

A Multilevel Regression Analysis of Municipal Infrastructure Asset Management Adoption in Ethiopia

A Policy Evaluation for 2000–2026

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ABSTRACT

Background: Municipal infrastructure asset management (IAM) is critical for sustainable urban development, yet its systematic adoption in many developing nations remains poorly understood. In Ethiopia, despite national policy directives, the implementation of IAM systems across municipalities has been inconsistent and inadequately evaluated.

Purpose and objectives: This policy analysis evaluates the adoption rates of municipal IAM systems and identifies the key institutional, technical, and financial factors influencing their uptake. The objective is to provide an evidence base for refining national infrastructure policy.

Keywords: *Municipal infrastructure, Asset management, Sub-Saharan Africa, Policy evaluation, Multilevel regression*

Article Highlights

- Technical staff capacity shows a strong, positive association with IAM adoption rates.
- Dedicated municipal revenue streams are a critical enabling factor for implementation.
- Regional policy enforcement mechanisms explain significant variance between clusters.
- Current national policy directives have been only partially effective in driving uptake.

Methodological Note

The analysis employs a novel multilevel regression model on a stratified panel dataset, accounting for clustered data structures across Ethiopian municipalities and regions.

This analysis provides an evidence base for refining national infrastructure policy toward 2026.

ABSTRACT-ONLY PUBLICATION

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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