



Innovative Waste Management Strategies in Urban Slums of Nairobi: Community Engagement and Outcomes

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Abstract

Urban slums in Nairobi face significant waste management challenges due to inadequate infrastructure and low community engagement. A mixed-methods approach combining qualitative interviews with quantitative surveys was employed to assess the effectiveness of proposed solutions among slum dwellers. Participants reported a 45% reduction in waste accumulation after implementation of community-led recycling programmes, demonstrating a clear impact on waste management practices. The study highlights the importance of involving local communities in waste management initiatives to achieve sustainable outcomes. Communities should be actively involved in planning and implementing waste management strategies for urban slums. waste management, community engagement, Nairobi slums, environmental health The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Urbanization, waste hierarchy, participatory governance, sustainability metrics, community empowerment, informal settlements, circular economy*

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