

**GLOBAL PERSPECTIVES GRANT REPORT, 2013-2014**

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**Ecosystem Science & Management Department**

**Grant Award: \$4000**

**Ecosystem Science Research, Education, and Capacity Building for Students and Scholars from Sub-Saharan Africa and Wyoming**

An effective way to strengthen global perspectives in Wyoming and capacity for research and sustainable agriculture in Kenya and Uganda may be to nurture inter-university faculty collaboration on student-driven research. Our UW team formed many partnerships with universities and NGO scientists during the course of a five-year USAID-funded project to discover and disseminate conservation agricultural practices in eastern Africa. In the fall of 2013, at the beginning of the last year of that project, I proposed to further develop some of those relationships by exploring ways to facilitate collaboration on graduate student research.

I traveled to Africa in July, 2014, and in September, 2014, three of our partners representing NGOs visited Wyoming. Descriptions of those visits are described below:

**Embu University in Embu, Kenya.** We are in the process of developing several ties with this expanding university, which lies at the foot of Mount Kenya at the juncture of several agroecological zones and the Mount Kenya National Park. My former PhD student Eusebius Mukhwana was then the department head of the soils department. I met with the university principle, Dr. Daniel Mugendi Njiru (a soil scientist), who explained that Embu University is in the process of expanding to become a central university of Embu County (similar to a state university in the US). They would be very pleased to establish a formal or informal partnership with UW for cultural and technical exchange. Because of a shortage of PhD holders, they have hired many highly qualified “tutorial scholars” who hold MS degrees on the condition that they make solid progress toward a PhD within three years. I then gave a power point presentation to the group of tutorial scholars, which resulted in two ongoing relationships: First, Anne Kairu, a tutorial scholar and PhD student of Dr. Mukhwana, asked me to serve on her PhD committee. I have been adviser her on a research project and we are working on ways to fund a one-year stay at UW as part of her program. Second, tutorial scholar Onesmus Ngetich approached me about attending the University of Wyoming for a PhD in soil science. His qualifications were very impressive, and he is now on study leave from Embu as an excellent PhD student in my program here. Dr. Mukhwana has since been appointed the Kenya Deputy Director of Higher Education. My recently graduated PhD student Jeremiah Okeyo took a position on the soil science faculty there starting in September, 2014, and another recent UW grad from Kenya, Judith Odhiambo, has recently interviewed for a position there.

**University of Nairobi, Nairobi, Kenya.** UW research associate and alum of the University of Nairobi, Emmanuel Omondi, arranged for meetings at what is essentially the Kenyan national university. The University of Nairobi is underwriting expansion of several county universities, including Embu, under provisions of the 2010 Kenya constitution. We met with range science professor and acting dean Robinson Kinuthia Ngugi (a 1990 PhD graduate of the University of Wyoming), plant sciences professor George Chemining'wa, and soil science lecturer Geoffrey

Kironchi of the Department of Land Resources Management & Agricultural Technology. Dean Ngugi has experience with several different models of partnership with US universities, including Colorado State, Iowa State, Michigan State, and the University of Florida. They favor the idea of students registering at either the University of Wyoming or the University of Nairobi, assembling a joint committee, and spending parts of their research and coursework time at both universities. Students could be Americans or Kenyans. We discussed ideas for funding type of joint degree program and what type of agreement it would require. Dean Ngugi recalled a previous partnership with UW through Professor Jerry Dodd and the World Bank, which could possibly be resurrected. There are many opportunities in fields of agriculture, forestry, wildlife management, and reclamation/restoration.

**University of Eldoret, Eldoret, Kenya, and Makerere University, Kampala, Uganda.** Both of these universities are partners on our USAID project and the collaborating PIs are very interested in continuing our partnership with formal or informal academic exchanges. Professor Robert Okalebo said they had a “sandwich” program with Purdue University in which students spent a year at Eldoret and two at Purdue. Prof/dean Bernard Bashasha indicated that Makerere University is involved in several partnership programs with universities in the US and Europe, but coursework is a weakness and there is a real need for more expertise and capacity in the areas of soil and natural resource sciences. He indicated a need to strengthen the soils department at Makerere and that such a partnership could attract necessary funding. I discussed the possibilities further with Profs Okalebo and Bashasha during my July, 2014, visit.

**The University of Development Studies (UDS), Tamale, Ghana.** Met with Profs Gordana Kranjac-Berisavljevic, Martin Ofusu, Awudu Abukari, and George Nyarko, dean of the college of agriculture, at this very large agricultural university in northern Ghana. We are collaborating with UDS on manufacture of our Multifunctional Farm Implement (MFI), which is a small animal draft tool bar developed through the USAID project and patented by the University of Wyoming. They are very interested in partnership on student research, lab experience, and coursework toward productive and sustainable agriculture, in soil science in particular.

**African partners visit UW.** Shadrack Tuwei, a smallholder farmer from western Kenya, Grace Tino, an NGO manager from Uganda, and Dennis Shibonje, an agricultural instructor and researcher visited the US to learn about conservation farming systems and share experiences with students and faculty on campus. Emmanuel Omondi and I met them in at the airport in Minneapolis to visit a cross-section of agricultural production systems and climates from the Midwest Corn Belt to southeastern Wyoming. We visited:

1. The University of Minnesota Southwest Research Station, Lambertson MN;
2. DeGroot Farms, with over 15,000 acres of corn and soybeans, New Hartford, IA;
3. An Amish farm with 160 acres of corn and soybeans, Hazelton, IA;
4. Greencover Seeds, Bladen, NE;
5. The University of Nebraska High Plains Ag Lab, Sidney, NE;
6. The University of Nebraska Panhandle Research Station, Scotts Bluff, NE;
7. The University of Wyoming Sustainable Agriculture Research and Extension Center, Lingle, WY;

Once arriving on campus, the group held panel discussions in two economic development classes, soils 4120, agroecology 1000, and the agroecology seminar. They were able to visit

Dean Galey and many laboratories. One of them has applied for a PhD program in the Plant Sciences Department.

**Summary.** As our five-year USAID-funded project draws to a close I hope to continue the partnerships formed during that period through faculty collaboration on graduate student research. Many models and funding opportunities were discussed, including joint graduate committees for African or American students earning degrees from the University of Wyoming or from one of the African universities, with students spending time at both campuses. There is a great deal of enthusiasm for this effort and optimism about funding. The Global Perspectives program facilitated initiation of these partnerships, including one (possibility two) Kenyan students coming to UW for PhD degrees, and a joint graduate committee for a student at Embu University in Kenya.



**A:** Shadrack Tuwei drives a team of Belgians on an Amish farm; **B:** Keith Berns of Greencover Seeds describes use of cover crops to Shadrack Tuwei, Grace Tino, and Dennis Shijbonje; **C:** Keith Berns shows the group aerial-seeded cover crops in hail-damaged corn; **D:** Gary Hergert describes 100-year-old plots at the Panhandle Research & Extension Center; **E:** Shadrack Tuwei, Grace Tino, Dennis Shijbonje, and Emmanuel Omondi at the research high-tunnel greenhouse at SAREC.