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LAWS AND POLICIES ON PLASTIC WASTE MANAGEMENT: HOW FAR NIGERIA?

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Abstract

Waste generation and management is a part of life and a part of living that cannot be ignored or wished away. The relationship between environmental health, management of waste and the wellbeing of man has been well emphasized in literature to the effect that the wellbeing of man and that of the general environment depend greatly on how well and adequately the issue of waste is managed in the environment. The environment plays a critical and decisive role in the survival, sustenance, development and the general wellbeing of all living things on earth. To this end, the protection of the environment is a non-negotiable and a fundamental issue. In most countries across the globe, a healthy environment translates into a healthy populace, this is evident in the pride of place accorded environmental issues, policies and laws. Good health on the other hand, being a state of general wellbeing remains an illusion where the wellbeing of the environment is compromised. The reality of the foregoing makes the protection and the preservation of the environment a crucial mandate. Waste generation and disposal has been identified as a major and common factor in environment pollution. Wastes are in different forms, the most notable being gaseous, liquid and solid. Plastic waste is a part of municipal solid waste. Of recent, the demand for plastic wares has been on the increase because of the advantages that it has over other modes of packaging. The crucial issue however, is that when plastic waste is indiscriminately disposed, it causes much havoc. The paper examined the available laws and policies on management of plastic wastes in Nigeria and recommends way forward.

Keywords: Plastic, Waste, Legislation & Policy.

1. Introduction

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Nwosu and others described municipal solid waste as wastes that are usually produced from human settlements, small industries, and commercial activities.[2]Arafat and others in their research also defined municipal solid wastes as solid wastes from homes, streets and public places, shops, offices, and hospitals are referred to as municipal solid waste (MSW).[3] All these wastes produced from human settlements, small industries, and commercial activities contain a host of diverse items including plastics. In a research carried out on the rate of generation and composition of commercial solid waste in Phnom Penh city, Cambodia, it was discovered that solid commercial waste in the city consists of 56.70% (biodegradable), 19.32% (plastic), 14.84% (paper), 8.14% (inorganics), 1.25% (textiles & shoes), 0.25% (rubber/leather), and 0.01% (wax), while at kg/cap/day, internet cafés generate 1.31, restaurants,1.04, beer gardens,0.84, guesthouses, 0.51, hotels, 0.33, markets-family marts, 0.23, ministries, 0.19, council of ministers, 0.13 and stores-phone, grocery and small cloth shops, 0.11.[4] Also it has been discovered that domestic, residential or household waste may be hazardous, non-hazardous, biodegradable and non-biodegradable.[5] In a study carried out at Accra it was discovered that 93.1% of households dispose food debris as waste while 77.8% dispose of plastic materials as waste.[6]These wastes are disposed in the same manner either in open dumping, open burning, incineration, unregulated land-fills, composting, and dumping into drain channels, streams and rivers which have all been described as the popular means of waste management in Nigeria.[7] Ikpeze confirmed this when he revealed that most patronized methods for the citizens of Nigeria in managing their solid waste remains open dumping, incineration method, landfills which are not regulated, compositing, dumping into streams, rivers and drainages.[8] The side effects of these improper methods of solid waste management include climate change, photochemical reactions, abiotic depletion, global warming, water contamination, water bodies' blockage, soil and air pollution, communicable and non-communicable diseases.[9] Facts equally abound to show that high leakage from landfills has negative effects on soils, plants, groundwater, aquatic organisms, and, subsequently, human health,[10] and that field investigation meteorological and hydrogeological analyses show that ground water close to landfills are usually contaminated by nitrate, by nitrite, heavy metals, arsenic, hexavalent chromium especially where the land fill does not have an anti-seepage system.[11]

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[2] Nwosu, Agnes Ogechukwu, Chukwueloka, Henry Emeka, 'A Review of Solid Waste Management Strategies in Nigeria' (2020) 10(6) Journal of Environment and Earth Science 132 <https://www.iiste.org/Journals/index.php/JEES/article/view/52982>

[3]Hassan A. Arafat, Issam A. Al-Khatib, 'A review of residential solid waste management in the occupied Palestinian Territory: A window for improvement?' (2009) Waste management & research : The journal of the International Solid Wastes and Public Cleansing Association, ISWA <https://www.researchgate.net/publication/40035806_A_review_of_residential_solid_waste_management_in_the_occupied_Palestinian_Territory_A_window_for_improvement> accessed 10 July 2021.

[4] Yim Mongtoeun, Takeshi Fujiwara, Sour Sethy 'A Study of Commercial Solid Waste Generation and Composition in Phnom Penh City, CAMBODIA' (2014) 4Journal of Natural Sciences Research 49 <https://www.researchgate.net/publication/264084303_A_Study_of_Commercial_Solid_Waste_Generation_and_Composition_in_Phnom_Penh_City_CAMBODIA> accessed 11 July 2021.\

[5]Rezaul Karim, Nabila Nawshin, 'Characteristics of Household Solid Waste and its Management Options in the Urban Areas, Jessore, Bangladesh' (2012) 3(9) International Journal of Science and Research 4 <https://www.researchgate.net/publication/265851704_Characteristics_of_Household_Solid_Waste_and_its_Management_Options_in_the_Urban_Areas_Jessore_Bangladesh> accessed September 2014.

[6]Ramatta Massa Yoada, Dennis Chirawurah&Philip Baba Adongo, 'Domestic waste disposal practice and perceptions of private sector waste management in urban Accra' (2014) BMC Public Health volume <https://bmcpublichealth.biomedcentral.com/articles/10.1186/1471-2458-14-697>accessed 10 July 2021.

[7]Nnamdi Ikpeze, 'Safe Disposal of Municipal Wastes in Nigeria: Perspectives on a Rights Based Approach' (2014) 3(1) Institute for Oil, Gas, Energy, Environment and Sustainable Development (OGEES), Afe Babalola University, Nigeria <https://www.ajol.info/index.php/jsdlp/article/view/122616 > accessed 11 July 2021.

[8] Nnamdi Ikpeze, 'Safe Disposal of Municipal Wastes in Nigeria: Perspectives on a Rights Based Approach' (2014) 3(1) Institute for Oil, Gas, Energy, Environment and Sustainable Development (OGEES), Afe Babalola University, Nigeria <https://www.ajol.info/index.php/jsdlp/article/view/122616 > accessed 11 July 2021.

[9] Ifeoluwa OB, 'Harmful Effects and Management of Indiscriminate Solid Waste Disposal on Human and its Environment in Nigeria: A Review' (2019) 6(1) Global Journal of Research and Review <https://www.imedpub.com/articles/harmful-effects-and-management-of-indiscriminate-solid-waste-disposal-on-human-and-its-environment-in--nigeria-a-review.php?aid=23977>

[10]Harshit Mishra, Subhankar Karmakar, Rakesh Kumar , Jitendra Singh 'A Framework for Assessing Uncertainty Associated with Human Health Risks from MSW Landfill Leachate Contamination' (2017) 37(7) Risk Analysis <https://pubmed.ncbi.nlm.nih.gov/27664078/> accessed 11 July 2021.

[11]Dan Zeng , Guanyi Chen , Peng Zhou, Hui Xu , A Qiong , Bu Duo , Xuebin Lu , Zaimin Wang , Zhiyong Han , 'Factors influencing groundwater contamination near municipal solid waste landfill sites in the Qinghai-Tibetan plateau' (2021) Ecotoxicology and Environmental Safety<https://pubmed.ncbi.nlm.nih.gov/33493721/> accessed 12 July 2021.

In a survey carried out in Warsaw, Poland, diseases like psychological problems, digestive tract disorders and respiratory disorders as well as allergic symptoms are discovered as potential health effects of waste site-related environmental exposures.[12] Relationship has also been established between reproductive problems (including congenital anomalies and low birth weight) and people living close to dump sites and reproductive problems.[13]Open dumping of solid wastes indiscriminately apart from being a physical nuisance, also serves as breeding grounds for bacterias, rodents and dangerous insects. [14] This was confirmed by Taiwo when he stated that improper disposed wastes also breed germs that are spread by flies, they equally breed mosquitoes and rats that spread typlius, salmonella, leptospirosis among others.[15] In a study carried out at Umuahia municipal area in Abia State at Umuahia gate, Upstair line, Ahia Eke, New Timber gate, Government College first gate to determine among others the health impact of indiscriminate dumping around the area it was discovered that disease like malaria, chest pains, diarrhea and cholera are rampant among the residents close to the dumps.[16] It has also been established that people who live near disposal sites are infested with gastrointestinal parasites, worms, and related organisms.[17]The health effects of live parasites in improperly disposed medical wastes have also been discussed. These live parasites cause parasitic infections such as pathogens, meningitis, skin infections, candida, bacteremia, hepatitis B and hepatitis C.[18] Other negative effects of improperly disposed medical solid waste (some of which are disposed in plastic syringes, hand gloves) are dengue, AIDS, Japanese encephalitis, tick fever etc. and are known to cause air, water and land pollution which in turn resort to severe diseases.[19] Equally wastes dumped in waters and streams during rainfall, harbor insects that cause communicable diseases like dengue, malaria and yellow fever among others that can lead to early death if medical attention is not sought immediately.[20] Other serious consequence of waste washed or dumped into water areinfectious diseases,endemic zoonotic diseases,[21]offensive odors.[22] Chemicals like VOCs, methane, ammonia, and hydrogen sulphide were detected in the air around a landfill site used for disposal of

[12]J E Zejda , D Jarosińska, M Biesiada, J Łaczyński, B Jaźwiec-Kanyion, R Złotkowska, M Muszynska,'Results of the health survey of a population living in a vicinity of a large waste site (Warsaw, Poland)' (2000) 8(4) Central European Journal of Public Health <https://pubmed.ncbi.nlm.nih.gov/11125980/> accessed 11 July 2021.

[13]Melanie Kah , Len Levy, Colin Brown, 'Potential for effects of land contamination on human health.. The case of waste disposal sites' (2012) 15(7) Journal of Toxicology and Environmental Health, Part B <https://pubmed.ncbi.nlm.nih.gov/23190269/> accessed 11 July 2021.

[14]Queen Ozohu Sadiq, Cyril Kanayochukwu Ezeamaka, Ali Williams Butu, 'Municipal Solid Waste Disposal and Its Environmental Implications in Wuse Zone 5, Federal Capital Territory, Abuja, Nigeria' (2018) 6(6) International Journal of Environmental Protection and Policy <http://www.sciencepublishinggroup.com>

[15]Adewole, A. Taiwo,'Waste management towards sustainable developmentin Nigeria: A case study of Lagos state' (2009) 4(4) International NGO Journal 173 <http:// www.academicjournals.org/INGOJ>

[16]Ndukwe VA, Uzoegbu MU, Ndukwe OS, Agibe AN, 'Environmental and Health Impact of Solid Waste Disposal in Umuahia and Environs, Southeast, Nigeria' (2019) 23(9) Journal of Applied Sciences and Environmental Management <https://www.ajol.info/index.php/jasem/article/view/190425 > accessed 11 July 2021.

[17] Adebola A. Adeyi and Adewale M. Adeyemi, 'Potential Occupational Health Effects of Municipal Solid Waste Management in Nigeria, The Case of Lagos and Ibadan' (2019) 21(2) Ife Journal of Science. <https://www.ajol.info/index.php/ijs/article/view/188396>

[18]Dawn Connelly, 'Improperly disposing of medical waste can cause the following diseases' <https://allpointsmedicalwaste.com/diseases-caused-medical-waste/> accessed 11 July 2021.

[19]Dhote Jayashree Dipak, 'Review on the diseases caused due to improper handling of Biomedical Waste' (2016) 4 International Research Journal of Science and Engineering 98
<https://www.researchgate.net/publication/315797005_Review_on_the_diseases_caused_due_to_improper_handling_of_Biomedical_Waste> accessed 11 July 2021.

[20]<https://www.gorillabins.ca/blog/health-issues-due-to-improper-waste-disposal/ >accessed 11 July 2021

[21]Karija M.K., Shihua Q.I, Lukaw Y.S., 'The impact of poor municipal solid waste management practices and sanitation status on water quality and public health in cities of the least developed countries: The case of Juba, South Sudan.' (2013) 3(4) International Journal of Applied Science and Technology 87
<http://www.ijastnet.com/journals/Vol_3_No_4_April_2013/11.pdf>

[22]Mohamed F Hamoda,'Air pollutants emissions from waste treatment and disposal' (2007) 41(1) Journal of Environmental Science and Health, Part A 87
< https://www.tandfonline.com/doi/abs/10.1080/10934520500298895> accessed 16 August, 2021.

solid wastes in Kuwait.[23]In another development, Haseena and others cited WHO report to the effect that 80% of diseases are water borne.[24]

Plastics are affordable, handy, easily accessible and can be used as packs and containers for almost everything. The demands for plastics has become enormous and the cause of the increase in demand, usage and eventual high level of generation of plastic wastes has been alluded to the growth in economy, departure from old methods of consumption and production patterns.[25] In fact 'plastics have malformed everyday life; usage is increasing, and annual production is likely to exceed 300 million tons by 2010.'[26] Today plastics and polythenes are in high demand than any other product, everybody use and dispose products made of plastics every day either in the courses of drinking bottled or sachet water, ordering for meals in take away packs, etc. For instance, market bags, shoes, packs, buckets, bottles, shoes, electric wires packings, eating bowls, spoons, shopping bags, kegs, trays, rain coats, toys etc. Even drinks that used to be in glass bottles are now bottled in plastics. Research revealed that components of plastics are mainly of synthetic organic polymers nature,[27] this was further confirmed by Alabi and others when they stated that plastics are made up of petrol-based polymer,[28] Ashaq Dar, in his own contribution submits that plastics are 'synthetic materials produced from synthetic or semi-synthetic organic polymers derived from petro-based chemicals, able to displace traditional natural polymeric materials (wood, stone, ceramics, etc.),'[29]The implication of this is that plastics by virtue of it's components and compounds, are bio-degradable and non-decomposable and do not easily disintegrate even with years, they do not decay and in this case they continue to constitute harm to the environment. There is no intellectual research which has condemned the use of plastics and polythene bags, rather it is the way and manner in which they are disposed that calls for serious attention. Alabi and others reported that plastic wastes are often disposed in the same manner as other wastes not withstanding the fact that plastics contain antimony trioxide, brominated flame retardants, phthalates, bisphenol A (BPA), poly-fluorinated chemicals.[30]

Commenting on the manner of disposal of plastic wastes, Kehinde and others submits the usual practices include plastic bottles and containers being thrown on the ground, thrust out of vehicles, hipped around narrow passages or blown away by wind which litter the surroundings and subsequently pollute the immediate ecosystem. This continuous piling up of plastic waste products is

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[23]Mohamed F Hamoda,'Air pollutants emissions from waste treatment and disposal' (2007) 41(1) Journal of Environmental Science and Health, Part A 87
<https://www.tandfonline.com/doi/abs/10.1080/10934520500298895> accessed 16 August, 2021.

[24]Mehtab Haseena, Muhammad Faheem Malik, Asma Javed, Sidra Arshad, Nayab Asif, Sharon Zulfiqar and Jaweria Hanif,'Water pollution and human health' (2017) 1(3) Environmental Risk Assessment and Remediation <https://www.alliedacademies.org/abstract/water-pollution-and-human-health-7925.html> accessed 16 August 2021.

[25]Olawale Olugbenga Olanrewaju,Damilola Oyebade , 'Environmental Menace of Plastic Waste in Nigeria: Challenges, Policies and Technological Efforts'(2019) Conference: Transition Pathways To Sustainable Development Goals: Integrated Landscape Approach, Economic Well Being And Inclusive Climate Resilience At: Akure, Ondo State, Nigeria. Plastic Recycling and Reusabiliy Project
<https://www.researchgate.net/publication/335989265_Environmental_Menace_of_Plastic_Waste_in_Nigeria_Challenges_Policies_and_Technological_Efforts> accessed 11 January 2022

[26] Javid Manzoor Ashaq Dar 'Plastic-Waste-Environmental-and-Human-Health-Impacts' in Khursheed Ahmad Wani, Lutfah Ariana and S.M. Zuber (eds) Handbook of Research on Environmental and Human Health Impacts of Plastic Pollution (IGI Global, 2020) 29 <https://www.researchgate.net/publication/338749809_Plastic-Waste-Environmental-and-Human-Health-Impacts> accessed 11 July 2021.

[27] Abdul-lateef Agberemi, 'Plastic Pollution and Nigeria's Waste Management Regime: An Environmental Security Analysis' (2020) 14(6) Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT) <https://www.iosrjournals.org/iosr-jestft/papers/Vol14-Issue6/Series-3/C1406031217.pdf> accessed 11 January 2022.

[28] Okunola A Alabi, Kehinde I Ologbonjaye, Oluwaseun Awosolu and Olufiropo E Alalade, 'Public and Environmental Health Effects of Plastic Wastes Disposal: A Review' (2019) 5(1) Journal of Toxicology and Risk Assessment <https://clinmedjournals.org/articles/ijtra/international-journal-of-toxicology-and-risk-assessment-ijtra-5-021.php?jid=ijtra> accessed 11 January 2022.

[29] Javid Manzoor Ashaq Dar 'Plastic-Waste-Environmental-and-Human-Health-Impacts' in Khursheed Ahmad Wani, Lutfah Ariana and S.M. Zuber (eds) Handbook of Research on Environmental and Human Health Impacts of Plastic Pollution (IGI Global, 2020)29 <https://www.researchgate.net/publication/338749809_Plastic-Waste-Environmental-and-Human-Health-Impacts> accessed 11 July 2021.

[30] Okunola A Alabi, Kehinde I Ologbonjaye, Oluwaseun Awosolu and Olufiropo E Alalade, 'Public and Environmental Health Effects of Plastic Wastes Disposal: A Review' (2019) 5(1) Journal of Toxicology and Risk Assessment <https://clinmedjournals.org/articles/ijtra/international-journal-of-toxicology-and-risk-assessment-ijtra-5-021.php?jid=ijtra> accessed 11 January 2022.

becoming a serious global environmental challenge and threat the ecosystem. Research shows that about 10 percent by weight of municipal solid waste content are plastics as plastic waste occupies about 90% of the three populous rivers in the world and is known to be responsible for the death of 20–30% of marine life.[31]They further identified types of plastics to include thermosetting plastics, thermoplastics, synthetic plastics, semi synthetic plastics and natural plastics,[32] and recommended recycling as the best way to manage plastic wastes,[33] because of its economic and environmental advantage.

Odogwu equally observed that plastics in Nigeria are currently discarded in ways that are harmful and potentially hazardous to man and his environment. The million tonnes of plastic that litter our streets, clog up our rural and urban drains leading to flooding incidents, contaminate the soil affecting farmers and livestock's, and littering the oceans every year threatening biodiversity and human health, when openly burnt on dumpsites inadvertently releasing dioxins and furans thus increasing public health challenges and greenhouse gas emission.[34]

This actually projects the findings of several scholars who have conducted researches on the menace of plastic wastes and the severe implications. Further research shows that, polyethylene and other plastic types actually form a high percentage of solid waste in Nigeria. Plastic pollution has been linked to global food insecurity, health issues in humans, death of sea birds, death of animals and other ills.[35] The foregoing warrants that they should be more stringent laws to manage plastic waste in view of its effect on health and the environment.

2. **National Policy on Management of Plastic Wastes**:

An environmental policy can be described as a public policy which is framed and enforced in a State for ensuring the well-being of the environment.[36] The objective of national environmental policy is said to include 'ensuring the protection of the environment and conserving natural resources towards sustainable development for sustainable development.'The strategic objective is to coordinate environmental protection and natural resources conservation for sustainable development.[37]The United Nations Environment Programme (UNEP) advocates the fact that the focus of an environmental policy must include population, energy, agriculture and health.

Some environmental policies in Nigeria includes the National Policy on Erosion and Flood Control, National Policy on the Environment 1989,[38] National Policy on Environment 1999, National Policy of Environmental Sanitation, 2005, National Policy on Municipal & Agricultural Waste Management, 2012 and National Policy on Solid Waste Management, 2018.The National Policy on the Environment of 1989 was premised on the sustainable development theory. The goals are enumerated as:

(a) To secure for all Nigerians a quality of environment adequate for their health and wellbeing;

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[31]O. Kehinde,O.J. Ramonu, K.O. Babaremu,and L.D. Justin'Plastic Wastes: Environmental Hazard And Instrument For Wealth Creation In Nigeria' (2020) 6(10) Heliyon <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7530290/> accessed 30 March 2022.

[32] O. Kehinde, O. J. Ramonu, K.O. Babaremu, and L.D. Justin 'Plastic Wastes: Environmental Hazard and Instrument for Wealth Creation in Nigeria' (2020) 6 (10) Heliyon <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7530290/> accessed 30 March 2022.

[33] O. Kehinde, O. J. Ramonu, K.O. Babaremu, and L.D. Justin 'Plastic Wastes: Environmental Hazard and Instrument for Wealth Creation in Nigeria' (2020) 6 (10) Heliyon <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7530290/> accessed 30 March 2022.

[34] Greg Odogwu, 'Nigeria's solid waste management policy' Punch Newspaper, June 17 2021 <https://punchng.com/nigerias-solid-waste-management-policy/> Accessed 11 January 2022.

[35] Abdul-lateef Agberemi, 'Plastic Pollution and Nigeria's Waste Management Regime: An Environmental Security Analysis' (2020) 14(6) Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT) <https://www.iosrjournals.org/iosr-jestft/papers/Vol14-Issue6/Series-3/C1406031217.pdf> accessed 11 January 2022.

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[36] E I Wonah, 'The State, Environmental Policy and Sustainable Development in Nigeria' (2017) 5(3) Global Journal of Arts, Humanities and Social Sciences 25 <https://www.eajournals.org/wp-content/uploads/The-State-Environmental-Policy-and-Sustainable-Development-in-Nigeria.pdf> accessed 11 January 2022.

[37] National Policy on the Environment (Revised 2016) (2016) Permanent Secretary, Federal Ministry of Environment <https://leap.unep.org/countries/ng/national-legislation/national-policy-environment-revised-2016 > accessed 11 January 2022.

[38] Emmanuel I. Wonah, 'The State, Environmental Policy and Sustainable Development In Nigeria' (2017) 5(3) Global Journal of Arts, Humanities and Social Sciences 25 <https://www.eajournals.org/wp-content/uploads/The-State-Environmental-Policy-and-Sustainable-Development-in-Nigeria.pdf> accessed 11 January 2022.

(b) To conserve and use the environment and national resources for the benefit of present and future generations;
(c) To restore, maintain and enhance the ecosystem and ecological processes essential for functioning of the biosphere to preserve biological diversity and the principle of optimum sustainable yield in the use of living natural resources;
(d) To raise public awareness and promote understanding and essential linkages between environment and development and to encourage individual and community participant in environmental improvement efforts; and
(e) To co-operate in good faith with other countries, international organizations/agencies to achieve optimal use of trans-boundary natural resources and effective prevention or abatement of trans-boundary environmental pollution.[39]

In July 2020, the Federal government of Nigeria framed a Solid Waste Management Policy aimed at a healthy, cleaner environment for Nigerians. Pursuant to the foregoing, on the 10th day of May, 2021, the Federal Ministry of Environment in collaboration with the United Nations Development Organization developed the National Solid Waste Management Policy. However in 2021, the Federal Ministry of Environment initiated a separate national policy on management of plastic wastes. The aim is to mandate the reuse and recycling of plastic wastes.

While advocating for recycling of plastic waste, the Minister for the Environment, Muhammad Mahmood states 'in the past, the standard procedure was to produce, use and dispose of it. We can't continue to do that, knowing that plastics are very suitable for recycling or reuse. Plastic can be recycled to produce blocks, new plastics or pallets for lock production.'[40] The goals of the 2021 national policy on management of plastic wastes includes limiting the impact of littering of certain single use on the go plastic packaging product and waste materials in the Nigerian environment, reduction of plastic debris from land-based activities that becomes (atmospheric, terrestrial and aquatic) litter in line with respective environmental Conventions by 50% of its baseline figure of 2020 by year 2025, reduction of the global warming and greenhouse effects associated with plastic production through usage to its waste disposal by 60% by year 2030, phasing out single-use on the go plastic bags and styrofoam (Micron > 30µ) effectively by December 2028, banning of single use on the go plastic such as plastic bags, cutlery, styro foam, straws effectively from January 2025, transforming all plastic products, packaging materials and its waste to a resource, ensuring that all plastic packaging in the market meet at least two criterion of being recyclable or biodegradable or compostable or reusable by 2030, promotion of sustainable use of alternatives to single use plastics e.g. Jute bags, leaves, paper glass bottles etc from May 2020 among others.[41]

The policy has as its objectives the promotion of environmental protection, resource and energy-efficient circular plastics economy and enhancement of the conservation of natural resources through sustainable production and consumption of plastics, in line with the sustainable development objectives of the country, ensuring sustainable consumption and production patterns that recognize the environmental guiding principles, waste management hierarchy and supporting the setting of circular plastic economy in Nigeria including carbon offsetting, carbon emissions, reducing carbon footprint and benefiting from carbon credit financing.[42]

3. Legislations on Plastic Waste Management

The statutes for regulation of plastic waste are the same with those laws and regulations on management of solid waste and are available in several laws to wit: The Federal Environmental Protection Agency Act,[43] The Environmental Impact Assessment Act of 1992 (EIA Act)[44] Harmful

[39] Lawrence Atsegbua, Vincent Akpotaire and Folarin Dimowo, Environmental Law in Nigeria: Theory and Practice (Ababa press 2004) 65.
[40] Inès Magoum, 'Nigeria: the FEC Approves a New Law On Plastic Waste Management' (2020) Afrik 21<https://www.afrik21.africa/en/nigeria-the-fec-approves-a-new-law-on-plastic-waste-management/> Accessed 11 January 2022.
[41]National Policy on Management of Plastic Wastes.
[42]National Policy on Management of Plastic Wastes.
[43]The Federal Environmental Protection Agency was established in 1988 as a body corporate with perpetual succession and an integral part of the Presidency. It is the first agency of its kind in Nigeria. The responsibility of the Federal Environmental Protection Agency includes the protection and development of the environment and biodiversity conservation and sustainable development of Nigeria's

Waste (Special Criminal Provisions, Etc.) Act[45] National Environmental Standards and Regulations Enforcement Agency (Establishment) Act, 2007.[46] They also include National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulations S.1.9 of 1991, The National Environmental Protection Management of Solid and Hazardous Waste Management Regulations S.I.15 of 1991, Import Prohibition Act CAP 13 LFN 2004, National Environmental (Food, Beverages and Tobacco Sector) Regulations, S. I. No. 33 of 2009 Section 6 (3), National Environmental (Electrical/Electronic Sector) Regulations, S. I. No 23 of 2011 Section 8(4,5), National Environmental (Construction Sector) Regulations, S. I. No. 19 of 2011 Section Manufacturing/Recycling Industries Sector)Regulations, 2011,11(1a), National Environmental (Chemicals, Pharmaceuticals, Soap and Detergent Manufacturing Industries) Regulations, S. I. No. 36 of 2009 Section 6 (3), National Environmental (Domestic and Industrial Plastic, Rubber and Foam Sector)Regulations, S. I. No. 17 of 2011 Section 6(2), 7(3) and especially the National Environmental (Sanitation and Wastes Control) Regulation S.I.28 of 2009 which applies to issues in environmental sanitation and all categories of wastes.

The purpose of the National Environmental (Sanitation and Wastes Control) Regulation S.I.28 of 2009 is the adoption of sustainable and environment friendly practices in environmental sanitation and waste management to minimize pollution. Part 2 of the Regulation forbids anyone to discard, throw or drop any litter or any similar refuse in any other place other than in designated litter bins,[47] to this end, owners, operators, occupants, persons in care, management of control of premises are prohibited from allowing the release of litter into the environment,[48] while occupants and passengers in vehicles

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natural resources in general and environmental technology, including initiation of policy in relation to environmental research and technology. The Agency also prepares comprehensive national policy for the protection of the environment and conservation of natural resources, including procedure for environmental impact assessment for all development projects. It was repealed by Section 36 of the NESREA. Also Performance of FEPA in tackling and addressing emerging environmental issues was rated below expectation. This was further confirmed by Omofonmwan and Osa-Edoh in a field observation on environmental degradation. S. I. Omofonmwan, G. I Osa-Edoh, 'The Challenges of Environmental Problems in Nigeria'<https://www.tandfonline.com/doi/abs/10.1080/09709274.2008.11906054 >accessed 10 October, 2021.

[44] The Environmental Impact Assessment Act of 1992 (EIA Act) is an Act to set out the general principles, procedure and methods to enable the prior consideration of environmental impact assessment on certain public or private projects.

[45] The Harmful Waste (Special Criminal Provisions, Etc.) Act is an Act to prohibit the carrying, depositing and dumping of harmful waste on any land, territorial waters and matters relating thereto. This includes all activities relating to the purchase, sale, importation, transit, transportation, deposit, storage of harmful wastes.

By virtue of the Sections 1-3 of the Act, any person who, without lawful authority (a) carries, deposits, dumps or causes to be carried, deposited or dumped, or is in possession for the purpose of carrying, depositing or dumping, any harmful waste on any land or in any territorial waters or contiguous zone or Exclusive Economic Zone of Nigeria or its inland waterways; or transports or causes to be transported or is in possession for the purpose of transporting any harmful waste; or imports or causes to be imported or negotiates for the purpose of importing an harmful waste; or (d) sells, offers for sale, buys or otherwise deals in any harmful waste will be guilty of an offence under the Act.

The Act provides that if someone deposits or dumps the harmful waste, whether solid, semi-solid or liquid, in such circumstances, or for such period that he may be deemed-(a) to have abandoned it where it is deposited or dumped; or (c) to have brought it to the place where it is so deposited or dumped for the purpose of its being disposed of or abandoned whether by him or any other person, the person will be deemed to have deposited or dumped harmful waste under this Act.

[46]National Environmental Standards and Regulations Enforcement Agency (Establishment) Act, 2007 (NESREA) is an agency of the Federal Government of Nigeria established in 2007. By virtue of Sections 1 and 7, it is an Act to provide for the establishment of the National Environmental Standards and Regulations Enforcement Agency charged with responsibility for the protection and development of the environment in Nigeria and related matters.

The Agency is the enforcement Agency for environmental standards, regulations, rules, laws, policies and guidelines, it is a body corporate with perpetual succession and a common seal, and may sue and be sued in its corporate name. The Agency has responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources in general and environmental technology, including coordination and liaison with relevant stakeholders within and outside Nigeria on matters of enforcement of environmental standards, regulations, rules, laws, policies and guidelines.

The functions of the Agency as provided by the Act are:

(a) enforce compliance with laws, guidelines, policies and standards on environmental matters; [46]

(b) coordinate and liaise with stakeholders, within and outside Nigeria, on matters of environmental standards, regulations and enforcement;

(c) enforce compliance with the provisions of international agreements, protocols, conventions and treaties on the environment, including climate change, biodiversity, conservation, desertification, forestry, oil and gas, chemicals, hazardous wastes, ozone depletion, marine and wild life, pollution, sanitation and such other environmental agreements as may from time to time come into force;

(d) enforce compliance with policies, standards, legislation and guidelines on water quality, environmental health and sanitation, including pollution abatement;

(e) enforce compliance with guidelines and legislations on sustainable management of the ecosystem, biodiversity conservation and the development of Nigeria's natural resources;

(f) enforce compliance with any legislation on sound chemical management, safe use of pesticides and disposal of spent packages thereof;

[47] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 3(1).

[48] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 3(2).

are forbidden to throw or drop any litter onto the streets, roads, highways, public spaces and other undesignated places.[49] Vehicle owners are mandated to make available liter receptacle for use of occupants and passengers in their vehicles.[50] To further ensure filth free and generally clean environment, occupants in care, control, or management of premises or business are to keep the sidewalks and drainage areas all around the buildings clean at all times,[51] avoid sweeping out, or throwing of litters into drainages, public areas, private lands, vacant plots, streets, lanes, walkways, beaches and docks within 5 meters of the premises.[52] Traders operating in the market places and traders in the management of businesses or operations generating wastes,[53] are mandated to ensure that litter and recyclable materials are deposited in appropriate receptacles or wastes bins;[54] and are to maintain cleanliness and service such receptacle regularly.[55] Equally, persons in care of, management of or control of industrial facilities,[56] commercial, business premises or construction sites[57] and custodians of a venue or person organizes a public, private, recreational or religious event must make waste bins available at easy to locate places.[58] The law provides that the waste bins must be serviced, maintained and emptied regularly,[59] while premises, drains and all public or private lands, streets, lanes, walkways; beaches or docks within 5 metres of the boundary of the property must be kept free from litter at all times,[60]Every house where people reside must have waste bins for storage of their domestic wastes.[61] Equally every generator and manager of wastes must apply sustainable practices to minimize pollution. [62] Specifically, part 3 of the Regulations states that every category of people whose activities generate waste are to store same in waste receptacles pending collection of same by licensed waste managers that are licensed to manage the waste.[63] However, people whose activities generate waste are mandated to adopt the reduce, re-use and recycle formula of waste management to ensure that waste generation is reduced. This is to be achieved by imbibing cleaner production methods which reduces raw materials usage and energy,[64]

While the foregoing paragraphs of the National Environmental (Sanitation and Wastes Control) Regulations, 2009 can be said to be of general application to all kinds of solid wastes including plastic wastes, paragraph 24(b) which provides for segregation and sorting of wastes before disposal, [65] likewise paragraph 32 which provides that manufacturers and importers of food and beverage products have the additional responsibility of partnering with NESREA for the purpose of establishing 'consumer product stewardship program,'[66] which includes undertaken to buy back the containers for recycling.[67] The manufacturers and importers of the said products are to be financially, physically and by information responsible for the management of waste of their products.[68] The

[49]The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 3(3).
[50]The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 13(2).
[51] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 5(a).
[52]The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 5(b).
[53]The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 7.
[54] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 7(a).
[55]The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 7(b).
[56]The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 8.
[57] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 13(4).
[58]The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 8(c) and paragraph 13(4) and paragraph 13(5)(a). For persons in care of, management of or control of industrial facilities and people in care, management or control of commercial, business premises or construction site, the waste bins must be for recyclable materials.
[59]The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 8(d), paragraphs 13(4)(b) and paragraph 13(5)(c).
[60] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 8(e), 13(4)(b), 13(5)(d). The position of the Regulations for custodians of a venue or person organizes a public, private, recreational or religious event extents to include the fact that t the venue where an event takes place and all public or private lands, streets, lanes, passageways, beaches or docks within at least 15 meters of the boundary of the venue or property are free from all litter within 24 hours after the conclusion of the event.
[61] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 13(1).
[62] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 15.
[63] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 23.
[64] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 24(a).
[65] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 24(b).
[66] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 16(2).
[67] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 32(b).
[68] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 32(1).

Product Stewardship Programme (PSP) which the manufacturers and importers of products listed in schedule are mandated to submit:

a) (i) establish a process for the collection, handling, transportation and final treatment of post-consumer products, regardless of who the original brand owner of the products or the consumer is;[69]

(ii) employ various types of processes to reduce, reuse, recycle or recover post-consumer products, including but not limited to details of efforts to incorporate the priorities of a pollution prevention hierarchy by moving progressively from disposal to reduction, reuse, recycling and recovery of post-consumer products; [70]

(iii) establish the location of any long-term containment or final treatment and processing facilities for post-consumer products; [71]

(iv) monitor the types of educational information and programs provided;[72]

actually address the plastic waste menace, sorting and segregation ensures that plastic wastes did not lumped with other types of wastes at the point of disposal this is because plastic is bio degradable and does not decay even with time. Plastic wastes are better recycled rather than burnt or dumped in landfills while the consumer product stewardship program which saddles the manufacturers and importers of food and beverage products with duty to buy back the containers for recycling and ensure proper disposal/treatment of same if strictly observed will in no small measure ensure proper of plastic wastes. Of great importance also is paragraph 18(1) of National Environmental (Sanitation and Wastes Control) Regulations, 2009which specifically prohibits the manufacture, trade and commercial distribution of plastic bags, made of plastic film, with a wall thickness of less than 80 micrometers in Nigeria,[73] but which however permits the manufacture, trade and commercial distribution of bread bags, made of plastic film, with a wall thickness of between 25 and 80 micrometers, which where no law forbids same may have printings or marks of any kinds on it.[74]

4. Conclusion and Recommendations:

Plastic waste has been referred to as one of the fastest growing waste streams in the world. This paper reviews the May 2021 National Policy on Management of Plastic Wastes and the provision of the National Environmental (Sanitation and Wastes Control) Regulation S.I.28 of 2009 as it relates to management of plastic waste in Nigeria.

The researcher submits that:

1. NESREA should ensure ready availability and easy access to copies of waste management laws to members of the public Laws. The National Environmental (Sanitation and Wastes Control) Regulations, 2009 and copies of these are only available on the internet. Internet information can only be accessed by the privileged few in Nigeria. When there is easy access to the laws and the policies on plastic waste management, members of the public will be further enlightened on the roles they are expected to play to actualize the success of plastic waste management in Nigeria.
2. Given the rate at which plastic is being utilized in residences and the rate at which this class of plastic is being indiscriminately disposed by way of open burning, dumping etc. it is hereby being recommended that there should be specific legislation on municipal plastic waste management.
3. Government to ensure that wastes aresorted at source to ensure that plastic wastes which can be recycled are not lumped up with other wastes and dumped indiscriminately.
4. The laws on waste management made provisions mandating waste generators to embrace the reduce, re-use and recycle formula of waste management, as lofty as this idea is, the necessary authorities have failed, neglected and refused to enlighten members of public on reduce, re-use and recycle formula of waste management and as such members of public have continued to generate waste indiscriminately and to dump same indiscriminately. Most members of the public

[69]The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 32(a) (1).
[70]The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 32(a) (11).
[71]The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 32(a) (111).
[72] The National Environmental (Sanitation and Wastes Control) Regulations, 2009, paragraph 32(a) (iv).
[73]The National Environmental (Sanitation and Wastes Control) Regulations 2009, 18(1)(a).
[74]The National Environmental (Sanitation and Wastes Control) Regulations 2009, 18(1).

are still ignorant of the reduce, re-use and recycle formula of waste management. Government invests a lot of funds in regular advertisement on family planning on all the media of information dissemination, however little or no recognition is given to dissemination of this vital information on reduce, re-use and recycle formula of waste management. It is hereby recommended that there should be a programme on how every member of public will be enlightened on the reduce, re-use and recycle formula of waste management.

5. Provisions of laws on manufacturers buy back of containers for re cycling should also be strictly enforced, while the said provisions of the law should be made applicable to all products which are sold out in non decomposable containers and not to only few items like plastic materials, used tires, e-waste, newsprint and papers, batteries, metals, cans or tins, glass, refrigerators and asbestos waste recommended for manufacturers buy back by the Regulation. Government too can initiate buy back of wastes that are plastic, metal and of generally non decomposable nature.
6. Government should endeavour to set up environmental courts at visible locations to sensitize members of public that indiscriminate disposal of waste is an act in respect of which an offender can get charged to court.