Addressing the Plastic Waste Problem in Nigeria

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ABSTRACT

Nigeria is experiencing a concerning plastic pollution problem. One that is causing significant environmental damage, from the imbalance created in the oceans and the erosion of biodiversity to its outright influence on pollution, public health, and climate change. With a population of about 200 million and a projected 400 million people by 2050, it is imperative that the issue of plastic and its management is front burner. The country is estimated to generate an average of 2.5 million tonnes of plastic waste annually, with its commercial capital, Lagos, generating 870,000 annually. These numbers are a major cause for concern, especially as the ubiquity of plastic waste is steadily growing, with no directed measures to curb the increase.

This policy brief discusses the plastic waste problem and current national policies in place to address the issue. It also provides recommendations for where these policies could go to tighten and more directly engage with the issue of plastic waste management in Nigeria, paying attention to economic efficiency and environmental protection.

Background

The challenge of plastic is a real issue in the drive toward sustainable development. The ability to use resources with consideration for the next generations. As defined by the Brundtland Commission, the ability to use resources considering the next generations necessitates stakeholders engaging differently with the environment to ensure a world is left behind. Though lofty, addressing these environmental issues is a major global challenge. In developing countries, the pressure is a lot more aggravated, as weak infrastructure, poor policy implementation, and a consistent lack of resources make adequate sustainable consideration of the environment difficult. And yet, the adverse effects of environmental unsustainability have been proven to disproportionately affect developing countries more negatively due to poor mitigation and adaptation processes.

Plastic waste is a significant environmental concern described as an emerging environmental pollutant (EEP) (Yalwaji et al., 2022) that has the potential to disrupt life on land (SDG15) and life in water (SDG14). Plastics is the name given to a group of polymeric materials made from fossil fuels, including crude oil. In their production, different chemical materials are added to change the strength, texture, and/or cost of producing this ubiquitous source of packaging material.

Of all the different types of plastics produced, Polyethylene terephthalate (PET) and High-density Polyethylene (HDPE) are widely recycled. The other types are trickier and, in some cases, can only be used once, after which they exist in the environment as a non-biodegradable element.

Plastics that are not bio-degraded are either left on land to pollute the soils or find their way into the oceans, where they continue to pollute the water for animals in the oceans. Currently, there are different sizes of plastic pollution found in the soil, water and air. Ranging from nanoplastics to microplastic. Nanoplastics have been observed in the air and could portend significant dangers for humans and animals where they are breathed (Morales et al., 2022). Microplastics are more regularly found in fresh and saltwater bodies, sometimes seeping into drinking water sources like boreholes, especially in developing countries.

Nigeria, with a population of about 200 million people, as of 2010 stood as the ninth largest contributor to plastic waste, contributing 830,000 metric tons of mismanaged plastic waste to the oceans (Jambek et al., 2015). This number is predicted to geometrically rise with increasing population, rural-urban migration, and failing infrastructure. The negative externalities from poor plastic waste disposal could be immense if not adequately addressed through infrastructural development, innovative thinking from businesses, and individual awareness and action. Driving this will require significant policy influences to guide a previously unguided sector of the economy. There has been at least one attempt at addressing the plastic waste problem at the sub-national level in Lagos state through the Lagos State Environmental Protection Agency (LASEPA), which has attempted to tackle the issue of plastic pollution through a policy that bans single-use plastics, pet bottles, and others. This policy's application is, however, limited by a myriad of factors (LASEPA 2022), including a lack of capabilities to fully enforce, measure and track its progress. There are significant opportunities to more effectively apply the environmental waste policy to the broader Nigerian environment. For example, there is currently no national policy banning single-use plastics like those used in the popular pure water sachets found ubiquitously in the country.

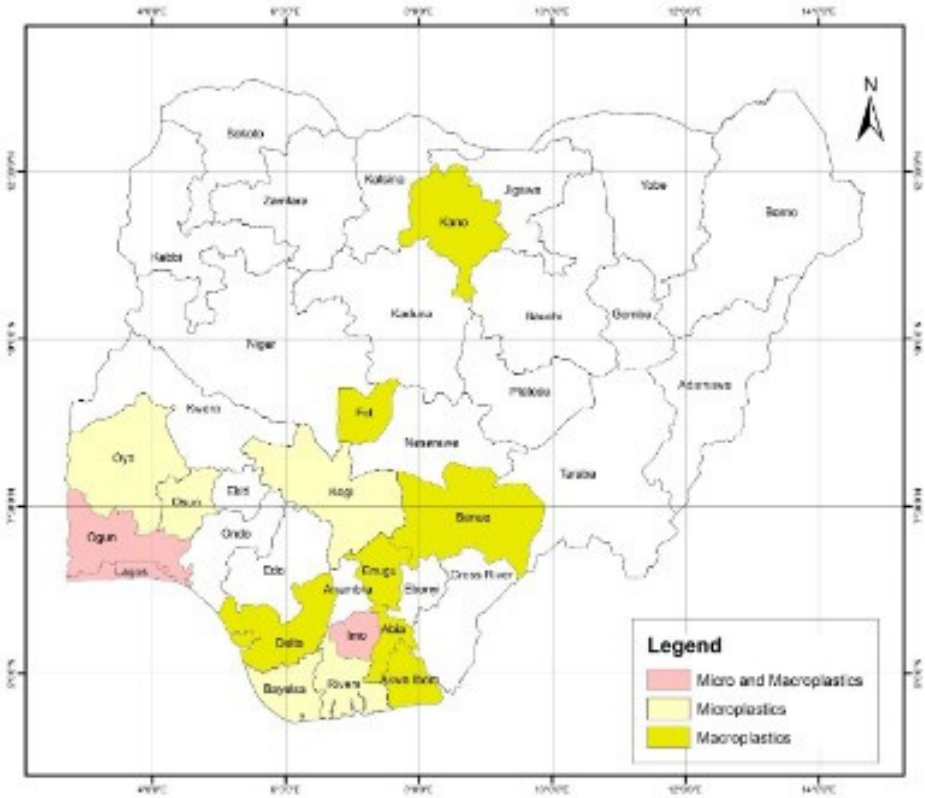
One of the biggest challenges with single-use plastics is that they cannot be reused or recycled. This means they continue accumulating and finding their way into waterways, rivers, and oceans. This is corroborated by the fact that in Nigeria, only 12 percent of the total plastic produced and imported is recycled (Yalwaji et al., 2022). The consequence of this proliferation of poor plastic disposal is that livelihoods can be significantly affected, either by the increased flooding of urban communities due to blocked drainages or the outright health implications for Nigerians living in polluted areas. In some cases, microplastics have been found in drinking water collected from boreholes (Kaufmann, 2022). Though the current research on the health risks of microplastics is inconclusive (WHO, 2019), there is a great deal of trepidation as to what the research might uncover. Figure 1 indicates the incidences of micro and macro plastic pollution in Nigeria. It is important to recognize that there is a paucity of data in Nigeria on the issues of plastic waste (Yelwaji et al., 2022), so the blank states (white) in the figure are due to unavailable data.

A Spotlight on Lagos

Lagos state, as just one of the 36 states in Nigeria, is the commercial centre, with approximately 22 million inhabitants generating an average of 870,000 tonnes of plastic waste yearly (Dania, 2022). This makes Lagos state, a coastal city, the highest contributor to the plastic waste epidemic in Nigeria. Most Lagos state residents dispose of their plastic waste indiscriminately and without any knowledge of the externalities that could arise from their poor disposal habits. Private sector actors have taken the initiative to tackle plastic waste removal and recycling but are too few to create a real impact on the sector.

Similarly, there is also a lack of adequate waste management infrastructure to encourage proper plastic waste disposal. As a result, most residents do not see the need to separate the different types of waste they collect, dumping biodegradables and non-biodegradables into one bin or discarding them indiscriminately on the streets.

FIGURE 1: MAP OF MICRO AND MACRO PLASTIC DISTRIBUTION IN NIGERIA



SOURCE: YALWAJI, JOHN-NWAGWU & SOGBAMU 2022

Plastic pollution in Nigeria, especially Lagos, leaves many gaps to be filled, especially in terms of a deeper dive into its impact on agricultural soil, air, plants, animals, and socioeconomics. The evidence for land-based sources indirectly polluting water bodies and the oceans is a cause for concern (Sogbanmu, 2022). The direct and indirect implications of this plastic pollution problem can be observed as more communities have become vulnerable to flooding due to blocked drainages, air pollution has also become worse due to the incineration of plastics and other waste at landfills, and ocean wildlife continues to suffer from plastic, and microplastic pollution from the beaches and other waterways that lead into the ocean, which is further exacerbated by floods due to the impact of climate change. Formal plastic waste collectors who work in partnership with the state government through the Lagos State Waste Management Agency (LAWMA) are too few to effectively collect and separate all the domestic waste generated in the state.

Plastic waste collection in Lagos state is largely ineffective, and most plastic waste, when collected, ends up in landfills and becomes hazardous to the environment as these landfills are poorly managed. These landfills are also home to thousands of waste pickers and scavengers who make a living from rummaging through the waste to collect plastic products, which they, in turn, sell for cash. These waste pickers do not operate in a safe manner and are sometimes physically injured and exposed to deadly diseases. Furthermore, the demand for plastic packaged water products is exacerbated by poor potable water infrastructure in the state. It is reported that 80 percent of Lagos residents do not have access to the public potable water supply because the government lacks the water distribution infrastructure to supply the water demanded (Joseph, 2022). The over-reliance on alternatives for drinking water sources for a state with an estimated population of 22 million and rising has seen an increasingly high demand for plastic packaged water.

Current Policies on Plastic Waste Management and Disposal in Nigeria

The journey to a circular economy is one that Nigerian policymakers have been travelling on. In 2019, a bill seeking to ban the use of plastic in the country was passed, though it has not been signed into law (Okpoko, 2022). In 2020, the Nigerian government approved the plastic waste management policy. The policy was designed to drive sustainable uses of plastic throughout its life cycle (UNIDO, 2022). The policy seeks to ban single-use plastics, ensure that all plastic packaging can be recycled, set recycling targets for plastic at local, municipal, state, and national levels, and extend producer responsibility (EPR) (UNIDO, 2022).

In 2021, Nigeria joined the Global Plastic Action Partnership (GPAP) of the World Economic Forum to address the issues of plastic pollution at a regional African level. In 2022, with support from the United Nations Industrial Development Organisation (UNIDO), a project to promote sustainable plastic value chains through circular economy practices was embarked upon with the country's Ministry of Environment. The project is worth about USD 1.9 million and is set to run till 2025.

The Plastic Waste Problem in Nigeria

To deepen our understanding of the plastic problem in Nigeria, this section presents a dual perspective that interrogates the transformational system and the market failure view.

It is noteworthy that the plastic problem persists due to transformational system failures. Transformational system failures occur when agencies responsible for policymaking do not harmonize their policy goals to address burning issues in the state.

Evidence from Nigeria's plastic waste journey signals a willingness by policymakers to address the issues of plastic waste. However, many issues limit the desires of these efforts. In Lagos state, the Lagos State Environmental Protection Agency (LASEPA) has attempted to tackle the issue of plastic pollution through a policy that bans single-use plastics, but this is continually limited by poor implementation and weak buy-in from stakeholders like businesses. In this instance, there is a transformational system failure between the policy design and the implementation team. There is also no evidence of policy coordination between the agency and the Lagos Waste Management Agency (LAWMA), which is responsible for handling and disposing of all waste in the state.

A transformational systems approach requires both agencies to coordinate at the policy level for transformational change (Weber & Rohracher, 2012). Anecdotally, it is observed that the Lagos state ban on single-use plastics is only implemented within the premises of the Lagos State Environmental Protection Agency. There is no enforcement of this ban among producers and consumers.

Furthermore, it is argued that producers do not make adequate investments in environmentally friendly initiatives or consider using sustainable alternatives, and consumers are not inclined to use sustainable alternatives or recycle plastic waste (likely because they are unaware of the hazards involved). There is also no requirement for either of these stakeholders (Individuals and businesses) to invest in or seek more sustainable alternatives that protect the environment. Our assessment of the landscape is that government agencies are interested in improving the status quo, but the efforts have not produced the desired results.

From an economic point of view, it has been determined that another issue with addressing the plastic problem is the problem of market failures. Market failures occur when an actor within the market can significantly influence the prices or quantity of goods bought or sold. In relation to shared resources, they occur when there are shared resources where no one actor takes responsibility for the resource's efficient management. These market failures arise due to split incentives, negative environmental externalities, and information asymmetries.

Split Incentives occur when plastic producers have little incentive to cut production/importation and distribution of their products as the competition is high and they are profit-driven. Consumers also have little incentive to use sustainable alternatives to plastic-packaged products like water and beverages and will continue to rely on what is readily available.

Negative Environmental Externalities occur when plastic pollution creates a negative externality as plastic packaging companies do not bear the socioeconomic costs of plastic pollution. They are also not inclined to use more sustainable packaging options for their products as plastics are cheaper than the more sustainable alternatives (Green, 2022).

On the consumer side, there is evidence of indiscriminate disposal of plastic waste, ultimately causing plastic pollution. This leads to a negative environmental externality, a negative impact from the production and consumption of a product on a third party (the environment) that did not consent to the initial transaction (Tejaswini et al., 2022).

In the case of information asymmetry, consumers are not fully aware of the role they play in contributing to the plastic pollution epidemic as they have little knowledge about the environmental impact of plastic waste pollution, such as contributions to global climate change, threats to ocean wildlife and biodiversity, and the health risks to communities. On the other hand, producers are not compelled to share this information as it could lead to a drop in demand from the consumer.

To conclude our submission on the plastic waste problem, two core issues have been identified:

- Companies use Polyethylene Terephthalate (PET) and single-use plastics for their packaging because they are cheap, lightweight, resilient, usually non-reactive, waterproof, and sometimes recyclable (Ritchie, 2018). No taxes specifically target the state's production and distribution of plastic packaged goods. These companies do not consider the social and environmental cost of plastic pollution, leading to a reduction in social surplus. These companies pay the regular business tax like other privately owned businesses.
- Household disposal of plastic waste is not regulated, so plastics are disposed of together with other solid waste. Over 88 percent of plastic waste in the state is not recycled (Babayemi et al., 2018). Most households also lack sufficient knowledge about plastic pollution's environmental impact but ultimately suffer from its side effects.

Policy Recommendations

Our recommendation for the plastic problem takes a more systemic approach, recognizing that addressing the issues of plastic waste does not end at the delivery of the policy. Key stakeholders, like producers and consumers, also need to be adequately informed, incentivized, and empowered to make the right decision for the broader environment. Two goals and the associated impact categories against which we will evaluate the policy alternatives will be used. The goals are (1) to increase economic efficiency and (2) to protect the environment. On the economic efficiency side, our impact categories are to maximize environmentally friendly investments by producers, minimize the cost of effective plastic waste disposal and increase the number of consumers with access to sustainable alternatives. For environmental protection, our impact categories are to increase awareness of the environmental and socioeconomic impact of plastic pollution in the state, increase the number of plastic wastes separated and collected at the household level, and increase consumer plastic waste recycling incentives.

SSome of the suggested policy alternatives include:

- **Plastic Packaging Tax:** The first policy alternative this policy brief suggests is introducing a tax on plastic packaging components like resins. This tax will be imposed on the producers/importers of plastic packaging components. This tax aims to encourage the use of recycled materials in packaging and reduce the amount of plastic waste generated in Lagos. It is hoped that the tax will incentivize companies to switch to more sustainable packaging materials and reduce their carbon footprint. This policy also hopes to encourage companies to lead a "reduce, reuse, and recycle" approach that ensures higher recycling opportunities are created. Companies will need to register for this tax if they expect to produce/import more than 10 tonnes of plastic packaging components (resins) in a month. This policy is active in the UK, but it is too early to tell if it has succeeded.

Nigeria is the third largest producer of plastic resins in Africa after South Africa and Egypt (Babayemi et al., 2019) and the sole resin producer in West and Central Africa, producing 486 kt and 498 kt of resin in 2018 and 2019, respectively (World Bank, 2022). However, the country imports most plastics, amounting to $1.7 billion in 2019, including net imports of all key plastics resins (UN Comtrade, 2019). This makes Nigeria the continent's second largest importer of resins, with almost two-thirds of its virgin resin demand being met through imports. In 2018 and 2019, Nigeria's conversion industry processed 1,094 kt and 978 kt of resin, respectively. The tax amount will be charged per ton of resins produced or imported. One of the drawbacks of this policy will be the administrative cost of implementation, and the government agency will need to dedicate a team that will design an implementable strategy. This policy has some measure of political feasibility as the government will generate a new revenue stream from the tax and create new job opportunities. This policy will also see an increase in innovation among producers and importers of plastic package products as they seek to reduce their taxes by pivoting to more non-taxable sustainable alternatives. Consumers will also have sustainable alternatives and reduce their patronage of more expensive plastic packaged products.

A plastic pollution tax that targets producers and importers will improve economic efficiency because companies will invest in reducing their overall costs to maximize their producer surplus. Consumers will seek to maximize their consumer surplus and not patronize products that have increased prices. Also, reducing the amount of plastic package waste produced and consumed will lead to lower waste management costs in the state and reduce the administrative pressures on the waste management agency.

With this tax policy, producers and importers will be forced to consider utilizing more sustainable packaging options to avoid paying the plastic tax. This will significantly reduce the number of plastic packages that constitute solid waste in the state and improve environmental protection, also, consumers will be less willing to purchase products whose prices have increased because of the tax. This will reduce the overall number of plastic products that end up as mismanaged waste. The increase in sustainable alternatives will be attractive to consumers as these should come at a lower cost due to a lack of tax on them.

Policy Recommendations

Furthermore, the Nigerian Ministry of Environment is keen to address the issues of plastic pollution and concurrently increase their sources from taxable opportunities. It is recognized that such a tax policy might not be entirely welcomed by some stakeholders, for example, the Manufacturers Association of Nigeria (MAN) and the Importers Association of Nigeria (IMAN). These strong interest groups will need to be effectively and adequately managed through stakeholder engagement activities.

- **Improvement of the Nigeria Policy on Plastic Waste Management:** The third policy alternative is to conduct a countrywide campaign to educate consumers on the dangers of plastic pollution to public health, the environment, and global climate change. The campaign will also provide information on sustainable alternatives to plastic use. Producers will be compelled to share information about proper disposal methods for plastic waste on their products through a product information sticker. Traditional and social media campaigns should be conducted yearly to increase and sustain sensitization. This awareness campaign should increase consumer sensitivity and shape consumer behaviour.

However, it may not improve economic efficiency significantly as the producers/importers might see this as a corporate social responsibility that does not impact significant costs on their business bottom line. Producer behaviour may remain unchanged. This campaign must also be sustained over a long period to see changes in consumers' attitudes to plastic package goods. Without the infrastructure to support plastic waste collection and separation, consumers will continue to trash their plastic waste indiscriminately.

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Conclusion

This policy brief presents a landscape of the plastic problem in Nigeria and policy recommendations to continue to address the problem, cognizant of the fact that addressing plastic waste pollution, like other sustainability issues, requires consistency and continuity. In conclusion, plastic pollution is a global threat that continues to destroy the oceans' biodiversity, increase greenhouse gas emissions, and seriously threaten public health and the environment. The scale of its impact is massive, and no one policy can fix them all. It is therefore important to consider how a healthy mix of various policies can help achieve a plastic-healthy planet.

REFERENCES

Babayemi, J. O., Ogundiran, M. B., Weber, R., & Osibanjo, O. (2018). Initial Inventory of Plastics Imports in Nigeria as a Basis for More Sustainable Management Policies. Journal of health & pollution, 8(18), 180601. https://doi.org/10.5696/22156-9614-8.18.1

Dada, O. (2022, August 31). Waste pickers in Lagos tell their stories about a dangerous existence. The Conversation. https://theconversation.com/waste-pickers-in-lagos-tell-their-stories-about-a-dangerous-existence 188621#:~:text=We%20believe%20in%20the%20free%20flow%20of%20information &text=Lagos%2C%20Nigeria's%20economic%20hub%2C%20with,city's%20four%20officially%20designated%20landfills.

Dania, O. (2022, July 4). Lagos generates 870,000 tonnes of plastic waste yearly. The Punch News Online. https://punchng.com/lagos-generates-870000-tonnes-of-plastic-waste-yearly-firm/

Green, L. (2022, October 14). Is Sustainable Packaging More Expensive In 2022? Easyship. https://www.easyship.com/blog/is-sustainable-packaging-more-expensive

Jambeck, JR, et al. (2015). Plastic waste inputs from land into the ocean. Science, 347(6223): 768–771. https://doi.org/10.1126/science.1260352

Joseph, AE. (2022 March 13). Over 80% of Lagosians lack access to public water supply – Report. Envrion News Nigeria. https://www.environewsnigeria.com/over-80-of-lagosians-lack-access-to-public-water-supply-report/

Kaufmann, L. (2022 May 18). Microplastics are rife in drinking water of West Africa's largest city. https://www.bloomberg.com/news/articles/2022-05-18/plastic-fragments-pollute-drinking-water-in-west-african-city#xj4y7vzkgLASEPA, (2022, February 12).

LASEPA launches ban on single use plastic, PET bottles, others. Lagos state Environmental Protection Agency. https://www.lasepa.gov.ng/ban-on-single-use-plastics/

Morales, A.C., Tomlin, J.M., West, C.P. *et al (2022).* Atmospheric emission of nanoplastics from sewer pipe repairs. *Nat. Nanotechnology*. **17,** 1171–1177 https://doi.org/10.1038/s41565-022-01219-9

REFERENCES

Okpoko, M. (2022, March 14). The negative impact of plastic in Nigeria: The need for a legal framework. https://www.greenpeace.org/africa/en/blogs/50697/the-negative-impact-of-plastic-in-nigeria-the-need-for-a-legal-framework/#comments

Ritchie, H. (2018, September 02). FAQS on Plastics. Our World in Data. https://ourworldindata.org/faq-on-plastics#are-plastic-alternatives-better-for-the-environment

Tejaswini, M. S. S. R., Pathak, P., Ramkrishna, S., & Ganesh, P. S. (2022). A comprehensive review on integrative approach for sustainable management of plastic waste and its associated externalities. Science of The Total Environment, 825, 153973. https://doi.org/10.1016/J.SCITOTENV.2022.153973

UNIDO (2022). Report on promoting sustainable plastic value chains through circular economy practices. UNIDO 210184

UN comtrade database (2019). http://comtrade.un.org

Weber, K. M., & Rohracher, H. (2012). Legitimizing research, technology and innovation policies for transformative change: Combining insights from innovation systems and multi-level perspective in a comprehensive 'failures' framework. Research Policy, 41(6), 1037–1047. https://doi.org/10.1016/J.RESPOL.2011.10.015

World Bank. (2022, October 5). Nigeria Plastic Country Brief. The West and Central Africa Programme. https://www.wacaprogram.org/knowledge/nigeria-plastic-country-brief

Yalwaji, B., John-Nwagwu, H.O. & Sogbanmu, T.O. (2022). Plastic pollution in the environment in Nigeria: A rapid systematic review of the sources, distribution, research gaps and policy needs, Scientific African, 16. https://doi.org/10.1016/j.sciaf.2022.e01220.

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