Africa-U.S. Higher Education Initiative Partnerships

BACKGROUND

The Africa-U.S. Higher Education Initiative was born out of the far-sighted vision of the Association of Public and Land-grant Universities (APLU). APLU spearheaded the need for urgent dialogue for increased investment and engagement through partnerships to strengthen higher education institutions in Africa, as well as to contribute to problem solving and development. Such collaborations are also believed to assist higher education institutions in the United States to become more knowledgeable about African affairs and be more deeply engaged in Africa. As a result of this dialogue, U.S. Agency for International Development (USAID) Administrator Henrietta Fore formally expressed the interest of the U.S. Government planting the seeds for this vision during the meeting of the National Association of State and Land Grant Colleges in November 2007.

In 2008, the APLU in collaboration with a number of partners in the U.S. and Africa articulated the vision for Africa – U.S. Higher Education Initiative[1] (Africa Initiative). The concept note was informed by literature review, consultations with the U.S. and African higher education leaders and experts, and a study report[2] that identified major challenges of higher education in sub-Saharan Africa. The Higher Education Summit for Global Development held in Washington, D.C. in April 2008 and the Africa Regional Higher Education Summit held in Kigali, Rwanda in October 2008 affirmed the urgent need for investment in higher education in Africa. In her welcoming address to the Kigali meeting, Administrator Fore[3] said, "the goal of the Summit is for participants to identify key issues in your country and to engage with partners from the continent, from U.S. Universities, from the private sector and from foundations, to collectively identify resources to strengthen the capacity to address them". "I hope that through working together participants will identify new ways that higher education institutions can make a difference in solving Africa's most pressing challenges." During this regional meeting, the late Sarah Moten, Chief of Education Division at the Africa Bureau, indicated that USAID looks forward to many years of working together [*USAID, higher education and stakeholders*] to ensure Africa's continued prosperity and ability to successfully compete in global arena.

With funding from USAID and managed by the American Council on Education (ACE) office of the Higher Education for Development (HED), the Africa Initiative was launched in 2008 through a Request for Application (RFA) for planning grants of $50,000 each. Two hundred eighty five applications were submitted jointly by U.S. and African universities in response to this RFA. After a rigorous review and evaluation of these applications, thirty three grants were awarded for partnerships in eighteen sub-Saharan African countries. The grants were intended to support planning for long-term partnerships that strengthen human and institutional capacity of African higher education institutions to address critical regional and national development challenges and to increase engagement of U.S. higher education institutions in Africa.

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[1] Africa - U.S. Higher Education Initiative. http://www.aplu.org/projects-and-initiatives/international-programs/past-projects/africa-us-higher-education-initiative/index.html

[2] Teshome Yizengaw. 2008. Challenges of higher education in Africa: Lessons of experience for the Africa – U.S. Higher Education Initiative. http://www.uhasselt.be/Documents/UHasselt_EN/International/Lezing%20N-Z%202013/challegnes_in_africa.pdf

[3] Henrietta H. Fore. 2008. Africa Regional Higher Education Summit. Kigali, Rwanda, 21-24 October 2008 https://globalhighered.files.wordpress.com/2008/10/africahes_program.pdf

The Planning Grants were unique in design, approach and process. Unlike several others that HED managed, the RFA required that proposals (a) design a Problem Model that addresses a significant development issue for the nation(s) involved in the application; (b) demonstrate an understanding of the regional and/or national contexts, priorities and strategies related to the problem model; and (c) show that the partnership has the potential to promote innovation and fundamental change.

During consultative meetings held in Accra, Ghana in August 2009, and in Washington, D.C. in February 2010, planning grant recipients were provided with general guidelines toward developing their respective strategic plans. These guidelines assisted partners to envision in their strategic plans that partnerships (a) will remain active for ten years or more - long term commitment and sustained effort; (b) should be African driven – in terms of defining goals and determining the efforts needed to achieve them; (c) activities should be focused on building the capacity of African universities, colleges and polytechnics to better contribute to the important goals of their respective nations; and (d) should be committed to building African higher education institution capacity to solving problems and engaging national and/or regional stakeholders in the process.

These planning grants resulted in strategic plans that outlined aspirations of partners expressed in a 5-year detailed plan and ten year vision for collaboration toward meaningful impact. The strategic plans went through a rigorous review involving experts from U.S. universities, African universities, USAID (Washington and Missions), World Bank, National Science Foundation (NSF) and APLU. Out of the thirty three strategic plans, eleven partnerships working in ten sub-Saharan countries were selected for an initial grant of up to $1,100,000. This initial funding was significantly lower than the budgeting submitted by each partnership toward implementing a five year detailed plan. Partners were, therefore, required to resubmit budgeting with a revised plan and reduced budget. Each designed a long term, mutually beneficial, Africa-driven and problem-solving strategy, plan and budget. However, the reduced funding levels created disappointment for many institutions as these partnerships tried to respond to the promise of the Africa Initiative.

In the scaled-down version of their strategic plans, implementation focused on addressing development challenges in the areas of agriculture, health, water, science and technology, water, and education. These activities envision addressing critical human and institutional capacity development needs in Africa through faculty development, academic program reviews and development, joint research and community outreach.

In the August 2009 meeting in Accra, Ghana, Peter McPherson, President of APLU, said, “I firmly believe that a decade from now we will look back and be proud of what we have done.” The belief in pursuing long-term collaboration and problem solving were what the Africa Initiative aspired to accomplish, that the 33 strategic plans outlined, and which the African and U.S. institutions welcomed. Given that implementation of the eleven Africa Initiative partnerships is coming to a close in September 2015, it is important to gauge how much of the goals and aspirations, as well as expectations of U.S. and African institutions and governments have been fulfilled. This report tries to examine accomplishments of the partnerships and highlight whether or not the vision set out for the Africa Initiative was met - what the major challenges were and what lessons could be learned.

1. THE AFRICA - U.S. HIGHER EDUCATION INITIATIVE

After a long period of neglect, it is now widely accepted by national governments, donors and partners that it is imperative to invest in higher education to address developmental challenges. Partnerships are cost-effective and win-win mechanisms to ignite and rekindle the innovative and problem-solving potential of the higher education community. In June 2010, in a meeting with the USAID Mission Director to Uganda, the Makerere partnership director, Professor David Kabassa said, "local communities expect universities to do research in a different and innovative way in order for the results to have impact on their lives. For universities to meet this, however, we need our capacity developed in terms of faculty, infrastructure, institutional systems, curricula and leadership." Developing capacities of higher education institutions enables institutions to become critical players in producing quality high level human resource, seeking appropriate solutions to development challenges, and generating and adapting knowledge and innovation.

The Africa Initiative was, therefore, a creative mechanism to address issues raised by Prof. Kabassa and many other thought-leaders in Africa. It was designed and launched on principles of developing capacities through long term investment and collaboration, mutually beneficial engagement, as well as African ownership and empowerment. It aspired to facilitate greater involvement of stakeholders to support more effective relationships between African and U.S. institutions of higher education with a view to contributing to capacity development toward national, regional and socio-economic development. It promototed the need to generate and disseminate best practices and lessons learned. The core focus of the partnerhsips were human and institutional capacity building through faculty development, curriculum and academic programs development, research and innovation, and community outreach. At this critical time when Africa is on the road to transformation, creating a pool of African professionals and experts trained through collaboration with U.S. institutions has a far reaching and positive impact on public and economic diplomacy efforts of the U.S. to Africa.

2.1 Planning Grants and Strategic Plan development

The great interest of U.S. and African higher education institutions to collaborate and contribute to development was clearly demonstrated by the large number of the applications submitted for the planning grants RFA. HED received two hundred eighty-five applications jointly submitted by U.S. and African higher education institutions (Table 1). Two hundred twenty-five U.S. institutions and one hundred thirty-three higher education institutions from thirty-four African countries (17 Western Africa, 9 Southern Africa & 8 Eastern Africa) were involved in these applications.

All regions of sub-Saharan Africa were represented by the institutions that submitted applications jointly with U.S. institutions (Table 1), underscoring the strong desire of African institutions to collaborate with American institutions and vice-versa to contribute to human and institutional development. Such a large number of joint applications also highlighted the high regard for U.S. higher education in the effort to develop sustainable capacity in sub-Saharan Africa toward problem solving, relevance, and global competitiveness. It also demonstrated the strong interest of the U.S. higher education community to engage in African development.

Table 1 African institutions that submitted applications to the Africa Initiative RFA

Region	Number of Applications for Planning Grant Awards	Countries
Eastern Africa	108	Burundi (2), Ethiopia (22), Kenya (33), Rwanda (12), Somalia (1), Sudan (2), Tanzania (16), Uganda (20)
Western & Central Africa	105	Benin (1), Burkina Faso (1), Cameroon (7), Cape Verde (2), Cote d'Ivoire (1), Gabon (1), Gambia (2), Ghana (38), Guinea (1), Liberia (8), Mali (3), Niger (1), Nigeria (22), Senegal (9), Sierra Leone (5), Chad (1) DR Congo (2)
Southern Africa	72	Botswana (1), Lesotho (3), Madagascar (2), Malawi (8), Mozambique (5), Namibia (4), South Africa (38), Swaziland (1),(Zambia (10)
Total	**285**	**34**

The submission of these applications from members of all six U.S. higher education presidential associations (Table 2) reflects the representation of all spectrum of U.S. higher education, such as research universities, community colleges, and private higher education institutions with diverse experiences and expertise.

Table 2 Memberships of U.S. institutions that submitted applications to the Africa Initiative RFA

Presidential Associations	Number of applications submitted
American Council on Education (ACE)	245
Association of Public and Land-grant Universities (APLU)	146
American Association of State Colleges and Universities (AASCU)	79
Association of American Universities (AAU)	62
National Association of Independent Colleges and Universities (NAICU)	57
American Association of Community Colleges (AACC)	7

As Africa transforms its social and economic infrastructure and strives to change lives of its people, it needs to address challenges such as improving quality education at all levels, expanding access to quality health care, improving the agricultural sector and ensuring continuous economic growth. Sub-Saharan African countries are trying to transform their economies through enhancing and expanding access to roads, power, education, health, water, and internet. These developmental imperatives require highly trained human resources and research capacity that are largely produced by higher education institutions. The applications submitted for the Africa Initiative RFA, proposed activities that would address a wide array of development challenges faced by nations in sub-Saharan Africa, including education, agriculture, health, business, science and technology, and engineering (Table 3).

Table 3 Focus areas of applications submitted for the Africa Initiative RFA

Field of focus	Total number of applications	Percentage share
Education	82	28.8%
Agriculture	71	24.9%
Health	61	21.4%
Business	32	11.2%
Science & Technology	23	8.1%
Engineering	16	5.6%
	285	**100%**

Thirty three planning grants were awarded after a thorough review involving experts and peers from U.S. higher education institutions, African institutions, USAID and university Associations. Planning grants were awarded to thirteen institutions from Eastern Africa, thirteen from Western Africa and seven from Southern Africa regions (Table 4). Of the thirty-three planning grants, thirty-two were members of ACE, twenty three of APLU, eleven of AAU, seven of NAICU, five of AASCU, and one AACC. Applications were also submitted by Historically Black Colleges and Universities (HBCUs), including Tuskegee University, Florida A&M University, and Southern University System as lead institutions, as well as Lincoln University, Langston University, Alabama A&M University and Virginia State university as secondary institutions.

Table 4 Regional distribution of planning grants under the Africa Initiative

Region	Number of Planning Grant Awards	Countries
Eastern Africa	13	Ethiopia (3), Kenya (3), Rwanda (3), Sudan (1), Tanzania (1), Uganda (2)
Southern Africa	7	Malawi (1), Mozambique (1), Namibia (1), South Africa (2), Zambia (2)
Western Africa	13	Burkina Faso (1), Cote d'Ivoire (1), Ghana (3), Liberia (3), Nigeria (2), Senegal (1), Sierra Leone (1)

2.2 Review and Selection

HED employed a unique and creative way of reviewing and recommending for funding of the planning grants for $50,000 each, and the strategic plans for an initial two-year grant up to $1.1 million each. Review of the 285 applications for the planning grant required establishment of six panels of five experts each involving professionals from U.S. higher education institutions, African institutions, USAID, APLU and ACE. The review proved to be challenging as selecting only thirty-three grants from two hundred eight-five highly competitive applications. Had money not been a limitation, seventy-five to one hundred applications had merit and potential for development impact in Africa, and could have been recommended for funding. It was also critical

to consider equitable regional and disciple distribution in the final selection and recommendation of applications.

The strategic plans that resulted from the thirty-three planning grants were highly competitive, well designed with a detailed five-year plan and a ten-year vision for meaningful capacity development in African institutions. HED, in collaboration with E3 & Africa Bureau, implemented a creative design facilitating the review of these strategic plans, by soliciting feedback on each plan from the respective USAID Missions in Africa, in addition to the nine experts from ACE/HED, APLU, USAID Bureaus, World Bank and NSF. This involvement of individual USAID Missions proved to be critical in the final selection and in later years of the partnerships partly contributing to ownership and incremental funding of these partnerships by USAID. Strategic plans that might have good review by panel of experts but have not been supported by any specific Missions were not selected for the initial two year funding.

Although funding recommendations were made to USAID, the eleven partnerships did not start implementation at the same time. First, a subagreement was signed between ACE/HED and the lead U.S. higher education institution. Each university reviewed the content and provisions of the agreement, some involving several units within the university. The commitment of the partnership director and the effectiveness of the sponsored program offices were critical factors determining the length of time to finalize a subagreement. In some cases this process was finalized in weeks while in others' took several months. The lead U.S. higher education institution then entered into an agreement with the lead African institution. Under the Africa Initiative program, there were partnerships that took more than six months to negotiate such agreements. Some detailed policy dialogue and decision were needed in situations where the African institutions need upfront funding in order to start implementation of activities. This was a difficult decision for U.S. institutions as USAID funding was based on reimbursements. Up-fronting funds by U.S. institutions involved willingness to engage in a degree of risk taking. Although these partnerships were based on trust and designed for longer term collaboration, and in light of USAID Forward, the issue of ability and willingness to take risk in up-fronting funds need to be systematically addressed in a funding mechanism, such as USAID's.

> In light of USAID Forward, it is urgent to systematically address issues of reimbursement based funding and the potential cost related risk that U.S. institutions take in advancing funds for needy African institutions.

The HED experience in managing these Africa Initiative partnerships and many others around the world has shown that implementation of higher education partnership activities typically accelerates in the second year, and that periods of performance of four to six years are optimal.

2.3 Funding Levels

As discussed above, with aspirations of both U.S. and African partners for long-term engagement and impactful outcome that address development challenges in Africa, the eleven Africa Initiative partnerships each submitted a five-year detailed plan and budget. Total funding request over a period of five years by all eleven partnerships was around $75 million Dollars (Table 5). However, the total funding obligated by USAID for these

partnerships was significantly lower, about $19.7 Million Dollars which is only about 26% of the final five-year strategic plan request (Table 5). In some cases, partners such as those in Ghana and South Sudan were not able to utilize even the reduced obligated funds due to early close-out.

Table 5 Budget request and obligations by USAID to the Africa Initiative partnerships

Partnership	Budget request in the final 5-year strategic plan	Sub-award Budget obligated, USAID funding
Burkina Faso: Tuskegee University (later University of Mississippi)	$9,137,767	$ 2,216,370
Ethiopia: University of Connecticut – Addis Ababa University	$8,114,980	$ 2,456,285
Ghana: Brown University – University of Ghana	$5,179,777	$ 1,100,000
Kenya: Colorado State University – University of Nairobi	$3,156,958	$ 1,422,000
Kenya: Syracuse University – University of Kenyatta	$2,810,309	$ 1,122,210
Liberia: Indiana University – University of Liberia	$8,019,957	$ 2,703,260
Malawi: Michigan State University – University of Malawi (later Chancellor College and LUANAR)	$6,413,248	$ 1,140,000
Senegal: The Ohio State University – University of Gaston Berger (UGB)	$5,094,580	$ 1,555,876
South Africa: University of Cincinnati – University of Cape Town	$7,836,815	$ 1,130,000
South Sudan: Virginia Tech University – University of Juba / Catholic University of South Sudan	$9,135,185	$ 2,865,000
Uganda: North Dakota State (later Mississippi State) University – Makerere University (MAK)	$10,554,527	$ 2,005,802
Total	**$75,454,103**	**$ 19,716,803**

It should be noted that USAID had indicated that there was no guaranteed funding for the strategic plans that come out of the planning grants or support, in general, for the continuation of the Africa Initiative. Initial two-year funding totaling $15 million Dollars for the eleven strategic plans was obtained from the 2010 Congressional appropriations in a 'set-aside' that essentially forced USAID Missions to fund the partnerships. After these funds were obligated to the eleven partnerships, USAID once again indicated that there was no commitment for additional funding after the second year, and that it was up to individual missions to provide continued support, should they have funding and willingness to continue support. There was also a plan and funds to conduct a mid-term evaluation of the progress and accomplishments of the Africa Initiative partnerships that did not take place. Had this evaluation been conducted, it might have provided data and information in support of the partnerships for continued support.

The significantly reduced funding levels and most importantly the uncertainty of continued funding were sources of disappointment and misperceptions by many stakeholders in Africa. Because Missions had been involved in the initial proposal development and approvals, many partners thought that they had long-term USAID support. Partners were eager to demonstrate the value of investing in higher education toward solving societal and development problems. That was the spirit in which all partnerships implemented a plan even with scaled down activities and reduced funding levels. The hope was that results of the first two years would convince USAID to identify additional funding to continue these activities. While additional outside funding was secured by many partnerships after the second year of implementation, two of the eleven, i.e. Ghana and

South Africa, did not receive any additional funding and were ultimately closed at the end of the initial two year period.

2. MAJOR ACCOMPLISHMENTS

The Africa Initiative partnerships contributed meaningfully to higher education institutional strengthening and human capacity development despite limitations of funding and shortened periods of performance. Positive outcomes include development of faculty members, expanded and innovative academic programs and curricula, problem-solving research and community outreach. One of the critical elements of success and progress toward sustainability is effective ownership and leadership by African institutions. Detailed accomplishments and data are included in final reports of individual partnerships. Some of these accomplishments are highlighted below.

3.1. Institutional Strengthening

Seeds of Centers of Excellence

Many partnerships established academic and research centers that have the potential to grow into national and regional centers of excellence in their respective fields. These include the Ethiopian Institute of Water Resources (EIWR) at Addis Ababa University, the Center for Sustainable Dryland Ecosystem and Societies (CSDES) at the University of Nairobi, the AFRUSA-IDM at the Makerere University, and the Center of Excellence in Health and Life Sciences (CEHLS) at the University of Liberia. The Center for Research and Development in Agriculture (CRDA) at UGB was strengthened to promote participatory research and outreach to farmers. The existing Nano Technology Innovation Center at UCT benefitted from the partnership between University of Cape Town and University of Cincinnati.

> "Previous development approaches in Kenya's drylands have been accused of doing little to actively engage communities in drylands in problem identification, planning and implementation of programs targeting them," said Jesse Njoka, partnership director at the UoN. "By directly engaging the communities in designing CSDES higher education program and research, interventions will be more targeted and hence increase impact."

The development of these centers of excellence took place within the context of the efforts of the African Union to establish the Pan African Universities as centers of excellence, as well as the World Bank support for African governments to establish centers of excellence using the Bank's loan mechanism. The centers of excellence established through the Africa Initiative partnerships are well positioned to complement and also grow in parallel with the African Union and World Bank efforts.

Academic Programs

Through these partnerships, African institutions were able to develop academic programs with a potential to transform education and training, as well as research and community outreach. African and U.S. faculty engaged stakeholders in the development of academic programs that ensured the relevance of the programs and responding to the needs of the world of work. For instance, an Associate Degree program in Agronomy at

the University of Gaston Berger introduced the U.S. land-grant model for the first time in Senegal. This newly introduced academic program supported participation of students in internships contributing to solving challenges of local farmers. The program has the potential to change the way in which teaching-learning proceeds and research is identified and conducted toward changing lives in the surrounding community.

The MSc and PhD degree programs in Water Resources Engineering and Management, Water and Waste Water Treatment, and Water and Public Health at Addis Ababa University, the MSc in International Infectious Disease Management and Biosecurity at Makerere University, the BSc program in Nursing and Midwifery and Certificate for Public Health at University of Liberia, and the MSc program in Sustainable Management of Mining at 2iE in Burkina Faso, are all examples of new academic programs that have the potential to impart change in teaching and learning, as well as research and community outreach.

The Kenyatta University – Syracuse University partners revised 31 curricula for the Master's level courses based on data from surveys from graduates of the program, as well as professional development workshops. The University of Malawi – Michigan State University partners developed five modules and semester-long courses related to AgESS, integrating problem-solving hands-on approaches and a gender-inclusive interdisciplinary perspective. The new courses and modules were designed to increase understanding of the role played by ecosystem services in agricultural production and environmental sustainability.

The University of Ghana College of Health Sciences Learning and Teaching Resources Application (ULTRA), has improved knowledge management capacity to streamline information sharing using open source technology. Other programs that contributed to capacity development in African institutions include the interactive web-based Solar Power Africa course at the University of Cape Town, and the e-course on sustainable African dryland ecosystems and societies at the University of Nairobi.

Library capacities of most African universities are limited with poor internet access, scarce library holdings of books, journals and publications, and human resources. The Africa Initiative partnerships have made a contribution to improving this situation in several institutions. The University of Liberia's library holdings have been increased by 25,000 titles in medicine, biology, nursing, public health and general education through the UL-IU partnership program, benefitting over 2,500 students and faculty. The University of Juba / Catholic University of South Sudan – Virginia Tech University partnership increased the South Sudanese institutions' library holdings by 4,289 books and journals. The CSDES at University of Nairobi established a GIS laboratory, while computer centers and laboratories enhancing the ability of students and faculty members to better access technology and resources were established through the AAU-UCONN partnership.

Training and Mentoring

The Africa Initiative partnerships have been very successful in achieving their objectives related to training and professional development. Faculty members of participating universities, staff and students received training that developed skills in critical areas and improved teaching and learning, as well as developing capabilities in research and expanding community service. The University of Ghana – Brown University partners trained 226 faculty and staff in clinical and translational research, research ethics, developed clinical research projects, behavioral and biomedical advances, grant proposal writing, and statistics. As a result of the partnership leveraging funding, three faculty members started their PhD studies conducting research on neurological

manifestation of HIV/AIDS, on acute coronary syndrome in patients with HIV/AIDS, and on genetic and metabolic markers that are predictive of therapeutic or toxicity outcomes of anti-retroviral among HIV patients in Korle-Bu, Accra.

The University of Malawi – Michigan State University partnership provided short-term trainings to 411 (104 female) faculty and staff, building capacity of academic and administrative skills related to techniques to integrate theory and practice to support smallholder farmers in adopting sustainable production systems, participatory action research to promote farmer ownership and farmer-to-farmer diffusion of innovations, grant writing, financial management, and fundraising. The partners established an undergraduate student scholarship program that targeted twenty (nineteen female) third and fourth year women students enrolled in B.S. and B.A. programs in AgESS-related disciplines. This activity addressed the gender disparities and the low number of women in these fields of study at LUANAR and Chancellor College.

The Kenyatta University – Syracuse University partners trained 365 (178 female) faculty and staff in methods and techniques of teaching large classes. These methods stressed technology integration in teaching, using tablet technology in instruction, developing a web presence in online teaching and learning, creating accessible media for use in teaching, designing effective presentations, using multimedia case studies in preparing teachers, using an interactive whiteboard in teaching, quantitative research design, data analysis and writing, and active learning strategies.

The University of Nairobi – Colorado State University partners provided opportunity for 274 (98 female) faculty and staff to improve skills in modeling that equipped students with skills to create their own models for solving research problems. Skills of faculty and students have also been improved in participatory research, computational ecology, GIS spatial data and design, e-Learning, integrated social and ecological field methods, and conceptualization to publication of the journal articles.

Short-term trainings contributed to developing capacity of South Sudanese individuals by providing hands-on experience in areas such as agribusiness, microenterprise, entrepreneurship, agricultural laboratory experimentation, accounting and financial reporting, curricula review and research proposal writing. The University of Juba / Catholic University of South Sudan – Virginia Tech University partnership trained 304 (41 female) faculty and staff in food processing, quality control & Rheology, experimental field trials, accounting and project reporting, curriculum review, and research proposal writing.

Many faculty members and staff of African institutions were trained at masters and doctorate levels in the U.S., as well as locally toward developing a critical mass that will ultimately build and sustain capacity. Two faculty members of the Tubman National Institute of Medical Arts (TNIMA) in Liberia were trained at a master's level in nursing, and started contributing to enhancing local capacity to train undergraduate students in areas of nursing and midwifery.

> "I really could not have pursued the master's degree in Liberia because this type of program and the needed resources and technology do not exist in Liberia," said Cynthia Bondoe, Tubman National Institute of Medical Arts student in Liberia. "I have gained skills in the demonstration of neonatal resuscitation and in techniques of helping babies breathe preparing me to train colleagues in Liberia with a contribution to reduce infant

and neonatal mortalities in Liberia."

Funded by USAID and the Ministry of Education, Addis Ababa University in partnership with the University of Connecticut graduated twenty Master's students and has enrolled thirty PhD students (Water Resource Engineering and Management and Water and Health) during the four years of partnership. Most of these graduates now serve in other universities in different parts of the country. The Centre for Sustainable Dryland Ecosystems and Societies (CSDES) at the University of Nairobi supported sixty-two (twenty females) individuals to complete degrees in Drylands Resource Management, Agro-ecosystems, and Veterinary science. Of these, seven (two females) were awarded Doctorate degrees, seventeen (five females) were awarded Master's degrees, and thirty-eight (thirteen females) were awarded Bachelor's degrees.

The Africa Initiative program created opportunities for students and faculty members of African and U.S. universities through exchange visits and mentoring, contributing to the development of skills, the strengthening of relationships and the sharing of experiences. The UGB faculty members that visited Ohio State University observed student-centered teaching and laboratory management, shared ideas on research interests and on-farm research, and met with extension educators learning mechanics of delivering extension programs.

Eight junior faculty members from MAK traveled to the Mississippi State and Michigan State for three-month exposure visits, and attended classes and worked with their assigned mentors gaining broader knowledge in their selected area of research. Students from North Dakota State University and Mississippi State University visited Uganda and participated in community outreach programs that involved problem identification, joint research, and collaboration with students from Eastern and Central Africa. The experience provided unique opportunities for these students in learning about new cultures, meeting and working with students from several countries in the Region, and understanding challenges related to transboundary diseases.

Faculty and students from around Cincinnati traveled to Haramaya University in Ethiopia and participated in installing solar panels in rural schools and clinics. These opportunities provide unique experiences and exposure to students and faculty to new cultures, living situations and new development challenges, which taught them skills that they would otherwise not obtained from their trainings in classrooms in the U.S.

Research and Problem Solving

Research that involved African faculty members, students and U.S. faculty contributed to capacity development of the African faculty and also supported efforts in finding solutions to critical development issues. Joint research projects meaningfully contributed to transferring applied research skills from U.S. institutions to African institutions. Such projects also contributed to increasing knowledge of U.S. faculty and students about African challenges and development issues. Some research projects were part of graduate study programs where U.S. and African faculty members were actively guiding and supervising students. Faculty members were also involved in the research.

The University of Ghana – Brown University partners conducted joint research in areas such as chart reviews of HIV patients, investigating HIV in post-partum women, tuberculosis treatment outcomes & risk factors for mortality among children, and molecular study of human Papilloma among HIV positive women in Ghana involving UoG and BU faculty as well as eight Brown students.

The partnership with Makerere University conducted joint research projects which resulted in several peer-reviewed scientific publications, over twenty presentations at international research symposiums, and not less than twenty policy briefs and reports. This included a baseline survey of Surveillance System capacity (animal, human and environment) in Uganda, Ethiopia and Tanzania.

Forty-six Kenyatta University faculty members were involved in joint research projects helping faculty members from African and U.S. institutions generate knowledge in areas of technological integration in classrooms , supporting all learners and accommodating learners with special needs, dealing with large classes, establishing English language norms at the secondary level, and examining the process of mentoring student teachers through a pilot mentoring program. Outcomes of this research will help improve teacher preparation and ultimately quality of learning and teaching in secondary schools.

The University of Malawi – Michigan State University partners developed a competitive research seed grant program for AgESS-related faculty that targeted interdisciplinary research. Proposals were peer-reviewed and selected based on their inclusion of problem-solving approaches, interdisciplinary methods, and gender concerns. Five teams received $10,000 each in research funding at LUANAR and at Chancellor College, completing projects that have generated knowledge and best practices toward improving agro-ecosystems in Malawi. These include findings related to identifying the extent of synthetic fertilizer and pesticide residues in agricultural eco-systems, the detriments of cropping systems in adaptation to effects of climate change and variability, assessing sustainable livelihoods through natural resource management in flood prone areas, and promotion of integrated water resources management practices in response to climate change in Malawi.

The Addis Ababa University – University of Connecticut partnership conducted joint research projects, largely as part of the MSc students' theses requirement. The research areas cover topics such as assessment of sediment retention and valuation; use of remote sensing and GIS for drought monitoring; assessment of surface and drinking water quality; potential public health threats from river water; assessment of prevalence of, and factors associated with, diarrheal disease among children; post-treatment contamination of piped water supplies; assessment of malaria prevalence; and assessment of school children's hygiene behavior and schools' sanitation. Results of these research projects have potential to solve water management challenges in different regions of Ethiopia.

Joint research projects conducted through the 2iE – Tuskegee University and later University of Mississippi include identification of biological and sanitation risks assessment linked to reuse of treated waste water and human excreta in gardening agriculture in the region. The results of this research will be useful in planning and managing urban agriculture in the city of Ouagadougou. Other research activities include findings that will have direct impact on local communities. Studies were conducted on treating drinking water polluted by arsenic, using membranes techniques, as well as drainage of tropical savannah valley bottoms in order to alleviate iron toxicity in irrigated soils.

Higher education institutions play a critical role in identifying and seeking solutions to critical development challenges. However, African institutions need to further develop their capacity at master's and PhD level to conduct quality research, as well as to publish in journals, to develop policy briefs and to document lessons learned.

Community Outreach

One criticism of higher education institutions in Africa is that their academic and research activities are not reaching the community outside the campuses. It is common that academic programs and research are not informed by community, national policy and strategic priorities. However, several Africa Initiative partnerships demonstrated that a focus on community service is essential for institutions to have more impacting outcomes in development.

University of Gaston Berger in Senegal, in partnership with Ohio State University, implemented a student internship program. The program enabled students to learn from the surrounding community and better understand better theory learned in classes. The program also allows faculty members and interns, in collaboration with farmers from the surrounding community, to identify challenges to address. For example, the partners introduced a mechanical transplanter that improves efficiency, for example for tomato transplants reducing time and labor. Farmer El Hardj Dia, observing the demonstration of the mechanical transplanter said, "Not only is it fast, but the rows are perfectly straight, I hope to someday use a transplanter in my fields."

> "This simple and inexpensive machine has the potential to transform farming not only in Senegal, but across West Africa, enabling Africa to reply less on imports, and increase our ability to export Senegalese produce to Europe," said Mategue Diack, partnership director at UGB.

Students and faculty from Haramaya University and Cincinnati University identified, designed and delivered a solar powered refrigerator, computer and video system to a small village clinic near Harar, Ethiopia. The village clinic serves about 2,000 farming families with basic medical services and training. In the absence of refrigeration many of the medical supplies such as vaccines, drugs and cell cultures will spoil. Specifically, more than half of the medicines provided to clinics often spoil due to the lack of refrigeration. Further, electricity to power lights, computers and video equipment are vital to training and record keeping in the clinic.

The Kenyatta University – Syracuse University partnership extended technology assisted learning by introducing iOS supported (iPod or iPad mobile digital) devices to serve as screen readers to students at Thika Secondary School for the Blind and Kibos Primary School for Visually Impaired. In addition partners have enabled more than 50 visually impaired students at Kenyatta University to read and create documents, check and send emails, upload documents to learning management system, and create Facebook accounts.

> "Having the iPod [assistive technology devise] gave me independence. I did not have someone read notes to me. I could listen to notes being read by my iPod or listen to lectures that I audio recorded," said Silas Opango, a law student at Kenyatta University

Through the AAU-UCONN partnership, undergraduate students from five EIWR partner universities spent several days during the summer participating in a community development project that promoted hand-washing and hygienic practices. In addition, partners designed and installed two school innovative latrines and water supply system at Bushulo and Chef Koti Jebesa areas in the vicinity of Hawassa. The schools lacked sufficient latrines and water supply systems, mainly for girls. The new girls' latrine also makes provisions for

disabled female students and staff. Hand washing basins and drinking water fountains were also constructed outside the latrines in an accessible location for students and staff, improving public health.

The Makerere University – North Dakota State University / Mississippi State University partners conducted outreach activities including community engagement involving vaccination of poultry against Newcastle disease, and dogs against rabies, as well as working on a local radio talk show on Brucellosis. They provided services such as deworming cattle at Kumi, safe handling of birds, and identifying challenges and research opportunities at Lake Mburo National Park. Makerere University and North Dakota State partners responded to the call for intervention to stop the spread of an outbreak of Brucellosis in the North Eastern Districts of Kween and Kapchorwa.

Cross Sectoral and Regional Outreach

Many challenges that sub-Saharan African countries face are not confined to national boundaries or to a specific sector. In many cases, development challenges are manifested in different sectors and are intricately intertwined requiring a regional and multidisciplinary approach to address them. Water resource management challenges affect communities in a watershed system that might encompass two or more countries. Such communities also face health problems such as health, food security and environmental degradations. Animal diseases crossing national borders not only challenges livestock management but also humans and ecosystems. Africa Initiative partnerships have highlighted the complex nature of development challenges and the need to better understand the complicated cross-sectoral and transboundary characteristics of such challenges. Hence, efforts to address such challenges require regional and cross-discipline cooperation.

The Makerere University and North Dakota State University partnership (which later became a Mississippi State University partner) for example engaged several universities in Eastern and central Africa region in its training, research and community outreach programs. It elevated its regional outreach by establishing collaboration with AUIBAR, which will facilitate more effective coordination of efforts and resources toward regional impact and networking. The partnership promoted the “One-Health” principle of addressing challenges in a more holistic manner, by contributing to cross-sectoral challenges, such as food security, tansboundary diseases, food hygiene, as well as community livelihoods and ecosystems.

The 2iE (Burkina Faso) and Tuskegee University / University of Mississippi partnership implemented activities with collaborators in Mali identifying and suggesting solutions to challenges related to the mining industry in the region. The Addis Ababa University and University of Connecticut partnership addressed cross-sectoral issues in its academic, research and community outreach programs, including in the fields of water sanitation, engineering and health.

In a spirit of regional collaboration, the University of Nairobi and Colorado State University partnership developed a BSc degree program in Dryland Economics and Agro-ecosystem Management at the Sheikh Technical and Veterinary School in Somalia. The University of Liberia – Indiana University partnership collaborated with Kwame Nkrumah University of Science and Technology (KNUST) in the implementation of the Certificate for Public Health program, as well as training four MSc fellows from KNUST.

3.2. African Ownership and Leadership

One of the primary goals of the Africa Initiative program was to ensure African ownership and leadership of the program toward addressing development challenges and sustainably continue collaborations to make African institutions relevant to their national needs. Developing and ensuring Africa ownership and leadership of the program were among the criteria embodied in the RFA for the planning grants and guidelines for development of strategic plans.

Many partnerships under the Africa initiative program were characterized by collaborations which implemented agreement plans, and strove toward meaningful results. Clear understanding was demonstrated by both U.S. and African institutions regarding the needs and priorities of host country institutions, acceptance of the ownership and leadership roles, and involvement of faculty members who are socio-culturally sensitive and respectful.

Partners developed organizational ties, as well as trust and confidence in one another as time goes on. In many cases, the degree of ownership and leadership of the African partnerships were demonstrated by (a) how activities were prioritized and implemented, (b) how effectively institutional leaders and administrators were brought on board and the ways they engaged stakeholders, (c) how funds were allocated, (d) frequency and effectiveness of communications, and (e) how results were captured and reported. During the implementation of partnership activities in most institutions, however, this has proved to be complex due to variations in institutional settings and limitations in human resource capacities.

Collaborations, such as those in Kenya (UoN-CSU), Ghana (UoG-BU), Liberia (UL-IU), Senegal (UGB-OSU), South Africa (UCT-UC) and Malawi (UNIMA-MSU) demonstrated strong African ownership and leadership in designing plans, monitoring progress, reporting and allocation of funds. African thought-leaders were at the forefront of defining objectives, prioritizing activities and communicating with institution administrations and government in their respective countries. The high level of engagement and involvement of administration of universities ensured success in implementation, timely troubleshooting and institutionalization / continuity of the partnership program. University administration at the University of Nairobi, 2iE, Addis Ababa University, University of Liberia, University of Ghana, and Makerere University demonstrated their full support and interest in the continuation of the program that started through the Africa Initiative partnership. This support will ensure the growth of the centers of excellence, the strengthening of newly developed academic and community outreach programs, and increased investment by governments and partners.

When African partners own the program, they effectively engage government, private sector, NGOs and other stakeholders. For example, the University of Liberia engaged the government to provide policy support for its activities which helped confer to the university the role of mobilizing a response team to the recent Ebola crisis. Partners at Addis Ababa University effectively engaged the Ministry of Education, securing not only political/policy support but also funding to expand the program. They were able to enroll 10 PhD and 20 MSc candidates in the Water Resources and Engineering Management programs developed through the partnership.

3.3. Sustainability

The continuous efforts and setting of goals of the Africa Initiative partnerships to achieve outcomes that will address development challenges depends on planned scaling-up and scaling-out of achievements to date. The model of the Africa Initiative was premised on long term collaboration. The outcomes of the partnership programs have laid the foundation for longer term collaboration and sustainability of programs. Institutionalization of the partnership programs, securing buy-in from university administration, and government, as well as engagement of NGOs, private sector and donors were critical in ensuring sustainability of the programs in the respective institutions and countries.

Although limited due to funding constraints, the strengthening of human capacity of the African universities through short-term and long-term (MSc and PhD) training is a foundation for sustainability. Development of highly trained faculty and in-house (local) experts with specialized skills is critical for the improvement of teaching and learning, research and community outreach efforts of higher education institutions in Africa.

Institutional strengthening is evidenced by enhanced or newly developed academic programs (BSc, MSc and PhD), by the professional development of faculty and staff, and by joint research projects. Development and strengthening of academic programs also plays a significant role in terms of sustainability of the partnership program. The U.S. university faculty members, government, NGOs and other stakeholders were critical in curricula review and development of new programs and strengthening existing academic programs at BSc, MSc and PhD levels.

Although many partners were optimistic about additional and long-term funding from USAID, USAID was clear from the very beginning that funding would be for a limited period of time. In an effort to expand resources, many partnerships reached out to government agencies, NGOs, private sector and international donors. As discussed earlier, leveraged funds (in kind and cash) assisted many partnerships to do more than otherwise would have been possible. Partnerships could have achieved more if they had given sufficient focus in expanding networks of supporters, engaging stakeholders including government, private sector and international donors.

Experience with HED managed partnerships has shown that partner relationships and collaborations often continue collaborating long after the funding has expired. Many Africa Initiative partners also plan to continue collaborating after 2015 in the areas of academic program improvement, joint research projects and publications, student exchange and faculty exposure visits.

In addition to a significant amount of cost-share, a number of Africa Initiative partnerships were successful in leveraging substantial amount of funds (in-kind and cash), assisting them to do more than would otherwise be possible. Looking for additional sources of funding both instills confidence in the project and allows for continued life after USAID funding runs out. Leveraging of funds also contributes to expanding networks and stakeholders that collaborate in partnership activities. For example, the University of Nairobi – Colorado State University partners submitted 40 proposals and leveraged $1,197,965 in additional funds, while the Addis Ababa University - University of Connecticut partnership leveraged $245,059 from partners in addition to a cost-share of $764,494. In addition to a cost-share of $266,313, University of Cape Town - University of

Cincinnati leveraged more than $1.3 million Dollars, while the University of Ghana - Brown University partnership leveraged $682,933 in addition to a cost-share of $226,243.

In the closing stages of the partnership awards, many of the institutions have started developing strategic plans that defines sustainability and continued collaboration. The strategic plans are believed to emphasize the need for a continued commitment of the respective African and U.S. institutions, and provide detailed vision and plan for potential collaborators and donors. Through these strategic plans, partners could chart the future toward building on, scaling-up and scaling-out accomplishments and broadening stakeholder engagement. The University of Liberia – Indiana University, Addis Ababa University – University of Connecticut, University of Nairobi – Colorado State University are examples of partners that have started developing such strategic plans. These plans should not lose sight of strategies and priorities of national governments and major donors, in order to succeed in garnering support both technically and financially. This will also ensure that higher education institutions stay relevant and address critical development challenges.

4. MAJOR CHALLENGES

4.1 Commitment for Long Term Collaboration and Funding

Sustainable capacity development of universities requires time. Meaningful contribution of African higher education institutions to national and regional development challenges requires long-term and mutually beneficial engagement with U.S. institutions. Many African institutions have high regards to U.S. higher education institutions. One of the expressions of enthusiasm about the Africa Initiative partnerships was the anticipation that they would become enduring mechanisms to break the cycle of neglect and bring back the support of the USG in the kind of capacity development commitments of the U.S. in the 1960's and 1970's. Anybody traveling to Makerere University in Uganda, Haramaya University in Ethiopia, University of Malawi or University of Ghana will hear the praise for U.S. support and commitment that is still in the hearts and minds of thought-leaders and communities.

Had there been sustained long-term support, the Africa Initiative could have brought back this type of impact and meaningful people-to-people engagement through higher education. These partnerships would have stimulated opportunities for positive engagement toward problem solving and enhanced abilities to leverage resources from public, private and NGOs. Long-term collaborations could have better served the public diplomacy goals of the U.S. boosting confidence in U.S. commitment to meaningful development in Africa, and enabled global competitiveness of African higher education institutions strengthening local capacities. They could also have served as platforms to expand U.S. students and faculty exchange, to enhance innovative and problem-solving research on African issues and challenges, to strengthen opportunities for learning cross-cultural and international experiences, and to contribute to policy dialogue and advice.

Though long-term collaboration and funding were anticipated in the design of the Africa Initiative partnerships, the collaborations have, in the end, been short-term engagements and minimally funded, a situation that did not allow them to effect long-term change in African countries. Fluctuations from high promises to significantly reduced funds and expectations have impacted thought-leaders in African institutions – some feeling that lack of funding support has undercut promises and discouraged higher education institutions in Africa from embarking on such initiatives in the future.

4.2 Ownership by African Institutions

There is a critical need to develop skills of University professors who lead and direct international partnerships and projects in the area of monitoring and evaluation, budgeting and financial management, and reporting. Experiences of many partners were variable in terms of understanding and meeting compliance requirements of the funding agency. Capacity development in these areas, i.e. project management, monitoring and evaluation and reporting should always be built in any partnership project.

Challenges of communication need to be addressed at the start of any collaboration. A clear communication plan designed and developed jointly by partnering institutions is critical. During implementation of some Africa Initiative partnerships, it was observed that partners have not been communicating via email, phone or other means for several weeks, affecting implementation and generation of progress reports. Most importantly

continuity and sustainability of the collaboration and the partnership is endangered when communications are not effective.

Without this ownership on the part of African partners, many elements that support sustainability are weakened. There is little buy-in and support from senior leaders of universities and government, results are not captured effectively, and there is little agreement on priorities. Degree of institutionalization of a project including recognition of developed academic programs and mobilization of faculty members across departments, and resource mobilization depend on capacities of leaders of such projects.

Implementation was smoother and more successful where clear communication strategies were designed and implemented where objectives were jointly formulated, and where activities such as professional development areas, visits and curriculum development were agreed upon and followed through.

4.3 Alignment with Strategies and Priorities

The strategic plans and the subsequent shorter-term implementation plans developed by the eleven partnerships aligned well with national and USAID priorities at the time. However, the Africa Initiative partnerships have sometimes struggled to correct course and re-align their plan when national and USAID strategic priorities changed. To remain in alignment in a shifting policy environment, alignment requires continuous modifications of plans and adjustments based on changes in priorities and strategies of governments and donor agencies. Partners were not always able to adapt their program according to these changes. In order to adapt plans and to garner support from USAID and government agencies partners need to continuously update their information on local USAID and government priorities and strategy changes. Flexibility and quick adaptation of program components, as in AAU-UCONN shifting focus to water and health or UON-CSU shifting focus to feed the future, have helped partners secure additional funding from their respective USAID Missions.

The transition from the two-year first round funding to securing additional funding for another two-three years of implementation of activities in some cases required realignment of priorities, objectives and implementation plans. Although it was necessary to respond to funding agency requirements and shift in strategies, this process was a painstaking, frustrating and a lengthy process.

During the review of the strategic plans, most Missions indicated that these plans aligned with Missions' strategies and priorities, and gave their support to the award of the original two-year grant. In many cases, staff turnover at USAID Missions created challenges in terms of continuity of implementation, understanding status and goals of the partnership program, and provision of effective guidance and support. On the other hand, partners did not follow closely changes in USAID country assistance strategies and shifts in funding. For example, the partners were not well informed about the USAID Forward initiative, and did not prepare themselves to respond and adapt to the requirements of this new USAID strategy.

Partners could have garnered support from donors and government by more effectively communicating outcomes and accomplishments. University of Nairobi, Addis Ababa University, Makerere University, University of Ghana and University of Liberia are good examples of partners that had periodic open communication with

USAID Missions and invited government agencies, donors and stakeholders to student seminars, international workshops, and community outreach activities.

4.4 Monitoring and Evaluation (M&E) and Changing USAID Indicators

In order to improve implementation performance, track and achieve results, it is critical that partnership programs develop robust monitoring and evaluation (M&E) plans. These plans are revised regularly to reflect change in goals, objectives, target and activities. Most Africa initiative partnerships faced two major challenges in terms of M&E plans.

First, it proved challenging to effectively communicate the need for developing robust M&E plan as a tool to monitor progress and track results. Since M&E plans were developed and redeveloped after implementation started, the value of process was overshadowed by the substantial time it took away from implementation of activities.

Second, partners were challenged by the changes in USAID indicators and definitions, and HED M&E templates including the submission of reports in the HED established electronic system. Partners had to adapt and change objectives, annual targets and activities due to uncertainty and reduction of funding levels.

4.5 Constraints Expanding Regional Collaboration

Had the Africa Initiative partnership been funded for a period of at least five years, the vision of having a program that implements higher education capacity development and problem solving activities would have been able to build on a solid foundation. However, these partnerships were funded for a short-term, initially for two years with uncertain future, and managed as individual projects. This made it difficult for partners to mobilize resources for regional collaboration. Uncertainty of continuity of partnerships and constraints in funding were critical factors limiting potential for expansion to serve regional goals.

The bilateral nature of the USAID support to these partnerships also limited the implementation of some regionally oriented partnership goals, such as those for the Makerere University (regional zoonosis surveillance) and the University of Nairobi (trans-national drylands management) partnerships. The effort by partners to get buy-in and support from Eastern, Western or Southern Africa Regional USAID Missions did not bear fruit. These partnerships had plans that could have addressed regional and cross-border challenges, such as the one-health, transboundary diseases surveillance and management led by Makerere and dryland agriculture led by University of Nairobi. It was also difficult to gauge and get clear guidance on how resources and funding could be accessed from Regional USAID Missions as well as from other donors.

4.6 Early Close-out

Despite demonstrating results that contribute to developing higher education institutional capacities, solving societal challenges, and alleviating poverty, all the Africa Initiative partnerships were closed by 2015. In some

cases, partnerships were prematurely halted before they achieve their stated goals, even when results demonstrate meaningful contribution to addressing development challenges. One example of this is the partnership in Ghana. The Brown University / University of Ghana partnership was terminated by the USAID Mission after two years because USAID's global strategy directed HIV/AIDs funding only to countries with generalized levels of infection in sub-Saharan Africa. At that time, HIV/AIDs infection in Ghana was concentrated in "hot spots", rather than a high generalized infection rate. It might have been less frustrating to both partners had the Mission opposed the partnership at the beginning, rather than cutting it off after only two years of implementation.

Early close-out of partnerships affected results in the short-term, including students challenged to complete their programs of study and incomplete joint research projects. However, the major impact of this perceived "early" closeout may be long term – as expressed by some thought leaders in higher education in Africa. It discouraged partners from seeking collaboration with USG funding and limited the potential for enduring partnerships with U.S. institutions. Such a premature halting of support for collaborations also affected continuation of promising interventions, such as the trans-boundary disease surveillance and management, nano-technology availability for rural communities, HIV/AIDS prevention and reduction strategies, water and health sanitation, and managing dryland agro-ecosystems and the communities they support.

4.7 Sustainability

The desire for long-term investment on human and institutional capacity development in Africa and higher education institutions was expressed by African and U.S. institutions during the planning grant and strategic plan development phases. These institutional remarks underline the necessity of becoming active and relevant players to better address developmental challenges. This means investing in long-term faculty development, leadership capacity development, library and laboratory improvement, and academic programs. Will donors, including USAID look past the understandable desire for immediate outcomes in favor of building capacity with the likelihood of much greater long-term outcomes? Building institutional and human capacity usually means sacrificing short-term gains.

The U.S. higher education institution community has gained opportunities to work with Africans, learn new cultures and socio-economic challenges, expand its perspective, while contributing a positive image about U.S. to the world. However, such a broad outcome is only reinforced when such engagements are longer term, built on mutual respect and commitment and investments that are not curbed mid-way for expediency or new directions.

However, these partnerships only began planning for sustainability in the closing months of the funded period. More should have been done at an earlier point, by partners, by HED and USAID. Most partnerships have not clearly articulated short-term and long-term sustainability strategies, including determining specific activities that can and should be continued.

5. LESSONS LEARNED and CONCLUSIONS

Higher education institutions contribute to national and regional development, as well as to the global economy through producing high level human capacity to effect institutional transformation. Partnerships are successful when they are based on principles of mutual benefit and respect, local ownership and leadership, as well as appreciation of each other's strengths and commitment to change and transformation. Higher education partnerships mobilize the diverse talent and expertise in higher education institutions toward addressing cross-sectoral and trans-boundary development challenges. They also opportunities for building communities of practice and networks of experts and are unique in promoting host country ownership and engagement.

Even under a restricted financial situation, the Africa Initiative partners demonstrated meaningful contribution to address development challenges in areas of agriculture, health, water, science and technology, water, and education. Capacity development was expressed through faculty development, academic programs review and development, joint research and community outreach. Furthermore, the centers of excellence established through the Africa Initiative partnerships in Ethiopia, Kenya, Burkina Faso, and other countries have the potential to complement and grow in parallel with the African Union and World Bank efforts.

The Africa Initiative demonstrated the critical importance of involvement of African institutions and thought-leaders from inception to execution of a development program. This ensures ownership and effective leadership, with potential for success and sustainability. The Africa Initiative also demonstrated the critical role of the diaspora contributing to problem identification and solving, mobilizing resources and linking institutions. The African diaspora served as the link to local entities and facilitated brain-circulation, as exemplified in the implementation of partnership activities in Ethiopia, Ghana, Uganda, and Burkina Faso, as well as several others during the planning grant phase. More support should be provided to mobilize the talent and expertise of the diaspora.

Meaningful contribution of African higher education institutions to national and regional development challenges require long-term and mutually beneficial engagement with U.S. institutions. Hundreds of African and U.S. institutions jointly responded to the call in 2007 by USAID to identify ways to make a difference to solving Africa's most pressing challenges. The Africa Initiative partnerships demonstrated the need for expanded collaboration between African and U.S. higher education to meaningfully contribute to development. However, such wide ranging interest and strategic plans need to be matched by funding and long-term commitment to support and facilitate institutional collaboration. Beyond the numbers that are tracked by funding agencies for short term gains, it is critical to be able to measure, over a longer period, outcome and impact of higher education partnerships, such as problem solving, national development, social benefit, changing lives, and changing minds.

In the 1960's and 1970's, USAID sponsored a number of long term training programs involving African leaders that were highly regarded and were seen as providing meaningful engagement of researchers and scholars. The eleven Africa Initiative partnerships might have had this kind of impact if there had been sustained, long-term support. Furthermore, the Africa Initiative could have contributed to expanded, meaningful people-to-people

engagement. These partnerships leveraged resources from public, private and NGO sectors, and demonstrated the potential for positive engagement toward problem solving. The Africa Initiative partnerships created opportunities for faculty members and students in U.S. institutions to expand global engagement, to collaborate in teaching, research and community outreach, and to learn new cultures and frontiers.

Long-term collaboration of higher education institutions are established based on trust and mutual benefit. In some cases, due to financial constraints, partnerships did not start implementation of planned activities as soon as grants were awarded. In light of USAID Forward and to help solve the challenge, it is urgent to systematically address issues of reimbursement based funding expenditures and the potential cost related risk that U.S. institutions take in up-fronting funds for needy African institutions.

A crucial need that was not well addressed by the Africa Initiative partnerships is the development of management and administrative capacities of African institutions. This has to become one of the top priorities in any future collaboration between U.S. and African institutions. Skills should be developed in areas such as strategic leadership, management of research and academic services, resource mobilization, financial management, and monitoring and evaluation. As current leaders and managers in many African institutions are ageing, it is timely and imperative to focus on developing capacities of young or emerging leaders, as well as women leaders/managers.

Africa is on the right track toward socio-economic transformation and it is time to develop a larger pool of African professionals and experts trained through collaboration with U.S. institutions. Such endeavor has a far reaching and positive impact on public and economic diplomacy efforts of the U.S. toward Africa. Higher education partnerships need to be funded for long-term collaboration for them to be more meaningful and active players in Africa's development. Long-term institutional partnership is the best mechanism to unlock the potential of the higher education community, both in the U.S. and Africa, to produce quality human resource, to conduct relevant and problem solving research, and to reach out to the community in identifying challenges and seeking or providing solutions.

Appendix: Executive Summaries of Final Partnership Reports

1. Burkina Faso Partnership between Tuskegee University (later University of Mississippi) and the International Institute for Water & Environment Engineering (AEG-A-00-05-00007-00)

This report covers the activities of two periods of time. The first part covers the collaboration between the Tuskegee University (TU) and the International Institute for Water & Environment Engineering (2iE) in Burkina Faso from May, 2011 to August, 2014.

The second part of this report covers describes the collaborations of the University of Mississippi (UM) with the Federal University of Technology – Minna (FUT), and University of Benin (UNIVBEN), both in Nigeria, and 2iE in Burkina Faso from September, 2014 to June, 2015.

This final report is submitted for the partnership between the Tuskegee University and 2iE (Burkina Faso) that was awarded under the LWA Cooperative Agreement # AEG-A-00-05-00007-00 which ended as of August 31, 2014. The American Council on Education (ACE), Office of Higher Education for Development (HED) and Tuskegee University (TU) signed an Award Agreement effective May 5, 2011. The award provided funding for a partnership between TU and International Institute for Water & Environmental Engineering (2iE) in Burkina Faso entitled "Africa-US Network of Centers of Excellence in Water and Environmental Science & Technology" to enhance capacity of the 2iE in its educational programs, research, and community engagement.

HED has supported partnership implementation through continuous monitoring of progress and troubleshooting and assistance in developing/revising results based frameworks and monitoring and evaluation (M&E) plans. HED/ACE worked closely with 2iE and Tuskegee University partners toward quality and timely submission of quarterly financial expenditure reports and semi-annual progress reports. Continuous engagement and communication between HED and 2iE/TU partners has provided guidance on issues such as developing monitoring and evaluation plans, budget realignment, faculty/staff travel, meeting organizations, and effective implementation of planned activities.

a. Goals and Vision

Tuskegee University and Burkina Faso's International Institute for Water and Environment Engineering (2iE) are collaborating to establish a network of centers of excellence in water and environmental science and technology in three higher education institutions in Africa. 2iE is serving as the principal African partner, with other centers located at the University of Mines and Technology in Ghana and the University of Benin in Nigeria. The partnership provides faculty and curriculum development, training of graduate-level scientists and engineers to build regional human capacity, mobilizing African Diaspora scientists, developing technology and problem solving capacity, creating linkages with private, public and non-government organizations, and raising the quality of facilities and equipment at the participating African institutions.

b. Partnership Objectives

To position 2iE as a hub of academic, research and outreach excellence in the areas of water, environmental engineering, and climate change in West Africa, the partnership has the following objectives:

1) To increase the competitiveness of academic offerings at 2iE in the areas of water, environmental engineering, energy, minerals and climate change

2) To increase the research capacity of 2iE and partnering institutions in the areas of water, environment, climate change, minerals and renewable energy disciplines

3) To enhance the capacity of 2iE to conduct outreach activities locally and regionally and identify entrepreneurial opportunities.

This report is submitted for the partnership between The University of Mississippi (UM) and 2iE (Burkina Faso). The award provided funding for a partnership between UM and International Institute for Water & Environmental Engineering (2iE) in Burkina Faso entitled "Africa-US Network of Centers of Excellence in Water and Environmental Science & Technology" to enhance capacity of the 2iE in its educational programs, research, and community engagement.

HED has supported partnership implementation through continuous monitoring of progress and troubleshooting and assistance in developing/revising results based frameworks and monitoring and evaluation (M&E) plans. HED/ACE worked closely with 2iE and UM University partners toward quality and timely submission of quarterly financial expenditure reports and semi-annual progress reports. Continuous engagement and communication between HED and 2iE/UM partners has provided guidance on issues such as developing monitoring and evaluation plans, budget realignment, faculty/staff travel, meeting organizations, and effective implementation of planned activities.

a. Partnership Goals and Vision

The University of Mississippi and Burkina Faso's International Institute for Water and Environment Engineering (2iE) are collaborating to develop a network of centers of excellence in water, energy, health, and environmental science and technology in three higher education institutions in Africa. 2iE is serving as the principal African partner, with other centers located at the Federal University of Technology-Minna and the University of Benin, both in Nigeria.

b. Partnership Objectives

To position 2iE and the other partner institutions as hubs of academic, research, and outreach excellence in the areas of water, health, energy, environmental engineering, and climate change in West Africa, the partnership has the following objectives:

1) To increase the competitiveness of academic offerings at all partner institutions in the areas of water, environmental engineering, health, energy, minerals and climate change

2) To increase the research capacity of 2iE and partnering institutions in the areas of water, health, environment, climate change, minerals and renewable energy disciplines

3) To enhance the capacity of 2iE to conduct outreach activities locally and regionally and identify entrepreneurial opportunities.

2. Ethiopia Partnership between University of Connecticut and Addis Ababa University (AID-663-LA-11-00001)

In December 2010, the American Council on Education (ACE) and USAID/Ethiopia signed an Associate Award Agreement, providing funding for a partnership between Addis Ababa University (AAU) and University of Connecticut (UCONN) entitled "Sustainable Water Resources: Capacity Building in Education, Research and Outreach." ACE/Office of Higher Education for Development (HED) executed a subaward agreement with the University of Connecticut effective January 14, 2011. USAID obligated $2,874,806 to support partnership activities, focusing initially on Water Resources Engineering and Management (WREM) and after 2012 on Water, Sanitation and Health (WASH) programs. Partners agreed to provide $1,264,906 in cost share and matching resources. This report covers the period from January 14, 2011-June 30, 2015.

Partnership Objectives

The objectives of the partnership were to:

1. Increase the ability of tertiary educational institutions to offer relevant and high quality education in water and health

2. Enhance higher education institutions' ability to conduct quality research in Water and Health

3. Improve outreach and community engagement

4. Develop capacity of the Ethiopian Institute of Water Resources (EIWR).

The partners aligned their objectives with the higher education expansion and reform strategies of the Ministry of Education and Water Sector of the Ministry of Water Resources and Development, and with health-sector development strategies of the Ministry of Health. Partners collaborated and promoted synergies with U.S. government (USG) initiatives in Ethiopia. The partnership activities also aligned with USAID/Ethiopia's Sustainable Water Resources Management programs; Water, Sanitation, and Hygiene (WASH); Climate Change Adaptation and USAID's overall Human and Institutional Capacity Development (HICD) strategies.

Goals and Vision

The vision of the partnership was to establish a long-term, mutually beneficial academic partnership between the U.S. and Ethiopian institutions to train the next generation of leaders to develop and manage Ethiopia's water resources in a sustainable and productive manner.

The partner universities collaborated to prepare professionals capable of undertaking relevant research and to address development challenges through demand-driven and problem-solving research and community engagement. Community engagement focused on providing access to clean water and on educating community members about sanitary health practices. Women, in particular, were encouraged to participate in all community activities.

During the four years of the award, partners:

- Established the Ethiopian Institute of Water Resources (EIWR), which is Ethiopia's first institute dedicated to addressing critical water-related challenges at a national and regional level.
- Created four new graduate-level programs and courses in water-related areas; MSc and Ph.D. in Water Resources Engineering & Management (WREM) and MSc and Ph.D. in Water and Health (W&H).
- Supported 38 students towards completion of their graduate degrees, including two Ph.D. students in the WREM program.
- Collaborated with over 80 stakeholders at the local, national, regional and global levels on research and outreach.
- Reached 16,095 community members through EIWR's outreach activities, which involved building innovative latrines, teaching the importance of hand-washing, providing an experiential learning experience for undergraduates, and guiding a rural community on how to install a de-fluoridation vessel.
- Conducted 32 short-term trainings benefitting 596 individuals between 2011-2015. Trainings included research methodology workshops, internships, professional trainings, courses and seminars.
- Contributed to the field of research through conference presentations and publications. The MSc/Ph.D. curricula are rigorous and require students to publish and share research, which sets it apart from other doctoral programs.
- Submitted eight proposals for financial support and were awarded three of them, which contributes to raising awareness about their institute through research and community engagement.
- Enhanced the facilities of EIWR by improving research laboratories and by purchasing specialized equipment like the gas analyzer.

This partnership succeeded in achieving their objectives, but it was a challenging road to success. Partners realized that developing a highly functioning, self-supporting, academic research institute takes time and patience. The navigation of institutional standards, procedures, relationships, protocols, and facilities required focused teamwork from everyone involved. Partners are proud of their perseverance, but realize that constant refinement and strengthening of the institute is required to continue to meet Ethiopia's complex needs around water management and health.

This report is based on progress reports submitted by the University of Connecticut and AAU/EIWR partners in HED's Partnership Results & Information Management Engine (PRIME) for each semi-annual/annual reporting period between 2011-2015.

3. Ghana Partnership between Brown University and University of Ghana (AEG-A-00-05-00007-00)

HIV/AIDS in Ghana is not considered a high-level epidemic, yet some sub-populations suffer from high infection rates, with a high co-morbidity rate of tuberculosis among the HIV-positive population . Approximately a third of infected people in Ghana receive treatment. The low treatment rate is a result of a care gap stemming from shortages in human resources, poor working conditions, low pay, lack of career development, and a shortage of medicine. The Ghana - Brown Partnership has addressed the care gap by enhancing the capacity of the University of Ghana in its educational programs, research, and community engagement.

Over the two years of implementation, the partnership had several accomplishments related to human and institutional capacity development. It has directly benefitted 1,545 individuals. The demand for the partnership's activities exceeded expectations, which explains the variance in results for several indicators, including high number of direct beneficiaries. Overall, the partnership has met or exceeded its targets through the following key accomplishments:

- Engaged several key stakeholders, including the Ghana AIDS Commission, National AIDS Control Program, the Ministry of Health, Ghana Health Services and District Hospitals.
- Reviewed curricula for four schools and developed content including lectures, hand-outs that address gaps in core competencies in HIV/AIDs prevention and treatment.
- Reached over 400 Students through college-wide seminars targeted to address curricula gaps, in areas such as antiretroviral therapy, HIV and opportunistic infections, preventing mother-to-child transmission of HIV, TB & HIV and pediatric HIV.
- Enhanced experiential learning program with 18 community attachment program.
- Developed and installed new teaching resource application (ULTRA) and trained 165 students and faculty at UoG.
- Trained over 220 participants through professional development short training.
- Reached more than 1,000 participants through Continued Medical Education (CMEs) and other outreach events.
- Awarded more than $160,000 to a total of 18 research projects through competitive faculty development grants.
- Developed academic leadership at UG by enrolling three faculty in PhD programs and short term training through leveraged funding.

The achievements of this partnership manifested themselves as formative interventions in the lives of many people, four of which are presented in this report, which bring the story of Sylvia Takil, a nurse, who dealt for the first time in her life with caring for HIV patients at Apam Catholic Hospital through the community attachment program. Her efforts to control access to unhealthy food into the hospital provided a solution the hospital quickly adopted. Another example is the story of Gladys Dzansi, an assistant lecturer at the School of Nursing, whose AITRP scholarship will help continue her research project examining the use of mobile phones to improve treatment of people living with HIV.

Partnership activities strengthened the capacity of the University of Ghana to address Ghana's development goals, as outlined in the country's Millennium Development Goals (MDGs), including contribution to reducing child mortality and promoting maternal health. Training of healthcare workers to effectively manage HIV in children and women will likely have an impact on reducing child mortality in Ghana in the long-term. The project's educational, faculty development, CME, community outreach and institutional capacity activities have been directly related to combatting HIV and TB in Ghana.

4. **Kenya Partnership between the University of Nairobi and Colorado State University (AID-623-LA-11-00004)**

This partnership was funded by the United States Agency for International Development (USAID) through a grant to American Council on Education (ACE), Office of Higher Education for Development (HED) as part of the Africa-U.S. Higher Education Initiative. The Initiative is a collaborative effort that was started in 2007 led by the Association of Public and Land-grant Universities (APLU) and supported by a number of higher education associations and other organizations to advocate for increased engagement in African higher education capacity development.

The University of Nairobi (UoN) and Colorado State University (CSU) partnership was established to address the challenges of development, marginalization and sustainability of dryland regions and its peoples in Kenya. Remote locations, poor infrastructure and low education levels contribute to marginalization of dryland pastoral and agro-pastoral communities. Furthermore, knowledge of drylands by outsiders is also poor, which hinders the development of ecologically, socially and pedagogically appropriate solutions to poverty and food insecurity in the drylands. To address these challenges, people from and working in drylands need to have access to drylands-relevant education at universities. In turn, universities need to transform their research so that it meets the needs of drylands communities and the ecosystems they depend upon. The partnership between UoN and CSU entitled "Centre for Sustainable Drylands: A University Collaboration for Transforming Higher Education in Africa at the University of Nairobi" strengthened capacity for establishing and sustaining dryland ecosystems and human livelihoods in Kenya through higher education transformation.

The objectives of the partnership were:

1. Improved coordination of interdisciplinary education, research and outreach for drylands in Kenya.

2. Greater capacity of students and faculty to address the problems of dryland ecosystems and societies.

3. Increased research capacity and policy-relevance, and resource directions and innovations appropriate for Kenyan drylands.

4. Greater participation in higher education by pastoralists, especially women, resulting in the development of more appropriate innovations for dryland systems.

Qualitative Impact

The most significant achievement of the partnership was the establishment of UoN's Center for Sustainable Dryland Ecosystems and Societies (CSDES) linked with CSU's Africa Center, with a goal of becoming a regional center of excellence in Africa (http://csdes.uonbi.ac.ke/). During the beginning phase of implementation, partners conducted a Drylands Community Voices Workshop in Nairobi to engage dryland community members in the development of the center so that it was inclusive and representative of the needs of the drylands' peoples.

CSDES developed critical infrastructure. First, the CSDES renovated the UoN drylands field station at Kibwezi to allow for more hands-on instruction in a drylands setting. Second, the CSDES leadership team established a major Geographic Information Systems (GIS) Laboratory with over 40 computers and associated software. This is the first lab of its kind on the campus of the College of Agriculture and Veterinary Sciences (CAVS). In addition

to infrastructure development, partners invested in the leadership of CSDES, enhancing the Center's capacity for effective management of the partnership program, including training on reporting and financial tracking.

The early steps taken by UoN-CSU to establish a strong foundation for the partnership contributed to the successful achievement of its four core objectives.

Quantitative Impact

During the life of the partnership, partners directly benefited 2,864 individuals (928 females) through human capacity development activities.

Partners conducted 18 community outreach activities in the drylands regions of Kenya. Activities consisted of community engagement meetings, agricultural trainings, and research feedback workshops. Communities reached included Narok, Makueni, Isiolo, Marsabit, Kaijado, Turkana, Yatta Machakos, Lolita, Samburu, Taita-Taveta, and Laikipia. Many of the community activities led to strong relationships with local officials and governmental leadership in the regions.

The Centre for Sustainable Dryland Ecosystems and Societies (CSDES) within the Department of Land Resource Management & Agricultural Technology (LARMAT) at UoN supported 62 individuals to complete degrees (20 females) in Drylands Resource Management, Agro-ecosystems, and Veterinary science. Of these, seven (two females) were awarded Doctorate degrees, 17 (five females) were awarded Master's degrees, and 38 (13 females) were awarded Bachelor's degrees.

UoN-CSU organized 18 short-term trainings that strengthened skills and knowledge for 274 individuals (98 females). A sample of workshop titles included; Geo-Spatial Database Development and Management, Dryland Ecosystems and Societies, Natural History of Mammals, Collaborative Research Methods, Introduction to Geographical Information Systems and Remote Sensing, and Publishing Journal Articles.

Partners organized two student led conferences that were attended by more than 800 participants. The first conference served as a feedback forum for all students supported by CSDES and provided a platform for interaction between students, faculty and other project stakeholders. Undergraduate students shared experiences on internships and experiential courses while graduate students presented research findings. The second conference had a stronger policy focus and encouraged dialogue around critical issues in dryland research.

During the course of the project, UoN-CSU partners submitted 40 proposals and leveraged $1,197,965 in additional funds through grants from government agencies, foundations and private individuals, increasing total funding to the partnership by 84.1%.

Finally, partners greatly contributed to the field of research during the three years of project implementation. UoN-CSU funded 13 Graduate Research Fellows and five seed grants for joint research around subjects including food security, human-wildlife conflicts, livestock disease, community mapping, and indigenous knowledge. Partners produced 23 publications and 15 policy briefs on subjects including camel milk marketing, food security, forest and land management, rangeland

Project Administration

HED/ACE worked closely with Colorado State and University of Nairobi partners toward quality and timely submission of quarterly financial expenditure reports, and annual and semi-annual implementation progress reports. HED provided guidance on issues such as developing monitoring and evaluation plans, budget realignment, and timely implementation of planned activities.

5. **Kenya Partnership between Syracuse University and Kenyatta University (AID-623-LA-11-00006)**

This partnership was funded by the United States Agency for International Development (USAID) through a grant to American Council on Education (ACE), Office of Higher Education for Development (HED) as part of the Africa-U.S. Higher Education Initiative. The Initiative is a collaborative effort that was started in 2007 led by the Association of Public and Land-grant Universities (APLU) and supported by a number of higher education associations and other organizations to advocate for increased engagement in African higher education capacity development.

The partnership between Kenyatta University (KU) and Syracuse University (SU) entitled, "Building capacity through quality teacher preparation," enhanced the capacity of Kenyatta University faculty, educational programs, research, and engagement with stakeholders to result in improved secondary education in Kenya. The partnership built capacity at the KU Department of Educational Communication and Technology (ECT) and contributed to advancing secondary school education through quality teacher preparation—from pre-service teacher preparation, to novice teacher induction, to practicing teacher continual growth.

The objectives of the partnership were:

1. Strengthen the capacity of KU teacher education faculty members resulting in improved teacher preparation for the education sector in Kenya;

2. Strengthen the research capacity of the KU teacher education programs resulting in improved knowledge that produces more effective education;

3. Enhance the KU teacher education program resulting in improved instructional capacity; and,

4. Provide quality service to education stakeholders resulting in improved instruction in participating secondary schools.

Qualitative Impact

The goals of building capacity among the faculty members in the Department of Educational Communication and Technology (ECT) both in pedagogical terms and in research capacity were achieved.

Faculty members in the Department of ECT participated in 23 professional development workshops. These trainings contributed to the development of skills of KU faculty in the areas of curricula review, teaching large classes, using interactive whiteboards and technology in teaching, using multimedia case studies in teaching, and improving pedagogical training and research skills.

A successful scholar exchange program where 11 Kenyatta University faculty members spent two months at Syracuse University enabled them to observe classes, work on research projects, use the SU library, attend professional conferences and present a paper or poster at the conferences they attended. Participants increased knowledge within their areas of specialization and expanded their professional networks during the exchange.

A “sandwich degree” training program provided KU faculty members with an opportunity to take courses in research methodology and improve their dissertation proposals and data collection. They earned a Certificate of Advanced Study from SU. This experience broadened their knowledge and offered a comparative perspective for their research.

A key partnership achievement was the development of six research studies. Partners planned and carried out six collaborative research studies in the following areas: (1) Technology Integration in Kenyan Secondary Schools, (2) Teaching Practice, (3) Literacy Benchmarks in Kenyan Secondary Schools, (4) Dealing with Large Classes in Kenyan Secondary Schools, (5) Mentoring Pre-Service Secondary Teachers, and (6) Supporting All Learners in Kenyan Secondary Schools. Findings from these research studies will contribute to improving instructional practices in English language teaching in secondary schools in Kenya, handling students with special needs through inclusive education, integrating technology in secondary schools, offering strategies on teaching and learning with large classes, and using case studies to promote teacher learning.

Another key partnership achievement was improving learning opportunities for individuals with visual impairments. Partners provided and trained 20 KU students with visual impairments (mostly students in the Education Department) on using iPads and keyboards to read and create text for academic and everyday work. Eleven sets of devices and keyboards were also provided to Thika Secondary School for the Blind and 14 sets of devices and keyboards to Kibos Primary School for the Visually Impaired. Some of these students are featured in success stories of the partnership (Section XVIII). Using the iPad, visually impaired students are now more mobile, submit assignments on time, download information from email and read notes more easily due to the magnifying function. According to the students, the iPad has become their “helper”, and has improved access to learning opportunities and enabled them to take online courses related to web design or easily upload notes from the iPad in soft copy from professors.

Quantitative Impact

During the three-year period of the partnership, partners made good progress toward meeting or exceeding their annual targets. Because of USG support, partners met or surpassed their targets for more than half of their indicators. Section III provides a series of tables that shows comparisons of actuals to targets during the award period.

Through professional development workshops, 365 individuals enhanced their skills in the areas of curricula review, teaching large classes, using interactive whiteboards and technology in teaching, and the use of multimedia case studies in teaching. Partners implemented 23 different workshops (Table 1-Short Term Training). Eleven Kenyatta University faculty members spent two months at Syracuse University as part of the successful scholar exchange program observing classes, working on research projects, and using the SU library. During the three-year period of the award, faculty applied their skills and knowledge in teaching, teacher

preparation and research within six subject areas: Languages, Math, Science, Creative Arts, Social Sciences, and Educational Technology.

Two KU faculty members benefitted from a "sandwich degree" training program in the U.S. (Table 1-Long Term Training) earning a Certificate of Advanced Study at SU. Participants improved their knowledge and skills in research methods and made progress on their dissertation proposals and data collection, enhancing their ability to complete their Masters and PhD studies at different institutions.

Partners planned and carried out six collaborative research studies in the following areas: (1) Technology Integration in Kenyan Secondary Schools, (2) Teaching Practice, (3) Literacy Benchmarks in Kenyan Secondary Schools, (4) Dealing with Large Classes in Kenyan Secondary Schools, (5) Mentoring Pre-Service Secondary Teachers, and (6) Supporting All Learners in Kenyan Secondary Schools.

Partners developed policy briefs based on their research studies and on data collected as part of their professional development workshops. These policy briefs will benefit KU administrators, Ministry of Education officials, other school of education deans, and secondary school principals toward improving teaching-learning in Kenya.

Partners revised three curricula for the Bachelor of Education in Science and Bachelor of Education in Arts undergraduate courses (traditional and school-based programs) and master's courses. The partnership developed 19 multimedia case studies across six subject areas that include lessons filmed in Kenyan secondary classrooms toward enhanced experiential education.

The partnership's key achievements were (a) 23 professional development workshops, (b) acquiring teaching materials, including laptops, internet modems, interactive whiteboards, iPads, digital cameras and science and language kits,(c) scholar exchanges benefitting 11 KU faculty members, (d) long term "sandwich" degree trainings for two KU faculty members, (e)six research studies, (f) three curricula review sessions that resulted in 52 curricula revisions, (g) collecting and analyzing data from 100 graduates and faculty members, (h) developing and piloting a mentoring program, (i) supporting at least 32 students with visual impairments with iPads (11 KU faculty and students, 11 Thika School students and 10 Kibos school students), (j) and 19 multimedia case studies including cases filmed in secondary schools. Annex II includes a full list of deliverables of the partnership.

In total, the partnership directly benefited 272 individuals (119 females) through short-term and long-term training, outreach activities, curricula reviews, and research.

Constraints and Opportunities

Partners experienced three major challenges during the three-year period of the award; (1) technology and connectivity difficulties, (2) securing a classroom learning laboratory, and (3) a lecturer strike. These challenges created delays in implementation and were resolved through continuous communication and collaboration among the partners. The long-standing relationship between Syracuse University and Kenyatta University (that extends back fourteen years) contributed to the success of the partnership in navigating contextual challenges. On a broader scale, the historical friendship helped in terms of understanding the development gaps within

teacher education in Kenya. Partners plan to continue the work of their partnership beyond the close of the award.

Project Administration

HED/ACE worked closely with Syracuse and Kenyatta University partners toward quality and timely submission of quarterly financial expenditure reports, and annual and semi-annual implementation progress reports. HED provided guidance on issues such as developing monitoring and evaluation plans, budget realignment, and timely implementation of planned activities.

6. **Liberia Partnership between Indiana University and University of Liberia (AID-669-LA-11-00001)**

USAID/Liberia generously provided support to The American Council on Education, Office of Higher Education for Development (ACE/HED) through a four-year, $3,088,251 Associate Award to fund a partnership between Indiana University (IU), the University of Massachusetts Medical School (UMMS) and the University of Liberia (UL) for a partnership titled: "Centre for Excellence in Health and Life Sciences in Liberia." The total award was reduced to $3,088,251 from the original negotiated ceiling level of $8,019,957 through a modification to the signed agreement between ACE and USAID/Liberia. This has resulted in reducing the sub-award amount for the partnership from $7,185,199 to $2,608,260.

This report is for the Associate Award Agreement No. AID-669-LA-11-00001 between USAID/Liberia and the American Council on Education, Office of Higher Education for Development (ACE/HED), effective September 27, 2011 and a sub-cooperative agreement between Indiana University (IU) and ACE/HED, effective October 1, 2011.

Cognizant of the dire healthcare situation in Liberia and of higher education's unique position to make a powerful and long-lasting contribution to international development, USAID/Liberia generously provided support to ACE/HED through a four-year, $3,088,251 Associate Award for a partnership between IU, UMMS and UL titled: "Center for Excellence in Health and Life Sciences in Liberia." The U.S. university partners in this initiative include IU as lead institution (for the basic and advanced life sciences, nursing and public health), and UMMS as the secondary institution (for medical sciences education and nursing).

This collaboration represented UL's vision of rebuilding the country's diminished capacity for education in the health and life sciences. The University of Liberia's top priorities were building human capacity through faculty development programs in the health and life sciences, improving educational infrastructure, and developing articulation arrangements with other health education programs in the country. Moreover, they directly addressed the health workforce development goals of Liberia's Poverty Reduction Strategy.

The partnership was designed to lend expertise in a variety of ways from collecting and sending current textbooks in biology, chemistry, mathematics, nursing and other courses to providing six-week summer study tours for Liberian faculty in the United States. In addition, the partnership created a new, two-year Core Health and Life Science Undergraduate Program and originally planned for a joint four-year Bachelor's program in Nursing Science (BSN). Partners also worked together to improve instructional quality in introductory science

courses, develop upgrades to the preclinical science curriculum at UL's Medical and Pharmacy Colleges, and modernize UL's teaching and learning resources.

Partnership Objectives

1) To improved delivery of health and life science programs at UL
2) To improved student access to education in and preparation for health and life science careers
3) To increase the status and permanence of UL as a leader in the areas of health and life science education

7. Malawi Partnership between Michigan State University and Lilongwe University of Agriculture and Natural Resources (LUANAR) and Chancellor College/University of Malawi (AID-674-A-00-11-00030-00)

This report is for the Associate Award Agreement #674-A-00-11-00030-00 between USAID/Malawi and the American Council on Education, Office of Higher Education for Development (ACE/HED), for a three-year award of $1,385,000 effective April 5, 2011. The award was extended twice, first at no cost from April 4, 2013 to September 30, 2013, and second at cost through May 30, 2014 and increasing the total award amount by $285,000 to $1,385,000. The partnership between Michigan State University (MSU), and University of Malawi (UNIMA) entitled, "Agro-Ecosystems Services (AgESS): Linking Science to Action in Malawi and the Region," sought to enhance human and institutional capacities within the area of AgESS—the benefits that ecosystems provide to people and environment.

The partnership was established to strengthen Lilongwe University of Agriculture and Natural Resources (LUANAR) and Chancellor College/UNIMA in the area of AgESS, enabling these institutions to enhance faculty development and respond to research, curricula, and outreach needs identified by government, the colleges, private sector, and non-governmental organizations (NGOs). The partnership strove to address issues related to sustainable land and water management and forestry management; soil fertility and conservation agriculture; agricultural and natural resource governance and policy dialogue; management of the agro-ecosystems dimensions of climate change; and enhanced agricultural research capacities.

The partnership was built on a long-standing relationship between MSU and UNIMA that extends back twenty-five years. This historical foundation contributed to the success of the partnership in terms of understanding the Malawian context and navigating implementation challenges. The four partner institutions, Michigan State University (MSU), Chancellor College/University of Malawi (UNIMA), Bunda College/LUANAR, and Lincoln University (LU), contributed different levels of expertise and experience to address the development strategies articulated by the Malawi Growth and Development Strategy (MGDS), Ministry of Agriculture and Food Security (MOAFS), and USAID/Malawi's Feed the Future Strategy.

Over the three years of implementation, the partnership directly benefitted 722 individuals through the following key accomplishments:

Through the design and delivery of three agro-ecosystem services (AgESS) short courses, partners were able to train faculty members, students, and external stakeholders in areas of AgESS by expanding their knowledge and exposing participants to new strategies and resources, making the universities better equipped to address development challenges through improved research, teaching, and outreach. Practical, hands-on technical short courses in grant writing, financial management, and fundraising courses improved the skills of members of LUANAR and Chancellor College faculty and staff. Faculty members and staff are now aware of new ideas and strategies for creating linkages with external stakeholders and are also better equipped to manage external grant funding.

Internship programs designed to give students practical experience in their respective fields have allowed students to develop hands-on skills that will help them gain employment and address Malawi's development challenges. The mentoring program created by the partnership provided support to faculty on ways to address students' needs, and helped students communicate their challenges in more productive ways with faculty.

A women's scholarship program for third- and fourth-year female students in AgESS fields was created to assist disadvantaged women with academic funding. Fifteen of the scholarship recipients have already graduated. Based on a study conducted by partners on the conditions for women at Malawian partner universities, partners have contributed to changes in university policies that relate to advising and addressing female students' needs. The study helped to better understand why the gender gap in promotion and retention exists at each university and to strategize ways to assist women overcome their challenges and seize opportunities.

The semester-long courses and modules that were developed for the project integrated problem-solving, hands-on approaches and interdisciplinary perspectives, as well as gender-inclusive practices. These courses helped the Malawian university students understand the role of ecosystem services in agricultural production and environmental sustainability. The project also supported the creation of gender-focused modules at each partner university and one semester-long course on gender and development to be offered at LUANAR. Both the AgESS and gender-focused modules and courses will be integrated into the curricula at LUANAR and Chancellor College.

The seed grant program supported pilot research on AgESS-related topics and allowed faculty to identify and begin to address development challenges through pilot research studies. The seed grants were awarded to five teams of researchers from universities, NGOs, and the public sector to conduct pilot research in preparation for larger-scale research projects. Participatory research that engages academics and external stakeholders is critical to solving development challenges in Malawi.

The project was successful in bringing public, private and NGO sectors together to address identified national problems. Stakeholders engaged with their academic counterparts in fundraising workshops, stakeholder meetings, and research planning workshops. The relationships built between the various sectors could improve the relevance of teaching—providing students with the skills needed in the workforce, and enhancing communication between researchers, practitioners, and policymakers. The relationship between universities and external stakeholders was mutually beneficial for the students and the fifteen participating organizations. The students learned valuable on-the-job training, and the organizations were exposed to theory and a new generation of ideas.

Data in this report is based on semi-annual reports and a final report that were submitted by partners throughout the three-year period of implementation.

8. **Senegal Partnership between Ohio State University and Gaston Berger University (685-A-00-11-00023-00)**

This final report, covering the period from December 20, 2010 to September 30, 2015, refers to Associate Cooperative Agreement No. 685-A-00-11-00023-00 between USAID/Senegal and the American Council on Education's Higher Education for Development office (ACE/HED) and a sub-cooperative agreement between the Ohio State University (OSU) and ACE/HED.

The partnership between Université Gaston Berger and the Ohio State University was funded by USAID through HED's Leadership with Associates' Award, as part of the Africa-U.S. Higher Education Initiative. The Africa Initiative was started with 33 U.S. and African partnerships receiving six month planning grants for proposal development. Of the 33 planning grant proposals presented, the partnership between UGB and OSU was one of eleven finalists selected for funding.

Although the Africa Initiative's final eleven partnerships had started as a program defined by a "five year program, ten year vision," changes in U.S. Government administration resulted in foreign policy and budgetary changes that dramatically affected all partnerships within the Africa Initiative. ACE/HED and USAID/Senegal signed an Award Agreement effective December 21, 2010. The award was for a partnership between UGB and OSU, titled "Development of Agronomy and Crop Production Academic Programs, Research, and Need-Based Extension Programs for Sustainable Food Production in Senegal." However, by the end of USAID Administrator Raj Shah's first year, USAID strategies and funding priorities had undergone a "hard pivot" and the funding for the USAID Senegal Mission, and this partnership, was significantly reduced. Thus, the original partnership goals and vision underwent major changes as the original proposal with a $5M budget was cut back to roughly $1.5M to accommodate the reduced budget levels. Despite these enormous budget cuts, the partnership was still able to achieve significant results that will have lasting impact.

9. **South Africa Partnership between University of Cincinnati and University of Cape Town (AID-674-A-00-11-00018-00)**

This report is submitted for the Associate Cooperative Agreement No. 674-A-00-11-00018-00 between USAID/South Africa and the American Council on Education/ Office of Higher Education for Development (ACE/HED), and a sub-cooperative agreement between the University of Cincinnati (UC) and ACE/HED, for a two-year award of $1,374,806 effective February 28, 2011.

Over the two years of implementation, the partnership has directly benefitted over 150 individuals through the following key accomplishments:

- Developed a Solar Power for Africa web-based course on the potential of photovoltaics in Africa
- Enrolled five faculty from Rwanda and Ethiopia in MSc/PhD programs at the University of Cape Town (UCT).
- Trained over 80 individuals through the web-based course and short-term professional development visits to laboratories in the U.S.).
- Reached more than 60 individuals through its community outreach activities

- Installed solar panels in a school and clinic in rural villages in Ethiopia, NGOs and government agencies.

Contributing to human capacity development, the partners have facilitated the enrollment of faculty from partner African higher education institutions for postgraduate study at UCT. Individuals from South Africa, Rwanda, Botswana, and Ethiopia participated in the Solar Power for Africa web-based interactive course. Furthermore, the U.S. faculty from Haramaya University (HU), Kigali Institute of Education (KIE) and Rhodes University (RU) visited UCT conducting research on printed electronics technology.

In its outreach programs, the partners have collaborated on installing solar panels in the Qeransa-Darraba village clinic and a school in Ethiopia, involving undergraduate students from UC and from HU. Additional outreach activities included Nano-Power Africa (NPA). In this project , undergraduate and graduate students installed solar cells and lighting under the Solar Power for Africa program which focuses on entrepreneurial dissemination of technology through a franchising of printed electronics technology.

Throughout implementation, the partners have worked together on several research projects. Those include a flame made synthesis of titania and printed silicon technology at HU in Ethiopia, the ongoing development of a solar panel assembly plant HU/Dire Dawa University in Ethiopia and the ongoing development of a printed electronic water sensor project, and printed electronic solar cells. Partnership activities have strengthened the capacity of UCT in South Africa, KIE in Rwanda and HU in Ethiopia, contributing to African development goals related to access to alternative, cost-effective and locally developed energy supplies.

Data in this final, end of project report are based on semi-annual reports that were submitted by University of Cincinnati (UC) throughout implementation. At the time of writing this report, the partners did provide answers to HED queries and failed to submit a final partnership report, as stipulated in the agreement signed between UC and ACE. This incompliance has affected HED's ability to fully apply its data quality filters and procedures in order to bridge some of these data gaps and inconsistencies, as pointed out in the narrative in reference to specific instances.

10. South Sudan Partnership between Virginia Tech University and University of Juba/ Catholic University of South Sudan (AID-650-A-00-11-00303-00)

This report is submitted for the Associate Award Agreement No. 650-A-00-11-00303-00 between USAID/South Sudan and the American Council on Education, Office of Higher Education for Development (ACE/HED), and a sub-cooperative agreement between Virginia Tech University and ACE/HED. USAID/South Sudan has obligated $3,186,422 for the Associate Award Agreement providing funding for a partnership between Virginia Polytechnic & State University (VT) and University of Juba/ Catholic University of South Sudan (UoJ/CUoSS) titled "Rebuilding higher education in agriculture to support food security, economic growth and peace efforts in South Sudan (RHEA)."

The continuing instability of the country posed numerous challenges in implementation of the partnership activities. When USAID suspended its operations in South Sudan in December, 2013, the AOR requested revised implementation plans, which were submitted in January, 2014. In February 2014, USAID modified the Associate Award to reduce the ceiling of the award from $10,544,527 to $8,348,477 and obligating a total of $3,315,700 for the award. This was in conjunction with the Missions request for immediate and early closeout of all

partnership activities in South Sudan. The final six months of program implementation were limited to closeout activities, reporting and disposition of equipment. Furthermore, in June 2914, USAID modified the Associate Award one more time, this time reducing the ceiling from $8,348,477 to the total obligated amount of $3,186,422, and establishing August 31, 2014 as the closing date of the Associate Award.

Over the three years of project implementation, the VT and UoJ/CUoSS partnership planned and implemented numerous activities to develop the world's youngest nation's institutional and human capacity through research, infrastructure improvement, outreach and extension and trainings.

Partners delivered sixteen short-term trainings benefitting 304 individuals, contributing to developing capacity of South Sudanese individuals by improving their skills and hands-on experience in areas such as agribusiness, microenterprise, entrepreneurship, agricultural laboratory experimentation, accounting and financial reporting, curricula review and research proposal writing. The partnership also provided long-term training for nine South Sudanese in the areas of limnology/fisheries, animal breeding, food nutrition, wildlife conservation, forestry and mining engineering.

Supporting the academic programs of South Sudanese institutions, the partnership developed a three year diploma program in General Agriculture that contains104 course credits and provides a hands-on technical education in agriculture preparing graduates to be productive and adaptable agricultural leaders. It also supported libraries by providing 4,524 books and journals covering wide range of topics, including plant biology, agriculture and farming, natural resource management, environmental sciences, physics and chemical engineering. Partnership activities have strengthened the infrastructure of the CUoSS campus at Wau by purchasing and building a generator shed, two guard-houses, a borehole for a water supply system, new latrines, and renovated classroom space.

Virginia Polytechnic & State University and University of Juba/Catholic University of South Sudan Partnership (2011–2014)

In its outreach programs, the partners have collaborated on Agricultural Trade Fairs, farmer trainings, and farmer surveys conducted by CUoSS students. In this project, undergraduate and graduate students conducted two farmer surveys in Wau and gathered information about vegetables grown and the challenges farmers face in production. Students used a structured questionnaire to collect data and then used their findings to select and train farmers on vegetable production technologies.

With the goal of improving skills of faculty and students, as well as generating new technologies and management practices, partners completed two joint research projects, six mini-grant research programs and several student thesis research projects. These research projects address Feed the Future priorities, such as staple food production, soil quality, the production practices of small- and mid-sized producers, and animal production.

Throughout the performance period, the partnership was affected by the political instability and ensuing conflict and closure of universities resulting in several suspensions of learning and implementation of partnership activities, and ultimately an early closeout of the partnership award.

Finding well prepared candidates for graduate programs in the U.S. was difficult and limited the number of potential beneficiaries of long-term training goals of the partnership. Due to the successive reductions in USAID funding over the performance period, partnership targets and activities had to be reduced significantly, affecting the implementation plan and deliverables particularly the last two years of the partnership program. VT and UoJ/CUoSS partners had not put in place an effective communication strategy and plan, resulting in difficulties in adjusting implementation plans and M&E targets in response to rapidly changing conditions on the ground. Partners were also unable to submit required reports in a timely manner. This resulted in partners providing HED with inconsistent accomplishment data, narratives and supporting documentation. Partners were challenged in addressing data quality issues identified by HED including reporting accurate data, supporting data with documents, and linking reported accomplishments to implementation plans and targets approved by USAID. Partners were unable to submit success stories for each reporting period demonstrating impact of the implementation of project activities.

11. Uganda Partnership between Mississippi State University and Makerere University (AID-617-LA-11-00001)

This final report is for the Associate Award Agreement No. AID-617-LA-11-00001 between the United States Agency for International Development, Uganda Mission (USAID/Uganda) and the American Council on Education, Office of Higher Education for Development (ACE/HED) to manage the implementation of program objectives of the Africa-U.S. Higher Education Initiative between Makerere University (MAK) and Mississippi State University (MS State). The original two-year award effective January 28, 2011, was extended an additional 19 months from February 28, 2014 to September 30, 2015, with a total award amount of $2,423,747. The award provides funding for a partnership between MAK in Kampala, Uganda and MS State, titled “Capacity Building in Integrated Management of Trans-Boundary Animal Diseases and Zoonoses” (CIMTRADZ). Between January 2011 and March 2014, the CIMTRADZ project was implemented by North Dakota State University (NDSU) and MAK, in collaboration with Michigan State University (MSU), Washington State University (WSU) and Columbus State University (CSU).

All CIMTRADZ partnership activities were put on hold between October 1, 2013 and February 2014, as all obligated funds had been exhausted. At the time, modifications to the award to extend the period of performance and obligate additional funding were pending, and the partnership director, Professor Margaret Khaitsa was preparing to move from NDSU to MS State. The partnership was officially transferred to MS State, as of March 2014. This transfer was agreed upon by NDSU, MS State, MAK, ACE/HED, and USAID/Uganda. Because the transfer was effective as of March 2014, no accomplishments are reported for the October 1, 2013 to March 31, 2014 period. Partners postponed planned activities awaiting extension of performance period and obligation of additional funds. During the active implementation period of April 2014 to June 30, 2015, the partners worked to compensate for these delays and were able to implement all of the originally planned activities and report significant progress on the majority of their indicators.