1. Title: Reducing the level of waste in Nigeria

2. Issue:

2.1. Dear Minister for Environment, you asked for advice on policy measures to reduce the level of waste in Nigeria.

3. Recommendation:

3.1. The recommended policy is to fulfil the recycling gap through implementing a well-integrated, sustainable, incentivised recycling programme that follows a polluter-pays principle.

4. Background:

4.1. Nigeria is ranked 9th globally in terms of highest contributions to plastic pollution. Interestingly, 88%[1] of the plastic waste generated in Nigeria fails to be recycled. The major constituents of plastic waste in Nigeria consist of water sachets and shopping bags[1].

4.2. Despite the growing concerns of solid waste in Nigeria, there has been minimal provisions of funding as well as weak infrastructural facilities. This combined with a low recycling rate standing just short of 12%[1] and inadequate waste collection methods, presents a huge threat to Nigeria's waste management system. This threat has resulted in growing health concerns and hampered efforts to curb the effects of climate change.

4.3. Nigeria produces 32 million tones of waste per year[2], of which less than 20% is collected through a formal system. Of the waste generated yearly, 2.5 million tonnes is plastic waste[2], and approximately 70%[2] ends up in landfills, sewers, beaches, and water bodies.

5. Outline of policy options:

5.1. Option 1: Business as usual (do nothing)

Maintain the current national policy on waste management, whereby solid waste collection and disposal is the responsibility of the local government and in some cases, local communities.

[1] Sogbanmu, 'Plastic pollution in Nigeria is poorly studied but enough is known to urge action', 2023
[2] Ayodele, 'Nigeria's waste management policy yields little gains', 2022

5.2. Option 2: Fulfil the recycling gap

Implement a well-integrated, sustainable, incentivised, recycling programme which follows polluter pays principle and adopts policy components from best in class systems.

5.3. Option 3: Promote waste-to-energy plant

Provide an alternative means towards waste management through adopting policy components from developed countries with a particular appreciation for Sweden.

6. Description of policy options:

6.1. Business as usual

6.1.1 The collection of solid waste is both difficult and expensive, Nigeria adopts two primary collection methods[3] namely "door to door" and community disposal. Collection crews collect waste on specified days and transfer the waste to dumpsites. The community disposal method sees households individually transport their waste to communal collection facilities, collection crews from the local government or private waste management agencies empty the communal facilities. Nigeria suffers from a lack of formal recycling or resource recovery programmes; it is the voluntary sector who currently carries out recycling operations. In most big markets[3], waste pickers sort refuse in exchange for a fee and salvage the recyclables prior to the final disposal of the waste.

[3] Nwosu et al., 'A review of solid waste management strategies in Nigeria', 2020

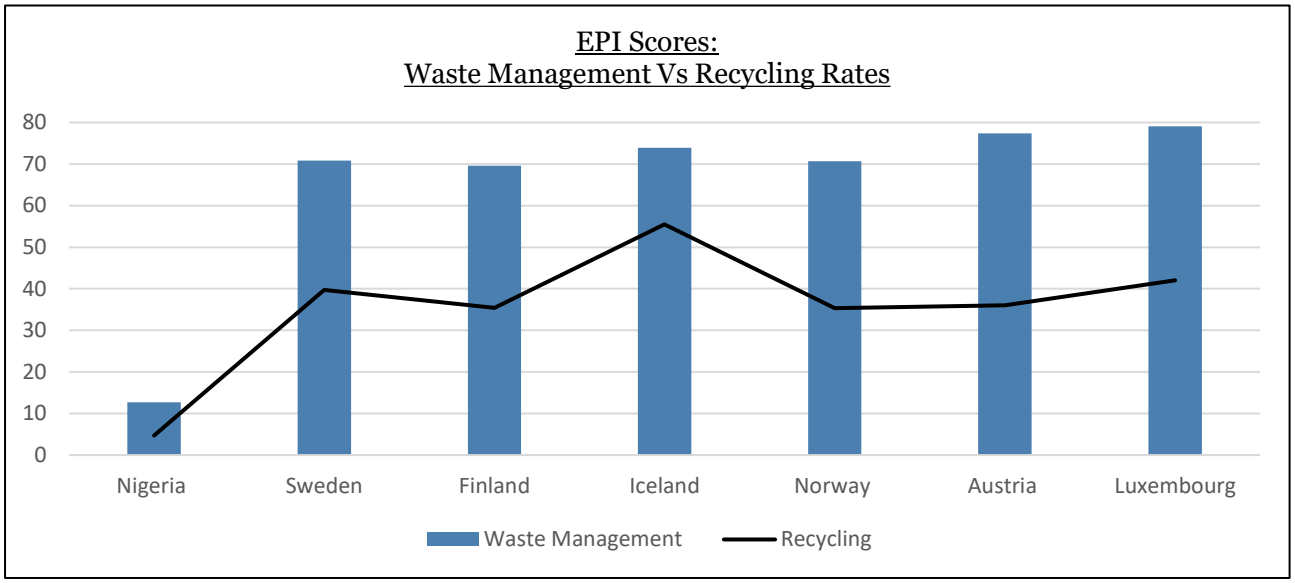

Figure 1: Environmental Performance Index Scores (Source: Yale)[4]

Original Graph

6.1.2 The trade-offs with the current policy are as follows:

6.1.2.1 Nigeria is ranked 152nd globally for the effectiveness of their waste management system and 172nd for their recycling rates[4]. There is not currently a well-integrated system which fulfils the recycling gap, thus presenting a huge market opportunity to be exploited.

6.1.2.2 High proportion of Nigeria's waste disposal method falls under indiscriminate dumping[5]. This is due to the fact that many communities feel that landfills are not in close proximity to their homes, that there is a lack of consistent garbage collection, they are poorly educated on good waste management practices, and that there is no real incentive to pay for waste disposal services[6].

[4] Environmental Performance Index, 'Waste Management', n.d.
[5] Machete, 'A review of factors associated with indiscriminate dumping of waste in eleven African countries', 2016
[6] Ahmed et al., 'Waste Management Regulations Enforcement: Lead Way to a Healthy Environment in Nigeria', 2022

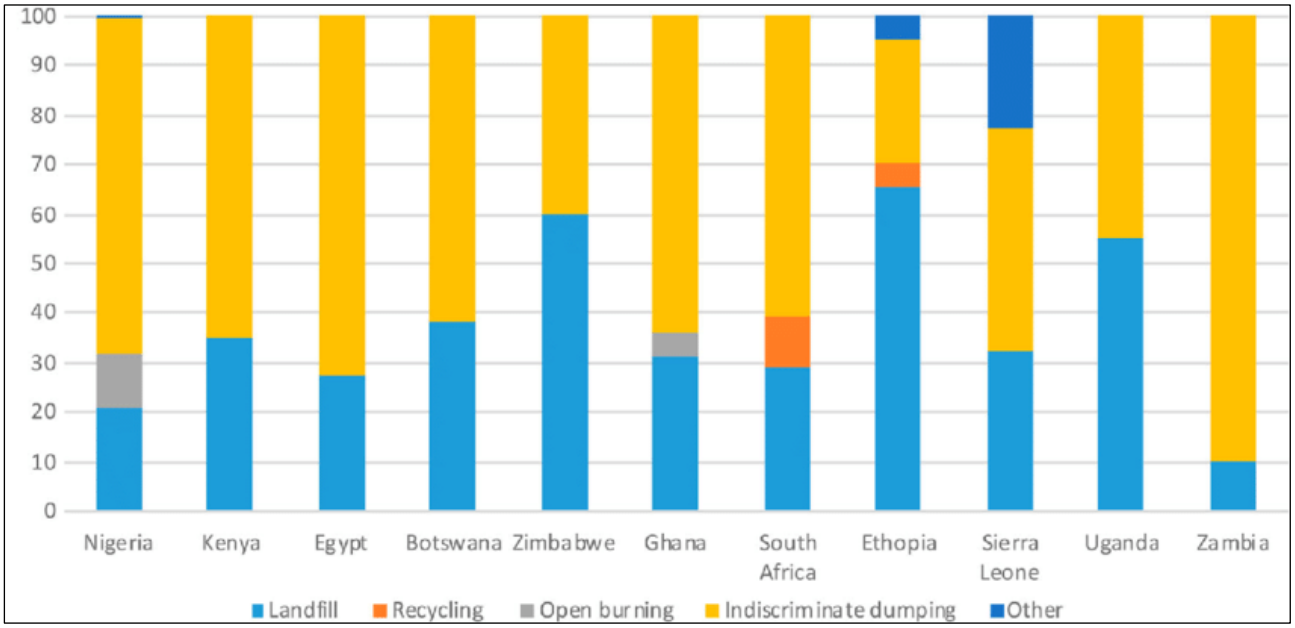

Figure 2: Waste disposal methods across Africa (Source: Dladla)[5]

6.1.2.3 The estimated cost of Nigeria's current strategy towards waste management extends beyond its monetary value. The Ministry for Environment in Anambra State's (one of Nigeria's smallest states) 2021 budget was N2.16 billion[7] ($4.6 million) in which N1.58 billion ($3.4 million) was spent on waste disposal within 10 months. The fact that approximately 74% of the entire budget was spent on clearing up waste alone provides an insight into the pattern one can expect to experience across the remaining 35 states. Furthermore, the operational capacity[8] of Nigeria's healthcare system is amongst some of the areas negatively affected by the poorly managed waste system. Diseases ranging from malaria to yellow fever are rife amongst the population, with direct links emerging from poorly managed waste disposal[8].

6.1.2.4 The extent to Nigeria's poor waste management system can also be attuned to inadequate human capacities for administrative and technical inquiries, cultural norms, low data management, uncoordinated institutional functions, weak industry linkages and a lack of political will from constituent leaders.

6.2. Fulfil the recycling gap

6.2.1 This policy would follow the creation of a formalised recycling programme which is well-integrated, sustainable, incentivised and follows a polluter pays principle (PPP). The first

[7] The Guardian Nigeria News, 'Anambra government spends N1.58B on waste disposal in 10 months', 2021
[8] Yakubu, 'The waste management system in low income areas of Jos, Nigeria', 2017

component of this programme would include the federal government of Nigeria signing the New Plastics Economy Global Commitment Report 17 with the European Union[9] to eliminate endless packaging and thus stimulate demand for recycled plastics. In addition, the government would introduce a PPP[9] to legislation which states that any firm that uses more than a fixed amount of single-use packaging material incurs a fee or risks being indicted. Extended producer responsibility schemes[10] (EPRs) will also be included, shifting the financial burden of waste management onto manufacturers; thus enabling the private sector to be drivers of the recycling movement and create employment. Furthermore, this programme will take inspiration from the German 'Pfand system[11]', whereby recyclers can extract a fee by recycling beer bottles for a value of approximately €0.08 or €0.25[11] for glass bottles and tin cans. The government would set an equivalent monetary value on domestic bottles creating a financial incentive for the citizenry to take part.

6.2.2 The trade-offs include:

6.2.2.1 The government will be sharing the burden of waste management across the entire supply-chain ecosystem which in turn should generate greater 'manpower' in enforcing sanctions and thus stimulate waste reduction.

6.2.2.2 The sanctions installed enable opportunities in waste management to be harnessed such as resource recovery.

6.2.2.3 The government revenue generated will enable the government to grow their public purse in order to provide greater provisions to the Environmental Protection Agency. This will enable the agency to attract experts and hire enough staff to handle technical and administrative inquiries at the landfills.

6.2.2.4 Enhanced connectivity between the government, private sector, NGOs, and local community will incrementally change cultural norms surrounding fly tipping[5] and encourage collective action for effective waste management.

6.2.2.5 There is potentially a high political cost due to the reliance on multiple interactions between stakeholders. Since each stakeholder is also a shareholder, this may present conflicting interests surrounding and diverging priorities.

[9] Ogutu et al., 'Recycling Gap, Africa's Perspective for Sustainable Waste Management', 2023
[10] Averda, 'South Africa beats Europe in recycling rates', n.d.
[11] All about Berlin, 'The Pfand System: How to return bottles in Germany', n.d.

6.3. Promote waste-to-energy plants

6.3.1 Waste-to-energy (WTE) plants are waste management facilities that combust waste to produce electricity. Plans are already underway for the installation of a $150 million WTE facility in Lagos, Nigeria[12]. The facility's engine stands at 25 megawatts of power, projected to process 2.5 tonnes of waste daily[12]. CEO of West African ENRG (manufacturers of the $150 million facility) has announced that the facility will have a turnaround time of under 30 minutes[12].

6.3.2 The trade-offs include:

6.3.2.1 Immense scalability, Sweden possesses 34 WTE plants, the largest of them all 'Sysay', burns around 600,000 tons of waste annually[13]. These facilities reduce the need for landfills which are becoming outdated and over-polluted.

6.3.2.2 Longevity and multi-purpose nature offsets initial costs. The Amager-Bakke WTE plant in Copenhagen collects waste from 600,000 inhabitants and 68,000 companies[13]. Some of the older plants have been transformed into CO2 capture and storage projects[13], showing that they can be restructured to still serve the economy.

6.3.2.3 Some reports have found high levels of persistent organic pollutants deposited around waste incinerators[13]. Not to mention the negative impacts the plants have on climate change, potentially causing conflicting interests with the nation's Nationally Determined Contribution targets.

6.3.2.4 Despite the incredible cost a fleet of these facilities will charge, if the government is committed to the project in the long-term, it could become a lucrative investment which in turn increases government revenues and grows the ministerial budget. This can be seen in Sweden whereby the country takes in 1.9 million tons of waste per year from other European countries in return for $100 million a year[13]. The success Sweden has had by adopting this modernized waste management system has meant it has a deficit of waste, struggling to fill its plants to full capacity.

[12] Punch, '$150m waste-to-energy plant to begin in Lagos', 2021
[13] Sieg, 'How Sweden sends just 1% of its trash to landfills', 2022

7. Recommendation and Justification:

7.1. We recommend the government to adopt the second policy option as it can have an immediate effect on the level of waste reduction in Nigeria. Furthermore, the rollout of a newly packaged recycling programme engages with multiple stakeholders which is what's needed for long-term societal change towards waste management. The third policy option is associated with incredibly high costs and rests too firmly on the assumption that people will shift their waste from their usual "door to door" or communal collection facility to a high-tech, further-distanced waste-to-energy facility. Keeping business-as-usual is statistically shown to sustain incredibly low recycling rates, lead to public health concerns and illegal dumping.

Bibliography

All about Berlin, 'The Pfand System: How to return bottles in Germany', n.d.

Ahmed et al., 'Waste Management Regulations Enforcement: Lead Way to a Healthy Environment in Nigeria', 2022

Ayodele, 'Nigeria's waste management policy yields little gains', 2022

Averda, 'South Africa beats Europe in recycling rates', n.d.

Environmental performance index, 'Waste Management', n.d.

Machete, 'A review of factors associated with indiscriminate dumping of waste in eleven African countries', 2016

Nwosu et al., 'A review of solid waste management strategies in Nigeria', 2020

Ogutu et al., 'Recycling Gap, Africa's Perspective for Sustainable Waste Management', 2023

Punch, '$150m waste-to-energy plant to begin in Lagos', 2021

Sieg, 'How Sweden sends just 1% of its trash to landfills, Reasons to be Cheerful', 2022.

Sogbanmu, 'Plastic pollution in Nigeria is poorly studied but enough is known to urge action', 2023

The Guardian Nigeria News, 'Anambra government spends N1.58B on waste disposal in 10 months', 2021

Yakubu, 'The waste management system in low income areas of Jos, Nigeria', 2017