

About AguaClara

About AguaClara

The Project

AguaClara is a project in the Department of Civil and Environmental Engineering at Cornell University that is improving drinking water quality through innovation, [research](#), knowledge transfer, [open-source engineering](#), and design of sustainable, replicable water treatment systems.

The foundation of our project is in research and design of sustainable water treatment plants for the Global South. The plants are conceived with careful consideration for their implementation and integration into the communities in which they are built. This integration and implementation can be split up into the two categories of knowledge transfer and local sustainability.

Unknown macro: {float}

Population Served by AguaClara



Thus far, we have designed and consulted on the construction of five water treatment plants: [Ojojona](#), [Marcala](#), [Tamara](#), [Cuatro Comunidades](#), and [Agalteca](#). The plant in Marcala was designed to retrofit a pre-existing failed plant in a project lead by the [National Rural Water Association \(NRWA\)](#). To date, four fully working water treatment plants that are operating effectively and providing safe, clean water to 13,000 people across Honduras. Currently, the fifth water treatment plant, [Agalteca](#), is being built and will provide 2,160 people with access to clean and safe drinking water.

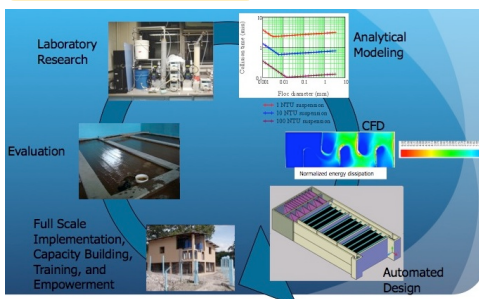
Social Sustainability

Beyond the physical design and construction of water treatment plants, the AguaClara project also focuses on knowledge transfer. This allows the receiving communities to be self sufficient and sustainable in plant maintenance and operation. Our plants are built using local labor, with attention paid to educating plant operators and other local people about the technology. During the summer operator training workshops are held to provide more face-to-face education. AguaClara places education as the most valuable element of a successful development project. If the community understands the importance of clean water, the operators understand how to use the technology, and the community takes part (contributing labor and local materials) in building the plant, then the chances of the community sustaining the technology are much greater.

AguaClara partners with a local organization, [Agua Para el Pueblo \(APP\)](#); this [regional partner](#) aids in site selection, construction, and organization in Honduras. It is these local connections and this knowledge sharing that makes our technology socially sustainable. Currently, APP is working to select the next [candidate communities](#) to receive AguaClara water treatment plants.

Physical Sustainability

Unknown macro: {float}



The research done at Cornell University on water treatment processes is the foundation for the design of the plants we have built. Our water treatment plants are designed to be clever, simple and affordable. They are entirely gravity powered and made almost completely out of local materials. The design algorithms are structured to be scalable and replicable. These factors, combined with very simple designs, make our plants physically sustainable.

The next push for our project is to make our algorithms [open source](#). We are working on the MathCAD and AutoCAD code necessary to create an internet interface such that anyone wanting to use the AguaClara design can input basic parameters about their town and the program will return a complete plant design.

The AguaClara team is endeavoring to expand the knowledge base for creating a sustainable future. We are convinced that the most effective way to develop new solutions is to integrate field and laboratory research. We currently have 4 laboratory-based and 1 computation-based [research](#) teams (with 1 to 5 students each) working to improve water treatment technologies. We also have a large [Design Tool](#) team that is creating computational algorithms for designing drinking water treatment plants, and an [outreach](#) team that is coordinating fundraising and public relations.

Working with [partner](#) organizations who build the water treatment plants is a critical part of the project research since it is the feedback from the operating plants that helps guide the research agenda. The AguaClara project integrates research, outreach, service, and learning. We are engaging with disciplines beyond engineering with close connections to business and public health and are working to extend that engagement in the coming months. [Donate](#) to help us improve robust, low cost water treatment technologies and to provide safe drinking water to the unserved.

Future Goals

As we move forward in our research we are testing variations of our existing flocculation model, including the relationship between velocity gradients and fluid mixing and floc formation, that will make the AguaClara technology more efficient and even less expensive. We are also researching ways to design sedimentation and chemical dosing systems to improve the efficiency of plant operation. A complete list of research projects can be found on the [research](#) page.