

# **Engineers Without Borders- Peru Team- Report**

## **The Mission**

In 2011, the community of La Pitajaya in Northern Peru contacted us, the Engineers Without Borders (EWB) Peru Team, and asked us to help provide them with potable water. Over the past few years the team worked alongside the members of the community to complete two gravity-fed water systems. One water system was for La Pitajaya Alta and the other was for La Pitajaya Baja. Pitajaya Alta was the community that was farther up the mountain and Pitajaya Baja was the community on the lower part of the mountain.

This year's first mission was to close out the project to make sure that the water system was technically, culturally, environmentally, and financially sustainable in the community. When we decided that this goal was reached, we handed the water system to the community and allowed them to take full responsibility for the system. Hopefully this system will last for many years. The team's second mission was to survey different communities and choose one to work with for the following years. While this goal was not reached, we were able to narrow our decision to a select few communities based on our visits to them.

## **Closing Out the Project**

To make sure that the system was technically ready and working we had to walk down the pipeline path from the source to each house. As we walked the pipeline we noted all the parts that needed maintenance or repair. Upon this routine we found that Pitajaya Baja had done a great job in maintaining their system and that they didn't need replacement of their tubes. Pitajaya Alta had some pipe that needed to be protected. The team later worked with the community and local mason team to complete all of the maintenance work on the systems.

Upon measuring the flow rate from both communities we discovered that both the systems had very low flow rates, even when compared to the flow rates during dry season last year. We concluded that the problem was at the sources.

The first source we looked at was the Pitajaya Alta source. The problem with this source could not be determined at first because it was sealed off with concrete to protect it from falling rocks. To examine it we had to break it down completely. As we tore down the concrete we saw that tree roots were growing into the structure and that it wasn't built well by the previous mason so not all of the water was going directly into the system. To solve this we built stronger and neater concrete wall into the sides of the source capture and placed a lid that could later be taken off so that the community members can look inside to fix possible issues.

The second source that we looked at was the source in La Pitajaya Baja. The source capture itself was fine but we saw that there was water coming out nearby. We concluded that the ground water had slightly diverted and now some was coming out slightly further downhill. To fix this issue we simply expanded the source capture to catch the second stream of water and fed it to the system. After the source capture problems were fixed we replace the spring box in the Pitajaya Alta system and reinforced some galvanized tubing in the Pitajaya Baja system.

After we finished the maintenance of both systems, we were certain that the system would last for years. It was now time to completely hand the system over to the community. We held meetings with each one of the water committees. At the final meetings were satisfied with the systems that we worked on and showed their complete confidence in their ability to monitor and maintain the systems without outside help. Each water committee then wrote an act acknowledging that they were officially closing out the project.

### **Searching for New Communities**

During the last week of the trip we devoted ourselves to visiting new communities in the La Libertad region that could become potential partners for future projects. We came into contact with these communities through our local ISF and Peace Corps contacts. We visited seven communities that needed potable water and/or sanitation. After visiting the seven communities, we decided to narrow our search to four of the seven communities based on need for potable water. A secondary site visit was conducted to these four communities and documentation was given to each of these communities. Because of many factors such as feasibility, relationships with the government, amount of fund required for the projects, we were not able to come up with a decision on the trip.

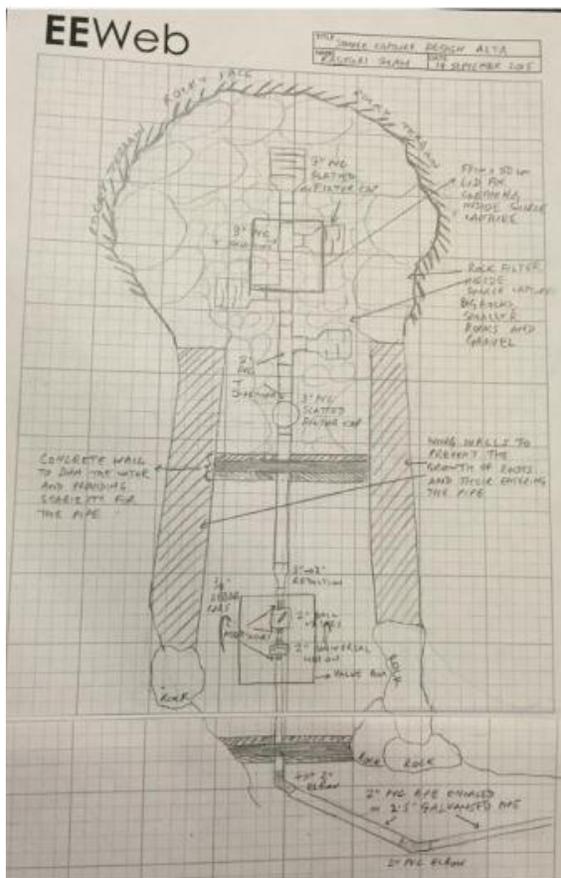
### **Review**

As a result of this year's team travel we were able to finish the water systems and rebuild faulty parts and decide that the system could last many years with proper maintenance. We also narrowed the community search to four communities. We will spend the next few months discussing the possible partner communities with the rest of the team in Princeton.

## Pictures



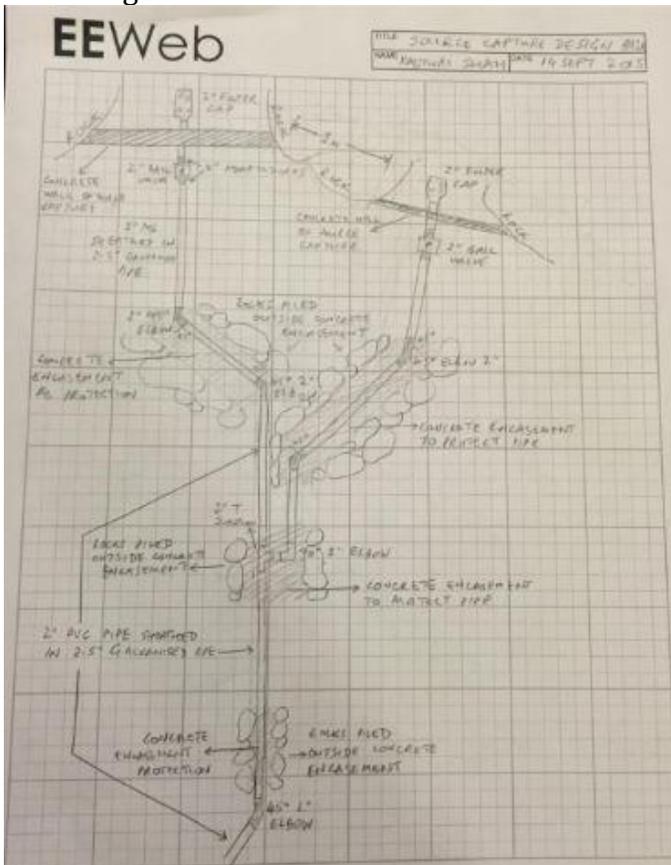
The Pitajaya Alta source before repair. You can see wet surfaces where we were losing water.



Plans for rebuilding the source capture for Pitajaya Alta.



The team working on the Pitajaya Alta source. Notice the concrete walls on the sides for stronger structure.



Plans for the La Pitajaya Baja source capture expansion. The tubing on the left is part of the capture that we built last year. The tubing on the right is the additional capture that we added to the system.



Construction of the Pitajaya Baja system. Previously built source capture on the far left. Additional capture on the right.



Meeting with the community of Pusunchas to talk about possibly partnering with them in the future.



Walking possible pipeline routes with new communities.



Filling in documents with community leaders to discuss possibilities of the EWB Peru team partnership in the future. We had the last four communities in our trip fill out this documentation.