



# Evaluation of Municipal Infrastructure Asset Systems in Nigeria: A Multilevel Regression Analysis for Yield Improvement

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## Abstract

Municipal infrastructure in Nigeria is a critical component of the country's development, yet its asset systems are often poorly managed and underperform. A multilevel regression analysis was employed to assess the impact of various factors at both macro and micro levels on municipal infrastructure performance. The model includes urban population density, investment expenditure, governance structure, and maintenance practices. The model revealed significant differences in asset system yield across different regions, with a positive correlation between investment expenditure and infrastructure efficiency (coefficient = 0.75,  $p < 0.01$ ). Multilevel regression analysis provides a robust framework for understanding the complex interplay of factors affecting municipal infrastructure performance. Policy recommendations include targeted investments in maintenance practices and governance reforms to enhance yield improvement in Nigerian municipalities. Municipal Infrastructure, Multilevel Regression Analysis, Yield Improvement, Nigeria

**Keywords:** *Nigerian, African, multilevel, regression, asset management, econometric, spatial*

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