

EEE Research Seminar

Date: January 21st, 2025, at 10:30AM

Location: POTR 234 (Fu Room)

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Professor

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Provision of safe water in low- and middle-income countries: Case study of eastern coastal Madagascar

Abstract

Worldwide, over 1 *billion* people lack access to safely managed drinking water, the vast majority living in low- and middle-income countries (LMICs). People lacking access to on-demand safely managed water frequently meet their needs by gathering water from a variety of sources, then storing the gathered water in their homes, either with or without point-of-use treatment. Researchers at the University of South Florida (USF) have been collaborating for over 10 years with colleagues in Toamasina, the second-largest city in Madagascar, to understand challenges faced by the populace in obtaining potable water, and to help people overcome those challenges. Many people in Toamasina practice self-supply by accessing shallow groundwater with hand-dug wells and manual suction pumps (pitcher pumps), then storing the collected water in 20-L polyethylene jerrycans. However, USF's sampling campaigns have shown that water collected and stored in this manner is susceptible to both chemical contamination (because the pitcher pumps have historically been manufactured using lead, Pb) and microbiological contamination (either from the source water itself or from biofilms in the interior of the jerry can storage containers). In this presentation, Professor Cunningham will summarize USF's efforts to collaborate with Malagasy technicians and non-governmental organizations to address these water-quality challenges in Toamasina, and he will consider what lessons from Toamasina might be applicable to other LMICs around the world.

Bio

Jeffrey Cunningham is a Professor in the Department of Civil and Environmental Engineering at the University of South Florida (USF). He earned his Bachelor's degree in Chemical Engineering from Rice University, and his Master's and Doctoral degrees in Civil and Environmental Engineering from Stanford University. Jeff's research interests span a variety of overlapping topics in Environmental Engineering, including clean-up of contaminated environmental media, geologic sequestration of carbon dioxide, recovery of resources from waste streams, and provision of safe water and sanitation. Jeff is an Associate Editor of the *Journal of Environmental Engineering*, is a member of the Board of Advisors for the Environmental Engineering program at the United States Military Academy in West Point, and is a three-time recipient of the Distinguished Service Award from the Association of Environmental Engineering and Science Professors (AEESP). He has authored or co-authored over 60 papers in peer-reviewed scientific journals. When not at work, Jeff enjoys playing tennis or pickleball, spending time with his family, reading, and mis-managing his fantasy baseball team.