



Methodological Quasi-Experimental Evaluation of Municipal Water Systems in Kenya: A Risk Reduction Framework

Ndirangu Orinaika^{1,2}, Omede Kinyanjui³, Rutwig Ombaka⁴, Kerubo Mwakisimbo^{2,4}

¹ Kenya Agricultural and Livestock Research Organization (KALRO)

² Kenya Medical Research Institute (KEMRI)

³ Department of Advanced Studies, Moi University

⁴ Moi University

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Correspondence: norinaika@outlook.com

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Author notes

Ndirangu Orinaika is affiliated with Kenya Agricultural and Livestock Research Organization (KALRO) and focuses on Energy research in Africa.

Omede Kinyanjui is affiliated with Department of Advanced Studies, Moi University and focuses on Energy research in Africa.

Rutwig Ombaka is affiliated with Moi University and focuses on Energy research in Africa.

Kerubo Mwakisimbo is affiliated with Moi University and focuses on Energy research in Africa.

Abstract

This study addresses a current research gap in Energy concerning Methodological evaluation of municipal water systems in Kenya: quasi-experimental design for measuring risk reduction in Kenya. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured analytical approach was used, integrating formal modelling with domain evidence. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of municipal water systems in Kenya: quasi-experimental design for measuring risk reduction, Kenya, Africa, Energy, theoretical This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Kenyan, Quasi-experimental, Risk, Theory, Sustainability, Infrastructure, Evaluation*

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