

# Evaluating Waste Management Challenges, Practices and Habits for Circular Economy and Green Growth in Nigeria



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## Introduction and Objective

Health, safety, environment, landuse and socioeconomic challenges make waste management very important in developing African countries like Nigeria. Population growth (>201 million), urbanization (urban 48.3% to rural 51.7%), limited land (>150 people/sq.km) and scarce resources, called for this study to evaluate the waste management challenges, practices and habits, for the purpose of seamlessly transiting the most populous black country from current linear to circular economy for green growth. Consumption and development theories provided the study theoretical framework.



Figure 1: Maps of Nigeria

## Results

### Waste Management System in Nigeria

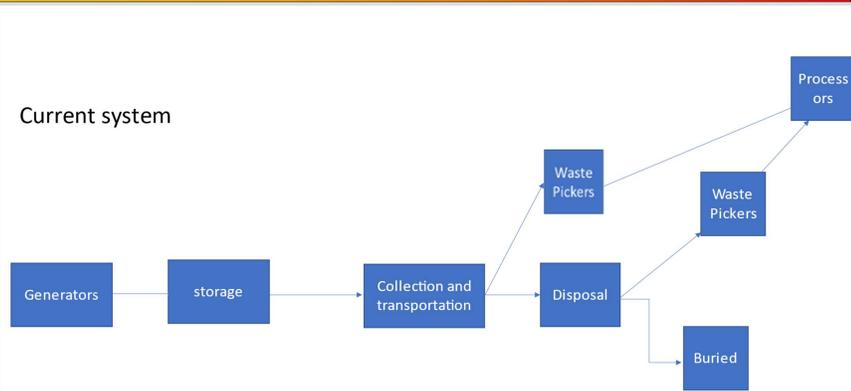


Figure 9: Linear Economy in Nigeria

### Waste Habits & Challenges in Southwestern Nigeria

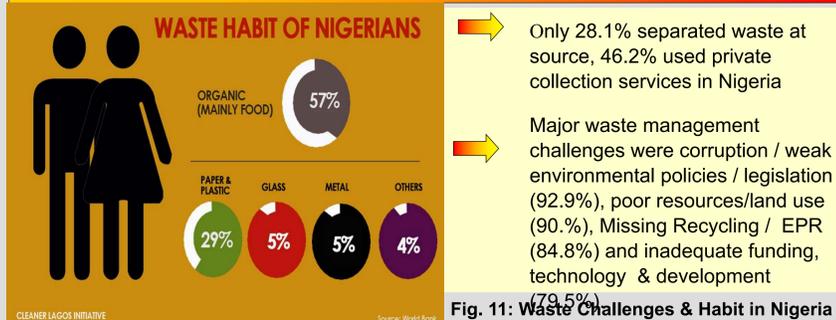


Fig. 11: Waste Challenges & Habit in Nigeria

### Transition from Linear to Circular Economy for Green Growth in Nigeria

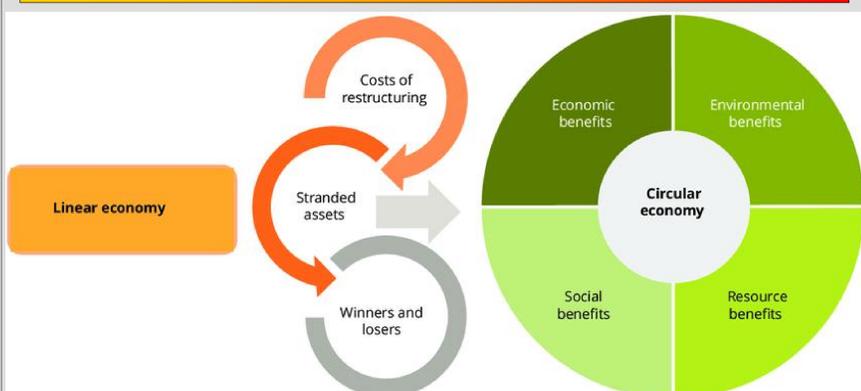


Figure 12: Circular Economy Transition Benefits

### Proposed Linear to Circular Economy for Green Growth Model in Nigeria

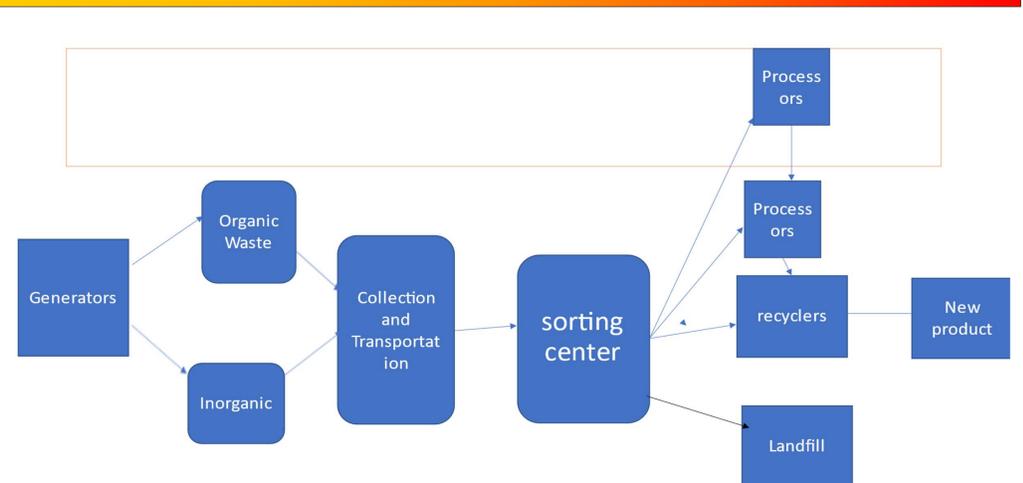


Figure 10: The Proposed Process for Circular Economy Adoption in Nigeria

Source: Figures 1 - 18 : DIWA-Safisana, Partners / Own Computation; IITA Nigeria; Internet

### Waste Mgt Practices & Willingness for Circular Economy WTR in Nigeria

- Anaerobic Digestion => Biogas for Renewable Energy
- Composting => Fertilizer
- Wastewater Treatment (Wetland) => Agri-Business



Figure 13 - 17 Circular Economy WTR Technology for Green Growth

- As part of waste management (mgt) practices;
- 95.2% were willing to participate in circular economy (CE) process,
- 94.3% supported polluter pays principle (PPP),
- 96.2% supported dissemination of public information on waste-to-resources (WTR) for circular economy in Nigeria respectively,
- Waste And Bio Recycling Associates League (WABRAL) was established for the promotion of global circular economy best practices in Nigeria & Africa.

## Materials and Methods

### EKC, Energy STAT, Socioeconomic Survey, Sampling & Analyses

- Environmental Kuznets Curve (EKC) hypothesis provided theoretical framework.
- Purposive sampling of major landfills in Nigeria with their waste generation patterns using structured questionnaires 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.

Figure 18: Map Africa indicating the European Colonial Masters



## Conclusions

- Waste habits of Nigerians are 57.0% Organic / Food waste, 27.0% Plastics waste, 5.0% Glass waste & 4.0% Others, mostly unseparated & dumped on landfills.
- Since Organic / Food waste is the largest, moving the Country from linear to circular economy would improve the agri-food systems, foster green growth and clean environment
- Circular economy conserve resources, enhance food security and generate new products for agri-food transformation.
- This study led to the establishment of Waste And Bio Recycling Associates League (WABRAL) for the promotion of global circular economy best practices in Nigeria and Africa. While the Government is encouraged to create enabling environment & effective regulation of environmental policies / legislation, WABRAL is supporting all Stakeholders to make these happen.