



Wastewater Treatment Plant Impact Analysis on Reducing Waterborne Diseases Risk in Ghanaian Coastal Towns, Tanzania Context

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Abstract

This study examines the impact of a wastewater treatment plant on reducing waterborne diseases risk in coastal towns of Ghana and Tanzania. The study employed a mixed-methods approach combining quantitative data from disease incidence rates and qualitative insights through interviews with local residents and community leaders. A significant reduction (45%) in reported cases of waterborne diseases was observed within the first year post-installation, with notable improvements noted across both urban and rural settings. The wastewater treatment plant has demonstrated substantial effectiveness in reducing waterborne disease risk; however, further studies are recommended to address disparities and ensure equitable health benefits. Communities should be engaged proactively in the planning and operation of future wastewater management projects. Periodic evaluations should also be conducted to monitor ongoing efficacy and adjust strategies as necessary. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Ghana, Tanzania, Coastal Towns, Epidemiology, Waterborne Diseases, Public Health Surveillance, Vector-Borne Diseases, Microbial Safety Studies

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