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Methodological Framework for Assessing Municipal Waste Management and Circular Economy Integration in South Africa, 2020

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| Abstract

Municipal waste management in South Africa is characterised by systemic challenges, including inconsistent service delivery and a predominant reliance on linear disposal models. Integrating circular economy principles is considered essential for improving environmental and economic outcomes, but a standardised assessment methodology for this context is absent. This methodology article presents a structured framework designed to assess the current state of municipal waste management and the degree of circular economy integration across South African municipalities. Its primary objective is to provide a replicable diagnostic and benchmarking tool for researchers and practitioners. The framework was developed through a multi-stage, mixed-methods approach. An initial comprehensive literature review identified potential assessment indicators. These were refined and validated through structured expert consultations. The final framework comprises quantitative metrics and qualitative criteria organised across four pillars: governance and policy, waste operations, resource recovery, and socio-economic factors. As a methodology article, the primary output is the validated assessment framework itself. A pilot application highlighted local governance capacity as a critical enabler—or barrier—for implementing circular economy interventions. The developed framework provides a systematic and practical methodology for evaluating waste management systems and

circular economy integration at the municipal level in South Africa, addressing a gap in standardised assessment tools. Researchers and municipal officials should apply the framework to establish baseline assessments, identify intervention priorities, and monitor progress. Future work should focus on adapting the tool for different municipal typologies and capacities. circular economy, waste management, municipal assessment, methodology, South Africa, framework This article provides a novel, context-specific methodological framework for the systematic assessment and benchmarking of municipal waste management and circular economy integration in South Africa.
