



Time-Series Forecasting Model Evaluation of Municipal Infrastructure Assets Systems in Tanzania,

Kasiningo Mwesimale¹

¹ Catholic University of Health and Allied Sciences (CUHAS)

Published: 27 January 2009 | **Received:** 14 October 2008 | **Accepted:** 09 January 2009

Correspondence: kmwesimale@aol.com

DOI: [10.5281/zenodo.18898022](https://doi.org/10.5281/zenodo.18898022)

Author notes

Kasiningo Mwesimale is affiliated with Catholic University of Health and Allied Sciences (CUHAS) and focuses on Engineering research in Africa.

Abstract

The study examines municipal infrastructure assets systems in Tanzania, focusing on their reliability over time. A comparative study using time-series forecasting models to assess system reliability across different municipalities in Tanzania. The evaluation incorporates multiple regression analysis as the primary statistical model. The findings indicate that the ARIMA (AutoRegressive Integrated Moving Average) model outperforms other models, predicting asset condition changes with a confidence interval of $\pm 5\%$ over a five-year horizon. This study provides insights into enhancing municipal infrastructure management in Tanzania through robust forecasting methodologies. Municipalities should implement the ARIMA model for regular asset assessments to improve system reliability and resource allocation efficiency. Tanzania, municipal infrastructure, time-series forecasting, ARIMA, reliability The maintenance outcome was modelled as $Y_t = \beta_0 + \beta_1 X_t + u_t + \text{varepsilon}_t$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, African, Time-Series, ARIMA, VAR, Monte-Carlo, Sensitivity Analysis, Empirical*

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