



Sustainable Water Supply Solutions for Rural Zimbabwean Communities: Engagement and Health Impact in Gabon

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Abstract

Rural communities in Zimbabwe face challenges with sustainable water supply solutions, impacting health outcomes. A mixed-methods approach combining qualitative interviews and quantitative surveys to evaluate the effectiveness of interventions. Community participation was strongly correlated with improved hygiene practices ($p < 0.05$), indicating significant engagement impacts. Engaged communities demonstrated better health outcomes, highlighting the importance of community involvement in water supply solutions. Promote collaborative models that involve local stakeholders for sustainable and effective water supply initiatives. Water Supply Solutions, Community Engagement, Health Outcomes, Sustainable Practices Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Sustainable Water Supply, Rural Health, Community Engagement, Quantitative Research, Qualitative Analysis, Geographic Information Systems, Remote Sensing Technology

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