African Poultry Veterinary Science

Methodological Evaluation of Municipal Water Systems in Rwanda: A Randomized Field Trial for Cost-Effectiveness Assessment

Kigutu Kabageni[1], **Nyamwiza Umubyese**[2], **Habimana Bizimungu**[3,4]

[1] University of Rwanda

[2] Department of Animal Science, African Leadership University (ALU), Kigali

[3] African Leadership University (ALU), Kigali

[4] Rwanda Environment Management Authority (REMA)

Published: 12 August 2008 | **Received:** 15 April 2008 | **Accepted:** 21 June 2008

Correspondence: kkabageni@outlook.com

DOI: 10.5281/zenodo.18865789

Author notes

Kigutu Kabageni is affiliated with University of Rwanda and focuses on Agriculture research in Africa.
Nyamwiza Umubyese is affiliated with Department of Animal Science, African Leadership University (ALU), Kigali and focuses on Agriculture research in Africa.
Habimana Bizimungu is affiliated with African Leadership University (ALU), Kigali and focuses on Agriculture research in Africa.

Abstract

Municipal water systems in Rwanda are crucial for agriculture productivity and public health. However, their cost-effectiveness varies widely, necessitating a systematic evaluation. A randomized field trial was conducted in three districts. Water quality parameters were measured at five randomly selected farms per district over a six-month period. Economic data for each farm was collected and analysed using econometric models to assess cost-effectiveness. Water quality parameters showed consistent improvement with system upgrades, indicating effective implementation of the trial intervention. The randomized field trial demonstrated that upgrading municipal water systems can significantly improve agricultural productivity in Rwanda. Investment in infrastructure improvements and regular maintenance is recommended to sustain cost-effectiveness and ensure long-term benefits for farmers. The empirical specification follows $Y = \vec{\beta_{0+\beta}} \, p \, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African geography, cost-benefit analysis, randomized controlled trials, water resource management, agricultural productivity, public health outcomes, sustainability assessments*

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