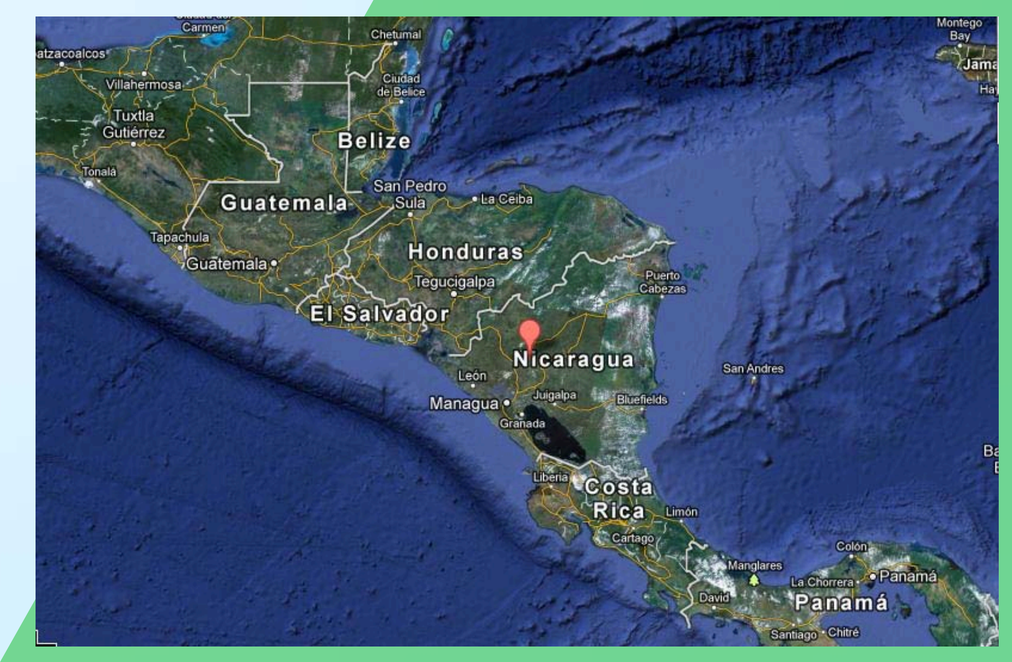
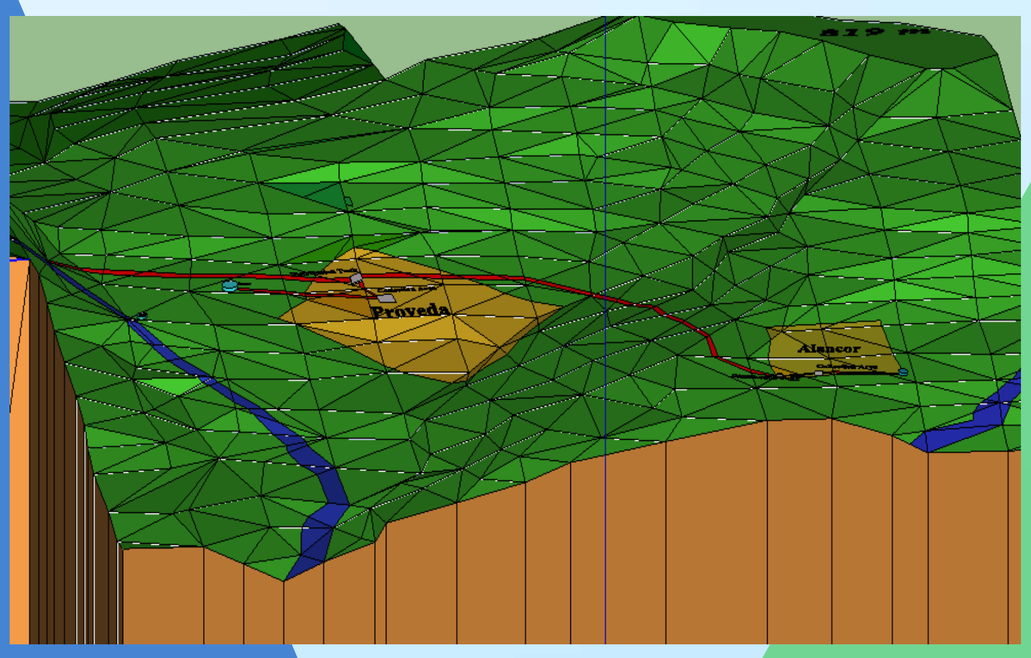
Matagalpa Water Project

Problem Statement:

The San Ramon area of Matagalpa, Nicaragua is home to more than 200 farms that require more water during the dry season to sustain current crop growth. Engineers Without Borders is tasked with using the locally available resources to increase the water supply available to the farmers during the dry season.

Current Water Source





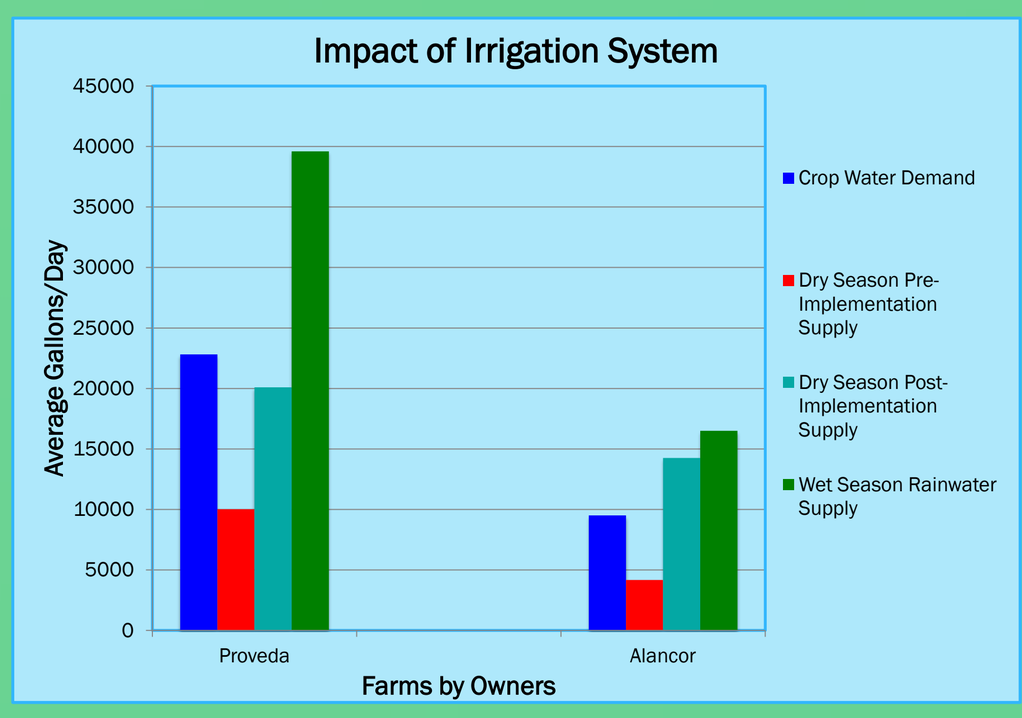
Profile View: Proveda and Alancor Farms

Preliminary Design:

- Hydraulic pump to move water over the Quebrada Seca river bank
- Utilizing ¾ inch PVC pipe, have water flow though 1350 meters of piping, from river bank through a distribution tank, then into two separate containment tanks
- Each farm will have a 4m x 4m x 1m deep containment tank, holding 16000 liters (4227 gallons)
- On separate Umelia farm, fog harvesting nets will be installed on top of ridge near farm. Will be used as an experimentation platform for future use in Matagalpa.

Expected Outcomes:

With the implementation of the gravity fed system, the water collection tanks should hold enough water for approximately 21 days worth of crop irrigation during the dry season. This is excluding any rainfall or river flow during dry season. Additional rainfall and river flow will result in an increase in the crop irrigation season.



Team Members: 1/c Rachel Christensen, 1/c Artem Konotopskiy, 1/c Carl Schemel, 1/c Alexa Ward, 1/c Garrett Wright

Team Advisors: Dr. Hudson Jackson, Dr. William Clarkson, CAPT Charles Hatfield, LCDR Daniel Ursino