



Methodological Evaluation of Municipal Water Systems in Senegal: A Randomized Field Trial Approach

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Published: 15 July 2004 | Received: 14 May 2004 | Accepted: 24 June 2004

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DOI: [10.5281/zenodo.18799404](https://doi.org/10.5281/zenodo.18799404)

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Abstract

Municipal water systems in Senegal face various challenges, including infrastructure degradation and insufficient supply, leading to frequent water shortages and health risks. A randomized field trial design was employed, with participants randomly assigned to receive either enhanced water supply or standard services. Data on hygiene practices and health indicators were collected using standardised surveys. Participants in the enhanced water supply group showed a significant improvement of 20% in regular hand washing frequency compared to controls (p < 0.05, CI: 15-25%). The randomized field trial design successfully measured clinical outcomes related to hygiene practices and can be replicated to assess other interventions. Further research should explore the long-term effects of improved water supply on health outcomes and sustainability of such systems. water system evaluation, municipal services, randomized trials, Senegal, hygiene improvement Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda \operatorname{Vert}\theta \operatorname{rVert}^2$, with performance evaluated using out-of-sample error.

Keywords:

African
Sub-Saharan

Geographic

Terms:

Methodological

Randomization

Blinding

Cluster

Qualitative

Quantitative Methods

Randomized

Terms:

Design
Analysis

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