

## **Sustainable Transfer of Innovative Drinking Water Technology to Sub-Saharan Africa**

Jessica L. Baker and Subhas Karan Venayagamoorthy

Department of Civil and Environmental Engineering, Colorado State University

**Abstract.** Currently, according to the UN, 10% of the world's population does not have access to safe, disinfected water. Before routine treatment of drinking water began in the early twentieth century, thousands of people died of Cholera, Typhoid Fever, Dysentery, and Hepatitis A annually in the US alone. Since the implementation of chlorination, the most common method of water treatment, these diseases have been essentially eliminated in the US and other developed countries. This research is an extension of research conducted at CSU in collaboration with the CDPHE concerning small-scale systems (less than 5,000 gallons operating up to 50 GPM), which resulted in cost-effective pre-engineered small-scale tanks and system modifications proven to increase the hydraulic disinfection efficiency. While the idea of bringing new technologies to developing countries is not a novel concept, experience indicates that simply transporting or building a functioning technology does not necessarily have long-lasting impact. How that technology is transferred is critical to its sustainability. A successful solution to the need for treated water must be holistic, taking into consideration culture, politics, economics, environment, social norms, etc. The focus of this applied research project will be in South Africa where there is considerable water infrastructure, however their current small drinking water systems are not meeting drinking water quality standards. This project will involve a tight collaboration with Umgeni Water (the main Water Board in the province of KwaZulu-Natal in South Africa) to evaluate the hydraulic disinfection efficiencies of KwaZulu-Natal's current small drinking water disinfection systems, discern whether the research findings mentioned above (with appropriate modifications) could be implemented in a South African context, and consider how to do so in a sustainable manner. The talk will highlight the different aspects involved in implementing this important international water project.