The design project scope for Pitt HEAD Spring 2016 consisted of two main components:
1) Design of a 4.5 mile pipeline running from a remote access point to two separate communities that currently have no direct water supply
2) Design of a water treatment system for an indigenous tribe that resides in a Panamanian National Park

Our team has come up with a three phase implementation of our design to make construction of the water pipelines easier and more organized. The goal of this project is to provide water to the Genesis and Mocambo communities as quickly as possible.

Phase 1
- Direct connection from the main line tee point to the blue tank, which feeds the Genesis community
- Construction of a new 30,000 gallon storage tank at the Mocambo community church
- Installation of a pipeline running from the new church tank to an existing tank
- Connects phases 1 & 2 to provide a direct connection to the mainline for the Mocambo community

Phase 2
- Four 950 gallon tank for final storage
- One 55 gallon chlorine source
- One 950 gallon tank for final storage
- Water turbine/solenoid valve combination to introduce chlorine to water and prevent chlorine from being added during extended dry periods

Phase 3
- Analysis of collected survey data to determine static head requirements
- Analyzed survey data to determine headlosses in pipeline based on distances
- Considered different pump alternatives based on pressure and flow requirements
- Different pump station locations were evaluated, due to an unknown allotted pressure

A chlorine contact system will be implemented at each storage tank and/or source point in Mocambo.

Design
- Pipe Loop Contactor system
- Ideal for low flows, short contact times, and constructability
- Water turbine/solenoid valve combination to introduce chlorine to water and prevent chlorine from being added during extended dry periods

One 950 gallon settling tank with a baffle wall
- Two 400 gallon filtration tanks
- 55 gallon chlorine source
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Redesigned water treatment system for the village of Embera using existing tanks

PiB HEAD’s design will help Mocambo gain recognition from regional leaders which will open doors to more permanent infrastructure

Our team worked directly with locals to gain a better understanding of the specific issues in each community

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