



# Quasi-Experimental Methodological Evaluation of Municipal Water Systems in Rwanda: A Theoretical Framework

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## Abstract

Theoretical frameworks are essential for understanding complex systems such as municipal water systems in Rwanda. Existing studies often lack a robust methodological foundation to evaluate their impact on agricultural productivity. The proposed framework will employ a quasi-experimental design with an instrumental variable approach to evaluate the impact of municipal water systems on agricultural yields. The study will use robust standard errors to account for potential confounding variables. This theoretical model provides a robust methodological approach for evaluating the impact of municipal water systems on agriculture in Rwanda, with potential applications for policy development and resource allocation. The findings should inform policymakers to allocate resources more effectively towards improving access to municipal water systems, thereby enhancing agricultural productivity in Rwanda. The empirical specification follows  $Y = \beta_{0+\beta}^{-1} p X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** *Geographic, Quasi-experimental, Methodology, Systems, Evaluation, Water, Africa*

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