

Distributions

A Quarterly Newsletter

Editor: Roxanne Meuse

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Thanks for Making us a Premier Chapter!

This year, EWB-NEU was selected as a Premier Chapter, an honor given to only seven out of over 250 chapters of EWB-USA. At the recent International Conference in Denver, CO, the representatives from our chapter received this award and gave a presentation entitled, "Experiences, Wisdom, and Beyond: Sustainable Chapter Growth from the Eyes of Three Past Presidents." Our members in attendance at the conference were overwhelmed by the inspiration and enlightenment that came from speakers and other chapters, and there was an excellent response to our own presentation and our chapter's work.

On Campus: Water Scarcity Demonstration

By Roxanne Meuse

Members of Engineers Without Borders are well acquainted with how far and frequently villagers in the third-world must walk in order to reach their nearest source of water, and we are hosting a water scarcity demonstration as part of Human Rights Week at Northeastern to bring this reality to campus.

The main event will be the Jerry Can Challenge, where attendees will be able to carry a jerry can (a gas can commonly used to transport water in the developing world) a half-mile route around campus. This walk will simulate just a fraction of the distance that one in eight people on the planet must walk every day to obtain water, and our goal is to raise awareness of this infringement on such a fundamental human right. The event is being promoted to students and administration of the university, as well as local schools, non-profits, and the media, including the Boston Globe, Huntington News, and more.

Not only are water sources often far from where people live, but

oftentimes, the water that is available is contaminated with bacteria, viruses, or parasites. Waterborne diseases cause approximately 4 million deaths every year, and two million of these are children who die of diarrhea. However, although the reality of our friends in the third-world is a somber one, this event will have a festive atmosphere as a means to attract passerby and to encourage optimism. We expect a turnout between 100 and 200 people, and in addition to increasing awareness of water scarcity and water quality, we hope to inspire the attendees to help us create a more sustainable future for those who have an immense need for it.

"As Americans we don't often realize it, but people in developing countries like Uganda often walk miles every day, carrying heavy jugs of water for their family's basic needs," says Ann Polaneczky, president of EWB-NEU. "Unfortunately, that means there is less time for work and school—activities that would otherwise help spur development in these countries."

In America, we use water to quench our thirst, to cook our meals, to clean ourselves and our possessions, and to keep our gardens and lawns from withering away. But what if water did not come from our faucet, from one of the many faucets in our houses? What if, instead of water being delivered to us, we had to travel to the water? Then, upon reaching it, we can only take as much as we can carry, and of course it still must be boiled (and cooled) before using it for any purpose. People living in Boston especially are fortunate to be in the opposite situation, but EWB-NEU's projects allow members to see first-hand the disparity between the structure of a day in water-abundant Massachusetts and the villages in Honduras and Uganda, where a lack of access to clean water disrupts both school attendance and health.

We are looking forward to seeing the Jerry Can Challenge, as well as other events during Human Rights Week, make a positive and significant difference in the minds of people here and the lives of our friends abroad.

Design Team

By Dan Sullivan

The Honduras team is currently preparing to embark on a Phase II Implementation Trip to El Chaguite in the Yoro District. The trip, scheduled for April 22nd to May 8th, will be used to begin construction on the 6,500 gallon water storage tank. We will also be visiting Los Planes and El Tecuan to talk to the water board and community members and to revisit the systems that were previously implemented.



Photo: M. Fritz

Despite a political coup preventing the Honduras committee from sending members this past December, the team has been busy with design, research, and more.

Culture & Education Committee

By Megan Fritz

The Honduras Culture Committee is currently working on several projects. We are creating water cycle posters to hang up in the school in El Chaguite, as well as hygiene and sanitation posters to place around the village. In addition, two group members are designing a pamphlet about the importance of washing hands to stay healthy, and members are currently researching how to build a cheaper latrine for the people in El Chaguite. Soon we will be working on writing an instruction manual describing how the water system works and how to maintain it.



Photo: D. Saulnier



Photo: D. Saulnier

El Carrizalito, a potential partner community, has a water source that is at a lower elevation than the village. All of the previous projects undertaken by EWB-NEU have been gravity-fed water distribution systems. El Carrizalito presents us with a unique situation; with the help of the Renewable Energy Research group, headed by Andy Baummer, we will determine if we can implement a sustainable, renewable energy pump system for the village of about 150 persons.

Sustainability Research

Several members have been researching alternative forms of energy to power water systems and more.

Renewable Energy

By Andy Baummer

The **Renewable Energy Research Group** has spent the beginning of this semester putting together the first portion of our research paper. This portion of the paper examines and reviews the various forms of renewable energies that are being considered for use in third world countries. The next step of our research process is to apply what we have learned about these various renewable energies to the design constants in El Carrizalito, Honduras. This village requires energy to move water over 300 feet vertically and 1000 feet horizontally. The group will also focus on preparing research that will need to be completed while the travel team is in Honduras for their April implementation trip so that we can design the most suitable renewable energy for the village.

The Fridge Project

By Alex Unger

Have you ever thought about life without your fridge? How would you keep your ice cream and chicken wings cool? Would you even buy milk and vegetables? Everything would have to be eaten before it rotted on your kitchen counter.

The **Fridge Project** is looking to develop an electricity-free way to cool food so that it can last longer for families without regular access to power. The project is still in the conceptual design phase, and the final product will either use evaporative cooling or heat transfer by running water. We hope to do further research in Honduras on the practicality and use of the device.



Photo: K. Dunn

UGANDA

"With a little outside help, they can begin to transform their daily tasks from a focus on surviving to a focus on living. And with that shift they will begin to have the capacity to develop themselves and their children and will be able to chart their own course into the future.

That's the miracle of EWB."

— Dan Saulnier

Design Team Update

By Ryan Moynihan

Since our initial assessment trip in April of 2009, the Uganda committee has been researching, designing, and working hard towards our planned implementation date of August 2010. At this point we are certain we will be drilling two Boreholes in the village of Bbanda, and are planning some secondary tasks to enhance rainwater collection efforts and increase the level of Hygiene in the village.

We will be sending a small team (two students and a mentor) to Uganda at the end of the semester to share our plan with the villagers, establish a village water board, meet with potential drillers, and select potential drilling sites. We have been working closely with one of our partner organizations, Friends of the Sick and Poor, based out of Dorchester, MA, who have extensive contacts within the village and whose experience will be integral to the success our project.

Starting this semester, we have also begun working with two senior civil

engineering capstone design teams whose task it will be to design a sustainable water storage and distribution system for the entire village. This system will utilize the boreholes drilled in phase one. If we believe the design to be within the capacity of our group and the village, we plan on implementing it for phase II of construction.

Culture & Education Committee

By Roxanne Meuse

There are many crucial tasks for the Uganda Culture Team to complete before the upcoming trips this year. We are currently discussing the most efficient ways to communicate the importance of using soap when washing hands and jerry cans, boiling water despite the inconvenience, and keeping the area around waters sources free of contamination. Possibilities include lesson plans, workshops, and flyers, and we will soon be in contact with the principal of a school in a nearby village who should be able to answer many of our questions regarding cultural and educational considerations.

Partnership with a Local School

By Matt Walsh

This year, EWB-NEU is expanding, and with expansion comes the need for additional funding. To meet this need, we are reaching out to all possible sources. Most recently, this has involved tapping a local high school and member Christine Abichaker's alma mater, Fontbonne Academy, to help us in our goal of raising \$40,000 for Phase I of our Uganda Project.

Through its Lenten Fundraising Initiative, the school's goal is to raise \$2,000 to pay for the two hand pumps for the boreholes EWB-NEU will be installing in Bbanda, Uganda, this August. Through presentations and interaction with the students, EWB-NEU not only seeks to build a lasting partnership for future fundraising projects, but also hopes to inspire some of the students to pursue a future in engineering.

Capstone Projects: Water Distribution System for EWB

By Tim McGrath

For the second time, EWB-NEU is tapping the knowledge of NEU civil engineering seniors by developing a project that the students can work on for their capstone requirement but which can then be applied to complete development of an actual field project for EWB. Two capstone teams are currently developing designs for a water storage and distribution system for the village of Bbanda, Uganda.

In 2009, Dan Saulnier mentored a previous capstone project to develop a water system for Carrizalito, Honduras. This capstone project would likely be under construction right now, had a military coup not prevented travel to Honduras for about six months. Instead, the results of this capstone will be discussed with residents of Carrizalito on our next trip to the area. Now, Tim McGrath is mentoring two capstone teams on a similar project but for a much larger village in a very different environment.

The Uganda Design Team, as noted elsewhere in this newsletter, is working on improving the quantity of water available to Bbanda residents and

reducing the travel time necessary to fetch water from what are currently distant springs. This is an urgent need, and a relatively simple approach of adding boreholes at key locations is the first step towards a solution. The capstone teams are investigating a more ambitious longer-term plan to collect water from multiple sources, pump the water to elevated tanks on hills above Bbanda, and then distribute it to numerous locations around the village.

Design issues faced by the capstone teams are not unlike the challenges faced on many EWB water projects – creating a system easily sustainable by the residents of Bbanda, developing a dependable power supply for pumping in an area with no electric power system or dependable fuel supply, constructing large storage tanks with local materials, and then collecting and distributing water over significant distances. And all this at minimal cost!

The civil engineering capstone system has the students organize themselves into companies and then write proposals to be reviewed by the mentor. We wrote a request for proposals for the Bbanda water system and had three companies submit proposals and make presentations on how they would complete the design project. Based on the proposals and presentations, two

company proposals were accepted. The companies working on the project are Hydrolutions Consultants made up of EWB-NEU members Raji Punjabi and Ryan Mahoney as well as Brandon Caliendo, Adam Questad, and Eric Sheets; and Riverside Consultants made up of Chris Congdon, George Rovira, Nirav Patel, Jeremy Stone, and Derek Yu. The companies have agreed to a schedule for developing the project where they will present progress reports at about 25% and 75% completion. Final reports and presentations will be submitted at the end of the spring semester.

We are very excited about this opportunity to tap into the knowledge and experience of these seniors to help us develop a viable long-term water supply for Bbanda, Uganda.

Photo: M. Fritz



Ryan Mahoney and Raji Punjabi, both EWB members and capstone students, in Honduras, 2008.

Senior Moment

By Ryan Mahoney

I joined EWB during my middler year, and after meeting the people who were working on the Los Planes projects, I realized the kind of difference that was being made, by just normal undergraduate students! Well, maybe they weren't everyone's definition of normal, but they were still doing this tremendous project and helping so many people.

This was the first time I really became aware that I could make such a tangible difference. The late nights I worked on the design with the EWB crew didn't seem like work, and anytime I felt unmotivated, I was inspired by somebody

else in the club. Initially, it was exciting and motivating to learn from the upperclassmen who had traveled before and knew so much about these projects. But even when I was one of the lead designers for the El Chaguite Project, I was constantly inspired by those around me, whether it be the person I found in the EWB office finishing a grant application at 11pm or the freshman who urgently wants to learn more and help the project in some way.

Traveling to Honduras in December of 2008 was certainly the most rewarding thing I did while at Northeastern. There, it was not only highly motivated students, but the Honduran villagers themselves who inspired me. If there is one thing I tell people about all of the villagers I met, it's

how resourceful and hardworking they are.

It is because of this experience I am looking to go to graduate school at University of Colorado – Boulder, the university where EWB was started. I am applying for a M.S. degree in Environmental Engineering under their Mortensen Center in Engineering for Developing Communities (MC-EDC) track. This will give me the opportunity to take classes about sustainable and appropriate engineering solutions for developing communities and complete a thesis project in a developing community. Without my experience with EWB-NEU (and the people who make it great) I would definitely not be heading in such an exciting aspect of engineering.

Who's Who

GRADUATING MEMBERS



Lucas Johnson



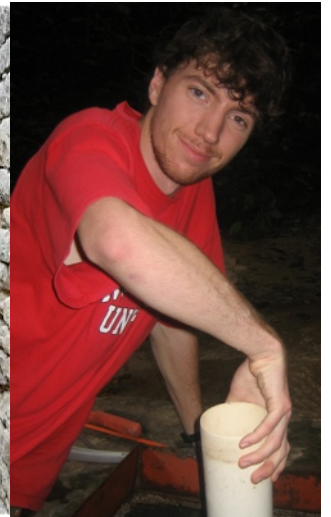
Erin Stokes



Raji Punjabi



John Martin



Ryan Mahoney

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President: **Ann Polaneczky**

VP of Chapter Administration: **Zubin Joy**

VP of Projects: **Matt Walsh**

Treasurer: **Gina Palino**

Secretary: **Bryce Wilson**

Honduras Design Lead: **Daniel Sullivan**

Honduras Culture Lead: **Megan Fritz**

Uganda Design Lead: **Ryan Moynihan**

Uganda Culture Lead: **Roxanne Meuse**

Co-Chairs of the Fundraising Committee: **Gina Palino and Gabe Wolf-Sullivan**

Professional Mentors: **Dan Saulnier and Tim McGrath**

Academic Advisor: **Ferdi Hellweger**