

A Global Water Problem UB Professor and Students seek solutions

by Shannon Traphagen

Water—it flows through our faucets, produces our ice, cleanses our bodies, and cleans our dishes. For most of us, it's just there; doing the job we need it to do. It helps us function in our environment, but water is also a necessity for us to live and breathe. Our bodies are made up of sixty percent water.

In the United States, we are fortunate to have advanced systems such as sewers, septic, and sanitation facilities that filter out bacteria to provide us with clean water. However, Professor Jim Jensen, of the University of Buffalo's (UB) Department of Civil, Structural, and Environmental engineering, states, "There are currently over one billion people on this planet without access to clean drinking water. Given that there are only 7 billion people on the planet, this represents about one out of every seven people on the planet."

This systemic problem has led to over 1.6 million deaths in developing nations each year, 760,000 of which are children, as a result of intestinal diseases attributed to lack of access or tools to obtain safe drinking water.

Jensen and his students have been working on various filters that will help aide in this global epidemic. They are currently testing three filters: a ceramic water filter that utilizes clay, water and rice husks; cloth fabric that can filter water, and a water lens that uses focused sunlight to kill pathogens. The clay filters eliminate nearly all of the bacteria in freshwater supplies. The water lens is constructed from commonly found materials — wood, plastic sheeting and water — and aims to offer an inexpensive freshwater treatment method. The water lens, which is six feet tall, uses directed sunlight through plastic to heat a bowl of water. Because the amount of water it can treat is small, Jensen's team is further developing its application on a real world scale. Both solutions will offer developing regions basic tools to create clean water.

Jensen states, "It's not just a matter of setting up equipment that provides clean water, it's about educating people on how to purify their own water supplies," adding, "We want to empower locally impoverished and developing regions to use what they already have at their disposal. If we were to put in a sanitation system somewhere—yes it provides clean water, but what happens when that system breaks down? Some developing nations don't have the ability to fix and keep the system running. So something as simple as a woman using her sarong to filter water can be effective using the right fabric."

Jensen sees his role to guide students as they seek sustainable solutions to local and global problems; to teach them what it means to be an engineer in the twenty-first century. After touring his facilities and getting a firsthand look at his research, it is heartening to see places like UB shining a light on an important global issue.

To learn more about Professor Jensen's program visit buffalo.edu/sustainability/research or by email at jjensen@buffal.edu.