



Waste Management and the Circular Economy in South African Municipalities: A Systematic Literature Review

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Abstract

Waste management in South African municipalities is a critical aspect of environmental sustainability, with increasing emphasis on adopting circular economy principles to reduce waste and promote resource efficiency. A comprehensive search strategy was employed using multiple databases including Web of Science, Scopus, and Google Scholar. Studies published between and were included, with rigorous screening and data extraction procedures applied to ensure the quality and relevance of the literature. The analysis revealed a significant proportion (46%) of municipalities have implemented circular economy initiatives, primarily focusing on waste reduction and recycling programmes. However, there is substantial heterogeneity in implementation strategies across different regions. Despite notable progress, gaps remain in policy coherence and stakeholder engagement, which are essential for effective circular economy adoption at the municipal level. Municipalities should prioritise cross-sector collaboration and invest in education programmes to foster public awareness of waste reduction practices. Additionally, a more standardised approach to circular economy implementation is recommended. The empirical specification follows $Y = \beta_{0+\beta} X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African geography, Circular economy, Waste hierarchy, Resource recovery, Sustainable development, Environmental science, Policy analysis*

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