Quasi-Experimental Design Assessment of Water Treatment Facilities in Tanzania: Yield Improvement Evaluation

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Abstract

Water scarcity is a significant challenge in Tanzania, necessitating robust water treatment facilities to ensure sustainable supply. A quasi-experimental design was employed to evaluate the performance of water treatment facilities across different regions in Tanzania, focusing on identifying yield improvement potential. An average yield increase of 15% was observed in treated water volumes when comparing pre- and post-treatment data from selected sites. The quasi-experimental design proved effective in measuring yield improvements without the need for controlled experiments, providing actionable insights into system optimization. Further studies should investigate the impact of local environmental conditions on treatment facility performance to enhance overall efficacy. quasi-experimental design, water treatment facilities, Tanzania, yield improvement, engineering The maintenance outcome was modelled as $Y\{\} = beta\, 0 + beta\, 1\, X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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