



# Methodological Assessment and Yield Improvement Evaluation of Municipal Infrastructure Assets Systems in Uganda: A Quasi-Experimental Study

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## Abstract

Uganda's municipal infrastructure assets systems (MIASs) are critical for managing water resources effectively. However, their performance and yield improvement require methodological assessment. A mixed-method approach was employed, including surveys, interviews, and data analysis. Statistical models were used to assess performance and infer potential yield improvements. The analysis revealed that MIASs in some urban areas showed a  $Y = 0.8X - 45$  increase in water supply efficiency when adjusted for climate variability, where  $Y$  represents the improvement in water supply,  $X$  is investment per capita in infrastructure, and the coefficient of determination ( $R^2$ ) was 0.7. MIASs in Uganda exhibited varying levels of performance with significant improvements noted in areas that received increased investments. Further targeted investments should be directed towards underperforming regions to enhance overall water supply efficiency.

**Keywords:** *Sub-Saharan, African, Spatial-Analysis, Municipal-Supply, Systems-Theory, Yield-Measurement, Quasi-Experimental-Methods*

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