

Environmental Impact of Nonbiodegradable Management in Nigeria

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Abstract: Non-biodegradable waste in Nigeria include: plastic, synthetic rubbers, e-waste, glass polyethylene, scrap metals like aluminum, zinc, iron, electronic devices, computer parts, batteries, medical waste. But the most poorly managed of these wastes are plastic, e-waste, and scrap metals. Inadequate management of these wastes lead to land and water pollution; increased the risk of excessive flooding from clog drains, atmospheric carbonization, land degradation. Legislative intervention was made to enhance management of nonbiodegradable waste In Nigeria. Inspect of these laws and policies, non-biodegradable wastes are poorly managed due to lack of adequate funding, corruption, and poor infrastructural development.

This paper finds that nonbiodegradable are not properly managed, thus, usually dumped in open drains, bushes, streets, walkways and litter outside homes. The paper also finds that the most prevalent method of Management of waste in Nigeria including policy is by burning, dumping in open drain and landfills, recycling is still in its infancy.

I. Introduction

In Nigeria, non-biodegradable waste includes various materials such as plastic, e-waste, and glass polyethylene. These materials can't be degradable through natural means. Other types of waste include medical waste, batteries, electronic devices, and scrap metals.

Most of the time, the improper management of e-waste, plastic, and scrap metals leads to water and land pollution. This can also cause flooding from storm drains. Fossil fuels used to make plastic bags and electronic devices are known to contaminate the oceans and kill marine life.

In Nigeria, various legislative initiatives have been enacted to improve the management of non-biodegradable waste. Some of these include the 1999 Constitution of the country the National Environmental Standards and Regulations Enforcement Agency (Amendment Act) 2018, the regulations of the National Environment Management Agency. Other regulations include the amendments of the Environment Impact Assessment Act 1992, the Harmful Waste Prevention and Control Act 2004, and the Paris treaty.

Unfortunately, the policies and laws in Nigeria do not effectively address the issue of managing non-biodegradable materials. This paper aims to investigate the country's non-biodegradable waste systems and its environmental impact. It will also suggest ways to improve the recycling of plastic, electronic waste, and scrap metals in the country.

According to this paper, the improper disposal of non-biodegradable materials such as plastic bags and e-waste has a negative effect on the country's environment. It also found that the majority of the country's waste is still managed through burning dumping in open drain and landfills, recycling is still in its infancy.

The improper disposal of non-biodegradable materials has a negative effect on the country's environment. It also found that the lack of effective waste management has contributed to the increasing levels of land degradation and climate change. Despite the country's laws and regulations, the implementation of these regulations has been hampered by the lack of proper funding and infrastructure development.

This paper recommends that instead of discarding them, or using them once, re-using or recycling them can help reduce the risk of pollution. It also noted that proper monitoring and enforcement of policies and laws are needed to ensure that the country's waste management is carried out properly.

The Concept of Waste

The sixth edition of Oxford's Advanced Learners Dictionary¹ defines waste as two broad categories: "Not use well" and "Not good use." The former pertains to activities or things that are not good for their intended use or are not valued properly.

In this paper, we will discuss the terms waste and economically unusable. According to Nigel,² in order to be considered a waste, something must be economically useless, which means that it has lost the monetary value attached to it.

¹ Wehmeier, S Oxford Advanced Learner's Dictionary {Sixth Edition}, Oxford: Oxford University Press. (2001),

² Akinwale A Waste Management in Nigeria Local Governments,(paper presented at the International Conference on Energy, Environment and Disasters INCEED, Charlotte, N.C, USA- July 24-30 2005),

In his book, Talichi Ohno³ defined waste as any activity that doesn't create value for the resources it takes. He also stated that human activity that only takes in resources without giving something back is considered waste. Based on this concept, the debate over what point an item should be considered a waste has already started.

This paper aims to follow the European Union's Waste Framework Directive⁴, which states that after a substance or object has been turned into waste, it will remain that way until it has been recovered and can no longer threaten the environment or human health. In other words, anything that's thrown away or handled as if it were waste will be regarded as such unless there's a proven scientific reason for it⁵

Biodegradable and Non-biodegradable waste

Biodegradable

A biodegradable material is something that can be decomposed by microbes or other organisms and is less contributory to the pollution in the environment. It can be degraded by various factors such as temperature and oxygen⁶.

Non-biodegradable

According to Ebeleke E⁷., Non-biodegradable waste management systems cover all actions that seek to reduce the negative impacts on health, environment and economy.

According to Atsegbua L.A & et al⁸, nonbiodegradable waste management does not just end at collection, transporting processing, recycling or disposal and monitoring of wastes materials but refers to the collection, keeping, treatment and disposal of wastes in such a way as to render them harmless to human and animal life, the ecology and environment generally. In other words, the primary aim of managing wastes is for the safety of human, animal, ecology and environment. We could as well add here that any other aim that goes in contrary to the aims mentioned above does not constitute waste management.

Management of Nonbiodegradable Waste in Nigeria

In Nigeria, non-biodegradable waste includes various materials such as plastic, electronic waste, and glass polyethylene. These materials can't be degradable through the natural process. Besides plastic, other non-biodegradable wastes include medical waste, e-waste and scrap metals. Unfortunately, the management of these wastes is not good.⁹

In Nigeria, burning and dumping of non-biodegradable waste are the most common methods of managing waste. This poor management has led to various issues such as land degradation and flooding. The burning of waste contributes to climate change.¹⁰

Despite the numerous laws and policies aimed at regulating the management of waste in Nigeria, the implementation of these laws and regulations has been hampered by various factors.

As a country that is a signatory to the Paris Agreement on climate governance, Nigeria has the opportunity to play a role in reducing the environmental impact of its waste. However, its attitude toward managing its waste has not changed.

The country's population grew at an average annual rate of 2.37 from 2000 to 2017¹¹. This can be attributed to the country's rapid urbanization and industrialization. Unfortunately, the lack of proper waste management has led to various issues.¹²

In 2019, it was estimated that the country's largest city, Lagos, generated over a million tonnes of solid waste. This is a huge amount of waste that the country's urban administrators are not able to handle adequately. According to estimates, the country's domestic waste is expected to reach about 100 million tonnes annually.¹³

³ Wikipedia, the Free Encyclopedia (2010). http://en.wikipedia.org/wiki/waste_management/file. Retrieved 04/02/2020

⁴ Burnhar P., Structural Functionalism. <http://www.answers.com/library/politicaldictionary-cid-5115667>. Retrieved 15/02/2020

⁵ ibid

⁶ Cave, S.S "Leaner production. Cutting waste by design". United Nations Environmental Programs (UNEP) Our planet, The magazine of UNEP, vol 2, N0.4 (1990).

⁷ Ebeleke E. COVID 19: we've addressed unprofessional conduct at Gudu cemetery – FG(2020). Retrieved on April 21, 2020 from:<https://www.vanguardngr.com/2020/04/covid-19-weve-addressed-unprofessional-conduct-at-gudu-cemetery-fg/>.

⁸ Atsegbua, L.A, et al, Environmental Law in Nigeria, Theory and Practice. (Lagos: Ababa Publishers. 2003),

⁹ NESRA , Guidelines and standard for environmental pollution in Nigeria, Federal Ministry of Environment, Lagos. (2018).

¹⁰ Obafemi, a a; Eludoyin, o s; Skinbosola, b m, Public Perception of Environmental Pollution in Warri, Nigeria, Journal. Applied. Science. Environ. Manage. Sept., Vol. 16(2) (2012) 233 - 240

¹¹ <https://www.indexmundi.com/g/g.aspx?c-ni&v-24>. Accessed 29 September 2022

¹² Onyenwe, T. E Effects of non-biodegradable wastes on agricultural productivity in Imo state, Nigeria. An unpublished M.Sc. thesis in the Department of Agricultural Economics, federal University of Technology, Owerri. (2006)

¹³ Eneh, O. C. Managing Nigeria's environment, The unresolved issues. Journal of Environmental Science and Technology, 4 (2011) (3): 250-63.

The management of solid waste is a global issue that is considered by both international and national authorities. Although the volume of waste does not necessarily determine the issue, the inability of various entities, such as governments and private firms, to effectively manage it is.

In Nigeria, waste is routinely disposed of without any control. In fact, only about 50% of the country's solid waste is collected. Due to the lack of proper systems for solid waste management, many urban areas have resorted to open dumping.¹⁴

In most urban communities, a system is in place to allow waste management officials to collect refuse from residents on a regular basis. Despite the various administrative checks that have been implemented to address the issue of domestic and industrial ties, the increasing volume of waste still poses a threat to the ecosystem.¹⁵

In developing countries, solid waste is a type of garbage that comes from factories and households. It can be classified as household waste, industrial waste, and street waste. Aside from blocking the streets, it also poses various health hazards and aesthetic issues.¹⁶

Non-biodegradable waste, which includes plastic and synthetic rubbers, are commonly generated in Nigeria. However, the most problematic types of waste are e-waste, scrap metals, and plastic.¹⁷

The improper disposal of e-waste and plastic bags has been linked to various issues, such as land and water pollution. Fossil fuels are required to produce these products, which then end up in the oceans, where they kill marine life.¹⁸

The increasing volume of non-biodegradable waste produced by households across Nigeria has highlighted the need for effective waste management strategies. Unfortunately, there is currently no system in place that allows residents to properly dispose of their garbage.¹⁹

Uncontrolled use and disposal of non-biodegradable waste can result in air, water, and land pollution. These effects will be studied in subsequent chapters.

Global Trend in E-Waste Management

The amount of electronic waste (E-waste) produced and the toxic and valuable materials it contains are becoming an increasing issue worldwide. In 1994, it was reported that around 20 million computers had become obsolete. In 2010, it was estimated that over 150 million of these machines were already obsolete.

The global market for electronic waste has continued to grow over the past two decades. In the US, for instance, the number of communication devices sold in 2003 was less than 80 million, and by 2008, it had reached 152 million.

In 2006, around 34 million televisions were sold in the market. Also, around 24 million computers and 140 million portable electronic devices were manufactured. In 2009, the European Union had approximately 3.8 billion electronic devices on the market. These included various consumer electronic appliances and computers.

In China, approximately 48 million televisions and 20 million refrigerators were sold in 2001. The rapid turnover of electronic goods has become a major issue. Due to the rapid pace of technological change, most gadgets only have a lifespan of about two to three years.

In the past 10 years, Apple has sold over 300,000 new smartphones every day. In addition, over 150,000 Blackberries have also been sold. These newer devices end up in municipal landfills or a draw. Around 700,000 Android phones have also been activated.²⁰

¹⁴ Isirimah, N.O. Understanding the Nature, Properties and Sources of Wastes for Quality. (Tom and Harry Publications Ltd, Port Harcourt, Nigeria. 2018) pp.19-22.

¹⁵ Binali, A. Y. An appraisal of the legal and institutional framework for waste management in kano state, an unpublished master's project submitted to the postgraduate school. Ahmadu Bello University: Zaria- Nigeria. (2017).

Constitution Federal Republic of Nigeria (as amended) 1999, National Environmental Sanitation and Wastes Control) Regulations 2009, National Environmental(Food, Beverages and Tobacco Sector) Regulations 2009, National Environmental (Textile, Wearing and Apparel, Leather and Footwear Industry) Regulations 2009, National Environmental Standards and Regulations Enforcement Agency (Amendment Act) 2018, Environmental Impact assessment Act 1992, Harmful Waste (Special Criminal Provision) Act 2004, and the Paris Agreement 2015

¹⁶ Obafemi, a a; Eludoyin, o s; Skinbosola, b m, Public Perception of Environmental Pollution in Warri, Nigeria, Journal. Applied. Science. Environ. Manage. Sept., Vol. 16(2) (2012) 233 - 240

¹⁷ Cave, S.S "Leaner production. Cutting waste by design". United Nations Environmental Programs (UNEP) Our planet, The magazine of UNEP, vol 2, N0.4 (1990).

¹⁸ NESRA , Guidelines and standard for environmental pollution in Nigeria, Federal Ministry of Environment, Lagos. (2018).

¹⁹ Flores

¹⁹ Flores M.C., Plastic materials and environmental externalities: Structural causes and corrective policy. Lethbridge Undergraduate Res. Journal (2018) 3(2).

²⁰ ibid

Due to the toxic components found in electronic products, many countries have already banned the disposal of E-waste. This issue was raised in the 1990s due to concerns about the potential health effects of these products. In addition to being harmful to the environment, the levels of dioxin found in electronic waste samples have been linked to various health problems.²¹

Surveys have shown that a lot of exported electronic goods end up in developing nations, where they pose a threat to the environment and human health. This issue has already been reported in Asia, and the impact it has on the health of the people in other regions is expected to be significant. E-waste recycling and disposal has also been growing in various regions, especially in Africa.²²

According to Dagle A and Kelly S²³, the paradigm has shifted toward disposable electronics, which has led to a growing Environmental Crisis.

Environmental Impact of Nonbiodegradable Waste

Studies have shown²⁴ that the improper disposal of non-biodegradable waste such e-waste, plastic bags, and scrap metals has become a major issue in Nigeria. This is why it is important that the government and private sectors work together to address this issue. The most common method of managing waste in the country is by burning. However, recycling is still very early in its development.

Not managing waste properly has led to various issues such as land degradation and flooding. This issue is also a major contributor to climate change. In addition, improper disposal of used protective equipment can increase the transmission of COVID-19 by contaminating the environment.

Non-biodegradable waste can cause a loss of energy and materials, which can increase the environmental costs of the society²⁵. The improper disposal of e-waste and plastic bags has also highlighted the issue of contamination of the environment. This issue can affect the agricultural sector and other industries.^{26,27}

Due to their resistance to degradation, non-biodegradable materials are considered to be a major concern for the environment. Although they have various positive attributes, the administration of plastics has a lot of issues with them. Due to their stable nature, they are known to contribute to the pollution of the environment. In addition, synthetic plastics are known to cause harmful chemicals to the human body.

The plastic industry is a vital part of the global economy, but the release of wastewater effluents from this sector is a major issue. Their presence can lead to various issues, such as the development of objectionable odor emissions and the degradation of the groundwater and surface. This can affect the health and well-being of the local residents and aquatic life.²⁸

The release of harmful chemicals into the soil and groundwater from chlorinated plastics and e-waste can occur as groundwater and water sources come into contact with these materials. Due to the presence of numerous microorganisms in landfills, the degradation of plastic waste can be carried out.

The degradation of plastic waste leads to the release of methane. The impact of medical waste and plastic pollution on the marine environment is severe. The plastic industry's wastewater effluents are characterized by various parameters such as pH, COD, suspended solids, and turbidity.²⁹

The majority of plastic waste and e-waste found in the ocean are not biodegradable. They are harmful to the environment as they can't decompose easily and are ingested by marine animals. In the digestive tract of these aquatic creatures, the plastic particles can persist and cause various issues, such as decreased gastrointestinal secretion, decreased feeding stimuli, and a reduction in their steroid hormone levels.

²¹ Dagan R, Dubey B, Bitton G, Townsend T. Aquatic toxicity of leachates generated from electronic devices. *Arch Environ Contam Toxicol*. 2007; 53:168–173. doi: 10.1007/s00244-006-0205-1. [PubMed] [CrossRef] [Google Scholar]

²² Dagan R, Dubey B, Bitton G, Townsend T. Aquatic toxicity of leachates generated from electronic devices. *Arch Environ Contam Toxicol*. 2007; 53:168–173. doi: 10.1007/s00244-006-0205-1. [PubMed] [CrossRef] [Google Scholar]

²³ *ibid*

²⁴ Thompson RC, Moore CJ, vom Saal FS, Swan SH. Plastics, the environment and human health: current consensus and future trends. *Phil Trans R Soc B. Biol Sci* 2009; 364:2153–66. Search in Google Scholar

²⁵ Hayden KW, Jaimys A, Russell JC, Elena PI. Plastic degradation and its environmental implications with special reference to poly (ethylene terephthalate): Search in Google Scholar. *Polym* 2017;5(1):1–18.

²⁶ *ibid*

²⁷ Anthony LA, Mike AN. Applications and societal benefits of plastics. *Phil Trans R Soc Lond B Biol Sci* 2009; 364:1977–84. Search in Google Scholar

²⁸ ouhrada L. Reusables revisited as medical waste adds up. *Hospitals Journal* 1988;62(20):82. Search in Google Scholar

²⁹ Jefferson H, Robert D, Edward K. Plastics recycling: challenges and opportunities. *Phil Trans R Soc B* 2009; 364:2115–26. Search in Google Scholar

Due to the emergence of the COVID-19 pandemic, the disposal of plastic and medical waste has been carried out through incineration. This process generates various hazardous air pollutants, such as carbon dioxide and polyaromatic hydrocarbons. Persistent organic compounds, which are known to contribute to the pollution of the environment, are also known to be emitted through the incineration process.³⁰

High concentrations of organic pollutants are also found in the ocean in the form of plastic particles. Some of the toxic chemicals that can be found in this waste include polychlorinated biphenyls, nonylphenols, and organic pesticides.

These compounds pose a threat to both human and wildlife health. They can induce various health conditions, such as breast cancer, diabetes, and endocrine disruption. They can also cause developmental delays, growth abnormalities, and neurological impairments.³¹

The various chemicals found in plastic materials can be categorized into different classes depending on their type. The main reason why these items have become so versatile is due to the expansion of their chemical constituents. A few of these can be absorbed by the human body.

It is not yet clear how many people are affected by the chemicals found in plastic materials. Some of the compounds used in the generation of these products can cause skin irritation. In spite of this, the dangerous components of plastic are only occasionally tested to ensure that they are contained inside the material.

In addition, exposure to plastic particles can also affect the human body. In a study conducted on the effects of plastic degradation on the environment, the researchers noted that ocean accumulation is a major issue.

One of the most common types of plastic materials used in the production of products is PET, which is a non-biodegradable material. This material can cause various environmental issues due to its accumulation in the environment.

The disposal of plastic through various methods, such as recycling, landfill, and incineration, has varying disadvantages and drawbacks.³²

Environmental emissions from landfill sites are mainly due to energy consumption of the equipment used, as well as environmental protection systems (leachate treatment plants) and landfill gases from decomposing organic waste³³.

The principal gaseous emissions from the anaerobic decomposition of waste in landfill sites are methane, hydrogen sulfide, ammonia, and carbon dioxide³⁴ guides biogenic carbon is part of the natural carbon balance, and it will not add to atmospheric concentrations of carbon dioxide. Thus, carbon dioxide emissions due to landfilling of food scraps, yard trimmings, and paper were not considered to be an environmental load since it is biogenic.

Electronic products are a complex mixture of several hundred tiny components, many of which contain deadly chemicals³⁵. These chemicals are a strain on human health and the environment. Most of the components in electronic devices contain lead, cadmium, mercury, polyvinyl chloride (PVC), brominated flame retardants (BFRs), chromium, beryllium etc., TVs, video and computer monitors use CRTs, which have significant amounts of lead and the long term exposure to these substances can damage the nervous system, kidney and bones and the reproductive and endocrine systems and some of them are carcinogenic.

These e-wastes will have long lasting effects on the environment, when improperly disposed (incinerated/land filled instead of recycling) with domestic waste, without any controls, can contaminate the soil, water and air. EEEs are made of a multitude of components, some containing toxic substances that have an adverse impact on human health and the environment if not handled properly³⁶.

Long-term exposure of synthetic materials to air, water & sunlight cause the release of highly toxic pollutants that can leach into water supplies. Moreover, over time these nonbiodegradable materials oxidize & give out poisonous copper salt that pollute the

³⁰ Anthony LA, Mike AN. Applications and societal benefits of plastics. *Phil Trans R Soc Lond B Biol Sci* (2009) 364:1977–84. Search in Google Scholar

³¹ Andersen, I. Marine litter and the challenge of sustainable consumption and production (2020). Retrieved from <https://buff.ly/2DEKl nR> on February 13, 2021

³² Farah, M. A. Y., Chow.; Discarded coronavirus masks clutter Hong Kong's beaches, trails (2020). Retrieved from <https://buff.ly/2wduB nW> February 13, 2021

³³ Baumann, H., and Rydberg, T. "Life cycle assessment; A comparison of three methods for impact analysis and evaluation." *Journal Cleaner Prod.*, 2-1, 13–20. (2016)

³⁴ IPCC 1997 Greenhouse gas inventory reference manual: Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 3, 6.28.

³⁵ Jomova K, Jenisova Z, et al: "toxicity, oxidative stress and human disease". *Journal Appl Toxicol.* 2011;31(2):95–107. [PubMed] [Google Scholar]

³⁶ Gupta RK. E-waste recycling and health effects: a review. Centre for Education and Communication-Working Paper; 2007. http://cec-india.org/images/stories/pdf/CECWork_paper/e_waste_report.pdf. [Google Scholar]

land & enter the food chain. These toxins are carcinogenic that can cause severe harm to the metabolism of living organisms after they are absorbed. Their consumption can even prove to be fatal for a large number of species including Homo sapiens.

Use of nonbiodegradable waste such as plastic, e-waste and scrap metals use has been linked to climate change and other environmental threats³⁷.

Proportion of food waste in open dumps and waste drains are providing an attractive shelter for rats. It was also reported that these rats are spreading disease, damaging electrical cables and other materials in the study area. The open burning of collected plastic and medical waste causing air pollution issues in Nigeria³⁸.

Uncollected solid wastes from few locations in the cities are degrading the urban environment and discouraging efforts to keep streets and open spaces clean. Discarded polythene bags in collected solid waste from Nigeria are generating an aesthetic nuisance and they may also cause the death of grazing animals which eat them³⁹.

Due to a lack of health and safety facilities to the waste collection crew in Nigeria, they are specifically facing occupational hazards, including strains from lifting, injuries from sharp objects and traffic accidents. Open body trucks are being used for the collection of solid wastes in Nigeria without covers. This practice is totally unhygienic. Heavy nonbiodegradable waste collection vehicles are causing significant damage to the road. Different segregated solid waste materials, such as plastic bottles and medical supplies, are not being properly cleaned or sterilized by local scavengers.⁴⁰

During rainy seasons, produced leachate from the open dumped sites is causing serious pollution to water bodies.

In Nigeria, Various Legislation Aims to Regulate the Concept of Non-Biodegradable Waste Management.

As a party to various international treaties, Nigeria is able to participate in the control of hazardous waste transportation and disposal. Some of these include the Montreal Protocol, Basel Convention⁴¹, and the Paris Agreement on Climate Change.⁴² The implementation of the 3R framework for managing non-biodegradable waste is part of the country's efforts to achieve a greener economy.

The Paris Agreement's National Determined Contribution (NDC) is a set of voluntary pledges made by parties to the agreement to cut their emissions and reach the 1.5c target. Article 4 of the agreement provides that parties should prepare and maintain their NDCs.⁴³

Citizens can hold their government accountable through the NDCs. In line with the global trend toward managing waste effectively, Nigeria has also pledged to meet the Paris Agreement's target.⁴⁴

The country's NDC demonstrates its commitment to address the effects of climate change and reduce its emissions. If fully executed, it will help reduce Nigeria's greenhouse gas emissions by about 50%. This is an important step toward establishing a low-carbon economy and tackling the country's non-biodegradable garbage management challenges.

The country's environmental protection framework is based on Section 20 of its Constitution.

In addition to the NDCs, Nigeria also has various laws and regulations that regulate the management of its environment. These include the establishment of the NESREA, which acts as the country's enforcement agency for environmental matters. Other regulations include the Plastic Bag Ban Bill of 2019.

The NESREA Act is a major law that governs the country's environmental matters. It provides for solid waste management and imposes penalties on those who violate the procedures and practices of proper disposal.

The Act is administered by the FMEHUD. The agency also established under the law is responsible for enforcing the regulations.

The Minister of Environment is also responsible for making regulations that comply with the Act's statutory functions.

³⁷ ibid

³⁸ Edoga, M.O.; Onyeji, L.I.; Oguntosin, O.O. Achieving vision 20: 2020 through waste produce candle. *J. Eng. Appl. Sci.* 2008, 3, 642-646.

³⁹ ibid

⁴⁰ <https://www.france24.com/en/20181220-eu-officials-agree-ban-single-use-plastics-sea-pollution> (accessed 2 October 2019)

⁴¹ Basel Convention (1989)

⁴² The United Nations Framework Convention on Climate Change (14 June 1992).

⁴³ <https://medium.com/climatewed/knownyourndcs-understanding-the-ndcs-an-overview-of-the-nigerian-perspectives-by-chiagozie-9d4bf1c7ced2> accessed March 11, 2021

⁴⁴ By Chiagozie Udeh, KnowYourNDCs: Understanding the NDC's: An Overview of the Nigerian Perspectives —ICCDI AFRICA ICCDI (2007).

All of the regulations that are required to be implemented by the government are geared toward improving the nation's environmental quality. Some of these include the National Environmental Control (Surface and Groundwater) Regulations, the National Environmental Control (Sanitation) Regulations, and the National Environmental Control of Forest Fires and Open Burning Regulations.

In order to ensure that businesses and industrial facilities are operating in compliance with the country's environmental laws, NESREA issues various permits. Some of these include the Air Quality Permit, the Toxic Substances Control Permit, and the Eco-Guard Certification.

II. Conclusion and Findings and Recommendation

Conclusion

This paper concludes that if nonbiodegradable waste is to be properly manage in Nigeria, to enhance environmental health, proper monitoring, and enforcement of laws and policies must be prioritised

The most poorly managed of Nonbiodegradable wastes are plastic, e-waste, and scrap metals. Inadequate management of these wastes lead to land and water pollution; increased the risk of excessive flooding from clog drains.

The fossil fuel required to produce plastic bags and e-wastes as well as their accumulation in the oceans, which both poisons the water and leads to the death of marine animals.

Findings

The paper finds that nonbiodegradable waste such as plastic bag, e-waste, and scrap metals are not properly managed, thus, usually dumped in open drains, bushes, streets, walkways and litter outside homes.

The paper also finds that the most prevalent method of Management of waste in Nigeria including policy is by burning, dumping in open drain and landfills, recycling is still in its infancy. Such poor management of nonbiodegradable waste has led to excessive flooding, land degradation, atmospheric carbonization from waste burning which is a major driver of climate change.

This paper further found that, despite the existence of laws and policies guiding waste management in Nigeria, weak implementation, poor practices, lack of adequate funding, corruption, and poor infrastructural development have limited the efficiency of the regulatory intervention compared to contrast Kenya and India.

Recommendation

This paper contributes that when nonbiodegradable waste such as plastic, e-waste and scrap metals if re-used or recycled for the packaging of other goods, or disinfecting and rebranding them again for use instead of the present trend of using them once and discarding them reduces the risk of environmental pollution.

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