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Impact assessment of waste-to-resources management for circular economy development and green growth in Nigeria and Ghana

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Abstract

Poor waste management results in environmental and socioeconomic problems in Nigeria and Ghana. 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 Nigeria and Ghana, as well as proposes a more contemporary system that will move the two Anglophone Countries towards attaining a circular economy. Environmental Kuznets Curve hypothesis provided theoretical framework. Purposive sampling of major landfills in Nigeria and Ghana with their waste generation pattern using structured questionnaires(250) on spatial-variation, challenges and prospect of waste management practices were done. The results were validated at expert workshop for key officials within the waste management industry. Data were analysed using descriptive and inferential statistics. Waste Habits of Nigerians were 57.0%-organic, 27.0%-plastics, 5.0%-glass, 5.0%-metal and 4.0%-others, ending up mostly on landfills/dumpsites. Only 28.1%&41.8 % separated waste at source, 46.2%&58.5 % used private collection services in Nigeria and Ghana respectively. 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%&97.6 % were willing to participate in circular economy, 94.3%&98.1 % supported polluter-pays-principle, 96.2%&98.5 % supported dissemination of public information on Waste-to-Resources in Nigeria and Ghana respectively. Waste management challenges significantly influenced health issues and pollution in both Countries($p = 0.05$). A theory-of-change was established to capture the activity, outputs, results, outcomes, impact and the sustainable-development-goals(SDGs) realised. With the implementation of waste-to-resources projects in Nigeria and Ghana, some of the outputs are; production of clean-energy, improved sanitary conditions of markets and slaughter-houses, production of compost-fertiliser for urban agriculture, and cultivation of green vegetables. Both Countries are now benefiting from the operations and services of the Pioneers, customers also patronize, buy and recycle products. The impact cut across clean-environment, health, food-security, increased-income and 8 SDGs-realisation. Government has a role in creating an enabling environment and stimulating demand to sustainably transits from current linear to circular economy in the West African Countries.

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