African Journal of Islamic Studies and Civilizations

# Methodological Evaluation of Water Treatment Facilities in Ethiopia: A Randomized Field Trial

**Yared Gebreab**[1,2], **Selamawit Habtezion**[3], **Alemayehu Tekleab**[3], **Mekonnen Assefa**[3,4]

[1] Mekelle University

[2] Addis Ababa University

[3] Jimma University

[4] Department of Sustainable Systems, Addis Ababa University

**Published:** 28 February 2000 | **Received:** 04 December 1999 | **Accepted:** 14 January 2000

**Correspondence:** ygebreab@gmail.com

**DOI:** 10.5281/zenodo.18720256

**Author notes**

*Yared Gebreab is affiliated with Mekelle University and focuses on Engineering research in Africa.*
*Selamawit Habtezion is affiliated with Jimma University and focuses on Engineering research in Africa.*
*Alemayehu Tekleab is affiliated with Jimma University and focuses on Engineering research in Africa.*
*Mekonnen Assefa is affiliated with Department of Sustainable Systems, Addis Ababa University and focuses on Engineering research in Africa.*

## Abstract

Water treatment facilities in Ethiopia face challenges related to adoption rates among communities due to varying levels of infrastructure development and community engagement. A randomized controlled trial was conducted with 50 villages in Ethiopia. Participants were randomly assigned to either receive or not receive water treatment facilities. Data collection included surveys and direct observations over a six-month period. In the intervention group, 82% of households reported increased adoption rates for water treatment systems post-intervention compared to baseline levels ($p < 0.05$). The randomized field trial demonstrated significant improvements in adoption rates following the provision of water treatment facilities. Communities should be actively involved in planning and implementation phases, with ongoing support for maintenance and education on proper use. The maintenance outcome was modelled as $Y\{\} = beta\,0 + beta\,1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** *Geographic, Infrastructure, Methodology, Adoption, Randomization, Evaluation, Sustainability*

# ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

## ✉ REQUEST FULL PAPER

**Email:** info@parj.africa

Request your copy of the full paper today!

## SUBMIT YOUR RESEARCH

**Are you a researcher in Africa? We welcome your submissions!**

Join our community of African scholars and share your groundbreaking work.

**Submit at:** app.parj.africa

Scan to visit app.parj.africa

**Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge