

Towards Boosting Adoption of Circular Integrated Solid Waste Management to Achieve Sustainable Development Goal 13 (Climate Action) in Southern Africa

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Abstract

The increasing pressures of urbanisation, industrialisation and population growth in Southern Africa have led to significant challenges in solid waste management, which is critical for achieving Sustainable Development Goal 13 on climate action. This review paper explores the concept of Circular Integrated Solid Waste Management (CISWM) as a transformative approach to enhance sustainability and mitigate climate change impacts in the region. CISWM framework emphasises the integration of various waste management strategies that promote reduction, recycling, recovery and reuse. Adoption of CISWM approach aims to minimise waste generation, maximise resource efficiency and limits quantity of disposed solid waste. CISWM present to be effective in reducing solid waste environmental health impacts, including climate change. CISWM have potential to minimise quantity of greenhouses gases like methane, thus playing a pivotal role in climate mitigation. CISWM is considered relevant across the globe but it's full adoption in Southern Africa is limited due to numerous socio-economic and political problems coupled by lack of adequate data regarding quantity and quality of solid waste. These challenges contribute to environmental degradation, increased greenhouse gas emissions and health risks associated with poor waste disposal methods. Despite facing all these obstacles, transitioning towards CISWM is vital for Southern Africa to achieve SDG 13. Circular integrated solid waste management (CISWM) plays a crucial role in reducing greenhouse gas emissions by promoting resource efficiency and minimizing waste generation. Through integration of recycling, composting and waste-to-energy processes, CISWM reduces the amount of organic waste sent to landfills, which are significant sources of methane emissions, a potent greenhouse gas. The recovery of materials through recycling decreases the need for virgin resources, thereby lowering energy consumption and associated carbon emissions during production. Addressing current challenges through collaborative efforts and implementing strategic policies, the region can significantly reduce solid waste management carbon footprint while promoting sustainability.