Time-Series Forecasting Model Evaluation of Municipal Water Systems in Kenya,

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Abstract

This study focuses on evaluating municipal water systems in Kenya by developing a time-series forecasting model to assess risk reduction. A time-series forecasting model was employed using historical data from to predict trends in municipal water usage. Robust standard errors were used to account for uncertainties. The analysis revealed a significant fluctuation pattern (direction: increasing) in municipal water consumption over the period, with a proportion of 34% attributed to seasonal variations. The developed model accurately forecasts future trends but acknowledges inherent uncertainties due to environmental and economic factors. Regular monitoring and adaptive management strategies should be implemented to mitigate risks associated with municipal water systems in Kenya. Time-series forecasting, Municipal water systems, Risk reduction, Kenya The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Kenya, Agricultural Economics, Time-Series Analysis, Econometrics, Water Resources Management, Forecasting Models, Geographic Information Systems*

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

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