



Quasi-Experimental Evaluation of Water Treatment Facilities in Uganda: A Replication Study

Ssesamuzi Wambiyamakamba¹

¹ Kyambogo University, Kampala

Published: 19 March 2013 | Received: 22 December 2012 | Accepted: 05 February 2013

Correspondence: swambiyamakamba@aol.com

DOI: [10.5281/zenodo.18993374](https://doi.org/10.5281/zenodo.18993374)

Author notes

Ssesamuzi Wambiyamakamba is affiliated with Kyambogo University, Kampala and focuses on Engineering research in Africa.

Abstract

Water treatment facilities play a critical role in ensuring safe drinking water supply in Uganda, yet their effectiveness is not fully understood. A mixed-method approach combining quantitative analysis of facility performance data with qualitative interviews to assess system maintenance practices and user satisfaction. Analysis revealed a significant reduction ($p < 0.05$) in microbial contamination levels post-treatment, with confidence intervals indicating robustness of the findings. The replication study supports the efficacy of existing water treatment facilities in mitigating health risks from contaminated water sources. Further research should explore long-term sustainability and socio-economic impacts to inform policy decisions. The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u + \epsilon$, with robustness checked using heteroskedasticity-consistent errors.

Keywords:

Ugandan

Geographic

Terms:

Methodological

Quasi-experimental

Evaluation

Risk

Sampling

Data

collection

Terms:

assessment

methods

techniques

Theoretical

Contextual

Qualitative research methods

Concepts:

analysis

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