

Prefabrication 1L/s

Prefabrication 1L/s (Prefab)

Overview

The goal of the Prefabrication 1 L/s team is to research, test, and determine fabrication methods for the full-scale plant production in Honduras. We also continue to design novel geometries for low-flow sedimentation tanks and flocculators and refine the integration of the dosing, flocculation, sedimentation, and filtration processes.

Spring 2016

This semester, we successfully designed and fabricated a 1/9 scale model of the sedimentation tank. We showed that a large, plastic corrugated pipe was a potential low-weight, low-cost solution to traditional concrete tanks and determined that plastic welding was a viable fabrication method for tank construction in Honduras. We also succeeded in testing our sedimentation tank using a pre-existing tube flocculator in the lab and cleaned 50 NTU water to meet WHO standards.

Fall 2016

The team investigated how to streamline the fabrication methods from summer 2016 and designed/explored alternative methods to fabricate plate settlers and flocculators and lower labor costs.

The original request from Jacobo Nuñez in 2003 that led to the creation of the AguaClara program was for a method to treat water for Honduran villages. Over the past decade, AguaClara has made designs for towns and small cities. We have not yet succeeded in creating a low cost, climate-friendly, high performing treatment plant for villages that rely on turbid surface waters. The team created a working prototype design and after preliminary testing in the AguaClara laboratory, we turned it over to Agua Para el Pueblo to test it in a pilot project in Honduras. The main challenge was to select fabrication materials and develop fabrication methods. The prefabricated AguaClara plant treated approximately 1 L/s and will provide water for approximately 300 people.

Introduction and Objectives

Spring 2017

This semester, the team built upon the fabrication steps established by the previous semester teams and focused on building a 1 L/s plant for testing in the lab. The team also designed and fabricated a tapered flocculator to take a step forward in figuring out the parameters that affect the design configurations of the 1 L/s plant. The tapered flocculator will be used for testing in future semesters.

Members Spring 2017

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1LPS Plant Testing

Fall 2017

This semester, the team finished up building the 1LPS and attached the ESTaRS to have a full flocculation, sedimentation, filtration water treatment process. The team made a modular tapered flocculator to see if rapid mix/contact chamber actually improves performance.

Members Fall 2017

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Documents

	Challenges	Tasks	Symposium	Final Presentation	Final Report	Additional Documents
Spring '16						
Summer '16						
Fall '16						
Spring '17					 	
Fall '17						