

CASE STUDY

A Randomised Field Trial for Risk Reduction Diagnostics in Rwandan Municipal Infrastructure Asset Management

Jean de Dieu Uwimana¹

¹ Rwanda Environment Management Authority (REMA)

Correspondence: juwimana@hotmail.com

Received: 18 October 2007 | Accepted: 23 January 2008 | Published: 23 March 2008 | DOI:

[10.5281/zenodo.18963685](https://doi.org/10.5281/zenodo.18963685)

ABSTRACT

Background: Municipal infrastructure asset management in many developing contexts is hampered by reactive, ad-hoc maintenance strategies. Systematic, data-driven diagnostics for prioritising risk reduction interventions are often absent, leading to inefficient resource allocation and accelerated asset deterioration.

Purpose and objectives: This case study evaluates a novel diagnostic protocol for infrastructure risk reduction. Its primary objective is to measure the causal effect of implementing structured asset condition and criticality assessments on planned, preventative maintenance expenditure within municipal budgets.

Keywords: *Randomised controlled trial, Asset management, Sub-Saharan Africa, Risk reduction, Municipal infrastructure, Field experiment, Diagnostic methodology*

Article Highlights

- Randomised trial across 24 municipalities shows causal impact of diagnostic protocol.
- Treatment effect: 17.3 percentage point increase in planned maintenance budget allocation.
- Reallocation sourced primarily from reductions in emergency repair funding.
- Provides a clear, evidence-based framework for proactive infrastructure investment.

Methodological Note

Analysis used a linear mixed model with treatment assignment at the cluster level and robust standard errors clustered by municipality.

This study offers the first experimental evidence of its kind from a low-income country context.

ABSTRACT-ONLY PUBLICATION

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

REQUEST FULL PAPER

 **Email:** info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

**Are you a researcher in Africa? We
welcome your submissions!**

Join our community of African scholars and share
your groundbreaking work.

 **Submit at:** app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global
Knowledge