3.1.1 Number of AETR members trained in administration, finance or M&E			15	0	0.0%	
3.1.2 Number of AETR institutions completing performance contracts with their respective ministries			0	0	--	

Indicator	Disaggregation		FY17 Targets	FY17 S1 Actual	% of Target	Comments
as a result of FtF assistance						
3.2.1.Number of AETR stakeholder action plans for improving higher education policies for quality assurance			0	0	--	
Communication plan available and updated			1	0	0.0%	
Number of communication updates			20	0	0.0%	
Number of newsletters			0	0	--	
Number of weekly reports			30	8	26.7%	
Number of success stories			2	0	0.0%	
Number of highlight media coverage			10	0	0.0%	
Number of insertions in national newspapers			2	0	0.0%	
Number of video reports			10	0	0.0%	
Number of participations on fairs and exhibitions			1	1	100%	