

Plant Cost Calculator and Water Treatment Technology Selection Guide (WTTSG)

Location: HLS 312

Water Treatment Technology Selection Guide (WTTSG)

Goals

The goal of this project is to develop the framework and decision-making methodology for such a decision-support system. In the Fall of 2011 an AguaClara team made a [technology selection guide](#) that wasn't compatible with the web and that didn't provide comparisons with other technologies. The WTTSG should incorporate community size, as well as the 3 main treatment/distribution configuration options (POU, kiosk, and treatment plant with distribution system). It will likely be helpful to compare products that are on the market. It would also be possible to have a comparison of technologies and then note which products use those technologies. The format of the final product will need to be assessed as we develop tables of comparison data. It is possible that it could be a series of static web pages or that it could be a dynamic table with contents based on scale (as a continuous variable) and treatment/distribution configuration (as a discrete variable). The focus of the technologies for this initial phase should be particle removal technologies for surface waters.

Challenges

- Take into account the resource and skill constraints of communities
- Indicate the constraints that undermine which technology is best suited for different levels and types of water contamination and treatment/distribution configuration options
- Develop a method to characterize community water supply systems to include everything from package plants to kiosk systems to POU systems
- Clearly indicate the advantages and disadvantages of the above technologies
- Provide a clear rubric for evaluation and comparison of the technology
 - Detail cases for which each technology would be appropriate
- Develop a way to incorporate the plant cost calculator into the WTTSG and show a fair comparison of capital and operating costs for these technologies

Plant Cost Calculator

Goals

The Plant Cost Calculator team will create a live calculator to better share cost information on the AguaClara website. We will first determine which costs are appropriate to share. We must then calculate the capital as well as operating costs of a plant. Once we have the appropriate information we will then create a program, most likely using NI LabVIEW Web UI, that outputs an accurate estimate of a plant.

Challenges

- Find and verify reliable cost data from Honduras medium-flow treatment facilities
- Create a formula to estimate cost using existing empirics and AguaClara's population-flow rate recommendation
- Develop a front-end interface that is easy to use and provides intuitive foundation for sharing estimated cost
- Develop our cost calculator in a modular and robust way such that our interface may be inserted into any AguaClara webpage and so we can analyze future plant design costs
- Upon completion of the medium-flow calculator, begin extending our program to encompass low-flow plants and various international cost discrepancies (e.g. differences in operator wages between Honduras and India).