

Distributions

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Implementation Trip to Uganda

By David Fox

This fall has been an unbelievably busy time for EWB USA-NEU; we ended the summer with an extended six-week trip to Bbanda, Uganda. Two teams, a total of ten students, began the implementation of the Bbanda Distribution System, a water distribution system that we have been designing since 2010.

The trip was successful on many levels; great strides were made in increasing community awareness and acceptance of the project, factors that are pivotal to the long-term sustainability of the system.

While EWB USA-NEU was present, the community was able to install approximately 350 meters of pipe and meet with many potential contractors and suppliers. The travel teams were able to contract a local company to drill a borehole that may be used as the source for the system. Additionally, two dysfunctional



A Girl Filling a Jerrycan | Photo: A. Meyer

boreholes (past EWB USA-NEU projects) were rehabilitated, something that was much appreciated by the community.

Moving forward, the group is preparing for three more implementation trips during February, May, and August of 2014. We will be excavating the foundation for the tank site and generator house, furthering progress made with the source borehole, and continue installing pipe during the February trip. In addition to completing the pipeline, the first phase of the system requires the construction of a 50,000 liter tank, a generator, a pump, and five water tap stands. This work, in addition to continued focus on community relations, is scheduled for the May and August trips.

On the trip, we had a diverse group of engineering students ranging from freshmen to juniors that encompassed civil, chemical, electrical, and mechanical engineering majors. I know I can speak for all ten of us when I say that the experience was both incredibly rewarding

and invaluable. Throughout the few weeks each of us spent in Uganda, we were able to grow both personally and professionally, expanding as students as well as people. While we recognize the value in the work we perform designing for an abstract community and system, the ability to physically see this community come together to bring this system to a point of tangibility allows us to add a human interest component to our design.

We are proud of our accomplishments, but we are aware of, and wish to acknowledge, the fantastic support system that allows this work to be completed successfully. The implementation of this project would not be possible without the

generous and consistent funding we receive from our donors. Additionally, this project has been under development for many years and would not have had the success it has had thus far if it weren't for the committed NU alumni that have dedicated their time to EWB USA-NEU. Lastly, we are all very thankful to have the guidance of our professional mentors, Dr. Timothy McGrath and Dan Saulnier. Their donations of their time, talent, and patience to our efforts are greatly appreciated.



Both Travel Teams with our Gracious Hosts | Photo: R. McGrath



Reviewing the Plan Set | Photo: A. Rohrman

Honduras Committee Update

By Anna Murphy *Honduras Design Lead*

For the past six months, the Honduras group of Engineers Without Borders at Northeastern has been working on furthering the water projects in the villages of El Carrizalito and Los Oros.

The team was planning to travel to Honduras in April of 2013 to implement phase one of the El Carrizalito project. However, because of the violence in Honduras's main cities, the state department issued a travel warning. As a result, Northeastern will not allow students to travel to the country. The Honduras group looked into a few possible solutions: close out the project completely and look for a new project, give the project and design over to another EWB group, or work on the project and send other EWB associates to implement the project. In the end, the group chose the last option. A team of Engineers Without Borders Northeastern alumni was chosen to travel to the country to implement the phases in the future, while the students will continue to design the system to be installed. This alumni team traveled to Honduras at the end of December to implement phase one of the system.

El Carrizalito is a village located in the Yoro district



Alumni Ryan Gordon and Community Member Connecting Transmission Main | Photo: J. Schein

of Honduras. Because of the community's geographical location, their water source is below the village, making gravity fed water distribution difficult. The EWB group began designing a system where the local electrical grid would be extended to power a pump that would pump water up to a storage tank located above the village and then give water to the village through a gravity fed distribution system.

The first phase of the project is designing a pump tank and transmission main. This includes selecting the proper pump and making sure the in-country retailer sells the pump. The second phase of the project is to install electrical poles and transformer, string the electric lines, and then install the pump and pump controller. In this phase of the project a temporary water basin will be built near the future distribution tank site, thereby allowing the villagers to get water from this easily accessible site, until phase three is completed. Finally, in phase three EWB will build the distribution tank and system.

In Los Oros, a water distribution system was updated in 2011. Now the team is working on improving a pipe bridge in the community. The current bridge delivers water across an 80-foot ravine, though it is broken in several spots and needs to be replaced. EWB designed a suspension bridge to hold the pipe. With additional surveying, the team is planning to finalize the design and install it in Los Oros as soon as possible.

Uganda Committee Update

By Rachael Gerry and Alyssa Stavola *Uganda Program Director*



A Child Filling a Water Bottle | Photo: A. Meyer

The Uganda Program has been busy this semester simultaneously concluding the summer trip to Uganda and preparing for the next trip this winter. With the help of the new freshman class, the group has been writing the Post-Implementation report to summarize the efforts accomplished this summer and composing the Pre-Implementation report to document their plans for the next trip in February.

The design team has also been working on design improvements to implement on the next couple trips expected to transpire in February, May and August of this upcoming year. Water quality test results from the past trip show that the ground water in the village has a pH of around 4.5. This has raised concerns about the welfare of the water distribution system materials. To prevent any issues, the team has been researching ways to reduce the effects of acid on the system.

Team members are also creating a Planning, Monitoring, Evaluation and Learning plan to better measure the impact the distribution system will have on Bbanda, as well as a way to monitor that the system is sustainable and will be functional in the future.

EWB USA Northeast Regional Conference

By Maria Proulx *President*

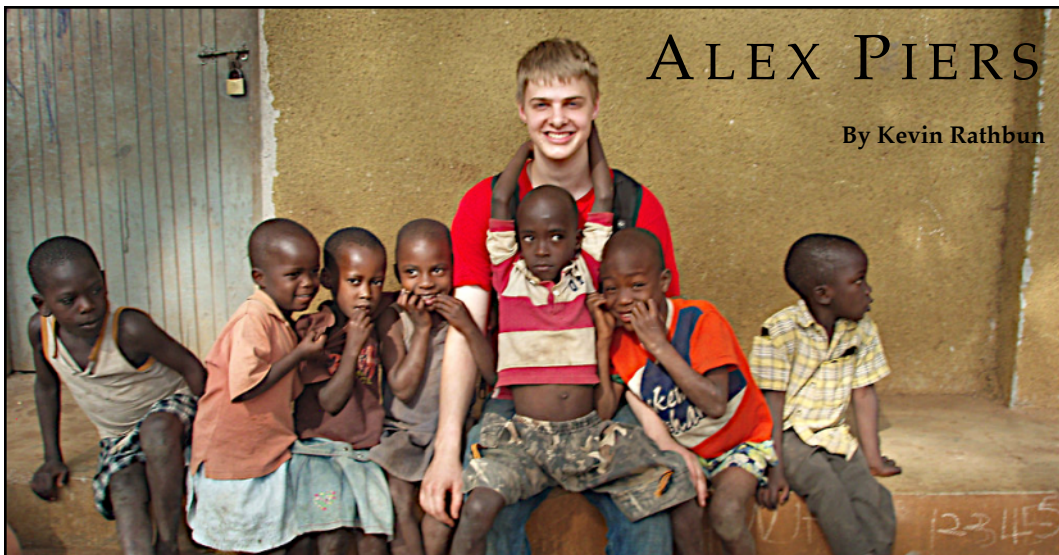
This past November, we sent 21 dedicated members to attend the Northeast Regional Conference hosted by Rutgers University in New Brunswick, New Jersey. The conference gives members the chance to network with fellow students and professionals. Topics covered in breakout sessions include fundraising, international development, and project presentations. Three of these sessions were held by our student members; with another three led by our alumni.

Due to the exemplary work being done, EWB USA-NEU earned the EWB-USA 2013 *Regional Premier Chapter Award* for the third time in the chapter's history!



Members at NERC upon receiving the *Regional Premier Chapter Award* | Photo M. Sanders

SPOTLIGHT ON...



Alex on the August 2013 Trip to Uganda | Photo: A. Stavola

When I was asked to write an article about a younger member with strong potential, Alex was an easy choice. Not only is Alex one of the most intelligent people I have ever met, but he handles himself with a sense of maturity and responsibility far exceeding his sophomore status. It is for these reasons that he has quickly become a member the group can rely on for some of its most crucial tasks.



Alex Collecting GPS Data of the Excavated Trenches | Photo A. Meyer

Alex this August, I had no qualms about leaving him in charge of handling pipe shipments or overseeing trench excavation or pipeline installment.

In the months I've had to work with Alex, I've come to realize that he is part of the minority of students who view their education not as a requirement or obligation, but as an opportunity. He approaches his studies with a sense of passion and purpose one rarely encounters. This was made apparent to me when calculating the volume of the only bucket available to us in Bbanda for mixing concrete. While I was busy making rough estimates, Alex solved for the mathematical equation of the line representing the wall of the bucket, and used integral calculus to calculate the sum of the areas of infinitesimally thin circles whose radii varied according to the equation of that line.

Alex is a bright student with a bright future ahead of him. I'm thrilled to have him on board the EWB team, and have high hopes for his future within this organization and beyond.

Having grown up in Indonesia, Alex saw firsthand the inequality and poverty that can exist in the world. His experiences instilled in him a passion for helping the less fortunate, which brought him to EWB early in his college career. Within a few short months of his involvement, Alex had already become the resident GPS expert. Partially because he was the only electrical engineering student, but also because the team recognized it was an activity that needed to be done, and be done thoroughly, and we knew Alex had the follow-through to handle it. While in Uganda with



Bootcamp! 2013 | Photo: M. George

Fall 2013
Bootcamp!

By Dan Chamberlain and Laurel McCallister

When signing up for this year's Bootcamp! with EWB, we expected to get a brief about the project and its current state. Rather, both of us found that "Bootcamp!" was an interactive experience that not only got us up to speed with the project, but also challenged us analytically and ethically with hypothetical situations similar to those faced by EWB members preparing for travel and going out in the field.

Activities included a mock "choose your path" game, which was an interactive online game that allowed us to decide our own course of action for when we arrive in country. We found that certain steps needed to take place before others to ensure a smooth fieldwork experience. For example, prior to starting laborious tasks, it is more efficient to hold a meeting with the community about volunteering and helping out with the project. Other activities included hypothetical situations, similar to ones EWB members faced in country that groups needed to talk their way through.

Overall, we both felt the activity was eye opening and learned more than just the basics of the project. We learned what the key aspects of the project are and some real life "unplanned" situations that can arise.

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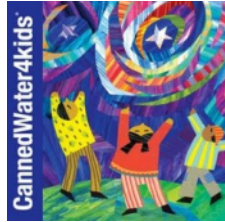
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Measuring the Thickness of a PVC
Casing Pipe | Photo D. Saulnier



Tightening the Compression
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