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Biodigesters and Rural Energy Security in Kenya: An Economic and Environmental Sustainability Assessment

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Abstract

Biodigesters are biogas generators used for household energy security in rural Kenya, but their impact on waste management and economic sustainability is not fully understood. The research employs a mixed-methods approach, combining surveys with case studies in selected villages to gather data from both households and local authorities. Biodigesters significantly reduce household reliance on fossil fuels for cooking (by 40%) and decrease organic waste disposal costs (25%). The findings suggest that biodigesters contribute positively to rural energy security while also improving waste management practices, indicating potential for wider adoption. Government policies should incentivize the installation of biodigesters by offering subsidies or grants, and educational programmes should be implemented to promote their use among farmers.

Keywords: *Kenya, Biodigesters, Waste Management, Energy Security, Sustainability Assessment, Rural Development, Econometrics*

ABSTRACT-ONLY PUBLICATION

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