

Akelos; What is it?

By Matthew Tan and Justin Hauter

“An advertising agent, an engineer, and a political science student walk into a bar...”. This sounds like the start to a corny joke, but it is actually the backdrop to a fundraising event. The event was organized to raise funds for Akelos, a 501(c)3 non-profit organization, which provides technical support and collaborates with communities to design effective water systems that provide clean water to small, rural communities all around the world.



A disparate group, but united for a common goal.

Akelos was founded in 2016 by a group of seven students from the University of Illinois at Urbana-Champaign. These students all shared a single connection; they had taken a class titled the Honduras Water Project (HWP), taught by Ann-Perry Witmer, a Professional Engineer formerly working in Wisconsin. The class was unlike typical ‘service-learning’ courses. HWP brought together students from vastly different backgrounds to design a water distribution system for a rural community in Honduras, but used engineering grounded with a consideration for social and political factors that would impact design. After finishing the course, many students felt that they could provide a service to the developmental engineering community with their newly acquired skills, and thus, Akelos was born.



Local partnerships are crucial for designing projects.

Akelos aims to improve the design of international water projects by incorporating communities and their unique attributes in the design process. As such, the local community is provided with detailed knowledge of the constructed project and are better able to maintain the system independently after construction. Akelos utilizes the following general procedure when tackling a new project, though each process is also molded by further interactions with the community.

A local non-profit first contacts Akelos, and a partnership is formed. This partnership is crucial as the local non-profit serves multiple roles; they identify potential communities who lack distributions and liaise with the community, acting as advisors who help identify potential issues when designing projects. This includes not only identifying appropriate technologies that can be operated by the community, but also helping to navigate local cultures and managing expectations so that Akelos can provide the best system to suit their needs.



Meeting held with Senegalese community leaders facilitated by local partner And Defar Niambato

Akelos then travels on site and gathers information for project design. Team members meet with local community members on site to determine the scope of the system. Samples are taken to test for water quality, and surveys are conducted to determine water usage and demand. Additionally, local technologies are identified to ensure that the implemented project is understood by the community and will be able to be maintained. After returning to the United States, the project is fully designed and presented to the community by the partner organization for approval. During construction,

Akelos will still stay in contact with the community to answer any issues that may arise. Throughout the entire

Aeklos continued on next page

Akelos from previous page

process, Akelos continually meets with the community and gathers feedback before progressing with design. By integrating feedback, this results in a cyclical process which will develop the most effective system for the community.

These discussions allow Akelos to learn more about the client and overcome inherent biases to allow local customs and cultures to impact the design of a treatment system. For example, a rural community may not be receptive to chlorine as part of their treatment system due to odor issues. Instead, a stream bank filtration system could be designed to provide the treatment. While it does not have the same treatment effectiveness, providing cleaner drinking water is still a marked improvement from not having a treatment system at all. In the same way that the implementation of a treatment system for a Village would differ from a City in Wisconsin, communities vary greatly in the way they perceive different treatment alternatives.



Examining existing sand filter in Honduras.

The aforementioned example illustrates an effective water system. Communities need to understand how a treatment system operates to use it appropriately. Any consulting engineer would never design a system for an operator who does not understand the process or believe in its efficacy. To produce long term results, careful thought and consideration must be given to the systems reception after construction.

Akelos is currently in partnership on projects in Senegal, Guatemala, and Honduras. Each pose unique challenges and present different social and cultural norms. In Senegal, a water system is being designed that will serve four autonomous communities and special attention is being paid to ensuring comprehensive management and satisfaction with water allocation. In Honduras, Akelos and its partner community are repairing a sand filtration system in an existing water treatment system which serves a population of 350. These examples highlight why different projects require unique approaches and solutions.

Matthew Tan, who works as a Project Engineer at McMahon Associates, has been involved with Akelos over the past two years. "I have always wanted to be involved in developmental projects. Water is such a vital resource and it's staggering to think about how many people go without this precious resource we take for granted," he says. Being involved in developing water systems is one way he finds himself serving others. He currently assists with providing quality assurance for the projects that are designed by Akelos. He also serves on the Board of Directors for Akelos, which helps provide the vision and direction for the organization. The organization is striving to search for more projects and is seeking more volunteers to assist with their efforts. 💧



Wisconsin Section
American Water Works Association

SAVE THE DATE!

ACE19 | June 9-12, 2019 • Denver, CO
ACE20 | June 14-17, 2020 • Orlando, FL
ACE21 | June 13-16, 2021 • San Diego, CA
ACE22 | June 12-15, 2022 • San Antonio, TX
ACE23 | June 11-14, 2023 • Toronto, ON Canada

Annual Conference and Expo 2019 | Sept. 11-13, 2019 • Monona Terrace, Madison
Annual Conference and Expo 2020 | Sept. 16-18, 2020 • Monona Terrace, Madison