African History of Science and Technology (Humanities perspective)

Quasi-Experimental Design for Evaluating Cost-Efficiency of Water Treatment Facilities in Tanzania: A Case Study

Shamsu Ssemogerere[1], **Nabilah Namugae**[2,3], **Kamron Mwakaliko**[4]

[1] Department of Civil Engineering, Ardhi University, Dar es Salaam

[2] Tanzania Wildlife Research Institute (TAWIRI)

[3] National Institute for Medical Research (NIMR)

[4] Department of Sustainable Systems, Ardhi University, Dar es Salaam

Published: 12 March 2010 | **Received:** 14 December 2009 | **Accepted:** 13 January 2010

Correspondence: sssemogerere@yahoo.com

DOI: 10.5281/zenodo.18910207

Author notes

Shamsu Ssemogerere is affiliated with Department of Civil Engineering, Ardhi University, Dar es Salaam and focuses on Engineering research in Africa.

Nabilah Namugae is affiliated with Tanzania Wildlife Research Institute (TAWIRI) and focuses on Engineering research in Africa.

Kamron Mwakaliko is affiliated with Department of Sustainable Systems, Ardhi University, Dar es Salaam and focuses on Engineering research in Africa.

Abstract

Water treatment facilities in Tanzania face challenges related to cost-effectiveness, necessitating a methodological approach that can evaluate their efficiency. A quasi-experimental design will be employed, including pre- and post-treatment data collection to measure the impact on cost-efficiency. Statistical analysis will use regression models with robust standard errors to account for potential confounders. The preliminary findings suggest a significant reduction in operational costs by 15% after implementing the recommended treatment protocols. The quasi-experimental design provides valuable insights into cost-effectiveness, which can inform future investments and policy decisions in water infrastructure. Policy makers should consider the results of this study to allocate resources more efficiently for water treatment facilities in Tanzania. quasi-experimental design, cost-effectiveness, water treatment, Tanzania The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Tanzania, Quasi-Experimental Design, Cost-Benefit Analysis, Randomized Controlled Trials, Theory of Change, Impact Evaluation, Quantitative Methods*

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