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Evaluation of waste management in southwestern Nigeria for clean environment, circular economy and agri-food systems development

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Abstract

Poor waste management results in environmental, ecological and socioeconomic problems in Southwestern-Nigeria. Attempts at managing waste through burning can lead to climate change while landfill leachate reduces soil and ground water quality. Hence, the need to look for better alternative. This research looks at the current challenges in the waste management system in Southwestern-Nigeria and proposes a more contemporary system that will move the region towards attaining a circular economy. Environmental Kuznets Curve hypothesis provided theoretical framework. Purposive sampling of major landfills in Lagos, Ogun, Oyo, Osun, Ondo, Ekiti States and waste generation pattern using structured questionnaires (210) on spatial variation, challenges and prospect of waste management practices. The results were validated at expert workshop for key officials within the waste management industry(30). Data were analysed using descriptive and inferential statistics. Waste Habits of Nigerians were 57.0 % organic/food-waste, 27.0 % plastics, 5.0 % glass, 5.0 % metal and 4.0 % others, ending up mostly on landfills/dumpsites. Only 28.1 % separated waste at source and 46.2 % used private collection services. The major waste management challenges were pollution and health risks (69.1 %), limited resources(44.8 %), lack of technical skill(23.8 %) and inadequate management skill(18.1 %). As part of waste management practices, 95.2 % were willing to participate in circular economy, 94.3 % supported polluter pays principle and 96.2 % supported dissemination of public information on Waste-to-Energy. Waste management challenges significantly influenced health issues and pollution ($p = 0.048$). From the current linear economy to circular economy, there is a need for a paradigm shift in the product economy regarding the curtailing of environmental impact and waste-of-resources through increased efficiency at all stages. With a circular economy, waste is seen as a viable resource and not an undesirable end product of society. Waste is seen as input material for the creation of valuable products as new outputs for agri-food systems development. For this to be successful, all hands must be on deck and all stakeholders actively involved. There must be seamless synergy in the products development, infrastructure, equipment and services sector with the conventional waste managers rightly supported to take the driver's seat. The government has a role in creating an enabling environment and stimulating demand.

Keywords: Agri-food system, circular economy, clean environment, waste habits, waste management challenges