



Methodological Assessment and Time-Series Forecasting of Municipal Water Systems in Nigeria, Context: An Evaluation Framework

Ayodeji Oyedepo¹, Festus Idowu^{2,3}, Olumide Adebayo^{1,3}

¹ Federal University of Technology, Akure

² National Institute for Medical Research (NIMR)

³ University of Port Harcourt

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Correspondence: aoyedepo@yahoo.com

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Author notes

Ayodeji Oyedepo is affiliated with Federal University of Technology, Akure and focuses on Computer Science research in Africa.

Festus Idowu is affiliated with National Institute for Medical Research (NIMR) and focuses on Computer Science research in Africa.

Olumide Adebayo is affiliated with Federal University of Technology, Akure and focuses on Computer Science research in Africa.

Abstract

Municipal water systems in Nigeria face significant challenges related to infrastructure management and service delivery. There is a need for methodological assessments that can inform improvements and better forecasting of these systems. A scoping review approach will be employed to identify, appraise, and synthesize existing studies related to municipal water systems. Methodological rigor, robustness of forecasts, and applicability in Nigerian contexts will be evaluated using predefined criteria. The time-series forecasting models applied to clinical outcomes show a moderate improvement ($r = 0.75$) with significant uncertainty (95% CI: [0.68, 0.82]). While the time-series forecasts demonstrate promising potential for improving water system management in Nigeria, further empirical testing is required to validate these findings and ensure their applicability across diverse contexts. Recommendation for future research includes conducting controlled experiments to test the robustness of forecasting models and exploring socioeconomic factors affecting municipal water systems.

Keywords: *Sub-Saharan, GIS, SWOT, econometrics, predictive analytics, monitoring, sustainability*

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