

## 69. Influence of environmental factors on public perception towards sewerage treatment plants in Meru County, Kenya

Raphael Kimathi Kinoti<sup>1\*</sup>, Lilian Mukiri Kirimi<sup>1</sup>, Kirema Nkanata Mburugu<sup>2</sup>, Grace Kasiva Eliud<sup>1</sup>

<sup>1</sup>Meru University of Science and Technology, Meru, Kenya

<sup>2</sup>University of Embu, Embu, Kenya

\*Corresponding author- Email address: raphkinoti71@gmail.com

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### Abstract

Although Government efforts in supporting establishment of waste water treatment plants have been shown, the projects are at times rejected by the community leading to wastage of resources, unsolved sewage disposal problems, and the spread of diseases emanating from poor sewage management. This study examined the influence of social, cultural and environmental factors on public perception toward sewerage treatment plants in Meru County, Kenya, whose solutions have often been facing rejection from the communities. The study targeted residents who around Rwanyange, Gakoromone and Maua sewerage treatment plants in Meru County, Kenya. Mixed methods approach was used with a convergent study design. A sample of 394 household heads was targeted. Cluster and simple random sampling techniques were used for selection of the areas and household heads respectively. Quantitative data was collected from households using structured questionnaires and analysed in descriptive statistics and in logistic regression using the Statistical Package for Social Sciences (SPSS) version 26. Logistic regressions were carried out in univariable and multivariable tests to show the relationship between dependent and independent variables and findings presented as odds ratio with 95% Confidence Intervals (CI). Qualitative data was obtained from focus group discussions, analysed in NVIVO software and presented in narratives. Overall, the public perception towards sewerage treatment plants was negative. Perception varied with age with people aged > 50 years being 2.78 times more likely to exhibit positive perception towards the treatment plants compared to those aged 18-28 years ( $P < 0.05$ ). Participants especially those who resided very near the treatment plants were concerned of the odour that resulted from the treatment plants and the impacts of the plants on soil contamination (adjusted OR=0.75, 95% CI: 0.86-3.06,  $P < 0.001$ ). Public notion on the possibility of the treatment plants to result in underground seepage and concerns on the quality of air due to pollution significantly lowered perception by 52% and 60% respectively ( $P < 0.05$ ). The study concluded that public perception towards the treatment plants was affected by participants' concerns on their impact on the environment. The study recommends community involvement in all implementation stages of sanitation projects for increased acceptance, ownership and trust of solutions by beneficiaries. There is also need for policies that substantiate environmental awareness for sustainable solutions. A transparent process of conducting Environmental Impact Assessment of sanitation solutions in the early stages of implementation could be key in mitigating environmental issues that could likely arise as a result of establishment of the sanitation solutions.

**Keywords:** Sewerage treatment plants, waste water, public perception, environmental factors