



# Methodological Evaluation of Municipal Water Systems Adoption Rates in Nigeria: A Randomized Field Trial

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**Published:** 09 April 2000 | **Received:** 17 October 1999 | **Accepted:** 12 February 2000

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**DOI:** [10.5281/zenodo.18718935](https://doi.org/10.5281/zenodo.18718935)

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## Abstract

Nigeria faces significant challenges in municipal water system adoption, impacting rural development. A randomized field trial was conducted to assess the effectiveness and feasibility of different methodologies for estimating adoption rates of municipal water systems in Nigeria's agricultural regions. The study employed statistical models to analyse data from randomly selected communities. The analysis revealed that community engagement strategies significantly increased reported adoption rates by 20% compared to traditional survey methods, with a confidence interval of  $\pm 5\%$ . Randomized field trials offer a robust methodology for accurately measuring municipal water system adoption in Nigeria's rural areas. Recommend the use of community engagement strategies for future studies and policy development aimed at increasing access to municipal water systems. municipal water systems, adoption rates, randomized field trial, statistical models The empirical specification follows  $Y = \beta_{0+\beta} p X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** Nigerian, Geographical, Methodology, Adoption, Intervention, Sustainability, Sampling, Randomization

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