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U.S.-Burundi Collaborative Partnership:

**“South Carolina State University-Ngozi University Partnership
for Strengthening Educational Capacity and Rural
Development”**

**FINAL ASSOCIATE AWARD REPORT
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List of Acronyms

ACE	American Council on Education
AGRA	Alliance for a Green Revolution in Africa
CEA	Central and Eastern Africa
CERADER	Research Center in Agriculture and Rural Development
COMESA	Common Market for Eastern and Southern Africa
GPA	Grade Point Average
HED	Higher Education for Development
MBA	Masters of Business Administration
MSc	Master of Science
NARS	National Agricultural Research Station
NDSU	North Dakota State University
NGO	Non-Governmental Organization
NU	Ngozi University
PEARC	Pan African Enterprise Research Council
PhD	Doctor of Philosophy
PPT	Power Point
RFA	Request for Applications
TOEFL	Test of English as a Foreign Language
SCSU	South Carolina State University
USAID	United States Agency for International Development
USAID/AFR	United States Agency for International Development/Africa Bureau
USAID/E3	United States Agency for International Development/Bureau for Economic Growth, Education, and Environment

Executive Summary

An associate award totaling \$613,394 was signed between the American Council on Education (ACE) and USAID/Burundi on September 26, 2008 for a university partnership aimed at strengthening educational capacity and rural development in Burundi. Under Associate Award #EDH-A-00-08-00028-00, HED made an award totaling \$529,641 to South Carolina State University (SCSU) for a three-year partnership titled “South Carolina State – Ngozi University Partnership for Strengthening Educational Capacity and Rural Development” to collaborate with Ngozi University (NU) in Burundi.

The overall goal of this higher education partnership was to strengthen NU’s capacity to teach, conduct academic research, and contribute to rural development by providing extension and outreach services to small farmers and rural communities in Burundi. This partnership was also designed to improve the capacity of NU faculty to improve academic standards and enhance rural livelihood by providing extension and outreach services to small farmers and rural communities.

The partnership strengthened the capacity of Ngozi University’s Department of Agronomy and the Centre for Agricultural and Rural Development Research to enhance student learning, conduct applied research, strengthen community outreach, and provide extension services to small farmers.

The major objectives of the partners were to:

- Revise and strengthen NU’s current curriculum by including applied courses for strengthening entrepreneurial skills;
- Develop innovative curriculum that includes short courses and case studies relevant to the Burundian context to develop competencies in entrepreneurship, agribusiness, and the trade sectors;
- Promote experiential learning through academic assignments with agribusiness companies, community organizations, and NGOs;
- Develop a joint collaborative program to ensure that the faculty at NU’s Agronomy Department and the Center for Agricultural and Rural Development Research acquire the knowledge and skills to teach and conduct basic applied research in agribusiness and entrepreneurship; and
- Design a formal professional development program that will lead to a closer link between NU and the business and agribusiness sectors.

Three (3) NU faculty, Emmanuel Bizimna, Desire Hakizimana, and Eric Uwimana, received Master’s degrees in Agribusiness and in Entrepreneurship from South Carolina State University. All three graduated with GPAs of 3.75 or higher (“Summa Cum Laude”). This was a stunning accomplishment for the students who came into the MBA Program at SCSU facing cultural and social changes and with limited English language skills. These three graduates were exposed to a broad range of teaching methods and were trained in course material that they were returning to NU to teach.

Each of the faculty completed a research thesis, demonstrating mastery of research methods necessary to continue the applied research and outreach program which this partnership has also begun to develop. Their theses included production efficiency of rice seedling nurseries, macroeconomic assessment of the Burundi economy, and the effect of regional integration of Burundi into COMESA (Common Market for Eastern and Southern Africa) and CEA (Central and Eastern Africa).

Professors from South Carolina State University came to Burundi as visiting lecturers to provide guidance on innovative teaching methods and provide peer mentoring to the faculty at Ngozi University to further develop and sustain the agribusiness and entrepreneurship academic program. NU instructors have incorporated PowerPoint (PPT) presentations and computer simulations into their lectures. Faculty has been trained to teach survey methods and field trial research in order to expand the applied research program on seed production and technology adoption.

The partnership was highly successful in developing curricula and producing training and teaching materials. Ngozi University now has the only agribusiness and entrepreneurship program in Burundi. The partners collaborated to enhance the curriculum with three new courses: Cost-Benefit Analysis, Agribusiness Strategy, and Farm Management. The degree program and teaching innovation at NU have laid the foundation for long term impacts. The introduction of the agribusiness program has contributed to the increase in student enrollment at Ngozi University, particularly in the Faculty of Agronomy and Agribusiness, from 24 students in 2007/08 to 134 in 2012/13 academic years has been recorded.

Rural development, extension and outreach has been achieved through the institutionalization of applied research trials, innovative seed production plots and training programs with organized farmer associations. Partners established a viably effective and efficient small farm technical assistance and outreach program that contributes to improve farmers productivity, farm income, food quantity and quality thus enhancing the quality of life of the rural population in Ngozi province and promoting regional community development in Burundi.

During the performance period of the partnership award, six research stations were established in Ngozi and Kayanza provinces. These research stations focus on rice cultivation, testing fruits and vegetable hybrid seed adaptation and yield improvement. The stations are also used as training centers for local small scale farmers and communities. Applied research and rice seed variety testing and multiplication took place at the Gisha, Akagoma, and Marangara outreach/research stations. Vegetable testing and seed multiplication was introduced and achieved at the Gatara, Musenyi and Ngozi University outreach/research stations.

Partners engaged farmers and paraprofessionals to assist with outreach training. Outputs from the experimental research stations for rice and fruits and vegetables are expected to improve the nutritional status and quality of life of farmers and the local rural communities. The partners also tested and distributed high-yield fruit and vegetable seeds to small farmers and rural communities. Partners have provided 16 varieties of rice and vegetable seeds for representatives from 6 local and international organizations and distributed over 5,000 kg of rice seeds and over 50 kg of vegetable seeds. Two faculty members from North Dakota State University provided assistance on extension and outreach activities.

The introduction of fruit and vegetable product diversification will undoubtedly contribute to combating hunger and nutritional problems in these rural communities and enhance small scale farming enterprises. The research experimental stations established throughout the region have provided the NU School of Agricultural graduates with practical experience with more than 235 small scale farmers associations with a total membership estimated at 6,235 members (4,315 females and 2,135 males) in Ngozi and Gisha communities. The partnership provided resources that allowed the expansion of rice seeds adaptability and yield testing research, the introduction and testing of new varieties of fruit and vegetable crops. This has promoted and enhanced agricultural product diversification and improved quantity, quality and nutritional value of the products available for the rural communities in Kayanza and Ngozi areas and the region.

Background

Overview of the U.S.-Burundi Collaborative Partnership

Under Associate Award #EDH-A-00-08-00028-00 and upon Mission concurrence, HED made an award totaling \$529,641 to South Carolina State University (SCSU) for a three-year partnership titled “South Carolina State – Ngozi University Partnership for Strengthening Educational Capacity and Rural Development”. Ngozi University (NU) was selected by the Mission as the lead partner institution in Burundi. Project implementation began in March 2009, when a needs assessment of Ngozi University was conducted. During discussions among USAID officials, local and NU officials and the SCSU representatives, plans for the partnership focused on academic program development and the implementation of extension and outreach activities.

The objective of the partnership between SCSU and NU was to strengthen NU’s capacity to teach, conduct research, and contribute to rural development by providing extension and outreach services to small farmers and rural communities. The partnership aimed to build the capacity of NU faculty to improve academic standards and enhance rural livelihoods in Burundi.

The specific objectives of the partners were to:

- Revise and strengthen NU’s current curriculum by including applied courses for strengthening entrepreneurial skills;
- Develop innovative curriculum that includes short courses and case studies relevant to the Burundian context to develop competencies in entrepreneurship, agribusiness, and the trade sectors;
- Promote experiential learning through academic assignments with agribusiness companies, community organizations, and NGOs;
- Develop a joint collaborative program to ensure that the faculty at NU’s Agronomy Department and the Center for Agricultural and Rural Development Research acquire the knowledge and skills to teach and conduct basic applied research in agribusiness and entrepreneurship; and
- Design a formal professional development program that will lead to a closer link between NU and the business and agribusiness sectors.

This report provides a summative review of partnership achievements against these objectives. As such, this report builds on semi-(annual) reports since the inception of the partnership, as well as the final report and accompanying appendices submitted by South Carolina State University (SCSU) to HED, which can be found attached to this report as Appendix C.

Major Development Outcomes

Prior to the SC State-Ngozi University Partnership for Strengthening Education Capacity and Rural Development, the provinces of Kayanza and Ngozi’s small scale farmers and landowners in the rural communities were operating with little or no research based farming information assistance or support from Ngozi University.

Rice consumption has now become a stable source of starch in the sub region communities' diet. Experimental research and outreach/extension stations for vegetables, fruit and rice have been established at NU, Gatara, Marangara, Gisha, Akagoma, and Musenyi sites and are now operational. This station provides support to farmers through seeds testing for adaptation to local conditions. Extension programs and extension services provided and the research sites will continue to be operational beyond the project. Selected vegetable, fruit, and rice seeds are distributed to trained farmers to increase their agricultural productivity, improving the quality of nutrition of small scale farmers and contributing to reducing hunger in rural Ngozi province.

Farmer training and education in Kayanza and Kirundo on pilot basis, has generated a lot of interest and holds a promise of impacting northern Burundi and contributing to increased production capacity and productivity. The partnership trained more than 250 small scale farmers associations on agriculture best management practices to include soil nutrient management, plant disease identification, water management, crop selection, post-harvest and handling, etc., for rice and fruit and vegetable producers. The partners reported that the outcomes of the trainings demonstrated substantial knowledge gained among the participating small scale farmers and farmers' behavior changes in terms of adoption of the recommended practices. The most significant impact was the adoption of the improved adapted rice, fruit and vegetable seeds contributing to increased productivity in the region.

Human Capacity Development

This institutional collaboration bolstered the capacity of faculty and teaching staff at the Ngozi University through a targeted Masters level training and short term trainings and workshops at NU.

Masters level training. Three (3) select NU faculty, Emmanuel Bizimna, Desire Hakizimana, and Eric Uwimana, received master's degrees from SCSU in Agribusiness and in Entrepreneurship. This masters level training was designed in a way that enhances the benefits for NU beyond qualifications strengthening for a select three NU faculty members. In addition to receiving their diplomas, these three faculty members were trained in course material that they will bring back to NU. They have been exposed to a broad range of teaching methods that will enhance the new academic program at NU. Moreover, these students completed a research thesis which required an understanding of research methods, necessary to continue the applied research and outreach program activities established through this partnership. The thesis titles reflect research on a range of topics including production efficiency of rice seedling nurseries, macroeconomic assessment of the Burundi economy, and the effect of regional integration of Burundi into COMESA (Common Market for Eastern and Southern Africa) and CEA (Central and Eastern Africa).

At the graduation ceremony for these three NU faculty, the SCSU partnership director, Prof. Karemera said, "it's empowering to be able to feel that the long-term impact of this project could help transform Burundi's agribusiness economy. With heightened production coupled with students like Eric, Desiree and Emmanuel who have stronger agribusiness education, opportunities should start to open up for the country."

The three NU faculty attained Grade Point Averages (GPAs) of 3.75 or higher ("Summa Cum Laude"). One of the students achieved a 4.0 GPA without repeating a course. This was quite a

stunning accomplishment for the students who came into the MBA Program at SCSU facing cultural and social changes with limited English language skills.

One of the three faculty, Eric Uwimana, was competitively selected for participation in a national 1890 conference held in Jacksonville, Florida in April 2013. This participation helped to improve Mr. Uwimana's research skills and contributed to his professional development. Although two of the candidates for the masters training were women, they were not able to pass the entrance requirements at SCSU.

Short-term trainings and workshops. In order to develop and sustain the agribusiness and entrepreneurship teaching program at Ngozi University, the partnership provided targeted short-term training and capacity building to NU faculty. Professors from South Carolina State University as visiting lecturers provided guidance on innovative teaching methods to the faculty at Ngozi University. This human capacity building effort is important to further. NU instructors have adopted the PowerPoint (PPT) presentation and computer simulations during lectures. The use of PPT presentations and computer simulation models with real world applications improved teaching/learning methods and delivery of instruction. Innovative teaching methods that included short courses and case studies relevant to Burundi's situations in order to develop competencies in entrepreneurship, agribusiness, and the trade sectors were achieved. Also there was some experiential learning by academic assignments with agribusiness companies, community organizations and NGOs.

South Carolina State University mobilized its faculty to provide lectures to Ngozi University faculty and teaching staff on research methods. Faculty has been trained to teach survey methods and field trial research in order to expand and extend the applied research program on seed production and technology adoption.

Institutional Capacity Development

The partnership's efforts towards increased institutional capacity of Ngozi University made significant achievements through development of new curricula, applied research trials and training.

Curriculum development. Since 2009, the academic program at Ngozi University has been enhanced with the introduction of the only agribusiness and entrepreneurship program in Burundi. This initiative provided the addition to the curriculum of three new course offerings including: Cost-Benefit Analysis, Agribusiness Strategy, and Farm Management. The courses were structured to provide opportunities to students to engage in experiential learning on Burundi agribusiness challenges. The cost-benefit course is a valuable addition to the training of students given the importance of developing the ability to conduct investment analysis, feasibility studies and program and project evaluations. The agribusiness strategy contributes to the student's training by introducing case study methods and examining relevant enterprise development and strategy for Burundi. Finally, the farm management course is a logical follow-on course to the basic economics course where management and decision-making tools including business accounting, investment analysis, production planning and coordination are taught. All three of these courses represent a fundamental core of an agribusiness core curriculum. The Agribusiness program is housed within the Faculty of Agronomy, which is renamed the Faculty of Agronomy and Agribusiness.

Academic curriculum standards have improved with the addition of the new agribusiness program. The structural change of and teaching innovation at NU have laid the foundation for a long term academic success and long term impacts beyond Ngozi. The introduction of the agribusiness program has contributed to the increase in student enrollment at Ngozi University, particularly in the Faculty of

Agronomy and Agribusiness. An increase of student enrolment from 24 students in 2007/08 to 134 in 2012/13 academic years has been recorded.

Applied research trials and training. Rural development, extension and outreach has been achieved in the project primarily through the establishment of applied research trials, innovative seed production plots and training programs with organized farmer associations. Partners established a viably effective and efficient small farm technical assistance and outreach program that contributes to improve farmers productivity, farm income, food quantity and quality thus enhancing the quality of life of the rural population in Ngozi province and promoting regional community development in Burundi.

During the performance period of the partnership award, the partners established six research stations in Ngozi and Kayanza provinces. These research stations focused on rice cultivation, testing fruits and vegetable hybrid seed adaptation and yield improvement. The stations are also used as training centers for local small scale farmers and communities. Applied research and rice seed variety testing and multiplication were undertaken at the Gisha, Akagoma, and Marangara outreach/research stations. Vegetable testing and seed multiplication were undertaken at the Gatara, Musenyi and Ngozi University outreach/research stations.

Training for farmers and paraprofessional workshops have contributed to improvement of farmers knowledge, self-sufficiency, and nutrition quality and quantity. It thereby assists and participates in national development goals and increasing food production and self-sufficiency.

The Ngozi station added a unique dimension to farmers and students training in erosion control by modeling a system of terraces for agricultural production. In addition to the agronomy students, the Ngozi station trained and certified 14 small scale farmers and landowners. It also established 215 small scale fruits and vegetables farmers (Ikangure Dukore Ibirama) associations in the Vyegwa Valley. The Gatara Center served a dual purpose of testing and farmer's education and demonstration site as well as providing fruits and vegetable plant nursery for the region. The Musenyi site served as an experimental station for testing fruits and vegetable seeds for adaptation and seed increase, and as an educational training and demonstration center for small scale fruit and vegetable farmers in Musenyi and the surrounding region. The center has trained and certified 40 small scale farmers in Best Management Practices in fruits and vegetable production, soil composition and nutrient management, weed control, integrated pest management, water usage and irrigation management, as well as post-harvest and handling, and food safety issues. 14 selected small scale farmers in Musenyi and surrounding regions were trained and certified in production of fruits and vegetables and small scale farm sustainability. The Marangara station was designated for testing of rice varieties in terms of adaptation and seed yield increase. The Gisha experimental station was designated to test selected varieties of rice for adaptation and seed yield increase. At the Gisha station, new varieties of rice received from the National Agricultural Research Station (NARS) were tested for adaptation 21 varieties of rice were tested, with 6 varieties recording significant and promising results after their first trial.

The NU-SCSU partnership resulted in a 25% increase, on the average, of rice seeds planted and harvested on 5 hectares since the partnership began. The tested rice harvest/acreage seed has increased by 30% in Akagoma, 25% in Gisha and by 20% in Marangara since the beginning of the project. The Akagoma experimental station has recorded the most significant improvement in rice testing results compared to Gisha and Marangara, which were the most recent established experimental stations in Ngozi province.

This improvement in agricultural yield represents one of the most significant achievements of the partnership. The testing of fruits, vegetables and rice seeds was another significant outcome in the research of seed adaption and yield improvement. High performance seeds were selected and distributed to participant farmers for production. A total of 115.68 kg of seeds were harvested from the 21 vegetable varieties tested in four replication trials. Thus, an increase in producers on farm income, thereby, contributed to regional economic development.

Agricultural extension and training were also highly successful. In addition to the farmers in the certificate program, the partnership provided educational outreach to more than 6,450 (2,135 males and 4,315 females) small scale agricultural producers throughout the region. The research experimental stations have equipped the Ngozi School of Agricultural department graduates with practical experiences with more than 235 small scale farmers associations in Ngozi and Gisha communities. The partnership provided resources that allowed the expansion of rice seeds adaptability and yield testing research, the introduction and testing of new varieties of fruit and vegetable crops. This has promoted and enhanced agricultural product diversification and improved quantity, quality and nutritional value of the products available for the rural communities in Kayanza and Ngozi areas and the region.

Objectives Assessment			
Objectives	Results	Performance Assessment	
		Did Not Achieve	Achieved
<p>Objective 1: Revise and strengthen NU's current curriculum by including applied courses for strengthening entrepreneurial skills</p>	<p>1. A new two-track undergraduate program in Agribusiness, the first and only program of its kind in Burundi has been developed at NU.</p> <p>2. The introduction of the agribusiness program has contributed to the increase in student enrollment at Ngozi University, particularly in the Faculty of Agronomy and Agribusiness. An increase of student enrolment from 24 students in 2007/08 to 134 in 2012/13 academic years has been recorded. The first cohort of students is slated to graduate in 2014.</p>		✓
<p>Objective 2: Develop innovative curriculum that includes short courses and case studies relevant to the Burundian context to develop competencies in entrepreneurship, agribusiness, and the trade sectors</p>	<p>1. New course were offered including Cost-Benefit Analysis, Agribusiness Strategy, and Farm Management. The courses were structured to provide opportunities to students to engage in experiential learning on Burundi agribusiness challenges.</p> <p>2. The cost-benefit course develops ability to conduct investment analysis, feasibility studies and program and project evaluations. The agribusiness strategy contributes to the student's training by introducing case study methods and examining relevant enterprise development and strategy for Burundi. The farm management course provides management and decision-making tools including business accounting, investment analysis, production planning and coordination.</p>		✓
			✓

<p>Objective 3: Promote experiential learning through academic assignments with agribusiness companies, community organizations, and NGOs</p>	<ol style="list-style-type: none"> 1. Partners engaged farmers and paraprofessionals to assist with outreach training. Conducted several testing and distribution of new, high-yield fruit and vegetable seeds to small farmers and rural communities. 2. Innovative teaching methods that included short courses and case studies relevant to Burundi's situations in order to develop competencies in entrepreneurship, agribusiness, and the trade sectors were achieved. Also there was some experiential learning by academic assignments with agribusiness companies, community organizations and NGOs. 3. The partnership has strengthened Ngozi University's Research Center in Agriculture and Rural Development (CERADER) and has taken the lead to produce, evaluate and select seeds for local adaption. Quantities of high yielding seeds are retained and distributed to farmers for multiplication. 		
<p>Objective 4: Develop a joint collaborative program to ensure that the faculty at NU's Agronomy Department and the Center for Agricultural and Rural Development Research acquire the knowledge and skills to teach and conduct basic applied research in agribusiness and entrepreneurship</p>	<ol style="list-style-type: none"> 1. Professors from South Carolina State University provided guidance on innovative teaching methods to the faculty at Ngozi University. NU instructors have adopted the PowerPoint (PPT) presentation and computer simulations during lectures improving teaching/learning methods and delivery of instruction. 2. Outputs from the experimental research stations for rice and fruits and vegetables are expected to improve the nutritional status and quality of life of farmers and the local rural communities. 3. Partners have provided 16 varieties of rice and vegetable seeds for representatives from 6 local and international organizations and distributed over 5,000 kg of rice seeds and over 50 kg of vegetable seeds. Two faculty members from North Dakota State University provided assistance on extension and outreach activities. 		
<p>Objective 5: Design a formal professional development program that will lead to a closer link between NU and the business and agribusiness sectors</p>	<ol style="list-style-type: none"> 1. Experimental research and outreach/extension stations for vegetables, fruit and rice have been established at NU, Gatara, Marangara, Gisha, Akagoma, and Musenyi sites and are now operational. 2. Selected vegetable, fruit, and rice seeds are distributed to trained farmers to increase their agricultural productivity, improving the quality of nutrition of small scale farmers and contributing to reducing hunger in rural Ngozi province. 3. Farmer training and education in Kayanza and Kirundo on pilot basis, is impacting northern Burundi where production capacity and productivity are being increased. The partnership trained more than 250 small scale farmers on agriculture best management practices including soil nutrient management, plant disease identification, water management, crop selection, post-harvest and handling, etc., for rice and fruit and vegetable producers. The outcomes of the trainings demonstrated substantial knowledge gained 		

	among the participating small scale farmers and farmers' behavior changes in terms of adoption of the recommended practices. The most significant impact was the adoption of the improved adapted rice, fruit and vegetable seeds contributing to increased productivity in the region.		
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Challenges and Lessons Learned

Partnership financial and administrative management orientation of host-country partners. The training of the three students at MBA level was delayed due, among other reasons, to a misunderstanding of the cost share concept on the part of Ngozi University. NU wanted to forgo the exchange program to receive the cost share dollars at Ngozi University, a clear misunderstanding of the student exchange concept arising from the lack of post-award briefings. It is recommended that future partnerships with institutions that are in resource-poor rural areas such as NU involving a faculty or student exchange program include comprehensive briefings for the partners on the mechanics of the exchange program and the concept of cost share. The partners need full briefing and good communication in order to get off to a speedy start. Due to the lack of experience and training on the part of the Ngozi team, the SC State team had to complete exchange activities originally assigned to Ngozi team. These included the handling of Ngozi student TOEFL and GMAT examinations and completion of WES transcript English translation, and the involved logistics. Future partners should be well informed of the activities before the project begins. Despite the delayed arrival at SC State and other cultural impediments, the exchange program succeeded due the determination of the carefully selected Ngozi exchange participants.

The invoice and reimbursement process was not fully understood between the partners when the activities began. Under the cooperative agreement with ACE /HED, SCSU was to reimburse Ngozi University for verifiable expenses on approved project activities. Ngozi University was not briefed on the reimbursement system and wanted a cash advance from SCSU, which needed to be worked out between the partners at the outset of activities. The Ngozi University accounting system was not adequate to the financial management requirements of SCSU. The invoices were often sent to SC State with no justifications attached and had to be returned to Ngozi for proper invoicing and justifications. There were also delays on the part of SC State reimbursements, mainly arising from personnel changes and delays in contract renewals. However, payment of all properly invoiced activities has been completed by SC State.

Overcoming challenges with infrastructure and lack of transportation. The problem of infrastructure and lack of transportation to rural areas has been an issue since the beginning of the project. The partners are most grateful to the U.S. Embassy in Bujumbura, which provided two vehicles to NU for extension assistance. The transportation assistance permitted the team to provide timely action that helped in the selection of seeds of rice and fruits and vegetable seeds.

Bridging language barriers. The SCSU team had language challenges. The SCSU instructors had to translate English agribusiness courses into French course versions. The partners secured the assistance of third party instructors from Rwanda who were versed in both English and French to assist with translation. Partners also noted that basic education infrastructure and, for SCSU visiting faculty, teaching in hot weather with no air conditioning was quite a challenge.

Capitalizing on needs assessment. The critical importance of collaborative needs assessment at the start of a partnership program in shaping outcomes, creating common understanding and ownership of

implementation plans was one of the major lessons learned by the partners. The needs assessment allowed partners to focus on an agribusiness program, including outreach/extension to surrounding communities, in response to stakeholder needs. Following the Ngozi University needs assessment conducted in March 2009, the agribusiness courses were developed and a new agribusiness program initiated. While the original proposal from SCSU called for teaching short courses, the implementation team taught courses at full length to meet the credit hours requirement of regular agronomy courses. The main challenge was that agribusiness courses were being taught by the SCSU implementation team members since no local instructors had training in agribusiness curriculum development and teaching. This situation will improve markedly with the return the NU of the three faculty trained in the Master's program at SCSU.

Sustainability and Future Opportunities

While significant progress in development and delivery of agribusiness curriculum has been achieved, there remains a significant need to develop a set of additional courses in order that the agribusiness program can reach full maturity. Additional offerings that should be considered include courses in marketing, finance, food and agricultural policy, development policy and agricultural trade. This expanded course offering can only be achieved with additional resources. A shortage of available faculty has been a primary constraint during the life of this project. Further, there is an important need to continue to enhance the experiential learning methods so that students have the opportunity to gain field experience and encounter agribusiness and entrepreneurial problems that farmers and the agribusiness sector in Burundi encounter.

The introduction of the Agribusiness Program increased significantly the number of students in the faculty of Agronomy and Agribusiness at NU. The return to Ngozi University of the faculty trained at SCSU has strengthened the Agribusiness faculty and increased human capacity to teach agribusiness and related courses.

Opportunities for research has been created to help new Burundian graduates gain experience in research and publication, to continue joint research and develop their own research agendas, and to be able to secure small research grants. A joint research proposal submission would enable Ngozi University faculty to gain sustainable proposal writing skills, research experience, and opportunities.

The seed distribution should be continued and expanded to cover all of Burundi. Her Excellence, the former US Ambassador to Burundi, Pamela Slutz noted that, "I am particularly interested in the seed component of the project. From everything I have heard Burundi has an acute shortage of seed for both vegetables and cereal crops, especially a lack of hybrid varieties that are higher-yielding. The Alliance for a Green Revolution in Africa (AGRA) have shown interest in working with the Burundian private sector (defined as small farmers and businesses) to produce and/or distribute better-quality seeds to farmers in Burundi." The seed program, if continued and expanded, can alleviate poverty and totally eliminate hunger in the region. The partners recommend that the seed program and the farmer training and workshop modules should be expanded to cover all northern Burundi (Ngozi, Kayanza and Kirundo) and move southward with the goal of eventually covering the entire country.

The SCSU team will continue to collaborate with Ngozi University. The collaboration will be facilitated through the new SCSU graduates now at Ngozi University. In the short run, a joint research project is still continuing and a publication of research results is expected. A case study from the Burundi partnership is being developed for presentation at the inaugural international conference, *Black Entrepreneurship in the 21st Century – Unborn, Catching Up or Falling Behind!* hosted by the Pan African Enterprise Research Council (PAERC) in partnership with the Faculty of

Social Sciences & Faculty of Humanities and Education, University of the West Indies, St Augustine Campus, Trinidad.

In the longer term, a larger consortium involving South Carolina State University (SCSU), North Dakota State University (NDSU), and Ngozi University could provide an excellent opportunity for enhancing agricultural education and teaching capacity in Burundi beyond the current project. North Dakota State University (NDSU) is a major research institution that has been assisting in this project and wants to continue to participate in research efforts.

Appendix A: Success Stories



SUCCESS STORY

Planting the Seeds to Combat Hunger in Burundi

South Carolina State University/Ngozi University



Photo: Courtesy of South Carolina State University

Dr. David Karemera, of South Carolina State University, teaching a class at Ngozi University.

When South Carolina State University (SCSU), a historically black public institution established in 1896, partnered with Ngozi University, the country's first private university founded in 1999, their goal was to develop the first-ever agribusiness program in Burundi. Project managers hoped the program would bring more opportunity and a more diverse curriculum to students at Ngozi while helping boost internationalization efforts at SCSU.

But the project's scope developed even further than previously planned. With the funding and support of USAID and Higher Education for Development, the two institutions' teams worked across borders and oceans to help students at Ngozi University build their careers while developing practical knowledge for solving farming problems in the poverty-stricken region.

Over the course of the project, the teams put into place an innovative and unique agribusiness program at Ngozi University. Course offerings ranged from crop marketing, agribusiness strategy to farm management and were taught by both SCSU and Ngozi instructors using PowerPoint and computer simulation models, which represented an important effort to engage the students in technology in the classroom.



Photo: Courtesy of South Carolina State University

Agribusiness program students and community members stand in front of Ngozi University.

The classes and program were a success. Over one six-month period, 45 students were enrolled in the courses. One student, Privat Rwaswa, said: "I especially liked the courses (such as introduction to entrepreneurship) because they reminded me that agriculture should be understood as a business." However, the impact of the program wasn't limited to augmenting the academic offerings of Ngozi University. While the academic side flourished, professors and students from both institutions worked together to conduct experimental research with seeds and crops to determine which types of plants can adapt to local soil and weather conditions and prescribe the type of farming practices that would increase farm efficiency productivity in the Ngozi area.

"What we did was develop a real, practical application of agribusiness concepts," said Dr. David Karemera, professor of economics at SCSU's School of Business. "Beyond the scope of academics, research and institution building, we realized that we could translate our classroom experiences into real-world applications on behalf of small Ngozi famers. Hopefully, we could make a sizable impact on the hunger impacting the region in Burundi."

Project managers opened five research stations in the Kayanza and Ngozi provinces. Two of the stations focused on the cultivation and testing of several rice varieties. Three more focused on testing fruits and vegetables, ranging from eggplant to cucumbers, to carrots and fennel, some of which include hybrids and high-yielding seeds from the United States. Researchers tested the crops in different climates and soils and also tested various methods of pest management. Once the best practices and crops were determined,



researchers planned to share their results with local farmers, who would use the new found information to improve their yields.

“It’s empowering to be able to feel that the long-term impact of this project could help transform Burundi’s agri-business economy,” said Karemera. “With heightened production coupled with students that have stronger agribusiness education, opportunities should start to open up for the country.”

5-2011

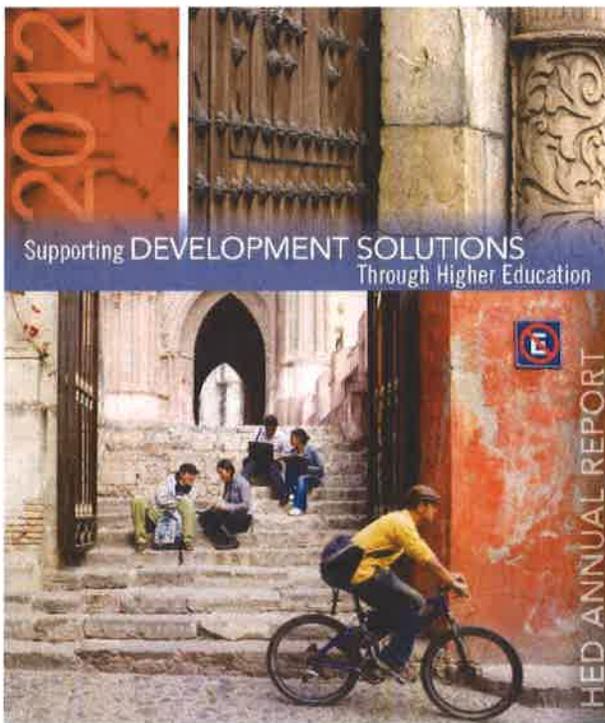
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Higher Education for Development

Knowledge, Partnerships, Results

HED Annual Report Marks 20 Years of Supporting Development Solutions



Higher Education for Development (HED) has released its 2012 Annual Report. The publication highlights the program's impressive portfolio of international partnerships and its key role in strengthening the capacity of higher education institutions, faculty, and communities in developing nations. Among the features in this year's report, a health sciences partnership in Ghana that is training student interns to care for persons living with HIV/AIDS. The growing demand for HED's technical expertise is also showcased.

May/June 2013

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Featured Partnership:
**University of Connecticut/
Addis Ababa University**



Photo courtesy of HED Staff

Tertiary education is proving to be an integral partner in addressing Africa's development issues. Higher education offers practical skills to sub-Saharan Africa's growing student population, and harnesses the talents of academia, in cooperation with community and business leaders, to generate new and innovative ideas.

However, in some countries, women's participation in tackling these development challenges has not been readily acknowledged or apparent. In Ethiopia, the women involved in one Africa-U.S. Higher

Last year, HED marked 20 years of service supporting development solutions through higher education. In FY2012, HED managed 70 partnerships in 37 countries involving 83 host-country and 57 U.S. institutions. These partnerships bring forth innovative courses, new degree programs, advanced teaching methodologies, improved access to education, and the engagement of thought leaders at local, regional and national levels.

[Download the HED Annual Report](#) to learn more.

Africa-U.S. Higher Education Initiative Partnership Honored with International Engagement Award



Representatives from OSU Office of International Affairs, Extension, and Outreach and Engagement pose with 2013 Emerging International Engagement Award winners. Photo credit – Victor van Buchem, OSU Office of International Affairs

An Africa-U.S. Higher Education Initiative partnership between [The Ohio State University \(OSU\)](#) and the [Université Gaston Berger \(UGB\)](#) and managed by HED is the winner of Ohio State's Emerging International Engagement Award for its "Development of Agronomy for Sustainable Food Production in Senegal" partnership.

The award was handed out at the inaugural [International Engagement Awards](#) ceremony held May 2.

OSU recognized the partnership for its outstanding potential for long-term impact, achievement, and scholarship in addressing sustainable agricultural development in Senegal, where food scarcity is a growing

Education Initiative partnership are poised to change that.

Addis Ababa University and the University of Connecticut established the Ethiopian Institute of Water Resources (EIWR) at Addis Ababa University to research the country's water woes. The institute, in collaboration with five other local universities, offers a degree-level curriculum in water resources and engineering management (WREM). It also provides short-term training for the research and management of water-sector issues, as well as outreach to local communities. Rahel Eshetu, a Ph.D. candidate at EIWR, and her colleagues, Ph.D. candidate Adanech Yared and master's candidate Lemlem Teweldemedhin, are among four women accepted into the first cohort of the WREM program. In total, the cohort boasts 42 students (four women and 38 men) selected from more than 600 applicants in 2011.

These women recognize the obstacles that water issues pose to the community as well as how the collection and use of water impacts women's lives.

"Due to climate change, women have more [work] load, to collect water to cook, and to do everything," said Eshetu. The women list a lack of clean water, long travel distances needed to collect water, and diseases that stem from the use of surface water as major difficulties. "If the women went to school to become educated...If we do such types of things, we can increase awareness," said Eshetu. Yared adds, "Girls lose time because they [must] fetch water and then have no time

concern. Since 2010 OSU and UGB faculty have been implementing academic, research and service programs at UGB focused on establishing a trained workforce in food security and agribusiness to increase the region's self-sufficiency and economic viability.

Partnership accomplishments include:

- Collaboration between the Regional Development Agency and two UGB faculty members to develop a program in the Senegal River Valley region for agricultural training, research and extension
- Purchase and demonstration of a mechanical transplanter which will enable small farmers to more than triple the speed with which they plant tomatoes
- Approval by the Senegal Ministry of Higher Education of the curricula for the new Associate and Bachelor of Science degree programs in Agronomy and Crop Production
- New UGB Internship program in which 84 students participated
- The piloting of a Soil Ecology course

The awards ceremony highlighted the work that members of the OSU community are doing to promote the land-grant model concept of community outreach and engagement.

HED Partnership in Mali Leaves Legacy for Better Health Practices



From left to right: Keriba Coulibaly, Hawa Coulibaly, and Wendy Nickisch sample anopheline mosquito larvae near

to go to school.”

With a keen interest in water issues paired with research skills and an understanding of how limited natural resources influence lives, the EIWR students are in a favorable position to discover practical solutions. Yared speaks passionately about her enthusiasm for teaching, women's education, and her dissertation, “Downstream Environment and Economic Issues in Omo-Ghibe River Basin.” The WREM program represents a step toward the realization of her personal and professional advancement. Yared is clear about her goals: “I want to improve my education level. Once you improve the education level, your understanding improves.”

EIWR has established a system in which field work is done in teams to enable fruitful discourse between master's level and doctoral students, according to U.S. partnership director Mekonnen Gebremichael. Using this approach, students teach and learn from one another as they focus on specific river basin issues. “They have to work very closely together. They need each other,” said Gebremichael. In addition, the collaborative experience between the men and women on one team was an unexpected benefit. “The side product is that since the women are working in this together, they are getting a lot of support,” he said. “That was not an intentional plan, but it is working very well.”

Although only four female students are participating in the WREM program, Gebremichael is confident

the Zangolo River Channel in Mali.
Photo Credit – Montana State University

An [HED partnership](#) between Montana State University (MSU) and Mali's L'Institut d'Economie Rurale (IER) and L'Institut Polytechnique Rural de Formation et de Recherche Appliquée continues to positively impact the citizens of Sanambele, Mali, long after the partnership concluded by contributing to a decrease in malaria-related deaths.

According to a Spring 2013 article published in *American Entomologist*, co-authored by the former partnership director at MSU, Sanambele has experienced no malaria-related deaths since 2009 in part because of the teachings and practices established by the Mali Agri-Business Center (Mali ABC), founded in 2007 by seven students participating in the original HED partnership.

Over the course of two years, Mali ABC promoted a holistic process that fused traditional knowledge, Western science, and micro-enterprise to enhance malaria management. With assistance from Mali ABC, villagers developed a plan to address the factors needed to effectively manage incidents of malaria. This plan incorporated a deeper understanding of the malaria cycle, mosquito breeding habitats, and an economic strategy to provide bed nets for villagers.

The article written by Professor Florence Dunkel of MSU and Keriba Coulibaly, a Malian student who participated in the original HED partnership, is now assigned reading for several courses at MSU's College of Agriculture.

Students Complete MBA Program at SCSU and Return to Burundi to Strengthen Agricultural Development

Three students from the Republic of Burundi have received their Master of Business Administration in agribusiness degrees as a result of an HED partnership between [Ngozi University and South Carolina State University \(SCSU\)](#).

Eric Uwimana, Desiree Hakizimana and Emmanuel Bizimana graduated with distinction on May 10 and returned to Burundi where they plan to teach the newly

about the diversity of subsequent enrollees because of the partnership's current extension work throughout Ethiopia. The institute attracted 15 female and 31 male engineering, health, and social sciences undergraduates for a two month summer outreach program, which provides them with a nurturing setting. During the summer program, students live in local rural areas to gain a better understanding of a community's major obstacles. With a higher number of females involved at the undergraduate level, Gebremichael said he is optimistic about more women being included in WREM's next class.

The women in the WREM program say they are not looking for any special treatment or women-only programs. "Our institute is good." said Eshetu, who is working on her dissertation, titled "The Application of Remote Sensing for Irrigation and Water Management." "All the institute work is collaborative. I personally don't want a class that is separate for me. I want to sit with the guys and compete."

[Read the partnership profile for more information.](#)

USAID Funding Opportunities (Non-HED)

HED has posted several Requests for Proposals or Requests for Applications from the U.S. Agency for International Development to its website. Please correspond directly with the contact person identified in each announcement if you have any questions.

created curriculum at Ngozi University.

This partnership established the first agribusiness program in Burundi in December 2009, helped build teaching capacity, and established new experimental research stations.

The recent graduates were featured in the *Times and Democrat* newspaper. To read more click [here](#).

2iE Team Wins Global Social Venture Competition



HED congratulates partner institution, International Institute for Water and Environmental Engineering (2iE), for taking top honors at the Global Social Venture Competition.

The 2iE team won the First Award and the People's Choice Award for creating FASO Soap, an accessible and low-cost solution to prevent malaria that acts as a repellent against mosquitos. FASO Soap is made from natural ingredients local to Burkina Faso and does not require a change in behavior or substantial cost to citizens to prevent the potentially fatal disease.

2iE's HED partnership with Tuskegee University is focused on establishing a network of centers of excellence in water and environmental science and technology at three higher education institutions in Africa. Johanna Niedzialkowski, communications manager for 2iE, stated that HED is one of the university's key partners in developing research programs.

To learn more about the team's win, click [here](#).

To learn more about the HED partnership, click [here](#).

To learn more about these funding opportunities, click [here](#).

Call for Interns

HED seeks part-time interns to work with its

Communications, Programs, and Program Quality and Impact teams during the summer of 2013. Visit the American Council on Education website for additional [details](#).

Editor:

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*If you have a partnership update or an upcoming event that you would like to see highlighted in the next HED Newsletter, please send an email to **Thomas Forrest** at **Tforrest@hedprogram.org**. Feedback and suggestions for improving the HED Newsletter are also welcome. We look forward to hearing from you!*

HED Partnership Launches First Pilot SBDC Center in Honduras

The International Trade Center at The University of Texas at San Antonio (UTSA) Institute of Economic Development partnered with the Central American University Consortium to launch the first pilot small business development center (SBDC) in Choluteca, Honduras on May 16. Attendees included the Honduran Government Vice President María Antonieta Guillén, Minister of Industry and Commerce Jose Adonis Lavaire and Minister of Planning and External Cooperation Julio Raudales. HED Senior Program Specialist Manny Sánchez, HED Program Officer Diana Páez-Cook, UTSA Associate Vice President for Economic Development Robert McKinley and International Trade Center International Business Consultant Minerva Garcia were also in attendance.

The center will assist entrepreneurs in developing business strategies, financial planning and sustainability to empower the strong entrepreneurial drive that exists in Latin America through sustainable education and implementation of the SBDC model.

The network of SBDCs throughout Central America will be linked with one another as well as with existing SBDC programs in the United States, Colombia, and Peru to facilitate knowledge transfer via best practices, connect their clients to international trade opportunities and nurture sustainability by guiding policy development for national-level and regional implementation of the SBDC model.

This collaboration seeks to leverage the SBDC model to foster the development of productive micro and small enterprises and greater economic stability, thus addressing some of the underlying developmental issues that contribute to regional challenges.

To learn more about the launch, click [here](#).

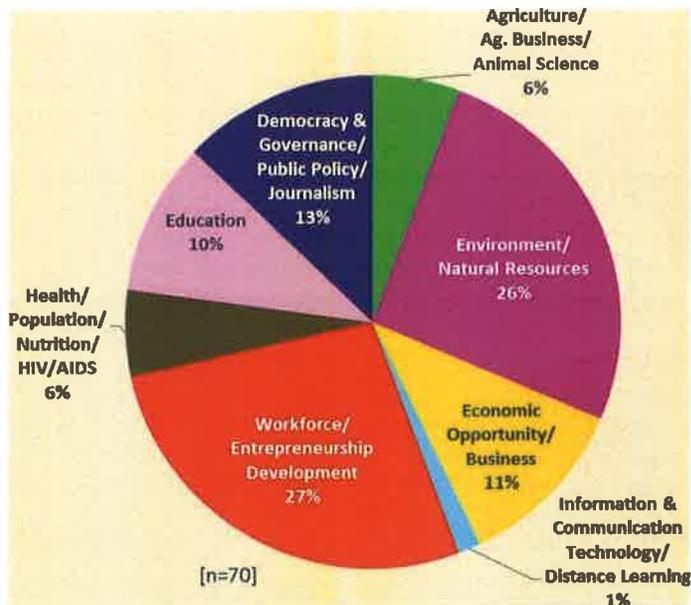
To learn more about the partnership, click [here](#).

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Fact at a Glance

Percent of HED Partnerships, by USAID Sector: FY2012



In FY2012, HED managed 70 active partnerships around the world. The chart illustrates the percentage of HED partnerships in each of the primary USAID sectors.

Higher Education for Development (HED) promotes higher education's engagement in international development through institutional and human capacity building in developing countries. Established in 1992 as the Association Liaison Office for University Cooperation in Development (ALOD), HED assists the nation's six major higher education associations in partnering with the U.S. Agency for International Development (USAID).

To OPT-OUT of receiving additional information about HED's Partnership Initiatives or to specify which type(s) of information you would like to receive, please follow the "UPDATE PROFILE" link below.

Our mailing address is:
Higher Education for Development, One Dupont Circle NW, Suite 420, Washington DC 20036
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The partners shared the following success stories with HED:

SUCCESS STORY 1: Burundi Students Complete MBA Degrees at SC State

Students from the Republic of Burundi who received their MBA degrees in agribusiness with distinction at their commencement ceremony at S.C. State University are Desiree Hakizimana, Eric Uwimana and Emmanuel Bizimana. A local newspaper: *The Times and Democrat* noted their achievements. View the article, “**A Success Story: Burundi students complete MBA degrees at S.C. State,**” at http://thetandd.com/news/local/burundi-students-complete-mba-degrees-at-s-c-state/article_6579dcec-b9f0-11e2-87ca-0019bb2963f4.html

SUCCESS STORY 2: Impact on Farmers' Income

Ikangure Dukore Ibirama is a rural community farmers group of 215 associations of small scale limited resource fruit and vegetable producers with a membership of 6,220 (2,073 males and 4,147 females) in Vyegwa and Ngozi Provinces. They are limited in their ability to produce good quality diverse varieties of fruits and vegetables for their local market and family consumption. Fruit and vegetable production in the region received much interest in early 2009 due to an increase in promotion of quality food, nutrition and a healthy balanced diet. Thus, an increase in demand and high prices were received. Fruit and vegetable production has historically been less than an average production in that part of the region. Vyegwa accounted for less than 1/5 of hectare planted per farmer. The Ikangure Dukore Ibirama Association of small scale fruit and vegetable producers needed updated information on new suitable varieties, production practices, new technologies and marketing strategies.

The Ikangure Dukore Ibirama Association of small scale fruit and vegetable producers in Vyegwa received production practices, new and improved high quality fruit and vegetable varieties as well as research results information from the SCSU-Ngozi University Partnership for the Strengthening Education Capacity and Rural Development Project Extension and Outreach Service. The Association also requested hands-on training and field day demonstration plots for visual comparisons. The field demonstration plots were established at the Ngozi University site for producers to visit. A selected group of 215 small scale farmers (one member from each association) attended a series of production practices, variety selection training sessions, field days and hands-on demonstrations to see and learn about the varieties from SCSU-Ngozi University partners, researchers and field agents. The group also discussed the market situation, marketing strategies, and food and nutrition issues at the training events.

In the middle of 2010, the Association received 215 hectares of agricultural land from the Ngozi Province, which they prepared and planted in early 2011 with selected pineapples, mangoes, and papayas varieties of plants based on visual and statistical information gathered during field days. The Association scheduled fieldwork, weed control, and integrated pest management training for its members with the assistance of the SCSU-Ngozi University partners, researchers and field agents every Wednesday from sun up to sun down. In 2012, the Association had their first harvest; 75% of the total harvested fruits were sold to regional small scale juice producers, 15% at the local Ngozi market, 5% at road side market and 5% for family member consumption. Ninety-five percent (95%) of the total harvest yielded 1.5 million francs BU or equivalent of \$1,500.00 US dollars. In 2013 the Association harvested and sold double the return of 2012. So far, 3 million francs (BU) worth of fruits or the equivalent of \$3,000 U.S. dollars has been sold.

Many of the long-time producers have shared they saw a more helpful and responsive effort from the SC State-Ngozi University Partnership Project researchers and field agents. Last, but not least, the project helped them increase productivity and marketability of their fruits and vegetables. The president of the Association stated, "Let's wake up for durable and sustainable development for the Vyegwa Community. We chose the name for the Association because we want to be able to provide quality education to our children, health care and decent shelter for our families." The return of their hard labor and determination coupled with the assistance from the project provided them with peace of mind. Their future plan is to be able to own a small juice processing plant and produce juice from locally grown fruits with their label.

SUCCESS STORY 3: Disaster Relief Supply Chain Optimization and Simulation for Rural Communities

When natural disasters occur, rural communities often depend upon local, state and federal governments to distribute relief supplies such as water, food and medicine to the affected areas in a timely manner. It is challenging for the government to deliver disaster supplies to rural communities because residents have limited transportation and financial means.



Emmanuel Bizimana: On Track to Become a Researcher

Bizimana assists in designing, developing and improving current disaster relief plans when catastrophic events occur in rural communities. For this research, Bizimana helps determine the best location for the disaster relief centers, where and at what level to stock the inventories and determine the best plan to stock inventory.

Bizimana also assists in developing the simulation model for the disaster relief supply chain. He also estimates and forecasts how the government and rural communities can benefit from the disaster relief supply plan by helping the maximum number of people at the lowest cost possible. Bizimana performs literature reviews and corrects online data related to their research.

“Accompanying Dr. Feng on this research project is important to me because it will help improve my research capabilities since I plan on pursuing a Ph.D. after I graduate and will continue to concentrate on research,” said Bizimana. He is currently in his final year of a two-year transfer MBA program in agribusiness, where he, along with two other students from Burundi, Africa transferred to SC State to obtain a MBA in agribusiness.

He and his peers are participants in an international transfer program between SC State University and Ngozi University (NU), Burundi that country’s first private university founded in 1999. As a result of the partnership, the two universities developed NU’s first ever agribusiness program, with hopes to build students careers, develop knowledge for solving farming problems in the poverty stricken region and to help boost internationalization efforts at SC State.

After completing the program, Bizimana will return to Ngozi University, where he will help assist with teaching agribusiness courses to Ngozi University students. “Emmanuel is eager to learn and eager to work with me. When I assign work to Emmanuel, he finishes the work on time. He has a great attitude for research [especially] since he wants to become a Ph.D. student in the future. Being exposed to all of the process of research will benefit him a lot. Knowing the general process for research, he can come back and conduct his own research,” said Feng.

Appendix B: Request for Applications (RFA)



Request for Applications (RFA): Collaborative Partnerships – Burundi

Strengthening Rural Agriculture Development

Date Issued: April 29, 2008
Closing Date: July 28, 2008

HED anticipates making **one (1) award**, contingent on the availability of USAID funding, of up to **\$450,000** for a **three-year** partnership with the University of Ngozi to strengthen its capacity for teaching, applied research, and agricultural extension.

For clarification or questions regarding this RFA, please contact Josh Henson at (202) 243-7690 or jhenson@hedprogram.org.

Background
 Context
 Partnership Description
 Eligibility
 Application Review Guidelines
 Application Format, Submission, and Review
 Terms of the Solicitation
 Frequently Asked Questions (FAQs)

Background

Higher Education for Development and U.S. Agency for International Development

Higher Education for Development (HED) mobilizes the expertise and resources of the higher education community to address global development challenges. HED accomplishes this by administering a cooperative agreement (AEG-A-00-05-00007-00) sponsored by the United States Agency for International Development (USAID). The Leader with Associate Cooperative Agreement, signed in September 2005, allows HED to manage a competitive awards process to access expertise within the higher education community in coordination with the American Council on Education (ACE), the American Association of Community Colleges (AACC), the American Association of State Colleges and Universities (AASCU), the Association of American Universities (AAU), the National Association of Independent Colleges and Universities (NAICU), and the National Association of State Universities and Land-Grant Colleges (NASULGC).

Funding by USAID's Bureau for Economic Growth, Agriculture and Trade, Office of Education (EGAT/ED), as well as USAID's functional and regional Bureaus and worldwide Missions, supports higher education partnerships to advance global development, economic growth, good governance, and healthy societies. These partnerships provide training, applied research, program evaluation, policy analysis, and program implementation, which are critical to promote USAID's foreign assistance goals. More information on USAID and its role in economic and humanitarian assistance worldwide over the past 40 years is available on our website.

Context

Burundi is a small, rural East African country with approximately 7.1 million people according to 2004 estimates. More than 90 percent of the population is engaged in agriculture. Traditional cash crops include coffee, tea, cotton, palm oil, tobacco, and sugar cane. These crops represented 80 percent of Burundi's export earnings in 2005 according to a Government of Burundi Poverty Reduction Strategy Paper from Sept. 2006. While agriculture is considered the main contributor to Burundi's economy, the sector contributed only 34.8 percent of the Gross Domestic Product (GDP) in 2005, a decrease from 57.2% in 1996 according to World Bank statistics.

The main reasons for the decline in the productivity of the agriculture sector are a long civil war, high population density, the HIV/AIDS

pandemic, and the emergence of devastating crop diseases. The war heightened challenges faced by Burundian farmers by reducing access to improved agricultural inputs such as seeds and fertilizers, and by limiting access to extension services. The war also affected access to credit, markets, market information, and improved technology. A chronic lack of extension and community services and a lack of conservation and transformation technologies also have impaired farmers' abilities and motivation to increase agricultural production.

Given the predominance of agriculture as a source of rural livelihoods in Burundi, USAID is supporting an agribusiness strategy with the goal to diversify rural economies. (USAID Burundi's agribusiness programs support select competitive value chains that are projected to yield significant economic results while contributing to: improved natural resources governance, expanded micro-enterprises opportunities for rural farmers, and strengthened local, regional and international markets.) USAID/ Burundi is in the process of establishing a Development Credit Authority loan portfolio guarantee that will enable targeted lending to USAID-assisted agro-enterprises and farmers to allow them to increase production, improve value-added processing, and increase access to markets.

Partnership Description

This higher education partnership will support USAID/Burundi's strategy by improving teaching, research, and outreach. USAID Burundi has identified a private, rural higher education institution, Ngozi University, as the partner for this collaborative effort as a way to strengthen the capacity of faculty and students to help improve rural livelihoods.

USAID/Burundi encourages U.S. universities with expertise in applied agricultural research, extension, and agribusiness to apply for this partnership award. The University of Ngozi is a private higher education institution accredited by the Ministry of Education and Scientific Research. In less than 10 years, the University has recruited qualified faculty to offer undergraduate degrees in agronomy, medicine, health sciences, law, computer science and technologies.

This partnership will focus on the University's Agronomy Department and on the Center for Agricultural and Rural Development Research (Centre de Recherche en Agriculture et Développement Rural, or CERADER), an agricultural research and development center that promotes experimental approaches to improve farm management and crop production. This Center deals most directly with agricultural production as the key economic activity for the rural area surrounding the university. Other departments on campus, however, may also be involved in the partnership to the extent that their participation results in more effective student learning, applied research, and outreach programs that engage students and university programs with the rural communities surrounding the university.

CERADER has received support from USAID for research on land tenure and land conflicts in the Ngozi area. An institutional capacity and needs statement prepared by Ngozi University is available to download.

A key aspect of this partnership will be to strengthen the capacity of Ngozi University to engage more fully with small businesses and other grass roots rural development entities to address persistent rural poverty. A priority will be to improve livelihoods in rural areas through direct engagement of university students and staff in addressing social, economic and physical constraints to increased production, conservation, and marketing of agricultural and non-agricultural products. This engagement requires a focus on enhancing the existing curriculum, as well as supporting applied research, and promoting outreach programs.

Partnership Goal

The goal of the project is to improve the capacity of Ngozi University to contribute to rural development in the region through its Department of Agronomy and the Center for Agricultural and Rural Development Research by enhancing student learning, and increasing the capacity to conduct applied research, engage in community outreach, and provide agricultural extension services to small farmers and their communities.

This partnership will help prepare university students for careers in agribusiness by providing an applied curriculum with multiple experiential internships with entrepreneurs and enterprises active in Burundi's agricultural sector.

Partnership Objectives

As a result of this partnership with Ngozi University:

- Improved curriculum will better prepare students to address rural development issues through work with NGOs, agribusinesses, and other local, community organizations.

- The revised curriculum will include courses related to entrepreneurial skills.

- Improved teaching methods including short courses, case studies and internship experiences will better prepare the next generation of agro-entrepreneurs with the competencies to diversify Burundian agribusiness and promote sustainable economic growth.

- Improved student experiential learning will result from structured student academic assignments with NGOs, agribusinesses, and grass roots community organizations.

- Ngozi faculty will have the requisite skills and knowledge to teach courses on needs assessments, rural development analyses, and program planning, implementation, delivery, and evaluation based on appropriate social science research and outreach

methods.

The needs of rural communities and small farmers will be identified through applied research studies by students and collaborating faculty partners.

Ngozi University teaching, research, and extension will develop closer links with Burundian private sector agribusiness enterprises.

Improved quality of life for rural citizens will result from community-based extension and/or public service projects that establish links between the University and rural communities.

Key Considerations

Applications should demonstrate that partnership personnel from the U.S. institution(s) can operate in French since it is the language of communication, instruction, and discussion at Ngozi University.

Use of USAID funding for infrastructure development is not permitted as part of this project, however, in-kind donations of library materials, computers, software, textbooks, journals, laboratory equipment and other resources from the U.S. partners are encouraged. Applicants are also encouraged to seek support from the private sector and other sources.

The application must describe a monitoring and reporting plan for the partnership, including an initial baseline assessment, that shows how progress towards objectives and outcomes of partnership activities will be measured; and, an end-of-partnership impact assessment plan included.

Contact Information

The following USAID/Burundi staff member may be contacted for further information on this collaborative partnership:

Alice Nibitanga
Tel: 00-257-22-24-36-25
Mobile: 00-257-(0)-77-760-942
E-mail: Nibitangaa@state.gov

Eligibility

HED welcomes applications from the member institutions of ACE, AACC, AASCU, AAU, NAICU, and NASULGC, and from other regionally accredited, degree granting, U.S. higher education institutions. U.S. colleges and universities may apply individually, or in partnership with each other. HED encourages applications from or with the participation of minority-serving institutions.

Application Review Guidelines

Peer reviewers will use the following criteria to evaluate the applications:

I. Partnership Goals and Objectives (20 points)

Alignment of proposed partnership activities and outcomes with the goal and objectives stated in the RFA.
Demonstrated understanding of the current status of small farm agriculture and related rural life in Burundi.

II. Partnership Design and Activities (40 points)

Evidence of collaborative plans to modernize the curriculum to better prepare students to address rural development issues.
Adequate plan to develop faculty skills and knowledge related to planned curriculum improvements.
Evidence of plans to improve faculty social science research and applied agriculture research skills.
Evidence of partnership opportunities that enhance faculty overall pedagogical skills.
Evidence that the partnership will engage in applied research related to the needs of rural farmers and agrarian communities.
Feasible plan to identify and implement student experiential learning activities through work with small farmers, NGOs, agribusinesses and grass roots community organizations.
Demonstrated plans for community-based extension and/or public service projects related to the objectives of this RFA.
Evidence that the partnership will enhance the links between Ngozi University and rural farmers and Burundian private sector agribusiness enterprises.

III. Key Personnel, Institutional Commitment, and Collaboration (20 points)

Professional credentials and expertise of the U.S. partner in applied agricultural research and rural development relevant to Burundi and /or other African countries with a similar context.
 Experience of the U.S. partner with the development and management of extension services in the higher education context.
 Evidence of institutional commitment (engagement of faculty, students and administrators) among all partners in the United States and Burundi.
 Demonstrated experience of partners to engage university expertise in poverty alleviation programs involving small farmers, poor rural communities, financial institutions and agribusinesses.

IV. Cost Sharing and Cost Effectiveness of Overall Budget (10 points)

Quality and degree of cost sharing (recommended at 25% of the award amount), including expected cash or in-kind contribution from all the partners.
 Demonstrated cost-effectiveness in program design; and equitable distribution of funds between the U.S. university and Ngozi University partners.

V. Monitoring and Reporting Plan (10 points)

Evidence of valid and reliable methodology to collect baseline data, monitor partnership activities and progress, and report outcomes.
 Clearly articulated plan for an external evaluation to assess the partnership's impact.

Total Points: 100 points

Application Format, Submission and Review

Application Format
 How to Submit an Application
 Peer Review

Application Format

Please provide the contents of the application in the following order:

1. Title Page (Please complete HED form in full and obtain signatures of authorized officials.)
2. Table of Contents
3. Abstract (not to exceed 3 typed, double-spaced pages, 12-point font, 1-inch margins). The abstract should contain a summary of the narrative, workplan and budget.
4. Narrative (not to exceed 20 typed, double-spaced pages, 12-point font, 1-inch margins) Address the criteria listed in Application Review Guidelines I-V (see above).
5. The 20-page application must describe a monitoring and reporting plan for the partnership, including an initial baseline assessment, that shows how progress and results will be communicated and reported to USAID through HED.
6. Appendices (Attachments beyond the stated appendices will not be read nor taken into consideration):
 - * Annual workplan for the funding period (Use HED form).
 - * Budget forms (Use HED form. Complete all SEVEN tabs).
 - * Résumés of the proposed U.S. institution director(s) and host institution personnel, not to exceed 2 one-sided pages per person.
 - * Signed letters of support from the presidents, chancellors, or other chief executive officers of the cooperating institution in the United States.
 - * Signed letters of support from appropriate university leaders of the overseas partner institution as well as partnership directors. University leaders from the overseas partner may include deans, rectors, or university presidents.
 - * Signed letter from appropriate official at applicant institution verifying that all costs cited conform to established institutional policies and practices.

How to Submit an Application

Applications must be received at HED by 5:00PM, Eastern Time (ET), July 28, 2008. Faxed or electronically transmitted applications will not be accepted. All elements of the application must be received by the deadline. HED recognizes that original, signed

cover letters and letters of support from overseas partners may be subject to delays due to factors beyond the applicant's control. Only in these exceptional cases, faxed or scanned copies of the application title page and letters that include all necessary signatures may be submitted in the application, provided signed originals are received at HED within seven (7) calendar days of the deadline.

Applicants should submit the original application plus seven (7) hard copies of the complete application package containing title page, table of contents, abstract, narrative, and appendices (all on loose-leaf paper, clipped together — no three-ring binders, staples, or plastic bindings), and a diskette or CD (with files saved as Microsoft Word/Excel for PC) containing the entire application, including all budget forms, budget narrative, and other appendices.

Applications should be sent to: (*NOTE: This is a NEW address)

Collaborative Partnership: Burundi
Higher Education for Development
1 Dupont Circle NW, Suite 420
Washington, D.C. 20036-1193

Once an application has been received, there is to be no contact with the HED program office until the completion of the peer review process in order to ensure fairness to all parties concerned.

Peer Review

Applications will be reviewed by expert panelists, which include representatives from higher education, international development, and USAID. Awards will be made on the basis of reviewers' recommendations of merit, and USAID. Peer review of applications is slated for early August.

Letters of communication from members of the U.S. Congress in support of an application are discouraged as these may be thought to prejudice the peer-review process. Such letters will not be forwarded to peer reviewers.

Notification about awards is expected following the completion of peer review. Upon final announcement of awards, the person named in the application as partnership director may submit a written request for copies of the peer reviewers' scores for the application. No personal reviews will be granted, and no comparative score tabulations will be shared.

Terms of the Solicitation

Cost Share
Execution of Awards
Post Award Briefings
TraiNet Requirements
Health and Accident Insurance
Reporting

Cost Share

The minimum suggested total cost share from all U.S. partners is 25 percent of the award amount. Reported cost share must be auditable. Non-auditable contributions may not be used to meet the minimum, but can be indicated separately and attached to the budget detail form.

Higher education institutions are encouraged to leverage support from the private sector in addition to the cost sharing provided by their institutions. Applicants should itemize all cost sharing and in-kind contributions.

Cash and in-kind contributions will be accepted as part of the applicant's cost sharing when such contributions are: (a) verifiable from the applicant's records; (b) not included as contributions for any other federally-assisted program; (c) reasonable for the accomplishment of partnership objectives; and (d) not paid by the federal government under another grant.

In-kind contributions may include, but are not limited to: waivers of tuition and fees for students participating in academic exchanges; donation of library and classroom materials to the partner; ICT infrastructure and Internet Service Provider subscription subsidy for the partner and exchange students; faculty salaries; travel and/or per diem for faculty and administrators to participate in professional exchange and development programs; and indirect costs.

Execution of Awards

Awards will be executed as sub-agreements between the designated U.S. university, college, community college, or consortium, and

the American Council on Education (ACE), through the Higher Education for Development (HED) office, under USAID Cooperative Agreement AEG-A-00-05-00007-00. The institution recommended for award will receive a draft version of the sub-agreements to review. The award recipient will be expected to submit a marking plan related to USAID branding as part of the sub-agreement that clearly indicates the support provided by USAID for activities conducted under the award.

Please note that no award nor cost share funds may be expended prior to a fully executed (i.e., signed by both parties) sub-agreement between ACE and the designated U.S. institution unless pre-award expenses have been approved as a part of the negotiation of the sub-award. Activities are expected to commence immediately after the sub-agreement is executed.

Award funds will be disbursed to the designated U.S. university, college, community college, or consortium, based on the applicant's implementation of the work plan, stated budget, and submission to HED of financial, tax, and narrative progress reports. It is the designated U.S. institution's responsibility to provide disbursements (reimbursements) for its collaborating partner(s) in accordance with the agreed-upon activity schedule and budget.

Post Award Briefings

Partnership directors, and/or their designees, are required to participate in two post-award briefings. The first briefing, conducted in a virtual format, will review reporting, monitoring and evaluation requirements. The second briefing via a conference call will address general requirements of the award.

TraiNet Requirements

To comply with the Department of Homeland Security, U.S. Citizenship and Immigration Services (USCIS), Department of State, and USAID regulations regarding tracking and monitoring of Exchange Visitors, foreign nationals whose costs are paid, fully or partially, directly or indirectly using USAID program funds for training, non-training, and invitational travel, must enter the U.S. on a J-1 visa (non-immigrant Exchange Visitor visa) processed under one of USAID's two program numbers, unless otherwise waived according to the procedure in ADS 252.3. J-2 visa applications for family members are not supported per USAID policy.

USAID expects that all DS-2019 documents (paperwork needed for J visas) and in-country or third country training be processed through the USAID Training, Results and Information Network (TraiNet) system. Institutions may not directly access the Student and Exchange Visitor Information System (SEVIS) to issue DS-2019 documents internally. Information regarding USAID's J-1 visa requirements may be found online at the Participant Training website. Administrators must adhere to the regulations detailed under TraiNet, Visa Compliance System (VCS), the Student Exchange Visitor Information System (SEVIS), and USAID's Automated Directives System (ADS) 252-Visa Compliance for Exchange Visitors, and 253-Training for Development. U.S. institutions should allow up to 12 weeks for the processing of visas when planning activities in the United States.

TraiNet management requires a significant commitment of staff time and applicants are encouraged to take this into consideration when developing the program budget.

USAID Health and Accident Coverage (HAC) Insurance Program

The U.S. institution is responsible for enrolling each participant traveling to the United States or a third country in the official USAID Health and Accident Coverage (HAC) insurance program. Participants entering the United States on J-1 visas are required to obtain HAC from the official USAID vendor. Institutions may not use award funds to cover their own institutional HAC insurance. More information on the USAID HAC insurance program is available online. The cost of HAC for participants must be included in the budget.

Reporting

Awardees will be required to submit to HED:

- Financial reports are due quarterly to record expenditures for the following periods: Jan. 1-March 31, April 1-June 30, July 1-Sept. 30, and Oct. 1-Dec. 31;
- Semi-annual narrative progress reports for the following reporting periods may be sent via e-mail: April 1-September 30 and Oct. 1-March 30;
- Both financial reports and semi-annual progress reports are due within one-month after the corresponding reporting period closes: Jan. 31, April 30, July 31, and Oct. 31;
- A final narrative report (due 30 days after the conclusion of program activities); and,
- Final financial reports (due no later than 90 days after the sub-agreement closing date).

Frequently Asked Questions (FAQs)

Q: Should we contact anyone at Ngozi University?

A: USAID/Burundi will be the primary contact for this RFA. Applicants should contact Alice Nibitanga (Tel: 00-257-22-24-36-25 , E-mail: Nibitangaa@state.gov) first before contacting Dr. Déo-Guide Rurema at Ngozi University (Tel: 00-257-22 30 22 59 , E-mail: dguide@hotmail.com).

Appendix C: South Carolina State University's Final Partnership Report



| a new state of mind

**SOUTH CAROLINA
STATE UNIVERSITY**

Research Bulletin



**UNIVERSITE
DE NGOZI**

JUNE 2013

**SC State ~ Ngozi University Partnership for Strengthening Educational
Capacity and Rural Development**

BY

David Karemera, Ph.D.
Professor of Economics
Project Director

In Cooperation with Higher Education for Development (HED)

Under the Associate Cooperative Agreement EDH-A-00-08-00028-00 between

USAID and ACE/HED

“Any opinions, findings, conclusions, recommendations expressed in this publication are those of the authors and do not necessarily reflect the view of HED or USAID.”

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1890 Research and Extension Program
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SCSU ~ NGOZI UNIVERSITY PARTNERSHIP FOR STRENGTHENING EDUCATIONAL CAPACITY AND RURAL DEVELOPMENT

Funded By:

Implemented By:



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SOUTH CAROLINA
STATE UNIVERSITY

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The implementation team, partners, and stakeholders wish to thank the Higher Education Development agency for the grant award to South Carolina State University (SCSU). Indeed, the Higher Education for Development (HED) agency of the American Council on Education provided funding for the project under Cooperative Agreement no EDH-A-00-08-00028-00 with United States Agency for International Development (USAID).

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FA CULTED'AGRONOMIE ET AGRIBUSINESS Students

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ADDITIONAL APPENDIX: Policy Proposal for Burundi rural development

SC State ~ Ngozi University Partnership for Strengthening Educational Capacity and Rural Development

Section I: EXECUTIVE SUMMARY

South Carolina State University (SC State) and Ngozi University (NU) partnered to strengthen NU's educational capacity and spur rural development in Ngozi province in Burundi, Africa. The joint effort promoted educational opportunities, enhanced agricultural research and led to improved academic curriculum and academic standards. A team of scholars from SC State, North Dakota State University (NDSU), and Ngozi University came together to work with Burundian educators on the project goals.

During the period February 2009 to May 31, 2013, financial support from the United States Agency for International Development (USAID) through the Higher Education Development (HED) agency of the American Council on Education supported project initiatives. A partnership between SC State and NU was created through NU's Agronomy Department and its research center. The general objectives of the partnership were to strengthen NU's capacity to teach, conduct academic research and experiential learning, as well as contribute to rural development by providing extension and outreach services to small farmers and rural communities.

A baseline assessment of basic Ngozi University needs was completed and used to identify and implement specific development activities through the partnership. Specific objectives were achieved as follows: 1) built a long term partnership between South Carolina State University; 2) improved NU academic curriculum that includes applied courses for strengthening agribusiness and entrepreneurial skills; 3) created innovative teaching methods that includes applied agribusiness courses and case studies relevant to Burundi's situation in order to develop competencies in entrepreneurship, agribusiness, and the trade sectors; 4) strengthened experimental research stations for fruits, vegetables, and rice; and 5) developed a joint collaborative teaching program that will ensure faculty at NU Agronomy department and "Centre de recherche de l'agriculture et du développement rural (CERADER)" acquire knowledge to teach and conduct basic applied research in agribusiness and entrepreneurship. The first student exchange program between SC State and Burundi through NU was successfully completed. Major achievements of the Partnership are summarized as follows;

PART I: Strengthened Academic Curriculum and Success of Ngozi students at SCSU:

- A) The creation of a new Agribusiness program at Ngozi University: The Department of Agronomy at NU was restructured and renamed Department of Agronomy and Agribusiness (Appendix A). The change in the Ngozi University organizational structure led to the creation of a standing Agribusiness Program that will deliver a joint degree in Agronomy and Agribusiness beginning October 2014.
- B) Completion of 16 Agribusiness and Entrepreneurship courses: During the Partnership period, the implementation of several core Agribusiness courses were completed by the SC State team, third party instructors, and Ngozi University faculty. A list of Agribusiness students, courses and credit hours is provided in Appendix B. In addition to other agribusiness courses, a sample of core Agribusiness courses include: Cost-Benefit Analysis; Agribusiness Strategy, Farm Management, Applied Principles of Economics, Agricultural Production Economics, Crop Marketing and the Introduction to Entrepreneurship. The Appendix C provides a sample of syllabi used.
- C) Success of the Ngozi Student Exchange Program participants and their return to Ngozi University: Three Ngozi students made history at SCSU. During the SCSU-NU foreign student

exchange program, three Ngozi students completed the MBA in Agribusiness and Entrepreneurship at SC State University. One of the 3 students made history by becoming the first SCSU student ever to graduate in its MBA in Agribusiness with a 4.0 GPA without repeating a course (see Figure 7). The students have now returned to Ngozi University and are supporting activities started under the partnership. Despite multiple operational and cultural challenges, the stunning success of the students at SCSU and their timely return to Ngozi University is a testimony of the success of the Partnership.

PART II: Enhanced Experimental Research and Strengthened CERADER activities

The establishment of six experimental research stations for fruits, vegetables and rice has accomplished a key project requirement for improving the nutrition and quality of life of small farmers and rural communities. The linkage between Ngozi University experimental research, extension outreach and services is effectively operational. Ngozi University, through its research center, the CERADER, has identified areas of better seed production and a compact area approach was followed under this program. *Fifty farmers who were suitable and willing were trained (regrouped in a local association) for same crop.* The association and members are selected preferably in compact area/cluster approach. Local cooperatives are now developing in rural areas at Ngozi to receive selected seeds. The crop varieties are normally grown in the villages. Production decisions are made in consultation with the farmers producing same crops.

This Partnership has strengthened Ngozi University's center, commonly known as Research Center in Agriculture and Rural Development (CERADER). As discussed in the results section below, the CERADER has taken the lead to produce, evaluate and select seeds for local adaptation. Quantities of high yielding seeds are retained and distributed to farmers for multiplication.

PART III: Extension and Outreach activities

This Partnership supported the creation of six stations. The six stations are now operational at the Ngozi University campus, Musenyi, and Gatara stations. They are specialized in vegetable and fruit seed selection. Moreover, the Akagoma, Gisha, and Marangara stations are designated for rice seed selection. In those stations, more of than 53 species and varieties were introduced and about twenty species and varieties were retained for seed multiplication (see result section of the report).

Finally, farmer research participation is new. The partnership created Vyegwa stations for the participation and training of farmers. As a result, the Field Farmer's School technique, farmers training and field workshop were used to increase farmer's education and knowledge of modern farming practices and methods. The participative approach used allowed women to participate in seed production techniques. Therefore, this project enhanced the involvement of women in seed multiplication and distribution. During this project, over 60% of the farmers trained were women who belong to local associations.

In summary, the SC State ~ Ngozi University Partnership achieved the stated objectives. The partnership enhanced instructional teaching capacity at Ngozi University, strengthened the academic standards and improved the curriculum with the creation of Burundi's first ever Agribusiness program. The partnership built human capacity to teach Agribusiness courses. The new Agribusiness program which is being supported by returning SCSU MBA graduates. The production of seeds selected for their local adaptation and their distribution to the community is leading to the reduction of hunger and better nutrition in Ngozi province. Thus, the partnership has led to better quality of life for small farmers and rural communities in rural Ngozi province. Quality of life of small farmers and rural communities has improved under the partnership.

PART IV: Study Recommendation and Future initiatives:

The NU agribusiness students are still taking courses and are scheduled to graduate with first degrees in Agribusiness in October 2014. Further, the project covered Ngozi University and surrounding rural Ngozi communities. Large Ngozi communes were not touched by project activities. The Gatara station in Kayanza and another station in Kirundo were only included as pilot rural development activities. Thus, the researchers, based on their experience with Ngozi University recommended the following:

- HED and USAID find ways and means to continue to support the Agribusiness course offering until the first Agribusiness degrees are delivered in October 2014. The few remaining courses that may not be taught by NU instructors can be taught by the third party country instructors with cost effectiveness.
- The seed distribution should be continued and expanded to cover entire Burundi. Her Excellence, the former US Ambassador to Burundi, Pamela Slutz was interested in the expansion of the seed component of the project, “I am particularly interested in the seed component of the project. From everything I have heard Burundi has an acute shortage of seed for both vegetables and cereal crops, especially a lack of hybrid varieties that are higher-yielding.

I have been in contact with the Alliance for a Green Revolution in Africa (AGRA) and they would be interested in working with the Burundian private sector (defined as small farmers and businesses) to produce and/or distribute better-quality seeds to farmers in Burundi. Have you, in your work in Burundi, come across any Burundian entrepreneurs who are engaged in seed production or trade? If you are not familiar with AGRA the website is: www.agra-alliance.org.

I am also curious as to whether or not your seed program in Burundi could be expanded to include cooperation with some farmers’ cooperatives and small private companies in Burundi – to support the production and distribution of seed in Burundi.”

The seed program, if continued and expanded, can alleviate poverty and totally eliminate hunger in whole Burundi. Therefore, the seed program, and the farmer training and workshop modules should be organized to cover all northern Burundi (Ngozi, Kayanza and Kirundo) and move southward and eventually cover all of Burundi.

- Won Koo of North Dakota State University, a known rural development expert has proposed a policy recommendation for rural economic development in Burundi. The full policy recommendation is attached the report under additional Appendix attachment.
- The stunning success of the SCSU-Ngozi student exchange program and the timely return of the graduates to Ngozi University is a model that needs to be continued. It could be expanded to include practical not theoretical training of extension specialists. Such a program could offer continued farmer education and training for the country.

**SC State ~ Ngozi University Partnership for Strengthening Educational Capacity and Rural
Development**

SECTION II: Academics and student exchange program

The Ngozi University Academic and Student Exchange Programs under the Partnership

1) BACKGROUND:

PROJECT LOCATION AND BURUNDI ECONOMIC CHARACTERISTICS



Figure 1: The republic of Burundi.

The republic of Burundi covers 10,745 square miles with a population 8.38 million people (2010 census), 2.9% population growth rate and population density of 845 people per square mile and per capita income of \$176.60 US\$. Burundi enjoys a tropical climate with two dry seasons (June to August and December to January), and two rainy seasons (February to May September to November). Its major agriculture products are bananas, corn, cotton, maniocs, sorghum, sweet potatoes, coffee, tea, milk and beef. In 2005, annual crop land was estimated at 3,527 square miles. Fruit, vegetables and rice are not among the major agricultural products.

The SC State – NU Partnership offers opportunity to strengthen vegetable and fruits and rice production capacity for small scale limited resources farmers. The focus area was limited to Ngozi and Kayanza provinces, but more specifically to Ngozi city and surrounding communities of Akagoma, Gisha, Musenyi and Marangara in Ngozi province and only Gatara and surrounding communities in Kayanza province. Ngozi and Kayanza provinces, highlighted in Green in figure 1, provinces together represent the majority of Burundi’s agricultural fertile soil.

PART I: PARTNERSHIP OVERVIEW

A) Description of partnership context and final partnership objectives

South Carolina State University (SC State) and Ngozi University (NU) partnered to strengthen NU's educational capacity and spur rural development in Ngozi province, Burundi. The joint effort promoted educational opportunities, enhanced agricultural research, and led to improved academic curriculum and teaching standards. A team of scholars from two United States institutions, SCSU and North Dakota State University (NDSU) along with those from Ngozi University worked on and completed the project goals.

During the period from February 2009 to May 31, 2013, financial support from the United States Agency for International Development (USAID) through the Higher Education Development (HED) agency of the American Council on Education supported project initiatives. A partnership between SC State and NU was created through NU's Agronomy Department and its research center. The final general objectives of the partnership were to strengthen NU's capacity to teach, conduct academic research, and contribute to rural development by providing extension and outreach services to small scale farmers and rural communities.

A baseline assessment of basic Ngozi University needs was completed at the beginning of project activities and was used to identify and implement development activities through the partnership. Specific final objectives were achieved as follows: 1) built a long term partnership between SC State and NU that resulted in improved NU curriculum which includes applied agribusiness courses; 2) created innovative teaching that included courses and case studies relevant to Burundi's situation in order to develop competencies in entrepreneurship, agribusiness, and the trade sectors; 3) strengthened and expanded experimental fruits and vegetables, and rice research stations; 4) developed a joint collaborative teaching program that will ensure that the faculty at NU Agronomy department and the "Centre de recherche de l'agriculture et du développement rural (CERADER)" acquire knowledge to teach and conduct basic applied research in agribusiness and entrepreneurship.

B) Summary of activities and work over the life of the partnership

Major activities completed during the life of the partnership can be summarized as follows:

1) Academic Curriculum standards improved at NU

- Academic curriculum standards have improved with the addition of a new agribusiness program. The Department of Agronomy has been renamed Department of Agronomy and Agribusiness. New Agribusiness courses continue to strengthen university curriculum standards and will produce graduates with competencies in Agribusiness and entrepreneurship skills. Instructional standards have been improved due to this project. The agribusiness program is the only such program in Burundi. New agribusiness courses have been taught at Ngozi University from 2009 to April 2013. Ngozi University student enrolment is at an all-time high due to the publicity of the project.

2) Extension and outreach Activities

- Experimental research stations for vegetables, fruit and rice have been established at NU, Gatara, Marangara, Gisha, Akagoma, and Musenyi sites and are now operational. Seeds are tested for adaptation to local conditions. Selected vegetable, fruit and rice seeds have increased the agricultural productivity. The seeds have been distributed to farmers and will help improve nutrition and quality life of small farmers and rural communities, thereby

achieving a key project objective of reducing hunger and malnutrition in rural Ngozi. Extension programs and extension services were provided and the research sites will continue to be operational beyond the project.

3) Farmer training and workshops

- Training farmers and paraprofessional workshops have been conducted. Better quality and high yielding seeds were distributed to trained farmers during the partnership. Farmer training and farmer participation has been achieved and is improving human capacity in food production and self- sufficiency.
- Modern farming knowledge is being achieved. Farmer training and farmer participation improves farmer knowledge, increases self-sufficiency, and increases nutrition quality and quantity. It thereby assists and participates in national development goals. Human capacity in food production and self- sufficiency has been increased since the project began.

4) Ngozi Student Exchange Program

The exchange program brought three (3) NU exchange participants to SC State to attend a graduate program in Agribusiness and Entrepreneurship under the partnership. The three students, namely Emmanuel Bizimna, Desire Hakizimana, and Eric Uwimana, graduated with GPAs of 3.75 or higher, a “Summa Cum Laude” honor. One of the students achieved a 4.0 GPA without repeating a course, becoming the first student ever to the history of Program. This was quite a stunning accomplishment for the students who came into the MBA Program at SC State facing cultural and social changes with little English and a one-month delay into the Program.

5) Description of partnership’s most significant achievements

The creation of Agribusiness program at Ngozi University, the only operating Program in Burundi along with the success and the timely return of Ngozi students from SC State University to Ngozi are the most notable contribution and achievements of the project. The Department of Agronomy at NU which was restructured and renamed Department of Agronomy and Agribusiness (Appendix A) shows NU’s long term commitment to Agribusiness Program.

If maintained, the structural change of and teaching innovation at NU lay the function for a long term academic success and long term impacts beyond Ngozi. Three Burundian exchange students who have completed their MBA program increased instructional capacity at NU.

Participation of paraprofessionals and farmers in outreach education and training in Ngozi and Kayanza provinces has been completed. Selective rice and vegetable seeds have been distributed to rural communities/Agricultural Enterprises and others local and international agencies. Testing of new rice varieties in Gisha, Akagoma and Marangara stations, introduction and testing of new vegetable cultivars in Gatara, Musenyi and Ngozi stations for adaptation and agronomic performance are functioning and will continue to operate when the project close.

6) Summary of impact on host-country development and prospects for sustainability

The introduction of the Agribusiness Program increased students in the faculty of Agronomy and Agribusiness. The return to Ngozi University of the exchange students has strengthened the Agribusiness faculty and increased human capacity to teach agribusiness and related courses. The strengthening of the human and institutional capacity could assure sustainability of the program. Selected vegetable, fruit, and rice seeds are distributed to trained farmers to increase their agricultural productivity. The seed distribution program is improving the quality of nutrition and reducing hunger in rural Ngozi province.

Farmer training and education is happening in Kayanza and Kirundo on pilot basis. In the near, one can see a trend to cover entire Kayanza and in the possibly Kirundo. The experience is impacting northern Burundi where production capacity and productivity are being increased as a result of the Ngozi partnership. The project clearly has had a regional impact in Burundi.

7) Partnership period of performance, funding amount, leveraged funds, and cost share

The project was awarded by USAID through American Council Education (ACE) Office of High Education for development (HED). SC State was awarded \$529,461.00 (revised to \$527,369.00) to establish the SCSU-Ngozi University partnership. SC State provided a cost share amount of more than \$217, 928.00.00 in terms of tuitions, room and board and fees for three graduate students. The SC State team, including NDSU colleagues, leveraged an additional \$19,408.00 in uncompensated time and efforts spent on the project activities during academic semesters and in-kind contributions. For example, the uncompensated time and effort were spent collecting, handling and delivering books for Ngozi University. It also included time and effort on collecting seeds from seed companies in South Carolina and North Dakota as well as handling until delivery to NU. The purchases and transport of free small farm equipment to Ngozi University was also an in-kind contribution activity performed by a NDSU team member. Ngozi University provided \$15,000.00 in-kind contribution. This contribution includes use of NU offices and internet and other facilities and other uncompensated service.

SC State entered into a sub-cooperative agreement HED/ACE and was solely responsible for the administration of the project in accordance with agreed upon terms and conditions.

PART II: PARTNERSHIP RESULTS

A) Key achievements, outputs, significant impacts : Academics and Exchange Program

1) Introduction

Project implementation began in March 2009, when a needs assessment of Ngozi University was conducted. Discussions among USAID officials, local and NU officials and the SC State implementation team (Figure 2) centered on academic programs, extension and outreach activities. The partnership proposed to establish a sound extension and outreach program at Ngozi University, in addition to the approved mandate to improve NU teaching standards and strengthen academic curriculum and programs. The outcome was the creation of a system and structure that are similar in nature to the U.S. system of 1890 land grant institutions. Therefore, the change in scope led to a model with three components: the Academic Curriculum and Student Exchange Program, Extension and Research, and Outreach Service.



Figure 2: First partnership meeting at NU. From left to right: Domitien Ndhokubwayo, Deo-Guide, Christopher Mathis, Apollinaire Bangayimbaga, David Karemera, James Anderson, unnamed USAID Official, Alice Nibitanga, Edoe Agbodjan, and Bonaventure Bangurambona.

2) Academic Curriculum and Standards Improved:

The partnership created an Agribusiness Program at Ngozi University. It is the only such Program in Burundi. The Agribusiness Program is housed within the Faculty of Agronomy now renamed Faculty of Agronomy and Agribusiness. A joint degree Program is now planned. Appendix A titled, “Schema Directeur” from the Dean’s office at NU, shows the structural change as a result of the partnership. The attached Appendix A shows plans for future development of agronomy and agribusiness programs.

Concerning instruction, the agribusiness program was created and operational at Ngozi University. The core agribusiness courses taught over the four and 1/2 years included: Cost-Benefit Analysis, Agribusiness Strategy, Farm Management, Applied Principles of Economics, Agricultural Production Economics, Crop Marketing and others. Appendix B provides a list of students who took agribusiness courses by year and by course title and credit hours assigned to the courses while Appendix C provides samples of course syllabi with summary of chapters.

This project has led professors of Ngozi University, especially those in the Agronomy and Agribusiness faculty, to improve academic methods of teaching. The instructors have adopted the PowerPoint (PPT) presentation and computer simulations during lectures. Indeed, the use of computer simulation and programming led to improved delivery of instruction. The use of PPT presentations and simulation models with real world applications improved teaching/learning methods.

All agribusiness professors used PPT presentations in combination with the traditional black board use. Computers and computer simulation techniques were often used to deliver instruction during class room lectures. Although the availability of teaching equipment is limited at NU, a tendency is developing include technology in class rooms.

The photo below (Figure 3) was taken during a lecture by a SC State team member. The instructor is covering an agribusiness course in December 2009 as part of the new Ngozi University Agribusiness Program.



Dr. David Karemera, professor of agribusiness, instructs Ngozi University students on agribusiness principles.

SC State University and Ngozi University (NU), located in the African nation Burundi, have joined efforts to help strengthen the African university's educational capacity and improve rural development in Ngozi area communities.

The initiative is supported by an integrated resource management team, led by Dr. David Karemera, professor of agribusiness in SC State University's College of Business and Applied Professional Sciences. The team also includes SC State's Dr. Paul Rienstra Munnicha, assistant professor of accounting, Edoe Agbodjan, senior extension director for the small farm assistance and outreach program within the University's 1890 Research & Extension Program and Tammi Geter, program manager; Ngozi University faculty; Dr. Chiwon Lee, professor of plant sciences at North Dakota State University; and Dr. Charles Sebuharara, assistant professor of entrepreneurship at Virginia Polytechnic Institute and State University.

The United States Agency for International Development (USAID) under the Higher Education for Development funded the three-year project with a \$449,462 grant.

By combining resources from the universities, collaborators are working to prepare NU students as influential leaders in the increasingly global agri-food sectors. Through the partnership, the universities have created a new agribusiness program at Ngozi University. The new program is being developed by the SC State team, and is molded after SC State's own program. The academic program

positions the universities to establish a student exchange program that will allow Burundian students to attend SC State and complete a master's degree in agribusiness and entrepreneurship.

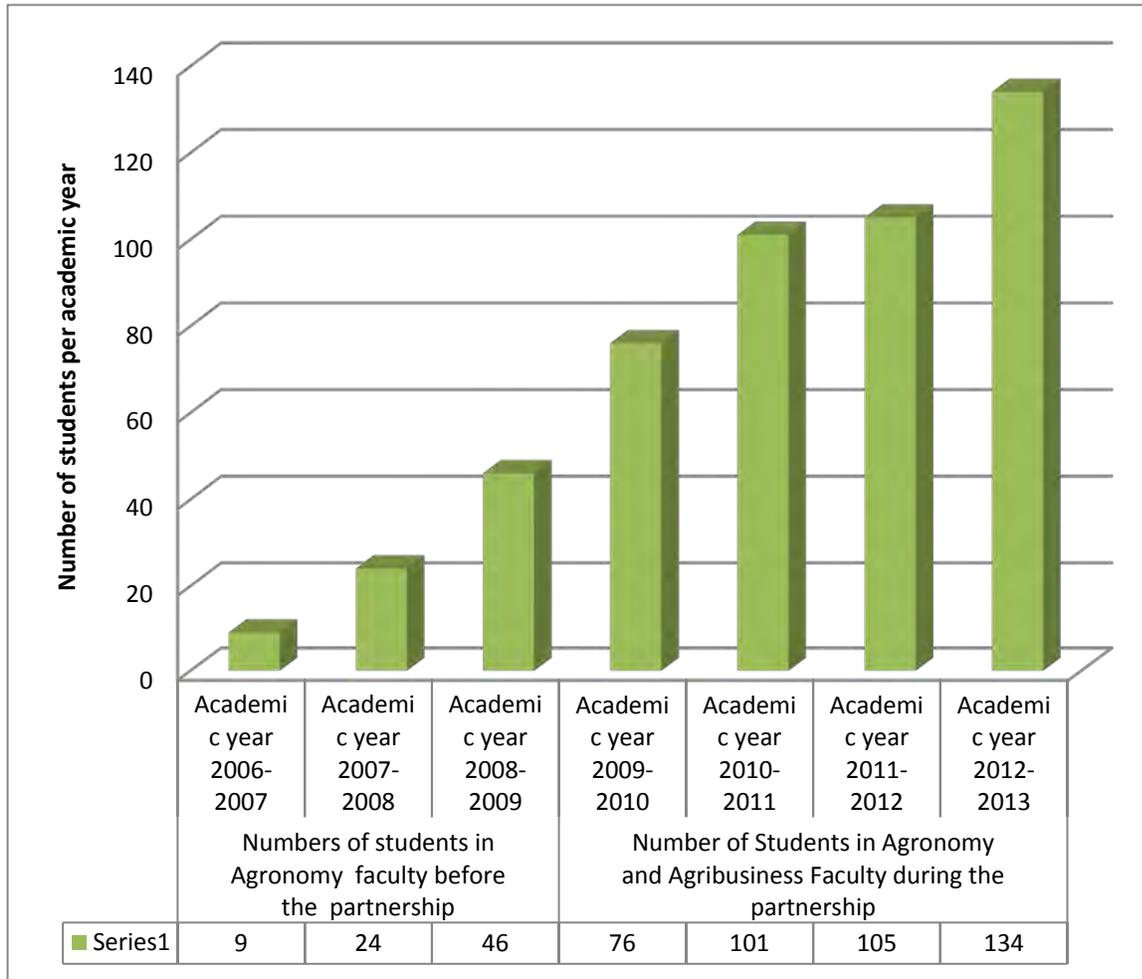
Additionally, the project has an extension and outreach component aimed at developing experimental research stations at NU that would focus on producing fruits and vegetables. Eventually, the local crop varieties developed at the experimental research stations would be mass produced to improve nutrition and the quality of life of the rural communities in the Ngozi area province.

Figure 3. Delivery of agribusiness course at Ngozi University in December 2009. The photo shows evidence of challenging work conditions and a dire need for facility improvement. The needs assessment report is attached for additional information.

3) Project Impacts on Student Enrollment at Ngozi University

The introduction of the agribusiness program increased student enrollment at Ngozi University in general particularly in the Faculty of Agronomy and Agribusiness. The first graduation in agribusiness department will be at October 2014. The project publicity apparently was a factor in the enrollment increase. The significant impact on enrollment was not unanticipated when the project began. Figure 4 depicts a bar chart of student enrollment and provides a comparative assessment of enrolments before and during the partnership.

Figure 4. Evolution of student enrollment before and during partnership



Before the project, the number of students was low but with the introduction of agribusiness Program in the Faculty of Agronomy, the number of students in that faculty grew significantly. During the partnership, this project had significant impacts and encouraged students to follow Agronomy and Agribusiness Faculty.

4) Success of the Exchange Program with students' timely return to Ngozi University

After a two-year delay, an initial pool of eight Ngozi students was identified to participate in the SC State-Ngozi University student exchange program. The initial pool included two women. The Test of English as a Foreign Language (TOEFL) and GMAT tests were performed. Six candidates were asked to submit their college transcripts to WES (World education Service) in New York for translation into the U.S. system of GPA equivalency. Upon receipt of the translation and implementation of the SC State admission formula, three students were selected in spring 2011 for participation in the exchange program: Emmanuel Bizimana, Desire Hakizimana, and Eric Uwimana. The three students matriculated at SC State in the Fall 2011.

5) The student Experience at SC State University

In August 2011, the three students were approved and received visas to travel to SC State. They were more than one month late to classes. The TRAINET operator/officer was so worried that he suggested that the student trip to SC State be delayed until spring 2012. The request was declined citing project time limitations. The students arrived at SC State and were matriculated into the MBA program. Two students majored in Agribusiness and the third majored in Entrepreneurship. The carefully selected Ngozi students made a quick adjustment to the SC State academic and social culture. Within one year, despite the initial limited English ability, the students managed to participate in local and national competitions.



Figure 5: Ngozi students at SCSU. Above, from left to right: The Dean Barret, Dr. David Jamison, Eric Uwimana, Emmanuel Bizimana, Desire Hakizimana, and Dr. David Karemera.

The figure above shows students being received at the College of Business and Professional Sciences (CBAPS) at SC State. The students performed well early on in the program. By the end of the first year at SC State, all three students were invited by professors in the CBAPS to take up research study positions. The research experience enhanced student research skills and contributed to their professional development. Despite various challenges, the students managed to participate in a writing skills competition and qualify for a trip to a national competition in Atlanta, Georgia. One student, Eric Uwimana, was selected to make a presentation at the 1890 Biannual meeting of the 1890 Association of Research Directors(ARD) held in Jacksonville, Florida in April 2013(Figure 6).



Figure 6: Jacksonville, Florida presentation by Eric Uwimana.

Ngozi student, Eric Uwimana was competitively selected for participation in a national 1890 conference held in Jacksonville, FL in April 2013. This participation helped to improve Mr. Uwimana's research skills and contributed to his professional development.

Upon completion of the two-year program at SC State, the Ngozi students made history. They all graduated with honors and a GPA of 3.75 or higher, a summa cum laude honor. One of the students achieved a 4.0 GPA without repeating a course, thereby becoming the first student in the history of the Program to achieve this mark. This is a stunning accomplishment of a student who started the program with little English-speaking capability. The Ngozi story is best described below by a local newspaper, the Times and Democrat of Orangeburg, SC. It is shown unedited below.

Figure 7: Burundi Students complete MBA degrees at SC State.

Students from the Republic of Burundi who received their MBA degrees in agribusiness with distinction at their commencement ceremony at S.C. State University are Desiree Hakizimana, Eric Uwimana and Emmanuel Bizimana. A local newspaper: *The Times and Democrat* noted their achievements. View the article, “**A Success Story: Burundi students complete MBA degrees at S.C. State,**” at http://thetandd.com/news/local/burundi-students-complete-mba-degrees-at-s-c-state/article_6579dcec-b9f0-11e2-87ca-0019bb2963f4.html

6) Impacts of the Exchange program on Ngozi University:

The three students have returned to Ngozi University with their MBA degrees. They are slated to teach and support the Agribusiness program and Ngozi University thereby improving the teaching capacity of Ngozi University. It should be noted that while SC State graduates are able to teach several agribusiness and non-agribusiness courses, there are some advanced or specialized agribusiness courses that they may not be able to teach. Therefore, team teaching with experienced instructors in these particular courses is recommended so that they may gain experience in teaching challenging courses. The students have gained invaluable experiences at SC State and through their experience in the U.S. They will share these experiences with fellow students at Ngozi University. They will communicate new methods of teaching and learning received at SC State to Ngozi University and to support and expand the program started by the partnership.

SECTION III:

SCSU-NGOZI: Research and Extension and outreach Activities: Small Farm and Outreach service¹

¹ 1: Prepared by Edoe Agbodjan, Senior Extension Specialist with additional data provided by Bonaventure Minani and. Marc Ngendahayo ,Ngozi University

Research and Extension and outreach Activities: Small Farm and Outreach service

Small Farm and Outreach Service

A) Partnership Overview

The experimental research stations for fruits and vegetables were performed on empty rural lands such as the plot shown below.



Figure 8: Rural landscape and productivity declined over the years.

The extension technical assistance and outreach program in Ngozi province has declined over the years. Rural communities and agricultural producers were left with little or no research-based updated information to improve their agricultural production to sustain Ngozi province rural community needs. Unlike the United States, the land grant universities were charged in their mission to provide education, research and extension to their citizens. Ngozi University and one other university in Burundi offer degrees in agriculture and related fields supported by basic limited research activities and do not have an

extension technical assistance and outreach service program. Therefore, the Agriculture Research and Extension and Outreach services model of the United States does not exist in Burundi.

1) Description of partnership context and final partnership objectives.

The South Carolina State Ngozi Partnership has allowed Ngozi University to identify core challenges, limitations and concerns that the Extension Program implementation will face, while establishing a viably effective and efficient small farm technical assistance and outreach program to improve farmers productivity, farm income, food quantity and quality thus enhancing the quality of life of the rural population in Ngozi province and promoting regional community development.

The South Carolina State and Ngozi University team identified core challenges and limitations not limited to the following:

- 1) Non-existence of extension technical assistance and outreach services program.
- 2) Lack of trained extension and agricultural outreach personnel.
- 3) Lack of extension technical assistance and outreach farmers training program.
- 4) Lack of capacity building in extension and outreach services.
- 5) Lack of extension outreach service technology and equipment.
- 6) Lack of human capital in extension outreach services.
- 7) Lack of transportation facilities.

The team proposed a series of remedies to the challenges listed above. The team recognized that the implementation challenges and the proposed remedies represented limited resources to the Ngozi University administration. Under the research, extension and outreach component of the project, the partnership's major goal was to establish an extension program with small farm technical assistance and outreach, and develop regional agricultural experimental stations with long term objectives. The objectives would a) promote, support and improve agricultural faculty research skills; b) improve local small farmers' agricultural enterprise productivity and farm management skills and rural community economic development; and c) improve agriculture self-sufficiency of Ngozi province rural community food, nutrition, quality of life and regional agriculture sustainability.

2) Summary of Extension and Outreach activities over the life of the partnership.

Over the life of the partnership and grant period, the partnership made an important accomplishment by creating six research stations in Ngozi and Kayanza provinces. The mission of the research stations were to focus on rice cultivation, test fruits and vegetable hybrid seed adaptation and yield improvement. The stations were also used as training centers for local small scale farmers and communities.

Each extension station has its own extension agent in charge of the station activities. The agent is often assisted by a paraprofessional agent in the accomplishment of the center activities. The activities at each research station are summarized below in subsections A through F. For clarity additional details and pictures are shown for every training or research station.

B) Activities at Research Site



Figure 9: A visit to the Ngozi site in 2010

1) Ngozi Campus Site

The Ngozi province (region) and its surrounding area are largely over-populated. The census showed about 300/km square area with an average small farm size less than one acre. The Ngozi campus experimental station is located on the campus of Ngozi University with 1.5 hectare area. It served as a practical teaching tool for the School of Agriculture faculty and was a training ground for the students in the Department of Agronomy and Agribusiness. In addition, the Ngozi campus site was used in the testing of the newly introduced selected fruits and vegetable as well as a hands-on demonstration site for best management practices for the surrounding farmers. The Ngozi site offered a unique demonstration dimension to farmers and students training in terms of erosion control using a terrace system of production. In addition to the agronomy students, the Ngozi station trained and certified 14 small scale farmers and landowners. Also, the Ngozi site established 215 small scale fruits and vegetables farmers (Ikangure Dukore Ibirama) associations through their outreach services effort in Vyegwa Valley in 2010. The association produces pineapples, mangoes and avocados and Papayas on 215 ha of land. It also played a major role in the establishment of the (“Cooperative de Multiplication et de Vente d’intrants Agricole (CMVIA) in 2011”) or Cooperative for Dissemination and Sales of New Agricultural Seeds. (Photo was taken during the project impact interview at Vyengwa.)



Figure 10: visit to Gatara site 2010. The Picture was taken during the visit to Gatara site

2) Gatara Site

The Gatara site is located South of Ngozi in Kayanza province with 1 hectare area, but displays similar climatic characteristics as Ngozi. The Gatara Center is in a valley which provides serious geographic challenges to its accessibility. The soil is rich in its composition in addition to its constant availability of stream water. Like the Musenyi and Ngozi sites, the Gatara Center served a dual purpose of testing and farmer's education and demonstration sites as well as providing fruits and vegetable plant nursery for the region. Its proximity to the Catholic Church and outreach center offered Gatara as an educational training facility. The center was used to test seeds for adaptation and seed increase. The Gatara site benefited from its proximity to the region's oldest and largest farmer's commercial market center in Kayanza province.



Figure 11.
SITE
stakeholders

MUSENY
partnership
concerns/

issues meeting. At the Musenyi site, the photo was taken during the project's first stakeholder meeting to identify and discuss vegetable and fruit production problems or concerns.



Figure 12:

Picture taken during the visit to Musenyi site.

3) Musenyi Site

The Musenyi site is located 32 km northeast of Ngozi and exhibits similar climatic and geographic characteristics as Ngozi. The experimental station covers 1.2 ha area and served a dual purpose. One purpose was to use the site as an experimental station for testing fruits and vegetable seeds for adaptation and seed increase. The second purpose was to use the site as an educational training and demonstration center for small scale fruit and vegetable farmers in Musenyi and for surrounding region producers. The center was composed of three classrooms and a demonstration field divided into smaller plots of 4x10 feet to provide participant farmers hands-on practical learning experiences similar to their actual environment. The center has trained and certified 40 small scale farmers in Best Management Practices (BMP) in fruits and vegetable production, soil composition and nutrient management, weed control, integrated pest management, water usage and irrigation management, as well as post-harvest and handling, and food safety issues.

The Musenyi Center was the first site to host the partnership stakeholders' concerns/issues meeting. Forty-five farmers and community leaders actively participated in the meeting. They listed their concerns/issues and prioritized them as follow:

1. Production best management practices and Farm management,
2. Natural and environment resources management,
3. Farmers education and outreach projects,
4. Marketing strategies,
5. Post-harvest and handling and food safety,
6. Food preservation, and
7. Food quantity, quality and nutrition.

The Musenyi Center paraprofessional agent and the agronomy department faculty at Ngozi University, in collaboration with selected participant farmers, designed education training modules to provide solutions to some of the concerns listed above. As a result, 14 selected small scale farmers in Musenyi and surrounding regions were trained and certified in production of fruits and vegetables and small scale farm sustainability.

Figure 13: MARANGARA SITE rice fields. Photo taken in 2010



4) Marangara Site

The Marangara experimental station was designated for the testing of rice varieties in terms of adaptation, ecological agro conditions and for seeds increase. The site is the newest added to the existing site for more testing. The site covers 0.5 hectare and was used to test the YUNYIN rice variety in the previous season. In addition to the YUNYIN variety, three other varieties were tested (V564-2-7, V1380-4 and IR25976-12). The testing showed promising results. For the early trial, a 20% increase in harvested rice was recorded for that season compared to the beginning of the project. The quantity of harvested rice is listed in the Table 5.



Figure 14. Gisha rice station. The Photo taken during visits to Gisha site in 2010 and 2013.

5) Gisha Site

The Gisha experimental station, like the Marangara station, was designated to test selected varieties of rice for adaptation, ecological agro-conditions and seeds increase. Gisha was the second largest rice testing site for the project. From the early stages of the project, Gisha was used to test new varieties received from the National Agricultural Research Station (NARS) for adaptation and ecological agro-conditions. The site covered 2.0 hectare and has tested 21 varieties of rice with 6 varieties recording significant and promising results after their first trial (See Table 6). The Gisha site has increased the number acreage of rice varieties planted for testing by 25% since the beginning of the project. In addition to the experimental station, the project established 10 small scale rice producers associations at the Gisha site in 2012. Each association was assigned one hectare plot to produce rice seed. The total membership of the 10 associations is 200 composed of 40 males and 160 females.



Figure 15: AKAGOMA SITE, first and largest rice testing site.
(Photo taken during the visit to Akagoma site in 2010)

6) Akagoma Site

The Akagoma experimental station, like Gisha and Marangara, was the first and largest rice testing site established by the project. It covered 2.5 hectares and has been home for 11 varieties of rice (see Table 7). Similar to Gisha and Marangara, its purpose was to test the adaptation, ecological agro-conditions and seed increase.

The partners have conducted a series of educational workshops, hands-on training, and field demonstration tours as well as to provide farmers with the training certificate program and assisted in the establishment of small scale farmers associations. The activities were implemented to improve the small scale farmers' production and farm management skills and make significant impact on agricultural production in both provinces and the region. It is expected that the research experimental stations established in the two adjacent provinces (Ngozi and Kayanza) will improve the availability and dissemination of tested seeds for small scale producers in Ngozi and Kayanza provinces (see Tables 3 and 4). The trained participant farmers planted the tested seeds which contributed to an increase in rice

production quantity and quality throughout the region. Also, the availability of a new variety of fruits and vegetables in both provinces was established.

The partnership has allowed Ngozi University to enhance their rice experimental testing activities at the Akagoma, Gisha, Marangara, Musenyi, Gatara and Ngozi Campus research sites. The activities resulted in a 25% increase, on the average, of rice seeds planted and harvested on 5 hectares since the partnership began. The tested rice harvest/acreage seed has increased by 30% in Akagoma, 25% in Gisha and by 20% in Marangara since the beginning of the project. The Akagoma experimental station has recorded the most significant improvement in rice testing results compared to Gisha and Marangara, which were the most recent established experimental stations in Ngozi province.

C) Description of partnership's most significant achievements in Extension

The partnership planned, developed and implemented a farmers training certificate program at the Ngozi, Gatara and Musenyi sites. The farmers certificate program was 7 days for 7 hours/day of educational and hands-on training addressing such topics as: soil composition and types, soil fertility and nutrient management, vegetable crop selection based on soil types, production techniques and planting methods, environment (soil erosion) and natural resource management, plant and vegetable diseases and integrated pest management and irrigation water management.

The three stations/sites focused on fruits and vegetables and trained and certified 15 males and 25 females or a total of 40 small scale fruit and vegetable producers at the Ngozi, Gatara and Musenyi stations/sites. At the end of the 7 day training, each participant received a certificate for 49 hours of training in best management practices, integrated pest management and environmental protection of natural resources.

Table 1: Number of trained/certified Small Scale vegetable producers/site/gender.

Gender	Ngozi University Site	Gatara Site	Musenyi Site	total
Male	5	3	7	15
Female	5	12	8	25
Total	10	15	15	40

Table 2: List of trained and certified Small Scale vegetable producers per site.

Ngozi University Site	Gatara Site	Musenyi Site
Horugavye Gilberte	Ndayikengurukiye Emmanuela	Ntarirutimana Euphenie
Coyitungiye Anitha	Ndayikengurukiye Truffine	Hasabamagara Thabien
Kamikazi innocente	Ahishakiye Marie	Nzevimana Seraphine
Nkurunziza Jean Bosco	Nsengiyumra Asterie	Mureka Alice
Noayisenga Diomede	Barutwanayo Anastasie	Uwimana Esperance
Irakoze Gerenie	Ngozirazana Marie	Ngendakumana Lievien
Nzambimana Claude	Dupfayobawuga Denise	Nshimirimana Spes
Uwimarva Mediatrice	Sibomana Hilda	Muhimdu Zena
Musavyi Xavier	Sinzobakwira Antique	Manirakiza Firmatus
Mpawenimarva Helene	Bucumi Angeline	Niyibarwta Generose
	Nzosabimana Imelde	Nivyaprandi Edvioge
	Harerimana Serge	Nshimirimana Thierry
	Niyiteretse Cyriaque	Ntirunena Rose
	Nyabenda Leonidas	Mahwera Capitoline
	Nzeyimana Agnes	Ntakimazi Edoward

The efforts, as small as they may sound, represent one of the most significant achievements of the partnership. In addition to the farmers certificate program, the partnership provided educational outreach to more than 6,450 (2,135 males and 4,315 females) small scale agricultural producers throughout the region. The partnership established experimental research stations for vegetables/fruits seeds testing at Ngozi University Campus, Gatara, Akagoma and Musenyi and in rice seeds testing at Marangara, AKagoma, and Gisha. In addition to the experimental stations, the partnership assisted and established more than 235 small scale farmers associations throughout the region. Each association was composed of 18 to 25 members. The testing of fruits, vegetables and rice seeds was a significant outcome in the research of seed adaption and yield improvement. The high performance seeds were selected and distributed to participant farmers for production.

1) Results at Ngozi Campus:

The Ngozi Campus experimental station produced more tested vegetable variety seeds than the other two experimental research stations. A total of 115.68 kg of seeds were harvested from the 21 vegetable varieties tested in four replication trials and the same vegetable variety seeds were tested at Gatara and Musenyi. The data in Table 6 indicated that the vegetable seed varieties selected and tested performed well under Ngozi climatic conditions with a significant result for their adaptation.



Figure 16: Vegetable variety at Ngozi Campus. The pictures are taken from Ngozi Campus site.

2) Results at Gatara:

Unlike the Ngozi Campus site, the Gatara experimental research station has harvested 65.75kg of vegetable variety tested seeds from 16 vegetable varieties. Varieties such as squash galabaza, carrot, fenouil and red peppers did not survive the adaptation test which reduced the Gatara vegetable varieties to 16.

3) Results at Musenyi:

The data in Table 6 showed that the experimental stations of Ngozi Campus and Gatara outperformed the Musenyi experimental station. The Musenyi station harvested a total of 47.40 kg of tested seeds from 13 varieties. Researchers noticed that vegetable varieties such as watermelon, spinach, carrot, cucumber, squash ambassador and spaghetti did not produce seeds due to their phonology and climatic conditions. The Musenyi site has implemented new agricultural practices which resulted in a 95% increase in its production. In addition, the Musenyi site trained and certified 15 small scale vegetable producers.

4) Results at Akagoma:

Participating small scale farmers at Akagoma learned rice field site preparation to account for proper rice plots drainage, adequate rice plant irrigation, wetland management practices, different appropriate fertilizer application methods, plant disease control, harvesting methods to reduce harvest waste and preserve rice grain quality. The Akagoma experimental station reported a 30% increase in rice acreage planted since the beginning of the project. The 2.5 hectares of rice planted has increased production by 10% and resulted in 6,226 kg of new seeds produced. As a result, participating farmers gained knowledge and adopted the recommended practices. Figure 27 shows seeds the evolution of seed production by station.



Figure 17:

GISHA project impact interview
(the picture was taken during the project impact interview.)

5) Results at Gisha:

The Gisha experimental station has trained small scale rice farmer and producers in the area of site preparation, variety selection, and wetland management to control irrigation water, fertilizer application, harvesting and post-harvest activities. Therefore, the Gisha experimental station reported a 25% increase in planted rice acreage since the beginning of the project.

The project's 2.0 hectares of rice planted increased production by 5% and yielded 2,786 kg. Like Akagoma station, participating farmers gained knowledge and adopted the recommended practices. In addition, the Gisha site added 10 ha of rice field managed by the 10 independent small scale rice producers associations.

6) Results at Marangara:

The Marangara experimental station was the smallest station among the three research stations established to test rice seeds, climatic adaptation and agronomic performance. At the Marangara site, in addition to the YUNYIN rice seed variety, the station introduced and tested three other varieties. Participating farmers were involved in similar training conducted at the Akagoma and Gisha stations. At the Marangara station, 0.5 hectares of rice was planted and reported an increase of 20% in harvested rice acreage since the beginning of the project and yielded 686 kg of tested rice seeds.

As a result, the partnership improved rice, fruit and vegetable production quantity and quality which translated into better nutrition and quality of life for participating small scale farmers and the rural communities in Ngozi and Kayanza provinces. The availability of an improved seed contributed to an increase in small scale producer's production and quality of the product. Thus, an increase in producers on farm income, thereby, contributed to regional economic development. Participating farmers are eager to learn new, enhanced and updated farming practices.

D) Summary of impact on host-country development and prospects for sustainability

The experimental certificate small scale Ngozi and very significant in the regions, in quality of the productivity and economic development of the Ngozi and Kayanza provinces.



establishment of the stations, farmers training program and outreach to farmers throughout the Kayanza provinces will be for the rural communities terms of quantity and region agricultural

The small scale agricultural producers in Ngozi province gained assets of skill that would set them apart from the other small scale agricultural producers in the country. Therefore, their knowledge gained translated into behavior change, which resulted in an increase in the quantity and quality of products, nutritional values and agricultural products diversification available to the Ngozi province population. The introduction of fruit and vegetable product diversification would combat hunger and nutritional problems in rural communities in the region thus enhancing small scale farming enterprises as well as economics and sustainability.

On the other hand, the research experimental stations established throughout the provinces and the region equipped the School of Agricultural department graduates with practical experiences through lessons learned. The graduates also benefited from participating in the farmers outreach meetings. As a result, they developed a skill set that would set them apart from any other graduates from any other School of Agriculture in the country. In addition, these special skills are also an asset for a Burundian firm with interests in the Agribusiness sector.

1) Partnership Results

- a) Presentation of partnership's key achievement and all major output produced including imported research findings, if applicable.

In the areas of extension and outreach to farmers, the partnership made significant progress over the PAST 4.5 years and some of the key achievements are as follows:

- The development and implementation of an extension program similar to the U.S. land grant university research and extension model;
- Establishment of research experimental stations with dual purposes (research and teaching);
- Implementation of the outreach and technical assistance concept for small scale limited resource farmers, more specifically, the establishment of the Farmer Certificate Training Program. A sample of certificates delivered upon completion of the training is given in figure 29 below.
- The utilization of agricultural paraprofessional agents at the experimental station with dual assignments (agriculture assistant agents and experimental station farm managers); and
- Establishment of more than 235 small scale farmers associations with a total membership estimated at 6,235 members to include 4,315 females and 2,135 males in Ngozi and Gisha communities.

Figure 18. Seeds display at the department of agriculture at Ngozi University.

The partnership provided resources that allowed the expansion of rice seeds adaptability and yield testing research, the introduction and testing of new varieties of fruit and vegetable crops to promote and enhance agricultural product diversification to improve quantity, quality and nutritional value of the products available for the rural communities in both provinces (Kayanza and Ngozi) and the region.



Figure 19: Inspection and display of selected seed storage.

The seed adaptation and yield increase testing project conducted at the research stations, in both provinces, allowed the Ngozi University Department of Agronomy faculty to improve and enhance their research capacities and allowed them to eliminate lower performance seed varieties in terms of adaptations and yield increase during the testing trial (see Table 7). As a result, participants and small scale farmers in both provinces were trained and supplied with better performance seeds suitable for their phonology and climatic adaptation.

Seeds with significant adaptation were displayed in the Ngozi University Department of Agronomy and Agribusiness dean's office and department seed storage.

- b) Detailed discussion of the partnership's development outcome, specifically what significant impact the partnership has/had.

Prior to the SC State- Ngozi University Partnership for Strengthening Education Capacity and Rural Development, the provinces of Kayanza and Ngozi's small scale farmers and landowners in the rural communities were operating in a vacuum with little or no research based farming information assistance or support. The Partnership has enhanced the Ngozi University Department of Agronomy's research ability and capacity through new resource opportunities. The opportunities have allowed Ngozi University to improve and expand the scope of the existing research experimental stations and added a few new ones.

The debut of extension technical assistance and outreach services to small scale farmers in the provinces (Kayanza and Ngozi) was a significant step toward regional food self-sufficiency and a giant step to combating food nutrition issues and hunger. The two provinces participants were small scale farmers equipped with improved agriculture production skills that impacted their farm enterprise management decision skills and had a significant influence on sub-region future food production, nutrition and quality.

The partnership trained more than 250 small scale farmers on agriculture best management practices to include soil nutrient management, plant disease identification, water management, crop selection, post-harvest and handling, etc., for rice and fruit and vegetable producers. The outcomes of the trainings demonstrated substantial knowledge gained among the participating small scale farmers and recorded farmers' behavior changes in terms of adoption of the recommended practices. The most significant impact was the adoption of the improved adapted rice, fruit and vegetable new variety seeds

The partnership contributed to higher rice production and consumption in the sub region. Rice consumption has become a stable source of starch in the sub region communities' diet. Clear, small farmers and rural community have benefited from the partnership activities and their lifestyle and quality of life has improved.

- c) Tables, graphs or other diagrams that contain monitoring and evaluation findings to support your stated outcomes. Visual aids should highlight relevant results to make them clear and readily accessible.



Figure 20A: Training for rice production



Figure 20B: Training for rice production



Figure 20C: Training for rice production

Figures 20 through 26 show actual project activities and outcomes. The pictures show wet land preparation, management, and maintenance. Additional pictures show farmer training and selected seed storage.



Figure 20D: Training for rice production
Pictures shown above were taken during the site preparation training for rice field plots at Akagoma.



Figure 21: steps in vegetable production.
The pictures above were taken at Ngozi University site to include site preparation, pest management inspection and bean plots inspection.



Figure 22: Mai fruit and vegetable association follow up.

The pictures were taken in May 2013 during the follow up with the Vyegwa Fruits and vegetable Association.



Figure 23A. Wetland management practices training conducted at Gisha Site.



Figure 23B: Wetland management practices training conducted at Gisha Site. The pictures above were taken during the Wetland management practices training conducted at Gisha Site to include rice field drainage completed by the participants' farmers.



Figure 24: Rice harvesting activities at Marangara site.

The pictures above were taken during rice harvesting activities at Marangara site by participants' farmer.



Figure 25: Selected Vegetable seeds harvested at Musenyi site and their storage. Selected vegetable seeds harvested at the Musenyi site and their storage.



Figure 26: Musenyi farmers receiving their graduation certificate for their training.

Musenyi farmers receiving their graduation certificate for their training in soil protection, best management practices, fertilizer application and integrated pest management.

The objectives of the research activities at the experimental station were to implement field inspection to verify the factors which can cause irreversible damage to the genetic purity or seed health.

- 2) Definition of protocol

The protocol depended on the variety. Different varieties were selected and sown according to which variety resisted disease and adapted to the local climate. The varieties were tested again in the plots with four or three repetitions to determine variety yield.

a) Crop stages for inspection

The number of field inspections and stages of crop growth at which the field inspections should be conducted vary from crop to crop. It depends upon duration and nature of pollination of the seed crop. Ngozi University technicians follow the steps listed:

1. Pre- flowering stage
2. Flowering stage
3. Inspection during Post flowering and pre-harvesting stage
4. Inspection during harvest

b) Assessment of seed crop yield

It is necessary to avoid malpractices at the final stage during harvest operation. An Ngozi seed technician is expected to fix the appropriate seed yield.

c) Post-harvest supervision of seed crop

The post-harvest inspection of seed crop covers the operations carried out at the threshing floor, transport of the raw seed produce to the processing plant, pre-cleaning, grading, seed treatment, bagging and post processing storage of the seed lot.

d) Supply of Seeds:

CERADER will distribute pre-base seeds at low cost to the already identified farmers. Seeds for half an acre per farmer will be allowed. The required foundation/certified seeds of the crop varieties decided/identified will be sourced/purchased from CERADER seeds.

e) Training:

CERADER provides the training on seed production and seed technology to farmers for the seed crops grown in the seed villages. The duration of the training is three days; the first one-day training is given to farmers at the time of sowing the seed crop. During this training seed production technique, isolation distance, sowing practices and other agronomic practices to be followed for the given crop will be taught to the farmers. The second one-day training will be organized during flower initiation stages of the seed crop. The seed growing farmers are trained to identify off types, rogues and its removal of the plants from the seed plots and to maintain the quality of seed production and other agronomic practices, plant protection measures and harvesting methods to be followed by the farmers. The third one-day training is organized/provided after harvest and at the time of seed processing to impart knowledge on seed cleaning, seed grading, seed treating, seed storage, seed packaging aspects, how to draw the representative seed sample, send the seed sample for seed testing/local seed testing method to assess the seed germination.

Table 3: RICE EXPERIMENTAL STATIONS

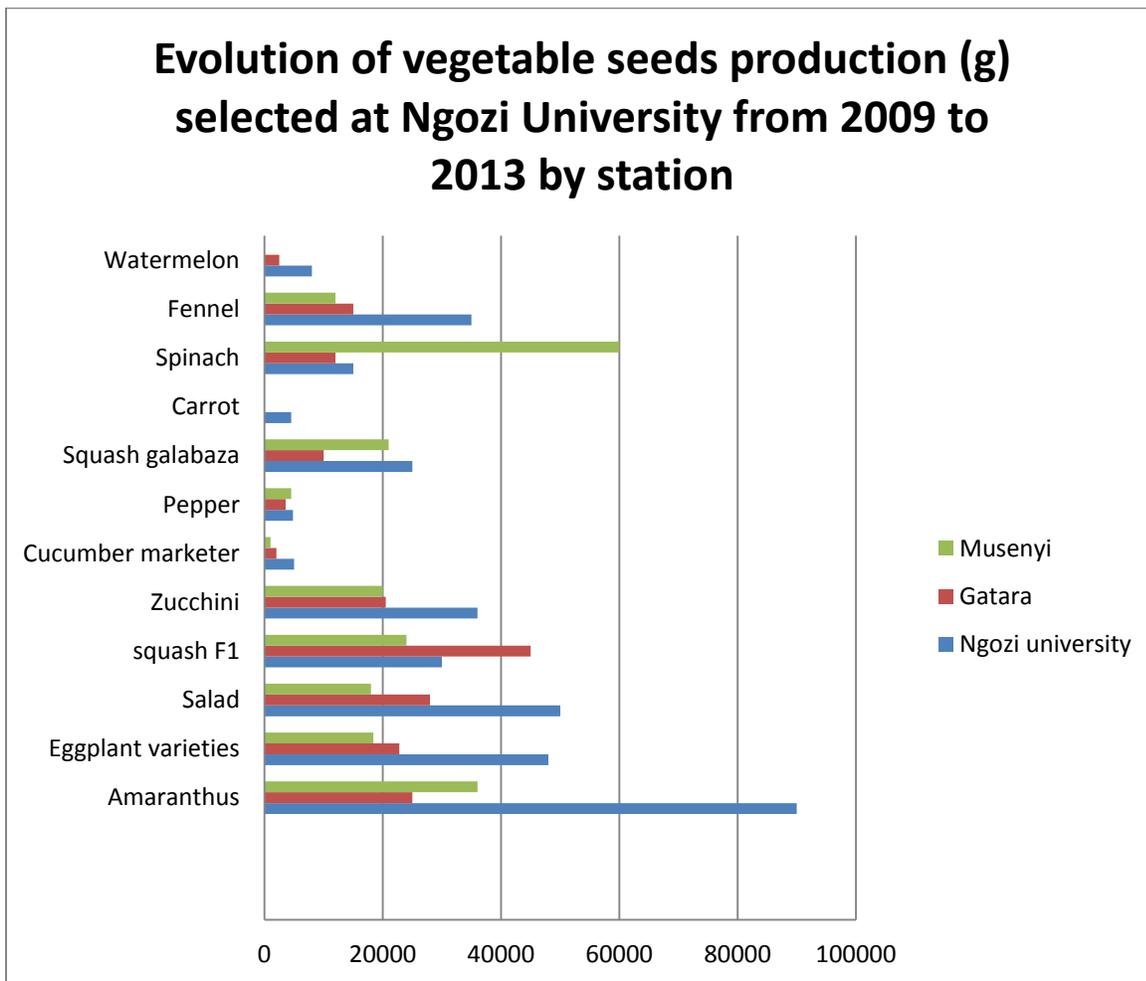
Stations	Rice Production in Kg			
	Rice Varieties tested	Quantity of rice seeds	Season 2010- from	Season 2011-2012 in fields
AKAGOMA (2.5 ha)				

		Season 2010	2009- 2011	(the harvest will be on July 2012)
	YUNYIN	2433	2687	1409
	1090	860	1563	295
	1039	504	*	8
	TAICHUNG	77	*	84
	U.N.G	76	251	53
	1057	72	256	35
	B 61	19	184	63
	V 46	14	136	31
	V 564-2-7	4	*	1610
	307	2	41	6
	V 309-73	1	*	*
	Mixed	222	252	181
	1057	*	256	*
	309	*	70	*
GISHA (2 ha)	YUNYIN	2310	1550	630
	1090	1680	1036	1680
	1039	*	415	2
MARANGARA0.5ha	YUNYIN	491	689	320
Sub/total		8765	9386	6406

Table 4 : Vegetable & Fruit Seeds

Stations	Vegetable seeds (2009-2012): carrot, squash, onions, watermelon, Spanish, amaranths, eggplant, etc.)	Fruit seeds (2009-2012 A season) : pineapple, plum, etc.
Ngozi University (0.6 ha)	2100 g	6000g
Musenyi (0.4 ha)	1800	-
Gatara (0.5 ha)	1400	-
Sub/total	1200g	3000

Figure 27. Evolution of vegetable seeds selected at Gatara, Ngozi University and Musenyi stations.



E) Description of significant challenges to implementation and how those were addressed (e.g. language barriers, security issues, other).

The result of the assessment conducted at the beginning of the project by the joint team (SCSU and Ngozi Universities) had identified core challenges and limitations to the implementation of the partnership objectives. The challenges and limitations facing extension and outreach activities can be classified into three categories such as: infrastructure, technologies and human capital.

1) Infrastructure:

The success of the extension small scale farmers outreach educational program relied heavily on direct contact with the farmers through one-on-one farm visits, small group meetings, farm tours, hands-on demonstrations and follow up farm visits. Therefore, these efforts required access to mobility tools such as basic transportation (i.e., motorcycles or vehicles), training facilities to conduct educational training, and research experimental stations for hands-on demonstrations. Ngozi University is a relatively small private institution of higher education whose mission is to improve the quality of life for its rural citizens through education and rural community development. The Ngozi University extension outreach service is in its infant stage. Therefore, outreach services face some barriers in terms of lack of university-owned basic transportation.

The outreach service agents relied on their own means of transportation to perform outreach services in the rural communities they served, which often limited access to remote farming communities. Farmers' hands-on trainings were held on the fields and the educational trainings were conducted at the community center which belongs to the Catholic Church diocese. Audio visual equipment presentations were not used due to limited funding coupled with the small scale farmers' educational level.

2) Human Capital:

Outreach service requires trained, qualified professionals and paraprofessionals to deliver research-based information to stakeholders and community participants through knowledge transfer. One of the major barriers was the unavailability of trained, qualified extension agents to conduct educational trainings, workshops, etc. The Ngozi University relied on its agriculture department faculty to perform dual functions, such as teaching and extension agents. The project relied heavily on the paraprofessionals at each research experimental station to assume the role of station manager and paraprofessionals to deliver outreach service programs to the farming communities. The long-term sustainability of the project and the overall success of the farmers training program depended on the recruitment of trained and qualified personnel.

3) Technology:

The technology transfer issue did not present serious challenges to the project staff because the South Carolina State University Team, as well as the Ngozi University Team, was composed of team members with bi-language capacity (French and English). Therefore, information and practical extension and outreach techniques and experiences were easily compared and exchanged between both teams. Again, Ngozi University extension outreach services is in its infant stage, which limited the used of mobile technology devices, and access to the internet in remote areas where the research experimental stations were located. Most of the research station activities were conducted by human labor (site preparation, wetland drainage, planting, fertilizer application, pest management, harvesting and others).

F). Final remarks on completed Extension and outreach activities

The SC State-Ngozi University Partnership for Strengthening Education Capacity and Rural Development was an eye opener for both institutional teams. The partnership presented some challenging issues in terms of each institution's resource management and disbursement of internal policies. The bi-language asset at each institution and the experience of the partnership created an atmosphere of problem-solving for project success.

Both parties achieved many milestones. South Carolina State University has successfully introduced and assisted in establishing a basic extension model for the Small Farm Assistance and Outreach Program at Ngozi University. Today, small scale farmers of the Akagoma, Gatara, Gisha, Marangara, Museny and Ngozi communities are more updated to improve their farm income, thus quality of the life may be augmented as well as reducing poverty and malnutrition in both Kayanza and Ngozi Provinces.

Ngozi University has improved capacity building by establishing experimental research stations in five locations throughout both provinces, thus improving their ability to offer small farm outreach services through research-based information sharing to small scale limited resources famers in the rural communities. At last, but not least, the small scale limited resource family farms were on the receiving end of the efforts and opportunities of the Partnership Project. More than 6,300 small scale limited resource farmers in Ngozi and Kayanza provinces have experienced knowledge gained and behavior change through effective training, visual aids, hands-on demonstrations, field days and introduction of tested and improved varieties of fruits, plants, rice and vegetable seeds.

Table 5: Rice seeds yield production 2010-2011/sites (kg)

Site	Rice varieties seeds yield production (kg)								
	Yunyin	1090	1039	307	B61	309	V46	1057	UNG
Akagoma	2987	2000	600	120	250	150	200	320	420
Gisha	2800	1800							
Marangara	1400								

Table 6: list of tested rice varieties at Gisha

53 IRAT 780	45 CRILLO CHIRGUA3	23 PRATAO*	ALOY OYAN*
6 VARY LAVA	3 HA	48 MAINTIMOLOTSY*	41 AP 430*
57 MITAK	24B572A1-6-13&14	28 VAPY LAVA 16	MASANGANZIRA CANKUZO*
4 AZUCENA	2 SUN BONNET	13 GIN-SHUN	
30 INGOA	43 SECANO BRASIL	SACHET X*	
5 MADINIKA	51 PHO KHA MUSHAKAN 41	52 HYBRIDE	

The * represent the six promising varieties after the early trials.

Table7: list of tested rice varieties at AKAGOMA

YUNYIN	TAICHUNG	V564-2-7	1039
B61	UNG	309	1090
1057	V46	307	

Table 8: Vegetables seeds Yield production 2010-2011/sites (g)

Vegetable varieties	Site		
	Ngozi University	Gatara	Musenyi
Lengalenga (local variety)	38263	35000	25000
White Eggplant	4500	2500	2800
Purple Eggplant	3200	2500	1000
Eggplant (amere)	10446	1500	500
Eggplant (filiforme)	1193	1000	1500
Intumbaswa (local variety)	1592		3000
Lettuce 1	4534	3000	1200
Lettuce 2	1901	1000	500
Squash F1 (local variety)	7334	4200	4000
Squash Ambassador	5200	2500	
Squash Spaghetti	1897	1200	
Squash Galabaza	146		
Cucumber Marketer	794	850	
Green pepper	1653	4000	4200
Carrot	1200		
Spinash	13570	1500	
Fenouil	4000		
Red Pepper	6000		500
Yellow Pepper	4000	1000	1200
Watermelon (Nabunure)	1260	1000	
Pepper Bushara Ndende	3000	3000	2000
Total			

The pictures below show a fertilizer application activity in rice fields at the Akagoma experimental station.



Figure 30: Fertilizer application activity in rice fields at Akagoma.

The pictures below show small scale farmers practicing weed control using hoes.



Figure 31: small scale farmers practicing weed control using hoes.

SECTION IV: Statement of Project Impacts on small farmers and rural communities

PART I: Impact on Farmers' Income.

Ikangure Dukore Ibirama is a rural community farmers group of 215 associations of small scale limited resource fruit and vegetable producers with 6,220 memberships (2,073 males and 4,147 females) in Vyegwa and Ngozi Provinces. They are limited in their ability to produce good quality diverse varieties of fruits and vegetables for their local market and family consumption. Fruit and vegetable production in the region received much interest in early 2009 due to an increase in promotion of quality food, nutrition and a healthy balance diet. Thus, an increase in demand and high prices were received. Fruit and vegetable production has historically been less than an average production in that part of the region. Vyegwa accounted for less than 1/5 of ha planted per farmer. The Ikangure Dukore Ibirama Association of small scale fruit and vegetable producers needed updated information on new suitable varieties, production practices, new technologies and marketing strategies.

The Ikangure Dukore Ibirama Association of small scale fruit and vegetable producers in Vyegwa received production practices, new and improved high quality fruit and vegetable varieties as well as research results information from the SC State-Ngozi University Partnership for the Strengthening Education Capacity and Rural Development Project Extension and Outreach Service. The Association also requested hands-on training and field day demonstration plots for visual comparisons. The field demonstration plots were established at the Ngozi University site for producers to visit. A selected group of 215 small scale farmers (one member from each association) attended a series of production practices, variety selection training sessions, field days and hands-on demonstrations to see and learn about the varieties from SC State-Ngozi University partners, researchers and field agents. The group also discussed the market situation, marketing strategies, and food and nutrition issues at the training events.

In the middle of 2010, the Association received 215 ha of agricultural land from the Ngozi Province, which they prepared and planted in early 2011 with selected pineapples, mangoes, and papayas varieties of plants based on visual and statistical information gathered during field days. The Association scheduled fieldwork, weed control, integrated pest management training for its members with the assistance of the SC State-Ngozi University partners, researchers and field agents every Wednesday from sun up to sun down. In 2012, the Association had their first harvest; 75% of the total harvested fruits were sold to regional small scale juice producers, 15% at the local Ngozi market, 5% at road side market and 5% for family member consumption. Ninety five percent (95%) of the total harvest yielded 1.5 million franc BU or equivalent of \$1,500.00 US dollar. In 2013 the Association harvested and sold double the return of 2012. So far, 3 million franc Bu of fruits or the equivalent of \$3,000 U.S. dollars has been sold.

Many of the long-time producers have shared they saw a more helpful and responsive effort from the SC State-Ngozi University Partnership Project researchers and field agents. Last, but not least, the project helped them increase productivity and marketability of their fruits and vegetables. The president of the Association stated, "Let's wake up for durable and sustainable development for the Vyegwa Community. We chose the name for the Association because we want to be able to provide quality education to our children, health care and decent shelter for our families." The return of their hard labor and determination coupled with the assistance from the project provided them with peace of mind. Their future plan is to be able to own a small juice processing plant and produce juice from locally grown fruits with their label.

PART II: Knowledge and Future Benefits

Gisha Valley Small Scale Rice Producers is an association of 10 groups of limited resource small scale livestock hay producers converted into rice producers in 2011. Each association is composed

of membership averaging 20-25 members, mostly women. The Gisha Valley Association accounts for 200 members with 160 females and 40 males.

Rice production in Gisha Valley has the potential to increase agricultural productivity and incomes, and improve availability of low cost food for the community. Economic benefits from rice production in Gisha Valley may help reduce poverty and malnutrition in Gisha Valley as well as surrounding communities in Ngozi Province. In 2011, the Gisha Valley small scale rice producers received 10 ha of the valley land from the Ngozi Province to put into rice production.

The SC State-Ngozi University Partnership for Strengthening Education Capacity and Rural Development Extension and Outreach Service Project worked with the 10 associations to provide production training to include wetland drainage and management, field preparation, transplanting, rice field irrigation, water management and pest and disease control. Also, a workshop was held on marketing along with a good agricultural practices information session. Two hundred (200) small scale limited resources rice producers attended to learn about effective guidelines for successful rice production and increase production quantity and quality to reduce poverty in Gisha Valley and surrounding communities.

Knowledge change was measured through small scale farmer one on one interviews and farmers' behavior change was identified a few months later through observation follow-up. As a result of attending the training sessions offered by SC State-Ngozi University Partnership Project, the small scale farmers association reported knowledge gained. Eighty five percent (85%) of the 10 ha planted by the association is expected to yield on the average 4-5 tons of unpolished rice at the harvest the other 15% will average 3.5 to 4 tons. At 700 franc BU/kg, the association is expected to make a gross income of 2.8 million franc BU/ ha of rice and net after 200,000 franc BU for production cost at an average of 2.6 million franc Bu or equivalent to \$2,600.00 US dollars this year. Twenty percent (20%) of the total harvest will be distributed to the members for their family consumption and the remaining 80% will be sold.



Figure 32: Small Farm outreach service Project. These pictures were taken in May 2013 during the project follow up visit at the Gisha rice field and Vyegwa Fruit field

During the period from February 2009 to May 31, 2013, South Carolina State University (SCSU) and Ngozi University (NU) worked closely to accomplish the goals of strengthening academic curriculum and rural development in Ngozi. The project received valuable assistance from North Dakota State University and enhanced educational capacity. The project formalized an extension and outreach program at Ngozi University. A team of scholars from SC State, North Dakota State University (NDSU) and

Ngozi University educators worked and completed the project goals. The joint efforts, promoted educational opportunities, enhanced agricultural research and lead to improved academic curriculum and educational academic standards. A long term partnership between a SC State and NU was created through NU's Agronomy Department and its research center. The successful exchange program culminated with the return to Ngozi of exchange participants.

SECTION V: CONCLUSION

PART I: Summary of the key lessons learned and advice for future implementers

Ngozi University is one the few institutions in Burundi that now combines academic curriculum with extension, research, and outreach services. The application of results of academic research to support rural development is a new initiative that is still developing. It is a variance from the theoretically-based academic research in developing countries.

A new agribusiness program was created and is operational at Ngozi University. The instruction of over 16 courses has been delivered. Agribusiness students are expected to graduate in October 2014. Students of Agribusiness and Agronomics faculty are trained to carry out surveys on the ground and to assist and promote good agricultural practices, especially in rice, fruits and vegetable domains to farmers and rural communities. Others farmers work in different stations and are trained in new agricultural methods.

Key lesson learned: While the original proposal called for teaching short courses, the implementation team taught courses at full length to meet the credit hours requirement of regular agronomy courses. Following the Ngozi University needs assessment conducted in March 2009, the agribusiness courses were taught to establish a new agribusiness program. The main challenge was that agribusiness courses were being taught by the implementation team members since no local instructors had training in agribusiness curriculum development and teaching.

However, following the needs assessment, Ngozi officials and stakeholders quickly understood that there was a case for an agribusiness curriculum. There was a need for an agribusiness program with a focus on the agribusiness sector at Ngozi. Agribusiness will spur rural economic development in Ngozi. The program will focus on agribusiness products. The situation is ideal for NU and its surrounding agricultural communities. The NU campus is practically in downtown Ngozi city. This ideal location is vital for the development and promotion of enterprises and entrepreneurship and is an important and integral component of the university curriculum.

The team had language challenges. The SC State instructors had to translate English agribusiness courses into French course versions. The translations were time and effort consuming. The challenges were alleviated by assistance from third party instructors from Rwanda who were versed in both English and French. Lack of facility and teaching in hot weather with no air conditioning was quite a challenge (see Figure 3).

It is known that the exchange program was delayed due to a misunderstanding of the cost share concept on the part of Ngozi. NU wanted to forgo the exchange program to receive the cost share dollars at Ngozi University, a clear misunderstanding of the student exchange concept arising from the lack of post-award briefings. It is recommended that future performers involved in a student exchange program brief the partners on the mechanics of the exchange program and the concept of cost share. The partners need be fully briefed on the entire project in order to get off to a speedy start. Due to the lack of experience and training on the part of the Ngozi team, the SC State team had to complete exchange activities originally assigned to Ngozi team. These included the handling of Ngozi student TOFL and GMAT examinations and completion of WES transcript English translation, and the involved logistics. Future partners should be well informed of the activities before the project begins. Despite the delayed

arrival at SC State and other cultural impediments, the exchange program succeeded due the determination of the carefully selected Ngozi exchange participants.

There were no major and unexpected challenges with extension and outreach activities. The problem of infrastructure and lack of transportation to rural areas is known and has been an issue since the beginning of the project. However, the U.S. Embassy –Bujumbura thankfully provided two vehicles for extension assistance. The transportation assistance permitted the team to pay close attention and provide timely action that helped in the selection of seeds of rice and fruits and vegetable seeds. The seeds have been distributed to rural communities/Agricultural Enterprises and others local communities. International agencies such as PRODEFI, PAIVA B, PAIR/USAID, and private sectors also received seeds. These activities are leading the way to promote economic growth and improve quality of life for small scale farmers and rural communities in Ngozi.

The invoice and reimbursement process was not fully understood when the project began. Under the contract with ACE /HED, SC State reimbursed Ngozi University for verifiable expenses on approved project activities. Ngozi University was not briefed on the reimbursement system and wanted a cash advance from SC State, which is contrary to the system in place and is not an allowable activity.

The Ngozi University accounting system needs to be updated. The invoices were often sent to SC State with no justifications attached and had to be returned to Ngozi for proper invoicing and justifications.

There were also delays on the part of SC State reimbursements, mainly arising from personnel changes and delays in contract renewals. However, payment of all properly invoiced activities has been honored by SC State.

PART II: Analysis of how the HED partnership has affected policies and practices at both U.S. and host country partner collaborating institutions

Revised and improved academic curriculum and teaching standards, the newly created agribusiness and entrepreneurship courses benefit Ngozi University and also to SC State University as a contribution to his international experience and reputation.

On the part of Ngozi University, a new permanent class structure is in place (see Figure 2). The figure shows structural changes at Department of Agronomy and Agribusiness and the University's interest in Agribusiness program and agribusiness sector.

The policies and practices now follow the course schedule and structure. The partnership has contributed to the innovation of Ngozi University programs and specifically has changed the department of agronomy into department of agronomy and Agribusiness. Burundian students can now gain experience for teaching and learning in diverse environment.

The exchange program has been completed and the three Burundi students have acquired overseas experiences and ideas that they are sharing with colleagues at Ngozi University.

The Burundian students were exposed to new ideas and a new agribusiness program at SC State. Two students majored in the MBA in Agribusiness and the third majored in Entrepreneurship. These experiences are being transferred at Ngozi University. Moreover, these activities form a base for developing continued linkage and cooperation with SC State. The exchange program has promoted the institutions mutual interest of international cooperation.

On the part of SC State, the activities promoted and enhanced SC State faculty's international experience and reputation. SC State faculty members have gained experiences from the academic exchange, teaching at Ngozi University with the possibility of continued joint research and publication cooperation.

The expansion of SC State international program was one of the motivations for participation in the partnership. South Carolina State has had partnerships with other countries in Sub-Saharan Africa and the Ngozi partnership adds to the roster of national and international partnerships.

The SC State extension specialist and NDSU agronomist have worked on extension activities and outreach services in Ngozi and Kayanza provinces. They have gained different approach experiences under different local climate and soil, weather conditions through their participation at fruit and vegetable experimental stations at the Ngozi campus, Musenyi and Gatara stations, and rice research stations at Akagoma, Gisha and Marangara.

The extension practice has recently been expanded to sites in the adjacent provinces Kayanza and Kirundo. It is expected that, over time, production and dissemination of new seeds will cover more and more areas of the country contributing to an agriculture and agribusiness-based development for Burundi. Rural communities and small scale farmers continue to be the main beneficiaries of the extension research programs and results.

PART III: Discussion of whether or not your institutions will continue to collaborate

The SC State team will continue to collaborate with Ngozi University. The collaboration will be facilitated through the new SC State graduates now at Ngozi University. In the short run, a current joint project is still continuing and a publication of research results is expected. A case study from the Burundi project is being developed for presentation at the inaugural **international conference, *Black Entrepreneurship in the 21st Century – Unborn, Catching Up or Falling Behind!*** hosted by the Pan African Enterprise Research Council (PAERC) in partnership with the Faculty of Social Sciences & Faculty of Humanities and Education, University of the West Indies, St Augustine Campus, Trinidad.

In the long run, a joint partnership program between South Carolina State University (SCSU), North Dakota State University (NDSU), and Ngozi University could be an excellent opportunity for enhancing agricultural education and teaching capacity in Burundi beyond the current project. North Dakota State University (NDSU) is a major research institution that has been assisting the SC State team in this project and would continue to participate in research efforts. Dr. Koo made policy recommendations to get Burundi, the world's third poorest nation, to double its current capita income in just 5 years, if the recommendation is accepted. The attached document has been developed to assist in the possible implementation of the recommendations. Dr. Chiwon Lee, also from NDSU, a horticulture expert and with long experience in plant genetics, has visited Ngozi University and rural area, several times and will continue to provide technical assistance. Chiwon Lee and Won Koo volunteered their expertise and experiences to the Partnership. Searches to support a formal multistate partnership continue and if fruitful, they could address long term partnerships for rural development of entire Burundi.

PART IV: Discussion of the prospects for sustainability as well as future opportunities.

There are at least two opportunities for two types of research. An institutional research project will be of benefit at Ngozi University. First, on-going joint project will help new Burundian graduates gain experience in research and publication. They will be able to continue joint research and develop their own research agendas. A former Ngozi University faculty member was able to secure a small research grant. Such opportunity could be continued. A SC State NU joint research program could be developed. A joint research proposal submission would enable Ngozi University faculty to gain sustainable proposal writing skills, research experience, and opportunities to continue research publication. Second, applied basic research can help Ngozi faculty improve publication records and the probability of successful grant submission and enhanced chances of future publication and research recognition.

Appendix D: External Evaluation Report

**South Carolina State University - Ngozi University Partnership for Strengthening
Educational Capacity and Rural Development**

External Evaluation¹

Dr. Eric J Wailes²
University of Arkansas, Fayetteville

June, 2013

¹ The contents of this report are based on interviews, reports, on-site visits at Ngozi University. They do not represent the opinions of the University of Arkansas, South Carolina State University, Ngozi University, USAID, or Higher Education for Development.

² Dr. Wailes is a Distinguished Professor and holder of the L.C. Carter Endowed Chair in Rice and Soybean Marketing at the University of Arkansas, Fayetteville, Division of Agriculture.

**South Carolina State University - Ngozi University Partnership for
Strengthening
Educational Capacity and Rural Development**

External Evaluation¹

**Dr. Eric J Wailes²
University of Arkansas, Fayetteville**

June, 2013

¹ The contents of this report are based on interviews, reports, on-site visits at Ngozi University. They do not represent the opinions of the University of Arkansas, South Carolina State University, Ngozi University, USAID, or Higher Education for Development.

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Introduction

Partnership Project Objectives and Scope

The South Carolina State University and Ngozi University Partnership for Strengthening Education Capacity and Rural Development is a project that is designed to enhance university agribusiness education curricula, promote educational opportunities, improve agricultural research capacity, motivate academic achievement and stimulate agricultural and food development in rural and urban communities in Burundi (Final Proposal, 2008). The project activities which have been implemented to achieve these objectives include:

1. Introduction of an agribusiness curriculum at the Ngozi University Agronomy Department
2. Faculty training at Ngozi University and South Carolina State University and M.S. degree training at South Carolina State University.
3. Faculty training and infrastructure improvement at Ngozi University in applied agronomy and agribusiness research.
4. Rural development, extension of research projects and outreach to rural communities and associations.

Financial support has been provided from the United States Agency for International Development (USAID) through the Higher Education Development (HED). The project has been implemented over a three year period from October 2010 to September 2013. Formal educational activities have taken place at the Ngozi University campus and South Carolina State University campus. Research activities and extension outreach have taken place at the Ngozi University campus as well as at outlying sites in Gatara, Marangara, Gisha, Akagoma, and Musenyi.

External Evaluation

The on-site visit for the external evaluation took place at Ngozi and at outlying research stations on May 2 - 4, 2013. A set of documents were provided by Dr. David Karemera prior to travel to Burundi. The list of documents and references used for the evaluation is provided in the Annex. A preliminary itinerary was developed and provided prior to the trip to Burundi and revised during the on-site visit. An attempt was made to interview as many individuals in Burundi who were responsible for the project activities and those who were beneficiaries. A list of persons interviewed is reported in the Annex. The sites visited are given in the Annex. The CV of Dr. Eric Wailes is given in the Annex.

Evaluation of Partnership Program and Activities

This evaluation is primarily qualitative but quantitative metrics are included where available. The report will focus on four specific activities that were proposed by the project. I have benefitted from excellent

availability of university administrators, staff, and students, as well as CERADER technicians. Secondary documents have been used where available.

1. Improving the Curriculum at the Ngozi University Agronomy Department

Since 2009, the academic program at Ngozi University has been enhanced with the introduction of the only agribusiness and entrepreneurship program in Burundi. This initiative provided the addition to the curriculum of three new course offerings including: Cost-Benefit Analysis, Agribusiness Strategy, and Farm Management. The courses were structured to provide opportunities to students to engage in experiential learning on Burundi agribusiness challenges. The cost-benefit course is a valuable addition to the training of students given the importance of developing the ability to conduct investment analysis, feasibility studies and program and project evaluations. The agribusiness strategy contributes to the student's training by introducing case study methods and examining relevant enterprise development and strategy for Burundi. Finally, the farm management course is a logical follow-on course to the basic economics course where management and decision-making tools including business accounting, investment analysis, production planning and coordination are taught. All three of these courses represent a fundamental core of an agribusiness core curriculum and the project is commended for this development. The Agribusiness program is housed within the Faculty of Agronomy, which is renamed the Faculty of Agronomy and Agribusiness.

In addition to new courses, delivery of courses through the use of up-to-date lecture styles using power point and overhead presentations was introduced by the project. Innovative teaching methods that included short courses and case studies relevant to Burundi's situations in order to develop competencies in entrepreneurship, agribusiness, and the trade sectors were achieved. Also there was some experiential learning by academic assignments with agribusiness companies, community organizations and NGOs.

While significant progress in developing and delivery of an agribusiness curriculum has been achieved, there remains a significant need to continue to develop a sustainable curriculum with set of additional courses that could and should be developed for a fully developed agribusiness program. Additional offerings that should be considered include courses in marketing, finance, food and agricultural policy, development policy and agricultural trade. This expanded course offering can only be achieved with additional teaching resources. A shortage of available faculty has been a primary constraint during the life of this project. Further, there is an important need to continue to enhance the experiential learning methods so that students have the opportunity to gain field experience and encounter agribusiness and entrepreneurial problems that farmers and the agribusiness sector in Burundi encounter.

2. Faculty Training at Ngozi University and South Carolina State University and Student Exchange Program

Professors from South Carolina State University were visiting lecturers and provided guidance on innovative teaching methods to the faculty at Ngozi University. Most importantly, South Carolina State University provided the opportunity for an exchange program with three students from Ngozi University

to complete their M.S. theses by 2013. This human capacity building effort as funded by the project is clearly important for being able to further develop and sustain the agribusiness and entrepreneurship teaching program at Ngozi University. These students were undoubtedly trained in course material that they will bring back to the University. They also will have been exposed to a broad range of teaching methods that will enhance the program. Finally, these three students completed a research thesis which required an understanding of research methods, necessary to continue the applied research and outreach program activities which this partnership has also begun to develop. The thesis titles reflect research on a range of topics including production efficiency of rice seedling nurseries, macroeconomic assessment of the Burundi economy, and the effect of regional integration of Burundi into COMESA (Common Market for Eastern and Southern Africa) and CEA (Central and Eastern Africa).

Now that these students have been trained there will be a need to sustain support for their return to capture the investment in training that was made during the past two years. Further, as the curriculum develops, there will be need for on-going training and additional student exchanges to enhance and develop a core faculty, necessary to teach the agribusiness and entrepreneurship curriculum. I met with 13 current agribusiness students. Key findings from the discussion were: 1) students were very enthusiastic about the new program, 2) they would like the program to provide more practical training from the field, and 3) 7 of the 13 students would like to continue to a higher level (M.S.) degree.

3. Faculty Training in Applied Agribusiness Research Methodology

This objective is a logical extension of the second objective where both formal and informal training in research methodology has been achieved. First, the student exchange program required a research thesis. This activity means that the returning students will have gained at least a M.S. level understanding of research methods. Second through faculty mobilization of South Carolina State University, there were also lectures given at Ngozi University on research methods. Faculty has been trained to teach survey methods and field trial research in order to expand and extend the applied research program on seed production and technology adoption.

As indicated above, availability of well-trained faculty has been a major constraint in the early phase of this project. However, it is clear to this reviewer that the faculty dean, Dr. Marc Ngendahayo has excellent science training and experiences to lead the development of a research and teaching faculty that will address the production and agribusiness challenges facing the Burundi farmer and agribusiness organizations. His work particularly on rice is remarkable and reflects a strong success of the project funding for the collaborative research/outreach objective.

4. Rural Development, Extension and Outreach

Rural development, extension and outreach has been achieved in the project primarily through the establishment of applied research trials, innovative seed production plots and training programs with organized farmer associations. Applied research and rice seed variety testing and multiplication was achieved at the Gisha, Akagoma, and Marangara outreach/research stations. Vegetable testing and seed

multiplication was introduced and achieved at the Gatara, Musenyi and Ngozi University outreach/research stations (see Annex photos). The participation of farmers and local leaders (n=242) in outreach education and training programs was achieved in both Ngozi and Kayanza provinces. Successful vegetables (six) and rice (three) varieties were multiplied for seed production, which have been distributed to rural communities, farmer associations and enterprises and local and international non-governmental organizations. Selection of successful varieties has been driven by producer attributes such as disease resistance, labor and other input requirements, and consumer traits such as taste, appearance, and nutrition.

While six research stations have been developed and they have been successful in the initial phase, these stations will require additional support including, technicians and equipment to sustain the preliminary efforts. It was clear in this evaluation trip that local communities recognize that these research/outreach demonstration stations can provide not only improved varieties and production techniques, but can also be incubators for expanded enterprise development for agricultural inputs and market value chains. The coordination of the teaching program with the outreach efforts which utilize the research stations for testing and demonstration of new varieties is a remarkable achievement of the project in just the first three years. While this framework has been established it will require an on-going effort to maintain. Key constraints remain including transportation, adequately trained technicians, organized delivery of improved seeds to the market and coordination in general of the value chains.

Summary and Recommendations

The project has been able to achieve the introduction of the agribusiness curriculum, improve and increase the faculty resources and educational activities, improve research methods appropriate for contributing to the development of rural communities, agricultural production, improved nutrition, and enterprise development.

The framework of collaboration between South Carolina State University and Ngozi University has worked well and it should be continued. It is clear that a good working relationship has been established between the two universities. As a general recommendation, this project should be extended with a second follow-on project. Specific activities that need to be addressed include the following:

1. The core agribusiness and entrepreneurship curriculum needs to be enhanced to include:
 - a. Additional courses in enterprise development, marketing, value chain development, policy and trade, and research methods.
 - b. Additional teaching resources including more computers, teaching resources particularly books and other teaching materials.
 - c. Increase the experiential content of courses with more interaction with rural community and agribusiness enterprises through case studies and internships.
2. The training program of the faculty and of new faculty needs to be extended and further developed by:

- a. Continuing the exchange program for M.S. level training and include funding for 2 Ph.D candidates.
 - b. Expand the faculty mobility from South Carolina either through semester sabbaticals or develop course access through online course offerings.
3. Faculty training in research methods can be enhanced by increasing the focus on vegetable production and value chain development. Expanding the range of vegetables that can be produced locally will greatly improve the nutritional levels of the local population and result in high value supply chains that can extend to the rest of the country and neighboring countries through the developing regional trade integration.
4. Community and rural development, extension and outreach needs to be enhanced through:
 - a. Introduction of coursework/ teaching of extension education at Ngozi University.
 - b. Expansion of number of farmer associations, rural enterprises, and linkages to rural community leaders.
 - c. Develop a Leader program by identifying young, capable members of farmer associations, and rural communities to meet on a monthly basis to provide informal education on rural community and enterprise development, including field trips, case studies and group projects.
 - d. Improve research station technician training by providing opportunities for existing personnel to train and national and international research training short course programs.
 - e. Improve the physical infrastructure including irrigation, transportation, harvesting sheds and seed storage facilities.

These recommendations are made in light of the fact that the project has successfully established a collaborative framework between Ngozi University and South Carolina State University, upon which more intensive and focused activities can be achieved. Consideration should be given to expanding either formal or informal arrangements through sub-contracts with teaching and research expertise at other U.S. universities which offer expertise and resources that are not necessarily available at South Carolina State University.

Finally, I extend my congratulations to the principal collaborators on a successful completion and attention to the original project objectives. It is my recommendation that this project be followed with a second contract to secure and expand upon the foundation which has been laid.

Annexes

List of documents and references

Ngozi University and Higher Education for Development (HED). 2013. Final Partnership Report.

Final Proposal. 2008. SC State- Ngozi University Partnership for Strengthening Educational Capacity and Rural Development.

List of people interviewed

1. Abbé BANGAYIMBAGA, Apollinaire, Rector, Ngozi University
2. Dr. Marc Ngendahayo, Dean, Faculty of Agronomy and Agribusiness
3. Dr. David Karemera, Chief of Party, South Carolina State University
4. Mr. Desire and Mr. Ascension, support and faculty, Ngozi University
5. Daphroza, Station manager, Gatara research station
6. BANYANKINDAGIYE, Norbert, agribusiness student
7. EGERIMANA, Divine Ornella, agribusiness student
8. MUNZERO, Alice, agribusiness student
9. NDIHOKUBWAYO, Juvénal, agribusiness student
10. NDIHOKUBWAYO, Céleus, agribusiness student
11. NSABIMANA, Léonidas, agribusiness student
12. MACUMI, Jean Népo, agribusiness student
13. MWSAVYIMANA, John Berehmans, agribusiness student
14. NIYERA, Pauline, agribusiness student
15. BIZIMANA, Anthémon, agribusiness student
16. NIYIBITANGA, Félicien, agribusiness student
17. RWASA, Privat, agribusiness student
18. NDAYISABA, Félix, agribusiness student

List of sites visited

1. Ngozi University and research station
2. Gatara research station
3. Gisha research station
4. Musenyi research station
5. Akagoma research station

CV of Eric Wailes, external evaluator

Eric J. Wailes

Distinguished Professor and L.C. Carter Chair in Rice and Soybean Marketing

Current Appointment: 15 % teaching, 75% Research, 10% Service

Education

B.Sc., Agricultural Economics, Cornell University, 1972

Ph.D., Agricultural Economics, Michigan State University, 1983

Professional Experience

Assistant Professor, Department of Agricultural Economics and Rural Sociology, University of Arkansas, 1980-86
Associate Professor, Department of Agricultural Economics and Rural Sociology, University of Arkansas, 1986-92
Visiting Scholar, U.S. Dept. of Agr., Economic Research Service, 1991
University Guest Professor, University of Helsinki, Finland, 1997
Visiting Expert, Food and Agriculture Organization/Rome, Italy, Jan-Jun, 1998
Visiting Professor, Scottish Agricultural College, Aberdeen, Jul-Dec, 1998
Professor, Department of Agricultural Economics and Agribusiness, University of Arkansas, 1992-2010
Erasmus Mundus Visiting Professor, University of Ghent, Belgium, 2005
L.C. Carter Rice and Soybean Marketing Endowed Chair, Department of Agricultural Economics and Agribusiness, University of Arkansas, 2002-present
Fulbright Senior Specialist, International Agricultural Economist, University of Can Tho, Vietnam, 2007
Distinguished Professor, Department of Agricultural Economics and Agribusiness, University of Arkansas, 2011-present

Areas of Research Expertise/specialization

Research areas are focused on the economics of domestic and international trade policies. Specialization is on the economics of U.S. and international rice economies, understanding the impacts of new technologies, market developments, policy reforms, food security concerns and trade developments and policies. Current research is devoted to 1) understanding barriers and prospects of genetically modified rice to improve the diets and health of rice dependent food societies, 2) understanding the impacts of 2012 food and farm legislation and crop insurance for Arkansas farmers and the rice sector, 3) study of food security and trade related to the ASEAN region and regional trade agreements and 4) study of water resource allocation in Arkansas as it affects the competitiveness of the Arkansas rice economy.

Teaching Experience

Agricultural Marketing Analysis (graduate). 1983, 1986, 1999, 2004.
Agricultural and Rural Development (graduate). 1983,85,86,87, 2004.
Domestic and International Agricultural Policy (undergraduate/graduate). 1994-97,99-12.
International Trade and Macroeconomics (graduate) 2005-08.
University Honors Course in Public Policy (undergraduate/graduate) 1999.

Professional Service

WRCC, "Assessing Chinese Markets for U.S. Agricultural Products," 1994-present.
NC-1016, "Trade agreements, bioterrorism, and renewable fuels for U.S. grains." 2004-2010, Chair, 2008
S-1043, Economic Impacts of Trade and Domestic Policies on Southern Agriculture. 2008-present, Chair, 2009.
Member of 6 Expert Panels for USDA
Ad hoc reviewer for 42 journal articles
Member of editorial board of one journal

Honors and Awards

Spitze Land Grant University Faculty Award for Excellence, 2010, Division of Agriculture, University of Arkansas
Journal of Applied Communications journal article of the year for 2003, co-author.
John W. White Outstanding Research Award, University of Arkansas, Division of Agriculture, 2003.
Outstanding Research Program, University of Arkansas Faculty of College of Agriculture, Food and Life Sciences, Gamma Sigma Delta Agricultural Honorary Fraternity, 1997
Outstanding Rice Research and Service Award, Rice Technical Working Group, 1990-92 and 1996-98
Outstanding International Research Program, University of Arkansas, Phi Beta Delta Chapter Recognition, 1991

Grants and Contracts since 2003

USDA/ERS/FAPRI/Iowa State University 2003-2011 \$310,000
Rice Research and Promotion Board, Rice Farm Economics \$446,000, 2003-2012 (with B. Watkins)
SARE/USDA. Conversion of poultry and swine facilities \$17,448. 2003-2004 (with Mike Evans)
ERS/USDA. Global Analysis of Increased Rice Trade Liberalization. \$20,000. 2003-2004
SARE/USDA, Policy framework for organics agriculture, \$280,000 2004-2008
USDA/ERS, Impact of demographic factors on agricultural and food trade, 2004-05, \$15,000
White River Irrigation District, Re-evaluation of Grand Prairie Irrigation Project, 2007-2011 \$40,000
USDA/NRI, Trade Negotiations, 2008-2010, \$210,000
U.S. Department of Education, EU-US Atlantis Program, 2008-12, \$448,000 (with Parsch/Ahrendsen)
Cotton, Inc. COTMAN software evaluation. 2009-2012 - \$35,000
Soybean Promotion Board. Policy analysis of soybean farms. 2011-12 - \$10,000.
Rice Research and Promotion Board, 2012 Farm Bill analysis, 2011-2013, \$32,000
AgHeritage and Farm Credit Banks of Arkansas. Policy Analysis. 2010-2011 - \$12,000
Arkansas Natural Resources Commission. Evaluation of State Water Plan. 2010-2011 - \$30,000.
John Templeton Foundation, Barriers to Commercialization of GM Rice, \$250,000, 2012-2014.

Publications/Presentations since 2003

31 Journal articles
18 Posters
35 Selected papers
8 Book chapters
71 Invited presentations

Selected Publications/Presentations

"Market impacts of Adopting Herbicide-Resistant Rice in the Southern United States." (with F. Fuller and M. Annou) *Journal of Agricultural and Applied Economics*, 35(1):185-93.
"Communicating Biotechnology: Relationships between Tone, Issues, and Terminology in U.S. Print Media Coverage." (with J. Miller and F. Mwaijande) *J. of Applied Communications*. 87 (3):29-40.

- "Implications of the WTO Doha Round for the Rice Sector." *Proceedings, World Rice Conference*. FAO, United Nations. At <http://www.fao.org/rice2004/en/pdf/wailes.pdf>
- "Innovation Dissemination and the Market Impacts of Drought-Tolerant Rice." *International Journal of Biotechnology*. (with M. Annou and F. Fuller) Vol. 7 No. 1/2/3:113-127
- "Rice global trade, protectionist policies, and the impact of trade liberalization." In *Global Agricultural Trade and Developing Countries*. Eds. M. Ataman Aksoy and John C. Beghin. World Bank.
- "A dynamic decision model of technology adoption under uncertainty: case of herbicide-resistant rice." (with M. Annou and M Thomsen) *J. Agr. and Appl Econ*. V37 n1(April 2005):161-72.
- "Surface water diversion impacts on farm income and sources of irrigation water: the case of the Grand Prairie in Arkansas." (with J.Hill, J Popp, K. Young) *J. Soil and Water Conservation* 61(4):185-191.
- "Challenges for market intelligence in an increasingly differentiated global rice economy." In Aggarwal PK, Ladha JK, Singh RK, Devakuar C and Hanrady B, eds. *Science, technology, and trade for peace and prosperity*. Proceedings, International Rice Research Conference, New Delhi, India.
- "The WTO and U.S. Domestic Support in the Food, Conservation, and Energy Act of 2008." (with P. Rosson) *Choices*. 23(3): 46-48.
- "LL601 contamination and its impact on U.S. rice prices." (with Y.Li, A. McKenzie, M. Thomsen) *Journal of Agricultural and Applied Economics* 42,1(February 2010):31-38.
- "The International Rice Trade: Structure, Conduct and Performance." (with P. Dorosh) In *Rice in the Global Economy: Strategic Research and Security*. 50th Anniversary Book of the International Rice Research Institute. IRRI, Los Baños, Philippines. November, 2010. At: http://books.irri.org/9789712202582_content.pdf
- "Global Rice Supply and Demand Outlook: Implications for Future Food Security." (With S. Mohanty and E. Chavez) In *Rice in the Global Economy: Strategic Research and Security*. IRRI, Los Baños, Philippines. November, 2010.
- "The global rice market: what's happening and what's ahead". Invited Presentation. International Rice Policy and Investment Conference, 3rd International Rice Congress. Hanoi, Vietnam. 2010.
- "Trade Negotiations: Treatment of Sensitive Agricultural Products." (with A. Durand-Morat) USDA National Research Initiative Conference. Denver, CO.
- Wailes, Eric and Eddie Chavez. "World Rice". In FAPRI 2000-2010 U.S. and World Agricultural Outlook. FAPRI Staff Report Prepared for U.S. Congress.
- Durand-Morat, Alvaro and Eric Wailes. 2010. Riceflow: a multi-region, multi-product spatial partial equilibrium model of the world rice economy. Staff Paper 03 2010. Dept. Agr. Econ and Agbus. Univ. of Arkansas. <http://ageconsearch.umn.edu/handle/92010>
- "A Quantitative Analysis of Trade Policy Responses to Higher World Agricultural Commodity Prices." (with E. Yu, S. Tokgoz, E. Chavez) *Food Policy* 36 (2011) 545-561.
- "Assessment of House and Senate Farm Bill Proposals". 2012. (with B. Watkins, V. Karov, and E.Chavez) Presentation to 2012 Arkansas Rice Expo.
- "ASEAN and Global World Rice Situation and Outlook" 2012. (with E. Chavez) Asian Development Bank. Food Security Working Paper. No. 22. Manila, Philippines.
- "Investigating the influence of the institutional organization of agri-environmental schemes on scheme adoption". (with E. Mettepenningen, V. Vandermeulen, K Delaet, G. Van Huylenbroeck). *Land Use Policy*, forthcoming

Trip photos



Ngozi University Rector, Wailes, Dean and Faculty



Faculty of Agronomy and Agribusiness Dean and faculty



Gatara research station with technicians and manager



Improved vegetable seed varieties from USAID project.



Gisha research station and demonstration site



Working with farmer association members at Gisha research station.



Musenyi vegetable research station with technicians.



Musenyi research station spinach seed production for distribution



Akagoma rice research station and seed multiplication.

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2. FACULTY TRAINING AT NGOZI UNIVERSITY AND SOUTH CAROLINA STATE UNIVERSITY AND STUDENT EXCHANGE PROGRAM.....

3. FACULTY TRAINING IN APPLIED AGRIBUSINESS RESEARCH METHODOLOGY

4. RURAL DEVELOPMENT, EXTENSION AND OUTREACH

Summary and Recommendations

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LIST OF DOCUMENTS AND REFERENCES

LIST OF PEOPLE INTERVIEWED.....

LIST OF SITES VISITED.....

TRIP PHOTOS

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- 4. Rural Development, Extension and Outreach.** Rural development, extension and outreach has been achieved in the project primarily through the establishment of applied research trials, innovative seed production plots and training programs with organized farmer associations. Applied research and rice seed variety testing and multiplication was achieved at the Gisha, Akagoma, and Marangara outreach/research stations. Vegetable testing and seed multiplication was introduced and achieved at the Gatara, Musenyi and Ngozi University outreach/research stations (see Annex photos). The participation of farmers and local leaders (n=242) in outreach

education and training programs was achieved in both Ngozi and Kayanza provinces. Successful vegetables (six) and rice (three) varieties were multiplied for seed production, which have been distributed to rural communities, farmer associations and enterprises and local and international non-governmental organizations. Selection of successful varieties has been driven by producer attributes such as disease resistance, labor and other input requirements, and consumer traits such as taste, appearance, and nutrition.

While six research stations have been developed and they have been successful in the initial phase, these stations will require additional support including, technicians and equipment to sustain the preliminary efforts. It was clear in this evaluation trip that local communities recognize that these research/outreach demonstration stations can provide not only improved varieties and production techniques, but can also be incubators for expanded enterprise development for agricultural inputs and market value chains. The coordination of the teaching program with the outreach efforts which utilize the research stations for testing and demonstration of new varieties is a remarkable achievement of the project in just the first three years. While this framework has been established it will require an on-going effort to maintain. Key constraints remain including transportation, adequately trained technicians, organized delivery of improved seeds to the market and coordination in general of the value chains.

Summary and Recommendations. The project has been able to achieve the introduction of the agribusiness curriculum, improve and increase the faculty resources and educational activities, improve research methods appropriate for contributing to the development of rural communities, agricultural production, improved nutrition, and enterprise development.

The framework of collaboration between South Carolina State University and Ngozi University has worked well and it should be continued. It is clear that a good working relationship has been established between the two universities. As a general recommendation, this project should be extended with a second follow-on project. Specific activities that need to be addressed include the following:

1. The core agribusiness and entrepreneurship curriculum needs to be enhanced to include:
 - a. Additional courses in enterprise development, marketing, value chain development, policy and trade, and research methods.
 - b. Additional teaching resources including more computers, teaching resources particularly books and other teaching materials.
 - c. Increase the experiential content of courses with more interaction with rural community and agribusiness enterprises through case studies and internships.
2. The training program of the faculty and of new faculty needs to be extended and further developed by:
 - a. Continuing the exchange program for M.S. level training and include funding for 2 Ph.D candidates.
 - b. Expand the faculty mobility from South Carolina either through semester sabbaticals or develop course access through online course offerings.
3. Faculty training in research methods can be enhanced by increasing the focus on vegetable production and value chain development. Expanding the range of vegetables that can be produced locally will greatly improve the nutritional levels of the local population and result in high value

supply chains that can extend to the rest of the country and neighboring countries through the developing regional trade integration.

4. Community and rural development, extension and outreach needs to be enhanced through:
 - a. Introduction of coursework/ teaching of extension education at Ngozi University.
 - b. Expansion of number of farmer associations, rural enterprises, and linkages to rural community leaders.
 - c. Develop a Leader program by identifying young, capable members of farmer associations, and rural communities to meet on a monthly basis to provide informal education on rural community and enterprise development, including field trips, case studies and group projects.
 - d. Improve research station technician training by providing opportunities for existing personnel to train and national and international research training short course programs.
 - e. Improve the physical infrastructure including irrigation, transportation, harvesting sheds and seed storage facilities.

These recommendations are made in light of the fact that the project has successfully established a collaborative framework between Ngozi University and South Carolina State University, upon which more intensive and focused activities can be achieved. Consideration should be given to expanding either formal or informal arrangements through sub-contracts with teaching and research expertise at other U.S. universities which offer expertise and resources that are not necessarily available at South Carolina State University.

Finally, I extend my congratulations to the principal collaborators on a successful completion and attention to the original project objectives. It is my recommendation that this project be followed with a second contract to secure and expand upon the foundation which has been laid.

Annexes

List of documents and references

Ngozi University and Higher Education for Development (HED). 2013. Final Partnership Report. Final Proposal. 2008. SC State- Ngozi University Partnership for Strengthening Educational Capacity and Rural Development.

List of people interviewed

1. Abbé BANGAYIMBAGA, Apollinaire, Rector, Ngozi University
2. Dr. Marc Ngendahayo, Dean, Faculty of Agronomy and Agribusiness
3. Dr. David Karemera, Chief of Party, South Carolina State University
4. Mr. Desire and Mr. Ascension, support and faculty, Ngozi University
5. Daphroza, Station manager, Gatara research station
6. BANYANKINDAGIYE, Norbert, agribusiness student
7. EGERIMANA, Divine Ornella, agribusiness student
8. MUNEZERO, Alice, agribusiness student
9. NDIHOKUBWAYO, Juvénal, agribusiness student
10. NDIHOKUBWAYO, Céleus, agribusiness student
11. NSABIMANA, Léonidas, agribusiness student
12. MACUMI, Jean Népo, agribusiness student
13. MWSAVYIMANA, John Berehmans, agribusiness student
14. NIYERA, Pauline, agribusiness student
15. BIZIMANA, Anthémon, agribusiness student
16. NIYIBITANGA, Félicien, agribusiness student
17. RWASA, Privat, agribusiness student
18. NDAYISABA, Félix, agribusiness student

List of sites visited

1. Ngozi University and research station
2. Gatara research station
3. Gisha research station
4. Musenyi research station
5. Akagoma research station

CV of Eric Wailes, external evaluator

Eric J. Wailes

Distinguished Professor and L.C. Carter Chair in Rice and Soybean Marketing

Current Appointment: 15 % teaching, 75% Research, 10% Service

Education

B.Sc., Agricultural Economics, Cornell University, 1972

Ph.D., Agricultural Economics, Michigan State University, 1983

Professional Experience

Assistant Professor, Department of Agricultural Economics and Rural Sociology, University of Arkansas, 1980-86

Associate Professor, Department of Agricultural Economics and Rural Sociology, University of Arkansas, 1986-92

Visiting Scholar, U.S. Dept. of Agr., Economic Research Service, 1991

University Guest Professor, University of Helsinki, Finland, 1997

Visiting Expert, Food and Agriculture Organization/Rome, Italy, Jan-Jun, 1998

Visiting Professor, Scottish Agricultural College, Aberdeen, Jul-Dec, 1998

Professor, Department of Agricultural Economics and Agribusiness, University of Arkansas, 1992-2010

Erasmus Mundus Visiting Professor, University of Ghent, Belgium, 2005

L.C. Carter Rice and Soybean Marketing Endowed Chair, Department of Agricultural Economics and Agribusiness, University of Arkansas, 2002-present

Fulbright Senior Specialist, International Agricultural Economist, University of Can Tho, Vietnam, 2007

Distinguished Professor, Department of Agricultural Economics and Agribusiness, University of Arkansas, 2011-present

Areas of Research Expertise/specialization

Research areas are focused on the economics of domestic and international trade policies. Specialization is on the economics of U.S. and international rice economies, understanding the impacts of new technologies, market developments, policy reforms, food security concerns and trade developments and policies. Current research is devoted to 1) understanding barriers and prospects of genetically modified rice to improve the diets and health of rice dependent food societies, 2) understanding the impacts of 2012 food and farm legislation and crop insurance for Arkansas farmers and the rice sector, 3) study of food security and trade related to the ASEAN region and regional trade agreements and 4) study of water resource allocation in Arkansas as it affects the competitiveness of the Arkansas rice economy.

Teaching Experience

Agricultural Marketing Analysis (graduate). 1983, 1986, 1999, 2004.

Agricultural and Rural Development (graduate). 1983,85,86,87, 2004.

Domestic and International Agricultural Policy (undergraduate/graduate). 1994-97,99-12.

International Trade and Macroeconomics (graduate) 2005-08.

University Honors Course in Public Policy (undergraduate/graduate) 1999.

Professional Service

WRCC, "Assessing Chinese Markets for U.S. Agricultural Products," 1994-present.

NC-1016, "Trade agreements, bioterrorism, and renewable fuels for U.S. grains." 2004-2010, Chair, 2008

S-1043, Economic Impacts of Trade and Domestic Policies on Southern Agriculture. 2008-present, Chair, 2009.

Member of 6 Expert Panels for USDA

Ad hoc reviewer for 42 journal articles

Member of editorial board of one journal

Honors and Awards

Spitze Land Grant University Faculty Award for Excellence, 2010, Division of Agriculture, University of Arkansas

Journal of Applied Communications journal article of the year for 2003, co-author.

John W. White Outstanding Research Award, University of Arkansas, Division of Agriculture, 2003.

Outstanding Research Program, University of Arkansas Faculty of College of Agriculture, Food and Life Sciences, Gamma Sigma Delta Agricultural Honorary Fraternity, 1997

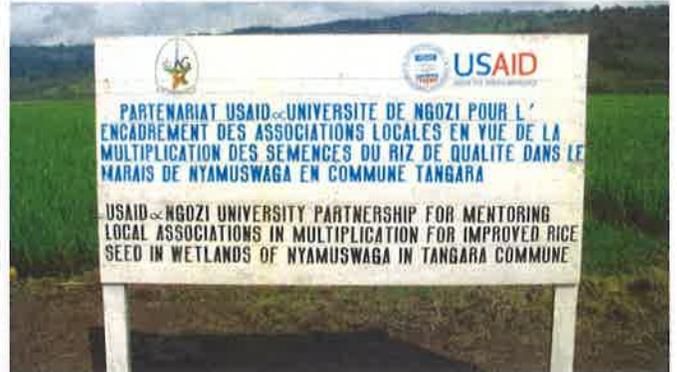
Outstanding Rice Research and Service Award, Rice Technical Working Group, 1990-92 and 1996-98

Outstanding International Research Program, University of Arkansas, Phi Beta Delta Chapter Recognition, 1991

Grants and Contracts since 2003		
USDA/ERS/FAPRI/Iowa State University	2003-2011	\$310,000
Rice Research and Promotion Board, Rice Farm Economics (with B. Watkins)	2003-2012	\$446,000
SARE/USDA. Conversion of poultry and swine facilities (with Mike Evans)	2003-2004	\$17,448
ERS/USDA. Global Analysis of Increased Rice Trade Liberalization.	2003-2004	\$20,000
SARE/USDA, Policy framework for organics agriculture	2004-2008	\$280,000
USDA/ERS, Impact of demographic factors on agricultural and food trade	2004-05	\$15,000
White River Irrigation District, Re-evaluation of Grand Prairie Irrigation Project	2007-2011	\$40,000
USDA/NRI, Trade Negotiations	2008-2010	\$210,000
U.S. Department of Education, EU-US Atlantis Program (with Parsch/Ahrendsen)	2008-12	\$448,000



Gisha research station and demonstration site



Working with farmer association members at Gisha research station



Musenyi vegetable research station with technicians



Musenyi research station spinach seed production for distribution



Akagoma rice research station and seed multiplication