

# DISTRIBUTIONS

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## Honduras Program Updates

By Olivia Ahner -  
*Honduras Design Lead*

In December 2016, the Honduras program sent a team of four students and Peter Furth, a member of Civil Engineering Faculty, to continue the assessment for a new water distribution system in the communities of Ocotal and Potrerillos, marking our second trip for the Ocotal Water Project. During the first assessment trip of August 2015, the team built strong relationships with the community by conducting a number of meetings at the community center where the team emphasized the community's ownership of the system. Additionally, the travel team collected valuable elevation, water quality, water consumption, and health data.

During the recent assessment trip, the team's primary focus was to build on the elevation data taken on the previous trip. These measurements were collected from key areas around the community, potential source, and along potential pipe routes. Within the community of Ocotal itself, a number of previously undocumented houses were added to our map. GPS and topographical



surveys were conducted from Ocotal to the proposed source, and locations for pipe bridges were noted. Potential storage tank locations were scouted out, and the team now has two potential locations to evaluate. These contributions to elevation data will allow the engineering team to begin establishing alternative pipe system designs.

Water quality was tested at both the potential and current water sources of Ocotal, and at tap stands throughout the community. Although we await professional laboratory results, field tests taken by the team at these locations confirmed the results from the last trip. We are optimistic that the community will be able to use the proposed source. The flow rates of both the proposed and current sources are measured regularly by community members. We will continue to receive monthly updates regarding water quantity as we weigh design alternatives.

Now that we have returned from this assessment trip, we will use the newly collected data to create a more detailed elevation profile of the area, enhancing the means to design the most accurate and effective pipe system possible for these communities. Using the extensive water samples taken from Ocotal's existing system, we will be able to determine whether or not there are any health hazards and if it can be used in conjunction with the proposed source.

In addition to the Ocotal Water Project, the team dedicated a few days to monitoring past projects. Before the trip, the community



members of El Carrizalito and Los Planes reached out to the chapter concerning a dysfunctional pump and leaking storage tank, respectively. After spending a day in El Carrizalito, we successfully addressed their pump issue, returning their entire system to working order. The team gathered valuable dimensional and structural data about the tank in Los Planes, but there is still further structural analysis to be done in order to resolve the issue. We will remain in contact with the community as we learn more about the situation.

The Northeastern University chapter of EWB-USA has been working in the Yoro district of Honduras for over 10 years, and we are proud to announce that the water project in Ocotal and Potrerillos is our sixth project in the region. The December team's interactive meetings with the Water Board and community reinforced our cooperative relationship and strengthened understanding of the project's scope. We are excited to move forward with this project and bring clean, accessible drinking water to the homes in Ocotal and Potrerillos.



## Uganda Program Updates

By Maria Franko - *Uganda Design Lead*

In August, a team of Uganda Program members traveled on the first trip to Bbanda since the commissioning of the Bbanda distribution System (BDS) in May of 2015. The travel team included five student members: Alina Rossi-Conaway, Philip Gunderson, Elaine Kehoe, Pat Walsh, Maria Franko and the Uganda Program Professional Mentor, Tim McGrath.

The August 2016 trip was both a Monitoring and an Assessment trip. The travel team spent their time observing the current status of the Bbanda Distribution System, repairing system components, and collecting data for a potential future expansion of the system.

As the August 2016 trip was the first trip since the commissioning of the BDS, the travel team worked with the Water Board and the community to optimize the management of the BDS. The Water Board was newly elected in June of 2016, and is

managing the system well despite the recent transition and the loss revenue due to water leaking out of the tank. Community members expressed gratitude and excitement to continue working with EWB-USA NEU.

After collecting information on the current status of the system components, the travel team conducted necessary repairs. The community informed the team of tank leaks prior to the August trip, however the extent of the leaks was unknown until the team's arrival in Bbanda. The travel team performed spot repairs on the tank and collected additional data on the leaks, so that a more comprehensive repair can be designed and executed on the next trip to Bbanda.

The travel team also mended the tank level indicator to prevent debris from entering the tank. After the installation of the tank level indicator in May of 2015, the potential for debris to enter the tank was evident, thus the travel team came prepared to improve the tank level indicator with screening and rubber seals.

The most surprising repair was perhaps the removal of rocks from a branch of the pipeline. The tap

stand located on the road to Mawa was experiencing inconsistent flow. After revisiting the hydraulic model, surveying the branch to find the profile, performing iterative calculations on the potential for an air block, and opening a manual air release valve installed by the community, the travel team was still unable to determine the cause of the inconsistent flow. In a final effort, the travel team opened the pipeline at the reducers on the branch to the tap stand and found rocks blocking the flow in the pipe. After this surprisingly quick fix, water flowed easily from that tap stand, and that area of the community now has reliable water.

In addition to monitoring the operation of the current status and performing repairs, the travel team assessed for future expansion of the system. The assessment activities included a survey to collect elevation data on potential future pipeline routes and tap stand sites and a hydrogeological survey to identify potential locations for a second source borehole.

Moving forward, the team has a spring trip planned to complete repairs on the tank and assess the feasibility of connecting the existing system to the electrical grid.



## Fall 2016 Bootcamp

By Josephine Rosenthal -  
*VP of Administration*

Bootcamp is an annual event that EWB-USA NEU runs for new and existing members. It serves as an update on current projects and an opportunity to learn about the EWB processes. Over the course of the day, 70 students went through the four phases of a project (assessment, design, implementation and monitoring) through a series of simulation activities. An example community was established, and students began by brainstorming what they would bring on an assessment trip and how to work around a time constraint. An introduction to hydraulics was given by our president, Emily Katzner, so that new members could consider the problem of designing a water system in a region with varying elevations. Once each group had designed a pipeline, the students got to test what they learned with an online simulation of an implementation trip. To end our mock project, we learned the importance of continual monitoring of a finished system.

Bootcamp is an important and successful event for our chapter. It is an occasion for new members to become a part of our community and a time for more experienced members to share what they've learned. It has become a defining feature of our chapter, and will hopefully continue to inspire new students every year.

## Panama Program Updates

By Alli DiGregorio -  
*Panama Program Director*

This year has been an exciting time for the Panama Program and the community of Las Delicias. After a successful first year, the members had high hopes for what could be accomplished in 2016. The team hit the ground running after the first assessment trip in August 2015 and worked many long hours analyzing the data that was collected. The team then outlined a preliminary design for the drinking water system and determined key points of information they still needed to finalize the design.

The group divided the project into two components. The first was to create a detailed map of the community by compiling survey and GPS data collected on the first trip. A dedicated team worked with ArcGIS to manipulate this data and laid out the geography of Las Delicias. The map included homes, main roads and paths, streams and river crossings, existing and potential new sources, tank location, and important community landmarks.

The second element of the project was to create a preliminary pipe system design. Many devoted students worked with a water analysis and design software, WaterGEMS, to layout a potential pipeline that would provide the community with reasonable water pressure in the most efficient way possible. Due to the intense variation in topography, the team sectioned the community into multiple pressure zones using a system of break tanks.

In August of 2016, a second Assessment trip was conducted. The travel team was made up of Program Director Brendan McManus, Design Lead Alli DiGregorio, Francisco Perignon, Mollie Scott, Patrick Fitzgibbon and Professional Mentor

Mike Sanders. This team used the knowledge obtained over the previous year to collect more detailed information to complete the design. The team worked closely with members of the Las Delicias Water Board and community members to determine the needs of the village. Many days were spent surveying critical house elevations, walking potential pipe routes, analyzing the current water distribution system and building a strong relationship with the people of Las Delicias.

Overall, the trip was a great success. The team is confident that they collected enough information to complete the design of a functional drinking water distribution system. But among all the work that was done in Panama, the members were also fortunate enough to learn about the culture of Las Delicias. During long hikes through the community, team members were able to speak with community members and get a sense of the lifestyle in the village. During free times, the team played futbol and *monito en la media* (monkey in the middle) with the children.

Members are now busy updating the map and the water distribution simulations, analyzing pressure data and designing river crossings. The entire Panama program is looking forward to continue working with the people of Las Delicias and will hopefully return to the community in 2017.



### Member Spotlight: Jake Vergara

By Roisin Floyd-O'Sullivan -  
Recruitment & PR Coordinator

Jake Vergara is a senior chemical engineering major who has been an integral part of the Honduras and Panama programs. He has been a member of EWB-USA NEU since the summer of 2014, when he went on a service trip to Panama with EWB-USA NEU's faculty advisor and Honduras Professional Mentor, Dan Saulnier. He then traveled to Honduras as a translator to help build the El Carrizalito water system. "It was an absolutely life changing experience, and I knew I wanted to continue doing work like this" Jake said about his first trip with EWB-USA NEU.

Jake also helped to establish EWB-USA NEU's Panama Program in the community of Las Delicias. After the service trip to Panama in 2014, the community members of Las Delicias contacted EWB-USA NEU about building a water system. Jake went on the first assessment trip to Las Delicias in 2015, and between the service trip and assessment trip, he has done everything from cutting rebar and laying PVC pipe to holding community meetings and surveying.



One of his favorite experiences in Panama was attending the community gathering at the end of their trip. Jake got to play soccer with the kids and then the entire community came out for the meeting and cooked a meal for the travel team.

Jake has been an incredible resource for our chapter and is an extremely dedicated and hard worker. We wish him the best of luck in his future endeavors and thank him for all of his contributions to EWB-USA NEU!

### 2016 EWB-USA Northeast Regional Conference

By Sydney Kates - *University Representative*

A group of eleven EWB-USA NEU members and our Uganda Program's Professional Mentor, Tim McGrath, attended the Northeast Regional Conference in October 2016. It was a fantastic event full of informative seminars and great networking opportunities.

Hosted by Boston University's chapter of EWB-USA, the event started Friday evening, beginning with a keynote from BU professor Herbert Voigt, Ph.D., followed by dinner and a poster and networking session where our members were able to learn about all the other great work going on in other chapters.

Bright and early on Saturday, coffee and tea were provided before a keynote on the state of EWB-USA by EWB-USA Executive Director Cathy Leslie. Our members learned about the great work EWB-USA is doing around the world and their ambitious, yet achievable goals to reach more people and to make a greater impact in the coming years. The rest of the conference was spent in smaller information sessions. Members dispersed to the different sessions to gather as much knowledge as possible. One of our favorites was the Designing Water Systems for Climate Change which discussed how to adapt water systems to a changing environment and how to educate our partner communities about the impacts of climate change on their lives. Another standout was the Engineering Service Corps presentation. Members were exposed to the opportunities within EWB-USA that lie outside of the university chapters which allow them to continue their involvement in world development. Our very own Uganda Program Leads, Maria Franko and Alina Rossi-Conaway and Uganda Program Mentor, Tim McGrath presented about solving problems post-implementation in Bbanda, Uganda.

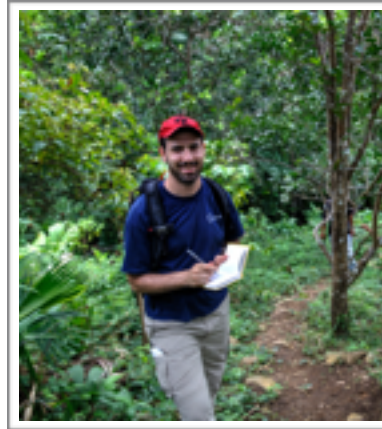
The weekend's events wrapped up with a final keynote speaker, Lionel Laroche from MutliCultural Business Solutions, who spoke about diversity and cultural differences in professional work. At the end of the weekend, we reconvened as a group to share what we learned and how we can apply the techniques of other chapters at Northeastern.

## Our Professional Mentors

**Honduras:**  
Dan Saulnier, P.E.



**Panama:**  
Michael Sanders, P.E.



**Uganda:**  
Tim McGrath, Ph.D, P.E.



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