

Title of Project: SOLAR ENERGY FOR COMMUNITY SCHOOL IN MUCHABJE, MOZAMBIQUE

Country where the project took place: Mozambique
Sponsoring College: International House UC Berkeley, Davis Foundation
Student(s): Diana Quelhas, Samuel Fernandes
Student's Home Country: Mozambique, Australia
Student's College: UC Berkeley, Lawrence Berkeley Lab
UWC attended (if applicable): NA
Project blog or website address, if applicable: NA

SECTION 1

The project had two main goals: 1) to provide solar energy to a community school in rural Mozambique to improve the studying conditions for children and allow for evening schooling for adults and special circumstance teenagers; 2) to organize a seminar to raise awareness about renewable and clean energies.

Since the cost of the entire system and transportation to the site was more than the amount granted by the Davis Prize, we did seek additional sources of funding, both in the US and in Mozambique. Surprisingly, in the US we have been unsuccessful in obtaining any further funding so far, despite the many entities we reached out to. We received an offer from a US based company who was willing to donate solar modules, however, the import tax, customs duties in Mozambique coupled with logistical challenges led us to having to turn down the offer. We also tried crowd-funding, but our site did not reach its target-funding amount. In Mozambique, the construction company Eurico Ferreira funded the electric installation of lamps, cabling and mounting system. There is still a gap in the funds available and ultimately we have had to personally bear the additional costs of the project to ensure its completion.

Unanticipated difficulties: Despite several months of planning ahead with FUNAE who was meant to supply all the necessary equipment, once we arrived on the ground, all the equipment we had ordered except for the panels, were out of stock. Because of time constraints, we decided to acquire the panels from FUNAE but had to resource to alternative providers for all other components and for installation, which resulted in logistical and financial difficulties. Other difficulties included adapting the mounting system design to best suit the location and purpose, finding matching materials and most importantly coordinating many different people with very fragmented skills and roles.

Budget constraints: Project budget was really difficult due to unforeseen costs that emerged and we did seek other funding sources but these were not sufficient. Ultimately we completed the project with personal finances.

Language/Culture: For Sam, language was a huge barrier and he found it difficult to effectively communicate with the project team but found alternative ways of communicating. Diana is from Mozambique, and there was not much of a cultural challenge, but this was a unique opportunity to learn more about life and schooling in a rural part of her country.

What worked: The installation of the solar panel system was a success. Despite the unanticipated challenges, we were able to put together a team of dedicated technicians and local contractors who finally did a very good job.

What didn't work: Relationship with FUNAE, language challenge for project team.

How many people will benefit: There are approximately 600 students at the community school who will directly benefit from having lights in the classrooms and being able to study later in the evening. The school is also planning to initiate night classes for adults now that they have electricity. This will then serve an estimated 200 adults in the community in the first academic year, with potential to increase in the following years.

Who are these people: These are people of the Muchabje village in the Macia region of Mozambique.

Long Term Impact and Sustainability of this project: Besides initiating adult classes for the community, the mounting system we installed has capability to mount an additional 4 panels which can increase

output of the current system to service additional applications. We had also planned to install a couple of computers in the school, which will support the school administration. With proper maintenance of the system, the panels will produce solar energy for the school over the next 20 years. We also selected Gel cell batteries that are longer lasting, require less maintenance and will ensure sustainability for the overall energy system.

Is there a future for your project? Yes, we would like to keep track of how the system performs. One of the planned technical enhancements is the installation of a solar energy output tracker that will give us information on the generation from the system and also on the amount of energy being used by the school. Another way to measure our impact is by tracking the number of students who now use the classrooms to study and also the number of adults how benefit from the night literacy classes. In the shorter term it is the number of students who get access to education while in the longer term it will be the contribution they make to Mozambique through the education they receive.

SECTION 2

Peace is a good to be promoted with good: it is a good for individuals, for families, for nations and for all of humanity. To maintain peace one has to foster it by decisions and actions inspired by good. Often, violence destroys what it claims to defend: the dignity, the life, and the freedom of human beings. To foster peace requires a great effort to form consciences and to educate the younger generation to goodness by upholding an integral and fraternal humanism.

Basic infrastructure in Mozambique was significantly destroyed during the long wars for independence and up until 1992. With an extremely fragile economy, Mozambique is having a slow recovery and despite a recent increase in foreign investment in specific sectors such as mining, lack of basic living conditions and of education and job opportunities is a huge limitation for development.

On the bright side, the country is now looking at different ways for rapid infrastructure development. One of the ways it is looking to do this is by investing in alternative energy sources like solar to support reconstruction efforts. Our project was completed using solar panels locally manufactured, thus supporting the local industry and also serves as a case study on how solar energy could be used for development.

Another way in which our project will contribute to peace in the longer term is by providing energy to the school, thus enabling adults in the village to access education. Through education the people of Muchabje will get better opportunity for academic and personal development that will contribute to creating and maintaining peace in the community and also enlighten them to seek solutions for themselves for creating a better future for Muchabje and Mozambique.

This project made us reflect on the way we live simplicity in our lives and relationships. Even though there is significant technology to keep us connected and lead us to progress in the developed world, we can often be very disconnected from each other. This project exposed us to the value and joy of being connected with each other and having a really strong community, which is one of the striking features of life in Muchabje.

“Estamos juntos - We are together” is a common phrase used by the people in Muchabje and most of Mozambique. It reflects a mode of living through solidarity and connectivity that is unique to a people who have long wished for peace and unity. Through this project we established a connection with the people of the Muchabje village. We shared the excitement of designing, building and installing a brand new concept for this village. The moment when the school lights were turned on for the very first time represented a moment of relief and shared trust that together, despite all the differences and challenges, we were able to create a better future for the community of Muchabje.



Image A: Diana Quelhas conducting the seminar to raise awareness about renewable and clean energies.



Image B: Opening Ceremony of the solar energy system. Diana Quelhas and Samuel Fernandes along with Village Chief Mr. Muchabje and leaders from neighborhoods surrounding Muchabje who all attended the opening ceremony. From L to R (standing): Village leader 1, village leader 2, Mr. Antonio Quelhas Engineer with Eurico Ferreira, Mr. Michate Director of Muchabje school, village leader 3, Diana Quelhas, village leader 4, municipality education representative, village leaders 5-7, representatives of GAS-Porto (Portuguese NGO that support Muchabje school), (bottom) Village Chief Mr. Muchabje, Samuel Fernandes.



Image C: Lights powered by the solar energy system, shine bright in the Muchabje village school on August 6, 2015