

## 91. Influence of knowledge and awareness of containment technologies in performance of faecal sludge management in urban areas: a case study of Athi River sub-county, Machakos County, Kenya

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### Abstract

Rapid urbanization and population growth in Athi River, Eastern Africa, have exacerbated challenges in managing faecal sludge, posing significant public health and environmental risks. The study investigated the influence of knowledge and awareness of containment technologies on the performance of faecal sludge management in Athi River Sub County. Utilizing a cross-sectional study design, data was gathered from 399 stakeholders including households' heads, property owners, public toilet operators, and sanitation experts through questionnaires, interviews, and observations. Statistical analyses using SPSS software examined both quantitative and qualitative data to derive descriptive insights. Of 399 distributed questionnaires, 335 were completed, representing an 83.96% completion rate. Among the respondents, 54.3% held college or university degrees, highlighting the region's educated urban population and emphasizing the importance of addressing educational disparities in sanitation practices. The study findings revealed a significant prevalence of septic tank usage (67.2%) compared to pit latrines (32.8%) among respondents surveyed, highlighting the predominant types of faecal sludge containment technologies in use within the study population. The study found a moderate level of familiarity with maintenance practices (mean 3.63) and varied comprehension of different technologies (mean 3.01). Awareness of benefits scored moderately (mean=2.80), while identifying challenges received a moderate score (mean= 2.73). Knowledge of information sources and interest in learning more were also assessed, with mean scores of 2.64 and 3.97 respectively. Significant associations were observed between knowledge of containment technology and performance metrics such as treatment efficiency and environmental impact ( $p < 0.001$ ), underscoring the importance of understanding effective faecal sludge management. The study concludes that while there exists a moderate baseline of knowledge and awareness regarding containment technologies, substantial room for improvement remains. Enhanced educational initiatives are recommended to address these gaps, including workshops, community meetings, and outreach programs aimed at promoting a better understanding of maintenance practices, technology options, and environmental implications.

**Keywords:** knowledge and awareness, containment technologies, performance of faecal sludge, faecal sludge management.