

To: Faculty and Staff Travel and Study Abroad Grant Committee

From: Ray Penner, Dept. of Physics/Engineering, and Astronomy

Date: Oct. 27, 2010

Re: Faculty and Staff Travel and Study Abroad Grant Final Report

Travel to Malawi to visit various development project sites

My trip this fall to Malawi was very successful. In addition to installing solar powered lighting systems at six new rural secondary schools in Malawi, I had the opportunity to visit several development projects and meet with many interesting people.

The project that I found most interesting was the School for Agriculture for Family Independence (SAFI) where I had discussions with Dr. Evans Chipala, the director of the centre. The training centre takes in selected farmers as husband and wife teams. The farmers live at the centre with their children for one full year where basic literacy is first taught and then training into all aspects of farming takes place. Each farming team is given a plot of land for growing maize, the staple of the country, and a smaller plot for a vegetable garden. They are taught different techniques for composting, the use of fertilizer, and as well as simple irrigation systems. The simple drip irrigation used for the vegetable plots was especially interesting and the farmers, I was told, were surprised at the impact that such a small irrigation system has although so little water is used. The farming team and their children are also taught basic hygiene, latrine building, and animal husbandry. At the end of the year the farmers return to their own villages and implement what they have learned. The centre assists them for a full year after they leave.

I also visited a UN millennium village located in Malawi. There are a number of these villages set up across Africa. The purpose of these villages is to provide models that could be extended across the continent and help to obtain the UN millennium goals. The key to development in Africa is increased crop production and this is what the focus was at the village. What is referred to as a "Maize bank" forms the foundation for the project. Villagers can store their maize flour at the bank, can use their maize flour to buy quality seeds and fertilizer from the bank, and can sell their maize to the bank. There are also micro-loans available and other initiatives present. The appropriate technology initiatives that I was most interested in seeing were not quite as successful. Local carts that were intended to help villagers transport the large bags of maize and water were broken down. Although given the terrain, which is probably unsuitable for a two-wheeled cart, it was disappointing that the NGO that initiated this project gave up so quickly. Rain water catchments were also in fairly rough condition.

I met with the headmaster and the teachers at the newly built primary school in the village. They are very interested in having the lighting system that we install at the secondary schools installed into one of their rooms. Although from a publicity point of view, for my charity LED Africa, this may make sense, as large numbers of visitors visit this millennium village; its usefulness at the school is

questionable, so a decision has not been made as yet. However, the village would be an excellent place, in general, to showcase appropriate technology initiatives.

I also had discussions with three members from the Faculty of Science at Chancellor College in Zomba on the possibility of a solar cooker project. I brought the three of them together as they had all individually talked to me about deforestation and solar cookers. The idea is to design and implement large communal solar cookers that would be suitable for the many primary school programs within the country that are part of a Feed the Children initiative. These large cookers have been used in India and other parts of the world. The question is can we build it with the materials found in Malawi and how effective it will be. I agreed to be part of the project, although I am hoping my role will be mainly as an advisor as I have to focus on my LED Africa lighting project. However, as the cooker itself, from a science point of view, look very interesting it will be difficult to keep my hands off of it!

I also discussed with the chair of the Physics Department of Chancellor College on ways of connecting their department with LED Africa. The plan is that we would have as a project for their upper level students, the building and installation at a rural secondary school of one of the LED lighting systems. The students would get hands on experience with an alternative energy system. This will hopefully be an ongoing project in that each year a rural secondary school would be identified that the students from the Physics department would light up.

I learned a lot about development in Africa on this trip, between working with my own charity on manufacturing and installing lighting systems at the rural schools to meeting many people and seeing different projects. On previous trips I am typically so busy with my LED Africa project that I can't see the forest for the trees, so the funding provided by the Faculty and Staff Travel and Study Abroad Grant Committee allowed me time to gain a better perspective.