

2020

Village Water Ozonation System

John M. Khamis

Benjamin K. Burlew

Timothy J. Malanga

Follow this and additional works at: <https://mosaic.messiah.edu/engr2020>



Part of the [Agricultural and Resource Economics Commons](#), [Development Studies Commons](#), [Engineering Commons](#), [Nonprofit Administration and Management Commons](#), and the [Urban Studies and Planning Commons](#)

Permanent URL: <https://mosaic.messiah.edu/engr2020/9>

Sharpening Intellect | Deepening Christian Faith | Inspiring Action

Messiah University is a Christian university of the liberal and applied arts and sciences. Our mission is to educate men and women toward maturity of intellect, character and Christian faith in preparation for lives of service, leadership and reconciliation in church and society.

Village Water Ozonation System



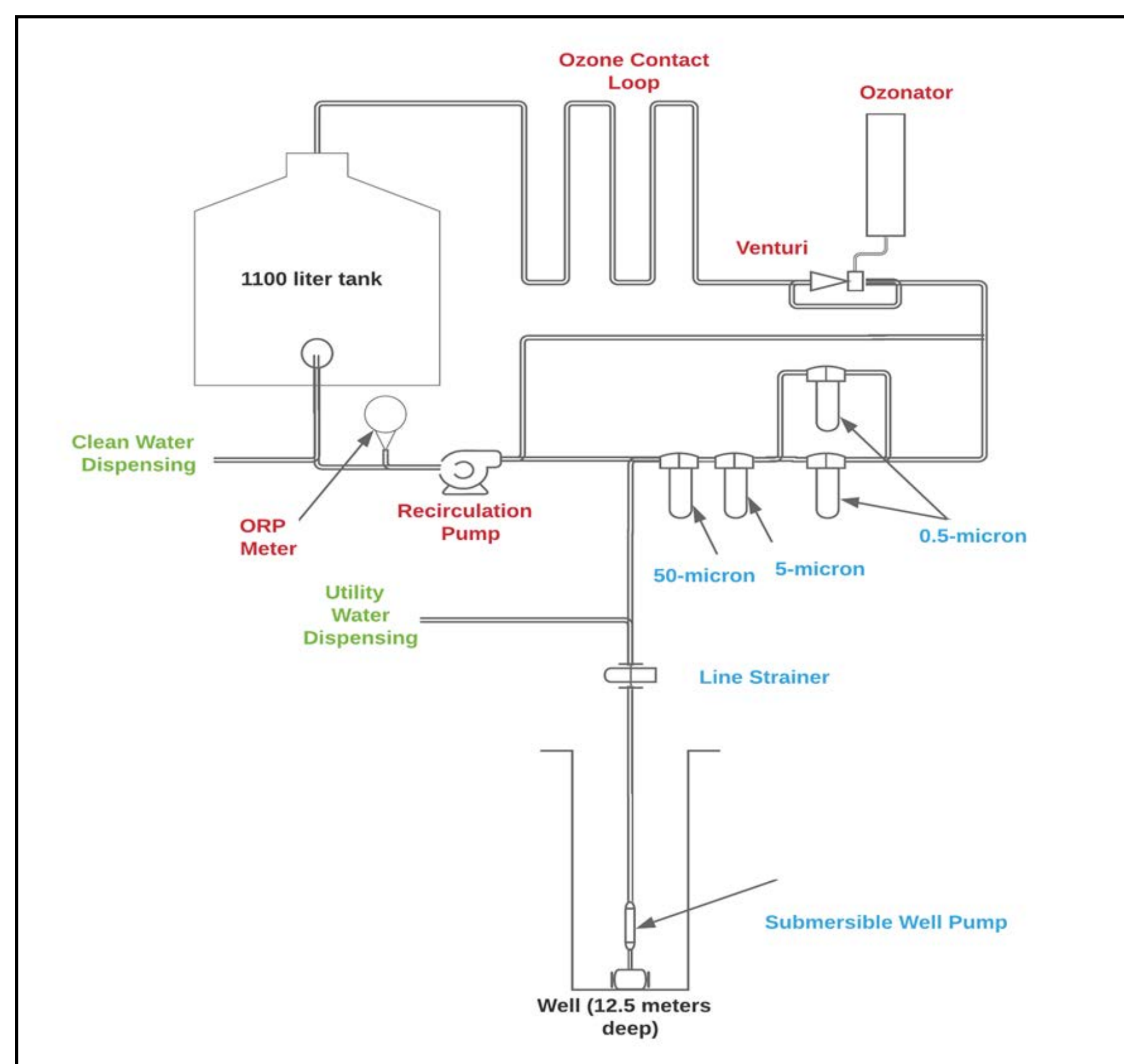
Benjamin Burlew & Timothy Malanga

Problem Statement

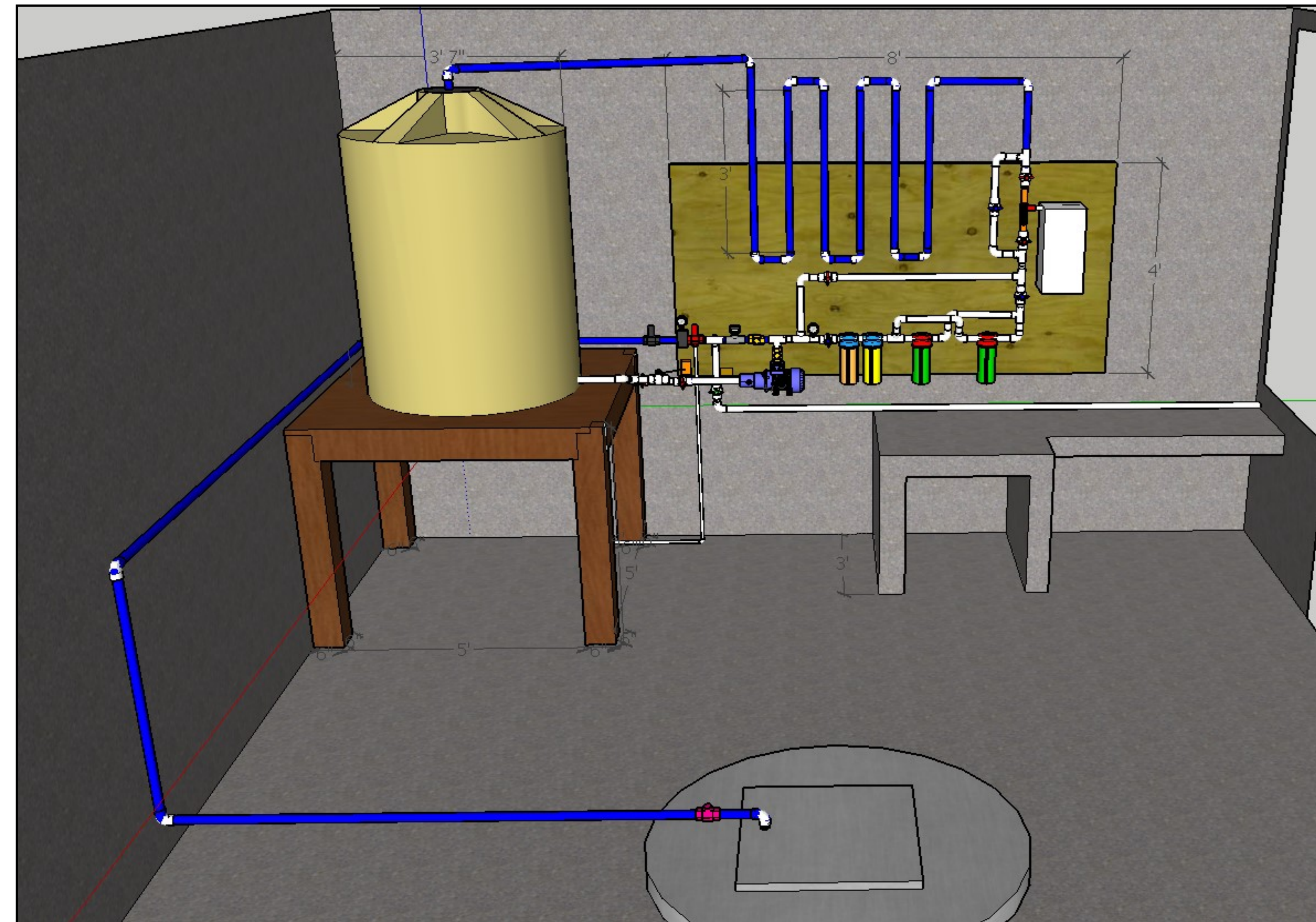
Access to clean water is one of the biggest problems the human population faces today. Without clean water, people are more susceptible to disease and illness. The Village Water Ozonation System (VWOS) team hopes to meet this need by providing safe, reliable, and affordable drinking water.

Design Characteristics

To meet the need of Christian Family Center International (CFCI), our system utilizes a series of filters to remove solid particulates followed by an injection of ozone to disinfect and kill living organisms in the water supply. Water is stored inside a tank which can be dispensed for either utility or potable (drinking) water.



Progress Summary (CFCI)



3D Model for CFCI System

Partner: Forward Edge International

Client: Christian Family Center International (CFCI)

Location: Oaxaca, Mexico

Contacts: Jeff Thompson (USA) and Pastor Felix Rosas (Mexico)

Primary Goal: Provide affordable safe drinking water to an impoverished community

Problem: Well water is contaminated with E. Coli forcing the church to purchase all their water.



Other Partners

Partner: Full Gospel Assembly Bible College

Location: Lahore, Pakistan

Problem: Arsenic present



Partner: Friends In Action International

Location: Rama Cay, Nicaragua

Problem: Brackish water and E. coli present

Future Work



Implementation Trip

- Build the CFCI design in Mexico



Finalize FGABC System Design

- Finish design and calculations



Brainstorm for Rama Cay

- Develop a preliminary system design

Acknowledgments

Michelle Lockwood: Project Manager

Ray Knepper: Project Consultant

John Khamis: Student Project Manager

Erik Olson: Volunteer

Madalyn Heckman: Volunteer

Caroline Olson: Volunteer

