Engineers Without Borders

Auburn University Student Chapter

Engineers Without Borders (EWB) is an organization of Auburn students that has been dedicated to outreach since 2008. Over the years, the group has had many different names and affiliations. During the organization's experience in Bolivia, the group was unaffiliated with the Engineers Without Borders name and acted solely as an engineering outreach group from Auburn. In December of 2014, the organization received its charter and became an official EWB chapter. It is exciting to work alongside the national organization and to help communities in need around the world. Even after receiving the charter, work in Bolivia was not completed.

Despite the changes to the organization throughout the years, the one thing that has stayed true is the group's dedication to complete the irrigation project located in Quesimpuco, Bolivia. SIFAT (Servant in Faith and Technology) and the Auburn United Methodist Church provided a connection to a Quesimpuco community in need. Engineers were needed to bring water to those in the community. Without water, the people of Quesimpcuo could not grow crops. Without crops, the community struggled to make a living during the dry season which lasts half of the year.

The community is located high in the Andes Mountains on once fertile lands. During colonization, the Spaniards razed the mountainside in search of precious metals. This destruction left behind a barren mountainside in their wake. The citizens of Quesimpuco took the once barren land and are in the process of bringing lush vegetation back to the mountains. Bringing back the lush land will help to sustain the community and provide growth to the struggling Quesimpucan economy.

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As of 2015, EWB has worked with this community for seven years. For the first two years, EWB travelled to the community at the beginning of August and built a relationship with the community. The chapter initially surveyed the area to determine the best way to provide water for the fields along the mountain. The team decided that, since the mountain is at a roughly 45 degree slope and there was a small unused stream that created a small waterfall off of the top of the mountain, that a gravity fed irrigation system would be the best fit for the community. The group created building designs for a collection tank and a water catchment system. Before returning the next year, the community had built the entire design independently with great accuracy to the original design plans.

The next year was spent surveying the fields to determine how to best layout the pipe system to most efficiently water the fields. We decided to focus on completing one section of the pipe near the tank to water a few fields and prove that our design would function. Once we returned from that year's assessment trip, we worked nonstop consulting

Photo: Members of the Auburn University chapter of the ASCE testing their concrete canoe.

experts and making plans for how to build this irrigation system. By August of 2013, we were ready to start building an irrigation system with the Quesimpucan community.

During our first implementation trip, we worked tirelessly alongside the community. After six long days, the group laid the last pipe and attached a hose and sprinkler to the end. After waiting for the water to stop flowing and the pressure to build up in the system, the team tested the sprinkler. The valve opened and after a small delay, the water travelled to the sprinkler and sprayed out of the top. A grown man and member of the community fell to his knees in tears. He knew that with our help, in that moment, the possibilities for he and his community expanded in ways that they had never imagined.

After that trip, the group returned to Auburn with heads held high. However, the work was not done yet. For the next two years, the team worked with this community to expand the system and implement new pressure reducing valves used for water flow control. In August of 2015, EWB returned to Quesimpuco and helped with repairs. The group also implemented a small filtration system to stop rocks from falling into the tank. To the group's surprise, the community had built an entirely separate tank irrigation system that worked just as well as the first one.
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of EWB have learned, it is that you do not need to be a trained engineer to engineer great things. For example, one man named Casimiro worked harder on the irrigation system than anyone else. Not being able to speak a word

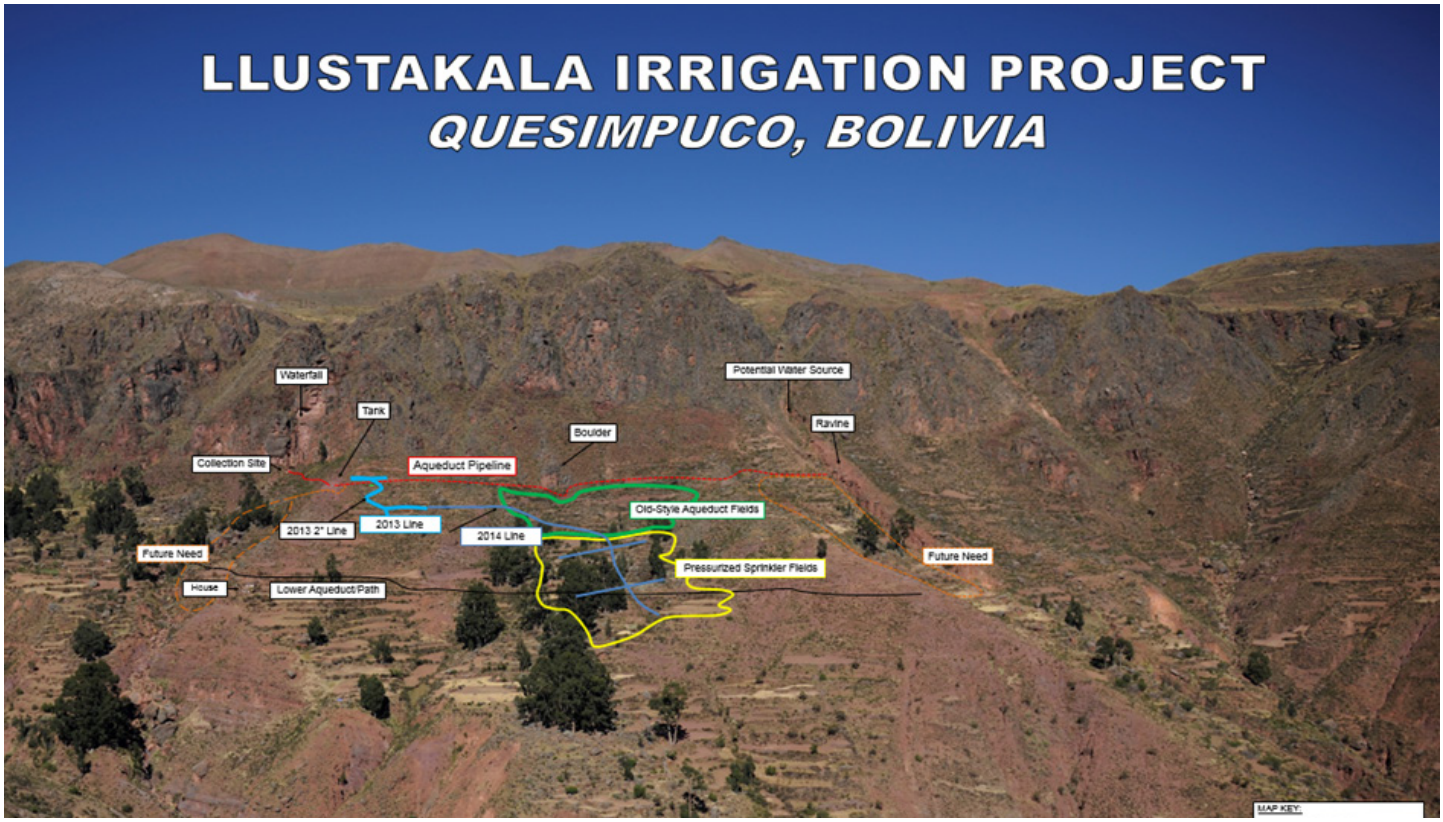

Photo: A map of the Llustakala Irrication Project in Quesimpuco, Bolivia.

of English, he worked alongside the Auburn family with no engineering experience. At one point, the entire group of trained engineering students could not figure out how to get a pipe around a corner they were not expecting. Casimiro took a pipe wrench, a tool he had never used before, and solved the problem.

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The point of this project was not only to build an irrigation system, but to also work with the community and build the system with them. The team wanted the community to be the engineers of the system so that they could fix the system in the team's absence. There is no doubt that the citizens of Quesimpuco are prepared to repair this system and to continue building and growing other systems on their own in the future.