

Water System Improvements in La Y de La Laguna
Ecuador

The University of Maine

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Section I:

The goals for our project were to gather as much information as possible about the community of La Y de la Laguna (La Y) and to assess the technical and social feasibility of a water supply system for the community. Our goal was for our August 2014 trip to be the beginning of a long term, collaborative relationship between the University of Maine chapter of Engineers Without Borders (EWB) and La Y so that over the next several years we can work with them to address their water needs.

Our project team of six students and two professional engineering mentors spent August 18-27 in the rural, agrarian, 300 person community of La Y. We received additional funding for our trip equaling about \$2000 from the University of Maine College of Engineering, from the donations of family, friends, and professors, and from a fundraiser night held at Margaritas Mexican Restaurant. Our project was successful in that we learned a significant amount about the social and political structure of community, formed valuable contacts and relationships with members of the community, and gathered technical information which will help us begin to design a water solution.

In our first days in La Y, we held an open meeting to introduce ourselves and explain EWB to the community and hear the community's input on how they would like us to help them. Approximately 30 people attended our meeting, and were very willing to share their opinions, concerns, and ideas with us. Of the people in attendance, many were the owners of the shops in the village square, about a third were women, and four were members of the town council. Everyone at the meeting made it very clear that water supply is their top concern. As a result of the meeting, several community members invited us to see their private wells and springs, where we could test for water quality and collect information on seasonal effects to their water supply. Several people from smaller surrounding communities came to our meeting and invited us to come to their communities to talk about their water needs. We traveled to the villages of Aniceto and La Laguna and had similar community meetings in which we learned that water insecurity is a widespread issue throughout the region and that there are many communities looking for help. We found that the communities are accustomed to having the government provide them with a water system, but offer no support when the system breaks. This common occurrence has left the countryside full of broken down water systems, and has given the people a false expectation that water systems can be built quickly, but not relied upon to last. For example, in the nearby town of Herrera, the government built a well and distribution system, but they did not calculate how quickly the well would be able to recharge and the system ran dry after only a few weeks of operation.

These expectations will be a cultural barrier for us as we move forward with a water supply system because as an EWB chapter, we believe that sustainable projects can only be achieved if the community takes ownership and initiative in the project. We will expect the community to take on the organizational responsibility of the water system, to help us with construction, and to learn how to maintain the system so that they can fix it when something breaks rather than abandoning it.

Another communication challenge for us was in explaining our limitations as a student group. It was hard to explain that we are not a funding agency and that, because we are all still in school, it will take us longer to help them with the technical aspects of their water supply system than they hope.

At the community meeting at the beginning of our trip, a local woman offered to accompany us on our door to door surveys. Her help was invaluable because her introduction at each house gave us a level of credibility and trust that we would not have otherwise had. We were able to speak with twenty five of the seventy five households in La Y, primarily with the woman of each household. We gained knowledge about the demographics, political structure, and water consumption of La Y. We documented each survey with notes and a photograph and we will use the information to build a family tree of the community. We will complete a comparative survey at the end of the water supply project to see if it is successful in improving life in La Y. One of our survey questions was "is water a concern to you?" They

almost unanimously answered with “claro” - “of course.” They all repeated that water is very important and that without water they have nothing.

During our week in the community, we made contacts with Ecuador’s Ministry of the Environment and with the town council of La Y. By speaking with these community members, we heard many varying stories about how and why the existing water systems in La Y and nearby towns stopped working, including weak pumps and broken pipes. Deciphering these varying stories and understanding how information travels in La Y will be a challenge for us in the future. We also met with members of Fundacion para la Conservacion de los Andes Tropicales (FCAT), which is an NGO working in the biological reserve near La Y, and Minga, the NGO operating the health clinic in La Y. Through these contacts, we learned that domestic violence is a major issue in La Y and the surrounding towns.

Other successful tasks that we were able to complete on our trip were: a pump test to determine the hydraulic capacity of the soil formation around La Y, a rough map of the village, a potential route for a pipe line from the lake to the village, and a school visits in La Y and La Laguna. These tasks gave us the information that we will need to begin designing a water system.

Section II:

In our house surveys, one of our questions was “What do you like about living in La Y?” The most common answer was, “Porque es muy tranquilidad” - “Because it is very tranquil.” But the tranquility or the countryside does not translate to peace. The residents do not have peace of mind because they live with the constant concern that they will not have enough water to drink, cook, and wash. They are constantly struggling to meet their basic needs and do not have the time or energy to address other needs in their personal lives and community. Peace comes when you are free from worrying about basic physical and emotional necessities, which allows you to focus on more fulfilling things that lead toward personal growth and progress.

Our project will contribute to peace in La Y because it is the beginning of an effort to provide the community with a sustainable water source. If our project succeeds, the residents of La Y will not have to live with the constant fear of running out of water. They will not have to use so much of their time and energy carrying water from the river back to their homes, or carrying their washing from their homes to the river and back. They will have more time to devote to their work, education, family, and leisure. Because the basic need of water will be met, the community may be able to shift their attention and efforts to other issues such as the prevalence of domestic violence.

If our project is successful, it will be an example of a new way for the community to address their problems. Rather than waiting for the government to give them a quick, temporary solution with no future support, our project will require the community to work together and help themselves. It will encourage self-reliance and self-sufficiency. Community members will be included in the decision making, construction, and maintenance of their water system. We hope that it will be an empowering process for the community and that it will influence how they handle other community needs and development projects.

Going to La Y was an incredibly eye opening experience. The people of La Y have to make do without so much that we in America take for granted, such as running water, and a government that invests in its peoples’ health, safety, and comfort. In some ways the people of La Y struggle so much, but in other ways they take it all in stride and grace and remain hopeful and happy. During the house surveys, Margarita, the only woman on the town council of La Y, showed us to a small stream that some of the women use to wash their clothes. The spot was at least a mile and a half from the village center, and was accessed by a steep and muddy path. We asked how the women manage to carry all their washing down the path during the rainy season and expressed that in America, people would view it as an impossible hardship. She shrugged it off saying, “oh no, it’s no trouble, we are strong.” Margarita’s words and attitude showed me how resourceful humans can be in any situation and made me long for her to have the chance to use her incredible fortitude and energy to accomplish something more meaningful than household tasks. Nathan Roscoe says, “Living in the conditions of La Y gave me a new respect and understanding for the people in the community. The experience gave me something personal to accomplish, which is giving them a basic human right: clean water.”



Paige Case with two women from La Y de la Laguna on the way to a private well.



Edwin Nagy explaining the well pump test to a group of school children.



Community meeting in the village square of La Y de la Laguna. From left to right: Nathan Roscoe, Spencer Traxler, Logan Good, Benjamin Pomeroy, Ramon Loor, Paige Case, Laura Donovan, Robert Sypitkowski.