



Circular Economy Models in Urban Waste Management: A Methodological Approach in Lagos Metropolis, Nigeria 2008

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Abstract

Urban waste management in Lagos Metropolis, Nigeria faces significant challenges due to rapid urbanization and inadequate infrastructure. The methodology employed includes a literature review, stakeholder engagement sessions, and a Delphi expert panel to validate model components. A mixed-methods approach combining quantitative data analysis with qualitative insights was used to assess implementation feasibility and effectiveness. A preliminary assessment of waste diversion rates from current management practices showed an average improvement potential of up to 30% when circular economy models are implemented, indicating a significant direction for enhancing resource efficiency in urban waste management. The methodological framework developed provides a robust foundation for the adoption and scaling-up of circular economy solutions in Lagos Metropolis, addressing current waste management inefficiencies. Further research should focus on replicating this model across other urban areas with similar characteristics to validate its applicability and impact. Circular Economy Models, Urban Waste Management, Lagos Metropolis, Nigeria Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_{i=1}^n (y_i - f(\theta(\xi)))^2 + \lambda \|\theta\|_1 \}$, with performance evaluated using out-of-sample error.

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